

Vineyards at Deer Creek

Draft Environmental Impact Report

Volume I of II (Chapters 1 – 8 & Appendix A)

July 2019

SCH # 2019049008

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1 Introduction

1.1 Background and Purpose

This Environmental Impact Report (EIR) has been prepared in conformance with the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] Sections 21000, et seq.), the State CEQA Guidelines (Title 14, California Code of Regulations [CCR], Chapter 3, Sections 15000, et seq.) and the Brentwood Municipal Code (Title 18, CEQA Procedures) to evaluate the potential environmental impacts associated with the construction and implementation of the development of an approximately 815-acre site located adjacent to the western municipal boundary of the City of Brentwood, California (the Project site). The principal legislative actions approving key components of the Project are the subject of a proposed citizen-sponsored initiative that may be considered by Brentwood voters on a future ballot (the Initiative). The Initiative would:

- Modify the city's Urban Limit Line (ULL) to include the Vineyards at Deer Creek Specific Plan (VDCSP) area;
- Amend the city's General Plan (General Plan) to rename the VDCSP area as *SPA 2 / VDCSP*, modify the general plan by establishing new policies with respect to the development and use of the VDCSP area; and make certain other conforming amendments; and
- Adopt the Vineyards at Deer Creek Specific Plan (VDCSP), establishing, among other things, the uses to be permitted on the Project site and specific conditions to be applied to the development of the Project site;
- Amend the City of Brentwood Zoning Ordinance (Title 17 of the Municipal Code) to establish the *Vineyards at Deer Creek* (VDCSP) zoning district, pre-zone the VDCSP area to the VDCSP district, and make certain other conforming amendments to Municipal Code Ch. 17.820 (Design and Site Development Review).

As discussed in Chapter 3, Project Description, of this EIR, the VDCSP allows for development of up to 2,400 residential units across multiple neighborhoods within the VDCSP area, as well as approximately 20 acres of commercial uses, approximately 15 acres of community recreation uses, and at least 225 acres of open space. At least 80 percent of all residential units must be age-restricted to active adults. Occupancy of these residential units is restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law. No more than 20 percent of the 2,400-unit maximum may be non-age-restricted. The project evaluated in this EIR (the Project) is the construction and implementation of the VDCSP and other legislative actions included in the Initiative, including the construction of certain off-site improvements identified herein.

Intended Use of this EIR

The purpose of this EIR is to evaluate the physical environmental effects associated with implementation of the VDCSP in accordance with CEQA. As described in §15121(a) of the State CEQA Guidelines, this EIR is intended to serve as an informational document for public agency decision-makers. Accordingly, this EIR has been prepared to identify and disclose the significant environmental effects of the proposed project and identify measures to minimize potentially significant effects. The environmental impact analyses in this EIR are based on a variety of sources, including agency consultation, technical studies, and field surveys.

Although the Initiative itself is exempt from CEQA, the City of Brentwood and other public agencies (e.g., the Contra Costa County Local Agency Formation Commission) may take certain other discretionary actions related to implementation of the VDCSP, which would be subject to the requirements of CEQA. This EIR provides environmental information to the City of Brentwood, responsible agencies, trustee agencies, and other public agencies which may be required to grant approvals and permits or coordinate with the City of Brentwood as part of the Project's implementation.

Subsequent development application(s) submitted in connection with VDCSP would be examined in light of the EIR to determine whether additional CEQA documentation would be required pursuant to the requirements of Section 21166 of CEQA (i.e., PRC Section 2116) and Sections 15168 of the State CEQA Guidelines for subsequent approvals.

Type of Environmental Impact Report

This EIR is being prepared as a Program EIR in accordance with Section 15168 of the CEQA Guidelines, which states the following:

- a) General. A Program EIR is an EIR, which may be prepared on a series of actions that can be characterized as one large project and are related either:
 - 1) Geographically,
 - 2) As logical parts in the chain of contemplated actions,
 - 3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
 - 4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

- b) Advantages. Use of a Program EIR can provide the following advantages. The Program EIR can:
 - 1) Provide an occasion for a more exhaustive consideration of effects than would be practical in an EIR on an individual action,
 - 2) Ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis,

- 3) Avoid duplicative reconsideration of basic policy considerations,
 - 4) Allow the Lead Agency to consider broad policy alternatives and program-wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts, and
 - 5) Allow reduction in paperwork.
- c) Use with Later Activities. Later activities in the program must be examined in the light of the Program EIR to determine whether an additional environmental document must be prepared.
- 1) If a later activity would have effects that were not examined in the program EIR, a new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration. That later analysis may tier from the program EIR as provided in Section 15152.
 - 2) If the agency finds that pursuant to Section 15162, no subsequent EIR would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required. Whether a later activity is within the scope of a program EIR is a factual question that the lead agency determines based on substantial evidence in the record. Factors that an agency may consider in making that determination include, but are not limited to, consistency of the later activity with the type of allowable land use, overall planned density and building intensity, geographic area analyzed for environmental impacts, and covered infrastructure, as described in the program EIR.
 - 3) An agency shall incorporate feasible mitigation measures developed in the program EIR into later activities in the program.
 - 4) Where the later activities involve site-specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were within the scope of the program EIR.
 - 5) A program EIR will be most helpful in dealing with later activities if it provides a description of planned activities that would implement the program and deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed project description and analysis of the program, many later activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.

This Program EIR is intended to serve as the primary environmental document for future discretionary actions associated with implementation of the proposed project. This EIR provides environmental information to the City of Brentwood, responsible agencies, trustee agencies, and other public agencies which may be required to grant approvals and permits or coordinate with the City of Brentwood as part of the Project's implementation.

If voters approve the Initiative, the City of Brentwood, as Lead Agency, would be authorized to approve subsequent actions on the Project site without additional environmental

documentation, unless otherwise required by Section 21166 of the Public Resources Code and Section 15162 of the CEQA Guidelines. Section 21166 of the Public Resources Code states that:

When an environmental impact report has been prepared for a project pursuant to this division, no subsequent or supplemental environmental impact report shall be required by the lead agency or by any responsible agency, unless one or more of the following events occurs:

- (a) Substantial changes are proposed in the project which will require major revisions of the environmental impact report due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.
- (b) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions in the environmental impact report due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.
- (c) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous environmental impact report was certified as complete, shows any of the following:
 - (A) The project will have one or more significant effects not discussed in the previous EIR;
 - (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
 - (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
 - (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

In addition, pursuant to CEQA Guidelines Section 15164, the lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR, have occurred.

Standards of Adequacy Under CEQA

While Sections 15120 through 15132 of the State CEQA Guidelines generally describe the content of an EIR, CEQA does not contain specific, detailed, quantified standards for the content of environmental documents. Section 15151 of the State CEQA Guidelines states:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information that enables them to make a decision that intelligently takes

account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have not looked for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

Lead Agency

The City of Brentwood is the lead agency under CEQA for purposes of implementation of the Project's proposed General Plan amendments, VDCSP, and conforming amendments to the city's Municipal Code. CEQA requires lead agencies to consider potential environmental effects that may occur with implementation of a project and to avoid or substantially lessen significant effects on the environment when feasible. When a project may have a significant effect on the environment, the agency with primary responsibility for carrying out or approving the project (the lead agency) is required to prepare an EIR. As noted above, although the Initiative itself is exempt from CEQA, the City of Brentwood and other public agencies (e.g., the Contra Costa County Local Agency Formation Commission) may take certain other discretionary actions related to implementation of the Project, which would be subject to the requirements of CEQA. This EIR provides environmental information to the City of Brentwood, responsible agencies, trustee agencies, and other public agencies which may be required to grant approvals and permits, or coordinate with the City of Brentwood as part of the Project's implementation.

1.2 Evaluation of Project Site Under 2014 General Plan EIR

The city's General Plan, adopted on July 22, 2014, contains the goals and policies that guide the future decisions within the city, and identifies implementation programs (in the form of actions) that will ensure that the goals and policies are carried out. The General Plan buildout is evaluated in the 2014 General Plan Update Environmental Impact Report (SCH# 2014022058), which was certified by the City Council on July 22, 2014 (Resolution No. 2014-110) at which time it also adopted the 2014 Brentwood General Plan. The General Plan includes four key boundary lines which constitute the study area for the General Plan EIR analysis. These boundary lines include the areas within (i) city limits, (ii) the Sphere of Influence (SOI), (iii) the ULL and (iv) the Planning Area, see Figure 3-2 of the Project Description Chapter of this EIR.

As noted in the General Plan EIR, for the purposes of the General Plan, the Planning Area is defined as the area surrounding the city limits and SOI that is included in the analysis and planning for the 20-year horizon of the General Plan. The Project site is located within the General Plan's designated Planning Area as shown on Figure 3-2 of the Project Description Chapter of this EIR.

Project Site Designated as a Special Planning Area Under 2014 General Plan EIR

Two “Special Planning Areas” (SPAs) are designated within the General Plan, SPA 1 and SPA 2. The SPAs are identified by the General Plan as lands immediately adjacent to the city limits, which may be suitable for annexation in the future. The Project site is designated as “SPA 2” in the General Plan. Policy LU 1-9 of the General Plan supports and encourages annexation of SPA 2 into the city, stating that the city should “[s]upport and encourage the annexation” of SPA 2 into the City of Brentwood.

SPAs are designated by the General Plan for one or more reasons, as noted below:

- To facilitate comprehensive planning of large strategic areas utilizing progressive planning techniques to ensure high quality development and integrate development with the provision of infrastructure.
- They are located in strategic locations that will be impacted by land use decisions not totally within the control of the City of Brentwood.
- A mix of land uses in the area is desirable and the city desires to maintain the flexibility to adjust to changing market conditions.
- Effective land use controls are needed to preserve the integrity of existing adjacent development while enabling the property owners to adjust to changing market conditions.

The General Plan requires that a Specific Plan or Planned Development Zoning be utilized for development of SPA 2 (which would be renamed by the Initiative as SPA 2/VDCSP); adoption of the VDCSP through the Initiative would satisfy this requirement.

General Plan Assumptions

The General Plan EIR evaluates two “buildout” scenarios associated with implementation of the General Plan: (1) the maximum projected development that could occur within the existing city limits, assuming all parcels are developed at or near the higher end of their density and intensity ranges allowed under the General Plan and, (2) the maximum projected development that could occur within the existing city limits and the Planning area if every parcel in the city and the Planning Area developed at or near the higher end of the land use density and intensity range allowed under the General Plan. As identified in the 2014 General Plan EIR, the total combined buildout capacity within the city limits and the Planning Area could yield approximately 13,613 new housing units, 12,891,067 square feet of new non-residential uses, and new population growth of up to 39,058 persons.

SPA 2 (i.e., the Project site) is part of the city’s Planning Area, and as such, was evaluated under one of the buildout scenarios evaluated in the General Plan EIR. Although no specific development proposals were evaluated for SPA 2, the General Plan EIR assumed a development potential of 583 residential units and approximately 80,000 square feet of new non-residential building square footage for SPA 2 (see Table 2.0-2 of the General Plan EIR).

The 2014 General Plan EIR evaluated the following environmental impacts, including aesthetics and visual resources, agricultural and forest resources, air quality, biological and natural resources, cultural resources, geology, soils and minerals, greenhouse gas and climate change, hazards, hydrology and water quality, land use and population, noise, public services and recreation, transportation and circulation, and utilities at a program (General Plan) level. Where relevant and applicable, this EIR provides information regarding the 2014 General Plan EIR conclusions regarding anticipated impacts related to development of the Project site.

Proposed Project

The Project builds upon the policy framework and direction set forth for SPA 2 as described in the General Plan. The Initiative includes amendments to the General Plan to redesignate the VDCSP area as SPA 2/VDCSP. The VDCSP carries forward the General Plan policies applicable to SPA 2 by establishing a focused, detailed, comprehensive planning document for the Project site that addresses land use, development standards and design guidelines for private development, a conceptual circulation program, etc.

As described further in Chapter 3, Project Description, of this EIR, the proposed project would allow for development of the VDCSP, which would be used as a planning document by the City of Brentwood over time. The VDCSP allows for development of up to 2,400 residential units across multiple neighborhoods within the VDCSP area. Occupancy of at least 80 percent of these residential units would be restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law. No more than 20 percent of the 2,400-unit maximum would be non-age restricted. The proposed project would also include the development of approximately 20 acres envisioned for agricultural and farm-to-table related civic uses and functions; community recreation center and/or several smaller neighborhood recreation centers; and a minimum of 225 acres of open space, a portion of which would be permanent agricultural crops such as vineyards and olive groves.

The circulation system contemplated under the VDCSP for the Project site would provide a comprehensive roadway network, designed to provide a full range of techniques to promote all forms of mobility including vehicles, bicyclists, and pedestrians. Streets within the Project site would be designed for multiple modes of transportation, including walking, bicycling, or driving a local use vehicle or automobile. Connections are designed between and throughout the residential, commercial, and open space.

The Project also proposes development of certain offsite roadway improvements including the extension of American Avenue west and north to Balfour Road, the widening and/or improvement of certain portions of Balfour Road, and the suggested allocation of a portion of development fees generated by development within the VDCSP Area for safety improvements to Deer Valley Road.

Implementation of the proposed project would require the construction of infrastructure and provision of public services and utilities to serve the Project site. Infrastructure, services and

utilities would be designed to meet the standards of the City of Brentwood and other utility agencies with oversight authority.

The proposed project would be implemented over time and in a phased approach. Specific details regarding phasing would be determined by future developer(s) in response to market trends, availability of financing, and other factors. The proposed project would be constructed in up to five phases (Phase 4 and 5 could be concurrent), with each phase lasting approximately three years. Although the Project could be built out over a 20- to 25-year period, for analysis purposes it is assumed construction of the Project would occur in early 2021 and last approximately twelve years. As the exact timing and duration of construction phases are currently unknown and would depend on various market factors, a conservative construction phase scenario was utilized for certain technical analyses such as air quality, greenhouse gas emissions, and transportation. It should be noted that the timing of the Project construction phases are conservative and as such, the analysis herein accounts for minor modifications as project plans evolve from conceptual planning to final mapping. Except as described in Section 3.5 of the VDCSP, all or any portion of the existing infrastructure would be permitted to remain in place and continue in use while the development allowed under the VDCSP is constructed.

1.3 Scope of Environmental Analysis

This EIR assesses the potential environmental impacts that could occur with implementation of the proposed project. Potentially significant environmental impacts including issues raised in public comments received in response to the Notice of Preparation (NOP) and at the public scoping meeting are evaluated in this EIR. The scoping process has determined that the Project has the potential to result in significant environmental impacts on the following resources, which are addressed in detail in this EIR:

- Aesthetics and Visual Resources
- Agricultural and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy Conservation
- Geology, Soils, and Minerals
- Greenhouse Gas Emissions
- Hazards, Hazardous Materials, and Wildfire
- Hydrology and Water Quality
- Land Use and Population
- Noise and Vibration
- Public Services and Recreation
- Transportation and Circulation
- Tribal Cultural Resources
- Utilities and Service Systems

Report Organization and Additional Information

Pursuant to the State CEQA Guidelines, Section 15120(c), this EIR contains the information and analysis required by Sections 15122 through 15131. Each of the required elements is covered in one of the EIR chapters and appendices, organized as follows.

- **Introduction.** A discussion of the background, purpose, and need for the proposed project, briefly describing the Project, and outlining the public agency use of the EIR.
- **Executive Summary.** A summary description of the proposed project, the alternatives, their respective environmental impacts, and the Environmentally Superior Alternative.
- **Project Description.** Detailed description of the proposed project.
- **Environmental Analysis.** A comprehensive analysis and assessment of impacts and mitigation measures for the proposed project. This chapter is divided into separate sections for each environmental resource and contains the environmental settings and impacts of the proposed project. A description of the approach to cumulative impacts analysis is presented in Chapter 6, and cumulative impacts are analyzed at the end of each environmental resource.
- **Alternatives to the Project.** This chapter provides a description of the alternatives evaluation process, as well as a description of alternatives considered but eliminated from further analysis and the rationale thereof. This chapter also includes an analysis and assessment of impacts for alternatives retained, including the No Project Alternative and the Environmentally Superior Alternative.
- **Other CEQA-Required Topics.** A discussion of growth-inducing effects, long-term implications of the proposed project, and significant environmental effects which cannot be avoided if the Project is implemented.
- **EIR Preparers and Acronyms.** Identifies the Lead Agency, organizations, and individuals consulted during preparation of this EIR.
- **Organizations, Persons Consulted and Other References.** Identifies organizations and persons consulted as well as other references.
- **Appendices.** The appendices include the NOP for the Draft EIR, comments received in response to the NOP and the city's scoping activities, and background technical studies prepared for the Project. Appendices to this Draft EIR are as follows:
 - Appendix A: Notice of Preparation and Comment Letters
 - Appendix B: Air Quality and GHG Data
 - Appendix C: Tree Survey Report; and Tables for Biological Resources
 - Appendix D: Preliminary Geotechnical Summary
 - Appendix E: Phase I Environmental Site Assessment
 - Appendix F: Noise Data
 - Appendix G: Transportation Impact Assessment
 - Appendix H: Preliminary Stormwater Control Plan
 - Appendix I: Water Distribution System Analysis; Sewer Collection System Analysis; and Water Supply Assessment

Incorporation by Reference

The VDCSP document is a pertinent document related to the subject of this EIR. It has been cited and incorporated by reference in accordance with Section 15150 of the CEQA Guidelines as a means of reducing the redundancy and length of this EIR. The Initiative is available for public review at the City of Brentwood Community Development Department, 150 City Park Way, Brentwood, CA 94513 and on the city's website at:

<https://brentwoodca.gov/civicax/filebank/blobdload.aspx?BlobID=53575>

The Project Description chapter of the EIR provides an overview of the Initiative, including land use designations identified within the VDCSP, and related project design and infrastructure features.

Notice of Preparation and Scoping

In accordance with Sections 15063 and 15082 of the CEQA Guidelines, the City of Brentwood prepared a NOP for this EIR, which was published on April 2, 2019 and circulated for a 30-day period. The NOP was circulated to the public and responsible agencies to inform members of the public and public agencies about the proposed project, to notify them of the city's intent to prepare an EIR for the Project, and to solicit input regarding the analysis in this EIR. The NOP provided a general description of the proposed project and identified possible environmental impacts that could result from implementation of the Project.

The NOP review period commenced on April 2, 2019, and concluded on May 1, 2019 and the City of Brentwood held a public scoping meeting on April 25, 2019, to discuss the Project and solicit public input as to the scope and contents of this EIR. Attendees were informed about the CEQA planning and scoping processes, Project goals and objectives, and the overall Project characteristics. Attendees were also encouraged to submit comments on the Project using written comment cards supplied at the meeting to the city's Planning Manager. A total of 35 commenters spoke at the scoping meeting. The city's Planning Department received 40 comment letters from interested parties during the public review and comment period. The Planning Division has considered the comments made by the public in preparation of the Draft EIR for the proposed project. Comments on the NOP raised the following issues:

<p><u>Aesthetics and Visual Resources</u> (<i>c.f. Section 4.1</i>)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Degradation of views of Mount Diablo. ▪ Changes to views of the Project site from East Bay Regional Parks District-owned lands across Deer Valley Road to the west of the Project site.
<p><u>Agricultural and Forest Resources</u> (<i>c.f. Section 4.2</i>)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Potential conflicts with the Local Agency Formation Committee (LAFCo) Agricultural and Open Space Preservation Policy. ▪ Conversion of agricultural land to non-agricultural uses.
<p><u>Air Quality</u> (<i>c.f. Section 4.3</i>)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Emission of hazardous pollutants associated with increased vehicle traffic. ▪ Health risks due to toxic air contaminants (TACs) and fine particulate matter (PM_{2.5}) associated with Project construction and operation.

	<ul style="list-style-type: none"> ▪ Excess dirt and dust due to grading of hillside areas. ▪ Air quality impacts due to increased Vehicle Miles Travelled (VMT).
<p><u>Biological Resources</u> (c.f. Section 4.4)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Impacts to pollinators (bees) that support local agricultural production. ▪ Potential impacts to migratory birds.
<p><u>Cultural Resources</u> (c.f. Section 4.5)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Assembly Bill (AB) 52 tribal consultation requirements. ▪ Potential disturbance of tribal cultural resources.
<p><u>Greenhouse Gas Emissions</u> (c.f. Section 4.8)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Increased Greenhouse Gas (GHG) emissions due to out-of-town commuting. ▪ Lack of public transit within project area.
<p><u>Hazards, Hazardous Materials, and Wildfire</u> (c.f. Section 4.9)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Ownership of existing on-site gas pipelines. ▪ Potential presence of agricultural chemicals and other contaminants in the Project area. ▪ Adverse human health effects related to mosquitos. ▪ Safety risks associated with existing on-site pipelines and oil wells.
<p><u>Hydrology and Water Quality</u> (c.f. Section 4.10)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Degradation of groundwater quality within the Tracy Subbasin, potentially impacting water wells. ▪ Reduced groundwater recharge.
<p><u>Land Use and Population</u> (c.f. Section 4.11)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Amendment of the City of Brentwood ULL. ▪ Unplanned population growth. ▪ Changes to regional jobs/housing balance as result of development of new homes. ▪ Conflicts with the city’s General Plan.
<p><u>Public Services and Recreation</u> (c.f. Section 4.13)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Increased demands on fire protection services within the East Contra Costa County Fire Protection District, resulting in unnecessary burden on the District’s current facilities. ▪ Potential impacts to response times for fire protection and emergency medical services, including temporarily reduced response times to Project improvements along local roadways. ▪ Concerns related to potential increases in crime as a result of the Project. ▪ Maintenance of on-site open space areas. ▪ Overcrowding at local schools. ▪ Increased burden on East Bay Regional Parks District facilities. ▪ Buffers between the proposed development and the nearby former Roddy Ranch Golf Course, which is planned for use as a regional park/preserve.
<p><u>Transportation and Circulation</u> (c.f. Section 4.14)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Increased traffic volumes on local roadways, including Balfour Road and Deer Valley Road, resulting in congestion. ▪ Cumulative traffic generated by local schools and residential neighborhoods. ▪ Increased traffic and associated safety risks on State Route 4 in the project area. ▪ Secondary traffic impacts associated with Project intersection and roadway improvements. ▪ Lack of project access off of Deer Valley Road.

	<ul style="list-style-type: none"> ▪ Unnecessary extension of American Avenue. ▪ Increased travel times to Kaiser hospital as a result of Project traffic.
<p>Utilities and Service Systems (c.f. Section 4.16)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Increased demands on water and sewer conveyance infrastructure. ▪ Environmental impacts associated with construction of new utility infrastructure. ▪ Potential impacts related to water availability. ▪ Increased water use associated with landscape irrigation.
<p>Alternatives to the Project (c.f. Chapter 5)</p>	<p>Concerns related to:</p> <ul style="list-style-type: none"> ▪ Consideration of an alternative that increases the amount of open space within the western portion of the Project site. ▪ Consideration of an alternative that does not include amendment of the city’s ULL. ▪ Preservation of open space areas as grassland, rather than vineyards.

This EIR addresses the environmental issues that were raised by the public and responsible agencies in response to the NOP. The NOP and copies of the comment letters received are provided in Appendix A of this EIR.

1.4 Availability of the Draft EIR

This Draft EIR will be available for review by the public and interested parties, agencies, and organizations for a review period of 45 days, as required by California law. During this period, public agencies and members of the public may provide written comments on the analysis and content of the Draft EIR. Comments should be submitted in writing during this review period to:

Community Development Department, City of Brentwood
 150 City Park Way
 Brentwood, CA 94513
 Contact: Erik Nolthenius, Planning Manager
 Phone: (925) 516-5137
 Fax: (925) 516-5407
enolthenius@brentwoodca.gov

Pursuant to State law (Public Resources Code Section 21091(d)(3)), the city will accept email comments in lieu of mailed or hand-delivered comments; however, reviewers are encouraged to follow up any email comments with letters. In reviewing a Draft EIR, readers should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and on ways in which the significant effects of the Project might be avoided or mitigated.

The Draft EIR and the full administrative record for the Project, including all studies, is available for review during normal business hours Monday through Friday, 8:00 AM to 5:00 PM, at the City of Brentwood Community Development Department, located at 150 City Park Way.

Additionally, copies of the Draft EIR and technical appendices are available at the following locations and on the city's website.

City of Brentwood

Community Development
Department
150 City Park Way
Brentwood, CA 94513
Phone: (925) 516-5405

Brentwood Library

Reference Desk
104 Oak Street
Brentwood, CA 94513

The Draft EIR and technical appendices can also be accessed at the city's website: <https://www.brentwoodca.gov/gov/cd/planning/ceqa.asp>. All persons who commented on the Draft EIR will also be notified of the availability of the Final EIR and the date of public hearings before the city.

1.5 Final EIR Process

Following the close of the Draft EIR public review and comment period, a Final EIR will be prepared to respond to all substantive comments submitted related to any significant environmental issues surrounding the content of the Draft EIR, per PRC Section 21091 and State CEQA Guidelines Section 15088(a). The Final EIR will be available prior to the certification hearing before the decision-makers, in accordance with State law.

2 Executive Summary

2.1 Introduction

This Executive Summary chapter is intended to highlight major areas of importance in the environmental analysis as required by Section 15123 of the CEQA Guidelines. The Executive Summary chapter provides an overview of the proposed project and summarizes the conclusions of the environmental analysis provided in sections 4.1 through 4.16. Table 2-1, found at the end of this chapter, provides a summary of the environmental impacts of the Project, which are identified in each technical chapter of this EIR. Table 2-1 contains the potential environmental impacts associated with the Project, the significance of the impacts, the proposed mitigation measures for the impacts, and the significance of the impacts after implementation of the mitigation measures. This chapter also reviews the alternatives to the Project that are described in Chapter 5, Alternatives to the Project, and identifies the Environmentally Superior Alternative. This chapter also includes a summary of environmental issues to be resolved and areas of known controversy.

2.2 Purpose

This EIR has been prepared to identify and disclose the significant environmental effects associated with the construction and implementation of the Project and identify measures to minimize potentially significant effects. As discussed in Chapter 1, Introduction, the VDCSP evaluated in this EIR is a part of a citizen-sponsored Initiative. The Project evaluated in this EIR is the construction and implementation of the VDCSP and other legislative actions that may be considered by Brentwood voters on a future ballot (Initiative), including the construction of certain off-site improvements identified therein. A detailed description of the Project, including project objectives and components, is provided in Chapter 3, Project Description.

Although the Initiative itself is exempt from CEQA, the City of Brentwood and other public agencies (e.g., Contra Costa Local Agency Formation Commission (LAFCo)) may take certain other discretionary actions related to implementation of the VDCSP, which discretionary actions would be subject to the requirements of CEQA. This EIR provides environmental information to the City of Brentwood, responsible agencies, trustee agencies, and other public agencies which may be required to grant approvals and permits or coordinate with the City of Brentwood as part of the Project's implementation.

Subsequent development applications submitted in connection with the VDCSP would be examined in light of the EIR to determine whether additional CEQA documentation would be required pursuant to the requirements of Section 21166 of CEQA (i.e., PRC Section 2116) and Sections 15168 of the CEQA Guidelines for subsequent approvals.

2.3 Project Overview

The VDCSP would establish goals and policies for the development of an approximately 815-acre site (Project site) located adjacent to the western municipal boundary of the City of Brentwood, California. The VDCSP is a part of a citizen-sponsored Initiative that may be considered by Brentwood voters on a future ballot (Initiative). If approved by the voters, the proposed Initiative would:

- Modify the city's ULL to include the VDCSP area;
- Amend the city's General Plan to redesignate the VDCSP area as *SPA 2 / VDCSP*, modify the General Plan by establishing new policies with respect to the development and use of the VDCSP area; and make certain other conforming amendments; and
- Adopt the VDCSP;
- Amend the City of Brentwood Zoning Code (Title 17 of the Municipal Code) to establish the *Vineyards at Deer Creek* (VDCSP) zoning district, pre-zone the VDCSP area to the VDCSP district, and make certain other conforming amendments to Municipal Code Ch. 17.820 (Design and Site Development Review).

The VDCSP allows for development of up to 2,400 residential units across multiple neighborhoods within the VDCSP area, as well as approximately 20 acres of commercial uses, 15 acres of community recreation uses, and at least 225 acres of open space. At least 80 percent of all residential units must be age-restricted to active adults. Occupancy of these residential units is restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law. No more than 20 percent of the 2,400-unit maximum may be non-age-restricted.

The Project also includes development of certain offsite roadway improvements, including the extension of American Avenue west and north to Balfour Road, the widening and/or improvement of certain portions of Balfour Road, and encourages the allocation of a portion of development fees generated by development within the VDCSP area for safety improvements to Deer Valley Road.

2.4 Areas of Controversy and Issues to be Resolved

This Draft EIR addresses environmental impacts associated with the Project that are known to the city, raised during the NOP scoping process, or were raised during preparation of the Draft EIR. During the NOP process, a total of 40 comment letters were received from interested parties. The comments are summarized in Chapter 1, Introduction, and are also provided in Appendix A to this EIR. Based on the comments received, the following areas of controversy were identified and are addressed in this EIR:

- Degradation of views of Mt. Diablo as a result of the Project;

- Potential conflicts with the Contra Costa LAFCo Agricultural and Open Space Preservation Policy;
- Air quality impacts due to increased Vehicle Miles Traveled (VMT);
- Increased congestion on State Route (SR) 4;
- Impacts to pollinators (bees) that support local agricultural production;
- Safety risks associated with existing on-site pipelines and oil wells;
- Potential unplanned population growth;
- Potential increases response times for fire protection and emergency medical services as a result of Project construction activities on local roadways, as well as increased congestion on local roadways as a result of Project traffic; and
- Increased demands on water and sewer conveyance infrastructure.

2.5 Summary of Impacts and Mitigation Measures

Table 2-1 provides a summary of the potentially significant impacts identified in the EIR for the Project, proposed mitigation measures, and the level of significance after implementation of mitigation measures for each impact.

For purposes of this discussion: NI = No Impact, LTS = Less Than Significant, SU= Significant and Unavoidable, S = Significant, and NA = Not Applicable.

For purposes of the following mitigation measures, the term “subdivision map” shall not include maps creating lots that will be further subdivided for sale to future homeowners.

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
Aesthetics			
Impact AES-1: Would the project have a substantial adverse effect on a scenic vista?	S	<i>MM AES-1 The Project proponent shall comply with Design Guidelines for Senior Care Facilities to be set forth in the Development Agreement for the Project or other instrument. Such Design Guidelines for Senior Care Facilities shall include, but shall not be limited to, standards for height, setbacks, and lot coverage that reduce the visibility of development on hillsides and ridgelines consistent with General Plan policies COS 7-2 and COS 7-4. The Design Guidelines and related standards shall ensure that the height of any Senior Care Facility does not extend above the existing peak elevation of the applicable hillside or ridgeline, thereby minimizing grading activity and interruption of the skyline.</i>	LTS
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?	NI	None required.	N/A
Impact AES-3: Would the project substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from publicly accessible	S	<i>MM AES-2 The Project shall be required to comply with all applicable development standards and design guidelines in order to ensure that development is compatible in style, size, color, and footprint as the VDCSP Area is built out.</i>	SU

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
vantage point).			
<p>Impact AES-4: Would the project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?</p>	S	<p><i>MM AES-3</i></p> <p><i>Exterior Lighting Control Plan: To minimize the potential adverse impact associated with light and glare, the project applicant for any future housing facility or commercial use shall submit an exterior lighting control plan, which must be reviewed and approved by the Planning Commission in conjunction with a formal design review application on the Project site.</i></p> <p><i>The Project proponent shall design and install all permanent exterior lighting and all temporary construction lighting such that: (a) lamps and reflectors are not directly visible from beyond the Project site, as is feasible; (b) lighting does not cause excessive reflected glare; (c) direct lighting does not illuminate the nighttime sky; (d) illumination of the project and its immediate vicinity is minimized; and (e) the lighting mitigation plan complies with all relevant local policies and ordinances.</i></p> <p><i>The exterior lighting control plan shall include the following:</i></p> <ul style="list-style-type: none"> ▪ <i>A photometric study that demonstrates spillover horizontal foot-candle (fc) levels do not exceed 1.0 fc at the Project site boundary;</i> ▪ <i>Identification of the location and direction of light fixtures that take the lighting control requirements into account;</i> ▪ <i>Lighting design that considers setbacks of project features from the site boundary to aid in satisfying the lighting control requirements;</i> ▪ <i>Lighting design that incorporates fixture hoods/shielding, with light directed downward or toward the area to be illuminated;</i> ▪ <i>Light fixtures that are visible from beyond the project boundary shall have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security;</i> ▪ <i>All lighting shall be of minimum necessary brightness consistent with</i> 	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>operational safety and security; and</i></p> <ul style="list-style-type: none"> ▪ <i>Lights in high illumination areas not occupied on a continuous basis shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.</i> 	
Impact AES-5: Would the off-site infrastructure improvements result in any impacts to aesthetic or visual resources?	LTS	None required.	N/A
Impact AES-6: Would the project create long-term changes in the visual character of the region associated with cumulative development of the proposed project in combination with future buildout in the City of Brentwood?	S	<p><i>MM AES-4 Implement MM AES-1, MM AES-2, and MM AES-3.</i></p>	SU

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
Agricultural and Forestry Resources			
Impact AG-1: Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	LTS	None required.	N/A
Impact AG-2: Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?	LTS	None required.	N/A
Impact AG-3: Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-	S	<p><i>MM AG-1 The Project proponent shall comply with any and all Local Agency Formation Commission (LAFCo) conditions of approval to the annexation of the Project Site into the municipal boundaries of the City of Brentwood.</i></p> <p><i>MM AG-2 The Project shall use appropriate buffers between agricultural and non-agricultural uses to respect agricultural operations and mitigate impacts associated with noise, odors, and use of chemicals upon nearby agriculture to the satisfaction of the Community Development Director. These buffers may include, but are not limited to, greenbelts, drainage features, parks, or other improved and maintained</i></p>	SU

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
agricultural use?		<p><i>features.</i></p> <p>MM AG-3 <i>As future development projects within the Project site are approved by the city, the Project applicant(s) must preserve agricultural lands by one of the following mechanisms, consistent with Chapter 17.730 of the Brentwood Municipal Code (Ord. 877 § 2, 2010):</i></p> <ol style="list-style-type: none"> <i>1. Granting an agricultural conservation easement to or for the benefit of the city and/or a qualified land trust approved by the city on agricultural land deemed acceptable by the city. The easement shall encumber the exact acreage of the proposed entitlement, including any land used for park and recreation purposes and may encumber land acquired by the city and/or qualified land trust in fee; or</i> <i>2. Payment of an in-lieu fee established by City Council resolution. The fee may be adjusted annually but may not be increased by more than ten percent during any twelve-month period. Collection of fees shall be required prior to grading permit issuance.</i> 	
Impact AG-4: Would the off-site infrastructure improvements result in any impacts related to conversion of Farmland or other agricultural land to non-agricultural use?	S	MM AG-4 <i>Implement MM AG-1 through MM AG-3.</i>	SU
Impact AG-5: Would the Project result in cumulative impacts related to conversion of Farmland or other agricultural land to non-agricultural use?	S	MM AG-5 <i>Implement MM AG-1 through MM AG-3.</i>	SU

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
Air Quality			
<p>Impact AQ-1: Would the project result in a considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard or conflict with or obstruct implementation of the applicable air quality plan?</p>	S	<p><i>MM AQ-1 BAAQMD Additional Construction Mitigation Measures. Prior to any grading activities, 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 Community Development Department. The applicable BAAQMD Additional Construction Mitigation Measures are:</i></p> <ul style="list-style-type: none"> ▪ <i>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.</i> ▪ <i>Idling time of diesel powered construction equipment shall be limited to two minutes.</i> ▪ <i>The Project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction Project (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.</i> ▪ <i>Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings).</i> ▪ <i>Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_x and PM.</i> 	SU

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<i>MM AQ-2 Implement MM GHG-1 through MM GHG-7.</i>	
Impact AQ-2: Would the project expose sensitive receptors to substantial pollutant concentrations?	LTS	None required.	N/A
Impact AQ-3: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	LTS	None required.	N/A
Impact AQ-4: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	S	<i>MM AQ-3 Implement MM AQ-1 and MM AQ-2.</i>	SU

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
Biological Resources			
<p>Impact BIO-1: Would the project 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?</p>	S	<p><i>MM BIO-1</i> Special-Status Plants. Updated special-status plant surveys shall be conducted the year prior to each phase of development of the Project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published survey guidelines. If special-status plants are found, the Project proponent shall conserve mitigation land that has been determined to be acceptable compensation for impacts to special-status plants by the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. The acreage of the mitigation land shall be as determined in consultation with these resource agencies, but shall be no less than a 1:1 impact to mitigation ratio.</p> <p><i>In lieu of conserving mitigation land or in combination with conserving mitigation land, the Project proponent may pay a fee to use the ECCCHC’s administered HCP/NCCP, which covers all of the sensitive plant species that may occur on the Property. The Project proponent has acquired approximately 1,360 acres of high resource value mitigation land in Eastern Contra Costa County (called the Sections 5 and 9 Mitigation Property), which provides suitable habitat for special-status plants. This Mitigation Property may be used to meet special-status species mitigation requirements, including HCP fee requirements, in part or whole. If this land is used to mitigate project impacts to special-status species, either by itself, in combination with other mitigation land, or in combination with use of the HCP/NCCP, as described below, a conservation easement covering the mitigation land shall be deeded to the ECCCHC, or other CDFW- and USFWS-approved conservation organization. If mitigation land is used in combination with use of the HCP/NCCP, standard fees for use of the HCP/NCCP may be modified to account for the permanently preserved lands. That is, the Project proponent would receive a negotiated credit against HCP fees.</i></p> <p><i>If the Mitigation Property or any mitigation land is used to compensate for impacts to special-status plant species, a perpetual conservation easement shall be recorded over the mitigation land within eighteen months of breaking ground on the Project</i></p>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p>site. The Grantee (conservator) of the conservation easement will be a USFWS and CDFW-approved, conservation organization. The Project proponent will establish an operational, non-wasting endowment fund that will be provided to the Grantee (conservator) of the Conservation Easement or other approved entity to provide for the long-term management, maintenance, and monitoring of the Mitigation Property. The selected Grantee, approved by the USFWS and CDFW, shall agree that the management endowment is sufficient for their organization to implement identified services set forth in a Long-Term Resource Management Plan that is developed for the Mitigation Property.</p> <p>MM BIO-2 California Red-legged Frog. To ensure that implementation of Project site grading, installation of outfall structures in any drainage onsite, and any impacts associated with off-site roadway improvements to Balfour Road associated with the Project, will not injure, kill, or harass an individual California red-legged frog, the following mitigation measures shall be implemented:</p> <ol style="list-style-type: none"> 1) A USFWS-approved biologist will identify potential red-legged frog breeding habitat. If potential breeding habitat is identified, Project proponents will avoid and minimize impacts to the maximum extent practicable. If the project is unable to fully avoid impacts on suitable breeding habitat, the project proponent will notify USFWS of the presence and condition of potential breeding habitat. Written notification will be provided to USFWS at least 30 days prior to project commencement for each phase of development regarding timing of grading and likelihood of breeding habitat occurrence on site. 2) An education program shall be conducted by a qualified biologist to explain the endangered species concerns to contractors/operators working at the Project site. This education/training program will include a description of the frog and its habitat, a review of the Endangered Species Act and the Federal listing of the frog, the general protection measures to be implemented to protect the frog and minimize take, and a delineation of 	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>the limits of the work area.</i></p> <p>3) <i>A qualified 10(a)(1)(A) California red-legged frog biologist shall conduct preconstruction surveys of the creek/drainage work areas prior to dewatering and other work activities for each phase of development. If any California red-legged frogs are identified in the work area, the USFWS will be notified and if permitted, the California red-legged frogs will be relocated outside of the work area.</i></p> <p>4) <i>The work areas adjacent to Deer Creek and other drainage features onsite shall be isolated with suitable wildlife exclusion fencing (see below) that would block the movement of California red-legged frogs from entering the work areas. The wildlife exclusion fence will also prevent wildlife migrating along Deer Creek and other drainage features onsite from entering the Project site. This fence will be installed prior to the time any site grading or other construction-related activities are implemented. The fence will remain in place during site grading or other construction-related activities and will prevent frogs and wildlife from entering.</i></p> <p><i>While normally California red-legged frog exclusion fencing often consists of silt fencing, owing to the duration of the proposed project, a more weather resilient fence is required. The wildlife exclusion fence should consist of a 4-foot wall of ¼-inch mesh, galvanized wire (i.e., welded wire hardware cloth- no woven wire will be allowed) or other commercially available exclusion fencing (e.g. ERTEC Fence). Initially, staking would be installed along the route of the wildlife exclusion fencing in a 4-inch deep trench. Then, the bottom of the fence would be firmly seated in the trench. The fencing above the ground would be anchored to metal staking with wire. Finally, the top 10-inches or less would be bent over in a semi-circle towards the outside of the fence to ensure that the fence cannot be climbed. This fence could be expected to last the duration of the proposed</i></p>	

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>project.</i></p> <p>5) <i>A qualified biologist shall be onsite when grading activities occur to conduct daily inspections of the fencing and to otherwise ensure that stranded animals are salvaged and relocated back to the stream channel or away from active work areas. The biological monitor will be responsible for ensuring that the wildlife exclusion fencing is not compromised and shall notify the onsite contractor representative when fencing needs to be repaired.</i></p> <p>6) <i>All construction work in any tributary associated with the outfall structures will be scheduled for the dry season (May 15 through October 15) and when there are reduced or no flows. While it is preferred that no work will occur when water is flowing within the work area, any necessary in-drainage work when there are flows will be isolated from flows via the installation of temporary coffer dams that have flow-through bypass pipes. Flows will be diverted around isolated work areas either by gravity flow or, if necessary, by pumping water around the work area. No silty water would be allowed to reenter the tributary below any in-drainage work area. Methods and materials will be adapted in the field to match the size, shape, and anticipated flow volume of the drainage, and will be pre-approved by the biological monitor. All diversions will conform to the following provisions:</i></p> <ul style="list-style-type: none"> ▪ <i>Drainage diversion will be practiced only where deemed unavoidable by the biological monitor onsite.</i> ▪ <i>Diversion shall be limited to the minimum time period necessary to complete the work and restore the channel.</i> ▪ <i>Construction equipment will work from above the top-of-bank.</i> 	

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>There will be no vehicle passage, vehicle parking, or materials storage below the top of bank.</i></p> <ul style="list-style-type: none"> ▪ <i>All in-drainage and diversion work plans will reflect and incorporate standard erosion control measures and BMP's as prescribed in the project's SWPPP.</i> ▪ <i>In certain cases where water seeps into the dewatered area, sump pits may be excavated in the work area and seepage water would then be pumped back upstream behind the coffer dam. All discharged water will be silt free. If silt is a problem, water will be pumped through a silt sock into baker tank(s) prior to discharge back into the channel.</i> ▪ <i>All downstream flows will be maintained throughout the period that coffer dams are installed.</i> ▪ <i>The entire work area below the top of bank, including the coffer dam location, will be restored to the approximate pre-construction contours and will be stabilized as necessary to withstand the expected high water flows. All dam materials will be completely removed from the channel when work is complete and will not be disposed of in or near the channel.</i> ▪ <i>The project biological monitor will be present during all in-drainage work. Dewatered work areas shall not result in stranded aquatic wildlife.</i> ▪ <i>All trash that might attract predators to the Project site will be properly contained and removed from the site and disposed of regularly. All construction debris and trash will be removed from</i> 	

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		<p><i>the site when construction activities are complete.</i></p> <ul style="list-style-type: none"> ▪ <i>All fueling and maintenance of equipment and vehicles, and staging areas will be at least 20 meters from Deer Creek and other drainage features onsite. The construction personnel will ensure that contamination of California red-legged frog habitat does not occur and will have a plan to promptly address any accidental spills.</i> <p><i>To mitigate for impacts to California red-legged frog habitat, the Project proponent shall conserve the Mitigation Property or any other mitigation land that has been determined to be acceptable compensation for impacts to California red-legged frog habitat by the USFWS. In lieu of conserving mitigation land or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC’s administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts California red-legged frog habitat.</i></p> <p><i>As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides suitable habitat for the California red-legged frog to satisfy in part or whole to meet California red-legged frog mitigation requirements of the project. The geographic location of the Sections 5 and 9 Mitigation Property is immediately adjacent to EBRPD Morgan Territory Regional Park, which makes it a valuable preservation property that will add permanently preserved acreage to existing regionally significant preserved lands. An alternative mitigation property approved by the USFWS that possesses comparable biological resources for the California red legged frog may also be used for mitigation in lieu of Sections 5 and 9 Mitigation Property in eastern Contra Costa County.</i></p> <p><i>MM BIO-3 California Tiger Salamander. A USFWS/CDFW-approved biologist will identify potential breeding habitat for California tiger salamander. If potential breeding habitat is identified, the project proponent will avoid and minimize impacts to the maximum extent practicable. If project is unable to fully avoid impacts on suitable</i></p>	

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		<p><i>breeding habitat, the project proponent will notify USFWS and CDFW of the presence and condition of potential breeding habitat. Written notification will be provided to USFWS and CDFW at least 30 days prior to project commencement for each phase of development regarding the timing of construction and likelihood of occurrence on site. Per the HCP/NCCP, no preconstruction surveys are required.</i></p> <p><i>To mitigate for impacts to California tiger salamander, the Project proponent shall conserve mitigation land that has been determined to be acceptable compensation for impacts to California tiger salamander by the CDFW and the USFWS. The acreage of the mitigation land shall be as determined in consultation with these resource agencies but shall be no less than a 1:1 impact to mitigation ratio.</i></p> <p><i>As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides known breeding and over-summering habitat for the California tiger salamander to satisfy in part or whole California tiger salamander mitigation requirements of the project. In lieu of conserving mitigation land, or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC’s administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts to California tiger salamander habitat.</i></p>	
		<p><i>MM BIO-4 Vernal Pool Fairy Shrimp. To mitigate for potentially significant impacts to vernal pool fairy shrimp, the Project proponent shall pay a fee to use the HCP/NCCP. The HCP/NCCP fee would be in an amount sufficient to provide incidental take coverage for impacts to approximately 0.61-acre of potential vernal pool fairy shrimp habitat. This species is addressed in the USFWS’s “Programmatic Biological Opinion for a Regional General Permit for the East Contra Costa Habitat Conservation Plan/Natural Community Conservation Plan, Contra Costa County, California” (USFWS #81420-2011-F-0655, dated April 30, 2012).</i></p>	
		<p><i>MM BIO-5 Western Burrowing Owl. A preconstruction survey for burrowing owls shall be conducted for each phase of development. The CDFG’s 2012 Staff Report states that take avoidance (preconstruction) surveys should be conducted 14 days prior to</i></p>	

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>ground disturbance. As burrowing owls may recolonize a site after only a few days, time lapses of greater than 14 days between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance to ensure absence of the species.</i></p> <p><i>Burrowing owl surveys should be conducted by walking the entire Project site and (where possible, and within the Project Proponent’s control) in areas within 150 meters (approx. 500 feet) of the proposed Project impact zone. The 150-meter buffer zone is surveyed to identify burrows and owls outside of the proposed project area, which may be impacted by factors such as noise and vibration (heavy equipment) during project construction.</i></p> <p><i>Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be 7 meters to 20 meters and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. Poor weather may affect the surveyor’s ability to detect burrowing owls; thus, the biologist should avoid conducting surveys when wind speed is greater than 20 kilometers per hour and there is precipitation or dense fog. To avoid impacts to owls from surveyors, owls and/or occupied burrows should be avoided by a minimum of 50 meters (approx. 160 ft.) wherever practical to avoid flushing occupied burrows. Disturbance to occupied burrows should be avoided during all seasons.</i></p> <p><i>If burrowing owls are detected on the site, the following restricted activity dates and setback distances are recommended per the CDFG’s Staff Report (2012).</i></p> <ul style="list-style-type: none"> ▪ <i>From April 1 through October 15, low disturbance and medium disturbance activities should have a 200-meter buffer, while high disturbance activities should have a 500-meter buffer from occupied nests.</i> ▪ <i>From October 16 through March 31, low disturbance activities should have a 50-meter buffer, medium disturbance activities should have a 100-meter</i> 	

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		<p><i>buffer, and high disturbance activities should have a 500-meter buffer from occupied nests.</i></p> <ul style="list-style-type: none"> ▪ <i>No earth-moving activities or other disturbance should occur within the aforementioned buffer zones of occupied burrows. These buffer zones should be fenced as well. If burrowing owls were found in the proposed project area, a qualified biologist would also need to delineate the extent of burrowing owl habitat on the site.</i> ▪ <i>If western burrowing owls are found occupying the Project site, they may be passively relocated from the Project site between October 1 and February 1. Passive removal shall be conducted by a qualified biologist with demonstrated experience with passive relocation.</i> <p><i>To mitigate for impacts to western burrowing owl habitat, the proponent shall conserve mitigation land that has been determined to be acceptable compensation for impacts to western burrowing owl habitat by the CDFW. As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides suitable habitat for the western burrowing owl to satisfy in part or whole western burrowing owl mitigation requirements of the project. In lieu of conserving mitigation land or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC’s administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts western burrowing owl habitat.</i></p>	
		<p><i>MM BIO-6 Swainson’s Hawk. In accordance with Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley (CDFG 2000), surveys shall be conducted by a qualified raptor biologist for a 0.25-mile radius, where possible, around all project activities and should be completed for at least two survey periods. The guidelines provide specific recommendations regarding the number of surveys based on when the proposed project is scheduled to begin and the time of year the surveys are conducted. A copy of this survey report should be</i></p>	

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		<p><i>provided to the City of Brentwood prior to starting construction.</i></p> <p><i>If an active nest is identified, the avoidance measures identified in the HCP/NCCP will be implemented. As required per the HCP/NCCP, during the nesting season (March 15-September 15), covered activities within 1,000 feet of occupied nests will be prohibited to prevent nest abandonment. While the nest is occupied, activities outside the 1,000-foot buffer can take place. During the nesting season, a 1,000-foot buffer will be established around active nest sites in which no construction activities may occur. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Project Raptor Biologist will coordinate with CDFW/USFWS to determine the appropriate buffer size. If young fledge prior to September 15, covered activities can proceed normally. If a potential nest tree must be removed for the project to proceed, tree removal will only occur between September 15 and February 1.</i></p> <p><i>As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides suitable foraging habitat for the Swainson’s hawk to satisfy in part or whole to meet Swainson’s hawk mitigation requirements of the project. In lieu of conserving mitigation land or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC’s administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts Swainson’s hawk habitat.</i></p> <p><i>MM BIO-7 Nesting Raptors. A raptor nesting survey shall be conducted prior to commencing with construction for each phase of development if this work would commence between February 1st and August 31st. The raptor nesting surveys shall include examination of all trees within 300 feet of the portion of the site proposed for grading and construction activities, or where possible, not just trees slated for removal.</i></p> <p><i>If nesting raptors are identified during the surveys, the dripline of the nest tree must</i></p>	

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		<p><i>be fenced with orange construction fencing (provided the tree is on the Project site), and a 300- to 500-foot radius around the nest tree must be staked with bright orange lath or other suitable staking. A 500-foot buffer is recommended to protect nesting golden eagles, while buffers that are established for other common nesting hawks should be 300 feet. The size of the buffer may be altered if a qualified raptor biologist determines that a modified buffer will protect the nesting raptors from harm/take. To render recommendations for the appropriate buffers, the qualified raptor biologist will examine a number of parameters including geographic barriers between the nest site and project disturbance, construction noise levels, elevation of the nest relative to proposed construction activities, and based upon actual nesting behavioral observations that indicate how well the nesting raptors are acclimated to disturbance. The raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. Buffers shall be demarcated per above where the buffer intersects the Project site via orange construction fencing or red lath that clearly demarcates a no entry area for any construction workers or equipment.</i></p> <p><i>No construction or earth-moving activity shall occur within the established nesting buffer until it is determined by a qualified raptor biologist that the nesting cycle is complete, including that any young are fully fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1st. This date may be significantly earlier and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors, then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1st. If buffers are removed prior to September 1st, the qualified raptor biologist conducting the nesting surveys should prepare and submit a report to the City of Brentwood that provides details about the nesting outcome and the removal of buffers. For each phase of development, this report should be submitted prior to the time that nest protection buffers are removed if the date is before September 1st.</i></p>	
		<p><i>MM BIO-8 Nesting Migratory Birds. If Project site disturbance associated with the proposed</i></p>	

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		<p><i>project would commence between March 1st and September 1st, a preconstruction nesting survey for each phase of development should be completed in the 15-day period prior to commencing disturbance on the Project site. The nesting survey should be conducted on all or a portion of the Project site that is the subject of the approved grading plans proposed to be initiated, and within a zone of influence around the Project site. The zone of influence includes those areas off the Project site where birds could be disturbed by earth-moving vibrations or construction noise. Accordingly, the nesting survey(s) must cover the Project site and an area around the Project site boundary, where possible and within the Project proponent’s control.</i></p> <p><i>If special-status birds are identified nesting on or adjacent to the Project site, a non-disturbance buffer of 100 feet should be established or as otherwise prescribed by a qualified ornithologist. If common (that is, not special-status) birds for example, California towhee, California scrub jay, or acorn woodpeckers are identified nesting on or adjacent to the Project site, a non-disturbance buffer of 75 feet should be established or as otherwise prescribed by a qualified ornithologist. The buffer should be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer should be postponed until it is determined by a qualified ornithologist that the young have fledged and have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed.</i></p> <p><i>Typically, most passerine birds in the region of the Project site are expected to complete nesting by August 1st. However, many species can complete nesting by the end of May or June. Nesting swallows may not complete nesting until late July or through the month of August. Regardless, nesting buffers should be maintained until September 1st unless a qualified ornithologist determines that the nest cycle is completed, and that any young have fledged and are independent of their nests at an earlier date. If buffers are removed prior to September 1st, the qualified biologist conducting the nesting surveys should prepare and submit a report to the City of Brentwood that provides details about the nesting outcome and the removal of</i></p>	

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		<p><i>buffers. This report should be submitted prior to the time that nest protection buffers are removed if the date is before September 1st.</i></p> <p><i>MM BIO-9 San Joaquin Kit Fox. The Project proponent shall implement standard avoidance measures to reduce the possibility of impacts to the San Joaquin kit fox that include:</i></p> <ul style="list-style-type: none"> ▪ <i>An education program will be conducted by a qualified biologist prior to the start of construction for each phase of development to explain the endangered species concerns to contractors working at the Project site. The program will include an explanation of the FESA and CESA and any endangered species concerns in the area.</i> ▪ <i>Qualified biologists would conduct preconstruction den surveys within 30 days of ground disturbance for each phase of development to ensure that potential kit fox dens are not disrupted. The surveys will establish the presence or absence of San Joaquin kit foxes and/or habitat features and evaluate use by kit foxes in accordance with USFWS survey guidelines (U.S. Fish and Wildlife Service 1999). The status of all dens will be determined and mapped. Written results of preconstruction surveys will be submitted to USFWS and CDFW within 5 working days after survey completion and before the start of ground disturbance.</i> ▪ <i>If “potential dens” are located, infrared camera stations will be set up and maintained for 3 consecutive nights at den openings prior to initiation of grading activities to determine the status of the potential dens. If no kit fox is found to be using the den, site grading can proceed unhindered. Unoccupied dens shall be destroyed immediately to prevent subsequent use.</i> ▪ <i>Per the HCP/NCCP, if kit fox activity is observed at the den during the initial monitoring period, the den will be monitored for an additional 5</i> 	

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		<p><i>consecutive days from the time of the observation to allow any resident animal to move to another den. If a natal or pupping den is found, USFWS and CDFW will be notified immediately. The den will not be destroyed until the pups and adults have vacated and then only after further consultation with USFWS and CDFW. For dens other than natal or pupping dens, use of the den can be discouraged by partially plugging the entrance with soil such that any resident animal can easily escape. Once the den is determined to be unoccupied it may be excavated under the direction of the biologist. Alternatively, if the animal is still present after 5 or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant (i.e., during the animal's normal foraging activities).</i></p> <ul style="list-style-type: none"> ■ <i>If dens are identified in the survey area outside the proposed disturbance footprint, exclusion zones around each den entrance or cluster of entrances will be demarcated. No covered activities will occur within the exclusion zones. Exclusion zones will be established and monitored during construction surveys.</i> ■ <i>To prevent harm to San Joaquin kit fox, any steep-walled holes and/or trenches excavated on the Project site will be completely covered at the end of each workday or escape ramps will be provided to allow any entrapped animals to escape unharmed. All pipe sections stored at the Project site overnight that are four inches in diameter or greater will be inspected for San Joaquin kit fox before the pipes are moved or buried. If San Joaquin kit fox are identified in the work area at any time, the USFWS and the CDFW will be notified and consulted before work activities resume. All trash items will be removed from the site to reduce the potential for attracting predators of San Joaquin kit fox. Contractors will be prohibited from bringing firearms and pets to the job site.</i> <p><i>As described in MM BIO-1, the Project proponent may use Sections 5 and 9</i></p>	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>Mitigation Property, which provides potential San Joaquin kit fox migration habitat to satisfy in part or whole to meet San Joaquin kit fox mitigation requirements of the project. In lieu of conserving mitigation land or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC's administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts San Joaquin kit fox habitat.</i></p> <p><i>MM BIO-10 American Badger. To ensure there is no direct impact to American badger, a qualified biologist would conduct a preconstruction den survey for each phase of development no more than 14 days prior to site grading. If a potential den is located, infrared camera stations will be set up and maintained for 3 consecutive nights at den openings prior to initiation of grading activities to determine the status of the potential dens. If American badger is not found to be using the den, site grading can proceed unhindered. However, if American badger is found using a den site within the Project site, the CDFW will be notified and consulted before work activities resume.</i></p> <p><i>As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides suitable American badger habitat to satisfy in part or whole to meet American badger mitigation requirements of the Project.</i></p> <p><i>MM BIO-11 The Project shall encourage conservation of existing native vegetation and integration of regionally native plant species into development and infrastructure projects.</i></p> <p><i>MM BIO-12 The Project shall discourage removal of large, mature trees that provide wildlife habitat or contribute to the visual quality of the environment and prioritization of replacement tree planting on-site rather than off-site locations.</i></p>	
Impact BIO-2: Would the project have a substantial adverse effect on any	NI	None required.	N/A

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			
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?	S	<i>MM BIO-13 Determination of Jurisdictional Waters and Permitting. Prior to commencing a proposed activity, the Project proponent shall prepare and obtain concurrence from the Corps via confirmation of a Preliminary Jurisdictional Determination (PJD) or Administrative Jurisdictional Determination (AJD). Otherwise an aquatic resource assessment shall be prepared to quantify the total extent of Corps/RWQCB jurisdictional features on the Project site. Additionally, the Project proponent shall obtain appropriate permits from the Corps and RWQCB for project impacts to seasonal wetlands and other waters (Waters of the U.S. and State respectively). The Project proponent may choose to apply for and receive authorization to use an Individual permit from the Corps pursuant to Section 404 of the Clean Water Act. In lieu of a Corps' Individual Permit, the Project proponent may seek authorization to use the ECCCHC's Regional General Permit (RGP 1) if proposed fill meets conditions for use of RGP 1. In either case, Section 401 certification will be required from the RWQCB under then-current regulations. In either case, the Project proponent will demonstrate to the Corps and the RWQCB, as applicable, that any proposed fill of wetlands or other waters represents the least environmentally damaging practicable alternative. As a part of this permit process, the Project proponent will secure approval of, and shall comply with, a compensatory mitigation plan that will satisfy State and Federal no net loss policies as reflected in the Corps' 2008 mitigation rule and the dredge and fill procedures adopted by the State Water</i>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>Resources Control Board.</i></p> <p><i>The Project proponent may satisfy its mitigation obligation through the payment of HCP/NCCP wetland fees or the completion of a permittee-responsible project at an appropriate location, or some combination of the two. The Project proponent may also choose to preserve, restore or enhance some on-site wetland features in connection with the Project’s mitigation needs. Any preserved, created, restored or enhanced waters and adjacent buffers on the Project site shall be preserved and permanently protected through a deed restriction, or other appropriate site protection instrument, consistent with the requirements of the Corps and/or RWQCB. A recorded copy of the site protection instrument must be provided to the Corps, RWQCB, and City of Brentwood prior to proceeding with any activity on the Project site that would impacts wetlands or other waters.</i></p> <p><i>MM BIO-14 Construction BMPs. The Project proponent shall implement appropriate BMPs to prevent construction related impacts that could introduce fill or other pollutants into Deer Creek or other drainage features that support a bed, bank, and channel on the Project site. These measures include the installation of wildlife friendly hay wattles and/or silt fence that will prevent unintended fill impacts while construction is ongoing adjacent to any tributary with a bed, bank, and channel.</i></p> <p><i>MM BIO-15 SBAA. The Project proponent shall obtain a fully executed CDFW 1602 SBAA if the project impacts any drainage or tributary that supports a bed, bank, and channel. Any SBAA obtained for the Project, a copy thereof, shall be provided to the City of Brentwood and any conditions in the SBAA shall become City of Brentwood Conditions of Approval.</i></p>	
Impact BIO-4: Would the project interfere substantially with the movement of any native resident or migratory fish or	LTS	None required.	N/A

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			
Impact BIO-5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	LTS	None required.	N/A
Impact BIO-6: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	S	<i>MM BIO-16 Implement MM BIO-1 through MM BIO-15.</i>	LTS
Impact BIO-7: Would the off-site improvements result in impacts to	S	<i>MM BIO-17 Implement MM BIO-1 through MM BIO-15.</i>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation				
Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance with Mitigation
biological resources?				
Impact BIO-8: Would the project result in the cumulative loss of biological resources in the City of Brentwood?	S	<i>MM BIO-18</i>	<i>Implement MM BIO-1 through MM BIO-15.</i>	LTS
Cultural Resources				
Impact CR-1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to the State CEQA Guidelines Section 15064.5?	S	<i>MM CR-1</i>	<i>Cultural Resources Worker Environmental Awareness Program (WEAP). A qualified archaeologist should conduct a WEAP training for all personnel involved in ground-disturbing, site preparation construction activities on the Project site prior to construction and ground-disturbing activities. The training should include basic information about the types of artifacts that might be encountered during construction activities, and procedures to follow in the event of a discovery. This training should be provided for any additional personnel added to the Project even after the initiation of construction and ground disturbing activities.</i>	LTS
		<i>MM CR-2</i>	<i>Cultural Resources Monitoring During Ground-Disturbing Activities. A qualified archaeologist shall monitor all ground-disturbing activities within native sediment areas within the Project. This monitoring will continue for the duration of the Project or until culturally sterile sediments are reached (e.g., bedrock). A qualified archaeologist may determine to decrease or increase monitoring efforts based on sediments observed, findings, or number of large ground disturbing machines in operation. The qualified archaeologist shall meet the Secretary of the Interior’s Standards for professional archaeology.</i>	
		<i>MM CR-3</i>	<i>Halt Construction Activity, Evaluate Find, and Implement Mitigation. In the event that previously unidentified paleontological, archaeological, historical, or tribal resources are uncovered during site preparation, excavation, or other construction activity, all such activity within 100 feet of the discovery shall cease until the resources have been evaluated by a qualified professional, and specific measures can be implemented to protect these resources in accordance with sections 21083.2 and 21084.1 of the California Public Resources Code. If the find is significant, the</i>	

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>archaeologist will excavate the find in compliance with State law, keeping Project delays to a minimum. If the qualified archaeologist determines the find is not significant then proper recordation and identification will ensure and the Project will continue without delay.</i></p> <p>MM CR-4 <i>Conduct Cultural Resources Assessment within VDC-001 Site. Prior to approval of site improvement plans for development within the location of VDC-001 (as shown in Figure 1 of the “Cultural Resources Technical Memo, Vineyards at Deer Creek”, prepared by ECORP), the applicant shall retain a qualified cultural resources consultant to design and implement a cultural assessment for submittal to the city, the intent of which shall be to identify and investigate any subsurface historic remains within the location, and define their physical extent and the nature of any built features or artifact-bearing deposits. A small backhoe shall be used to carefully remove the overlying sediment, a few inches at a time, to reveal any subsurface features that may survive. The archaeologists shall carefully monitor the backhoe exposure and spot-screen some of the spoils to check for artifacts. If no subsurface features are uncovered, no additional cultural investigations shall be necessary. If, on the other hand, structural remains or artifact-bearing features are found, the investigation should proceed immediately into formal evaluation to determine their eligibility for the California Register of Historical Resources. This shall include, at a minimum, additional exposure of the feature(s), photo-documentation and recordation, and analysis of the artifact assemblage(s). If the evaluation determines that the features and artifacts do not have sufficient data potential to be eligible for the California Register, no additional work shall be required. However, if data potential exists – e.g., there is an intact feature with a large and varied artifact assemblage – it will be necessary to mitigate any project impacts.</i></p> <p><i>Mitigation of impacts might include avoidance of further disturbance to the resources through project redesign. If avoidance is determined to be infeasible, additional data recovery excavations shall be conducted for the resources, to collect enough information to exhaust the data potential of those resources.</i></p>	
Impact CR-2: Would the project cause a substantial adverse	S	MM CR-5 <i>Implement MM CR-1 through MM CR-4.</i>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
change in the significance of an archaeological resource pursuant to the State CEQA Guidelines Section 15064.5?			
Impact CR-3: Would the project disturb human remains, including those interred outside of formal cemeteries?	S	<p><i>MM CR-6 Halt work upon discovery of human remains, evaluate, and mitigate. Prior to ground disturbance, the applicant shall ensure that protocols related to the discovery of human remains are in place and followed during construction of the proposed project.</i></p> <p><i>If human remains are encountered during grading, excavation, or other construction activity, all such work within 100 feet of that area must cease until the remains have been evaluated by the Contra Costa County Coroner. If the remains are determined to be Native American, then the Native American Heritage Commission (NAHC) is to be notified within 24 hours as required by section 7050.5 of the California Health and Safety Code or, if the remains are Native American, section 5097.98 of the California Public Resources Code.</i></p>	LTS
Impact CR-4: Would the off-site infrastructure improvements result in any impacts to cultural resources?	S	<p><i>MM CR-7 Implement MM CR-1 through MM CR-4, and MM CR-6.</i></p>	LTS
Impact CR-5: Would the project result in a cumulative loss of cultural resources?	S	<p><i>MM CR-8 Implement MM CR-1 through MM CR-4 and MM CR-6.</i></p>	LTS
Energy Conservation			
Impact EC-1: Would the project result in	S	<p><i>MM EC-1 Implement MM AQ-1 and MM GHG-1 through MM GHG-6.</i></p>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			
Impact EC-2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	S	<i>MM EC-2 Implement MM AQ-1 and MM GHG-1 through MM GHG-6.</i>	LTS
Impact EC-3: Would the project result in any cumulative impacts related to energy efficiency?	S	<i>MM EC-3 Implement MM AQ-1 and MM GHG-1 through MM GHG-6.</i>	LTS
Geology, Soils, and Minerals			
Impact GEO-1: Would the project directly or indirectly expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death	S	<i>MM GEO-1 New development and construction must be reviewed by the city to ensure conformance with applicable building standards related to geologic and seismic safety. The Project must comply with all applicable California Building Code requirements, including but not limited to performance of geotechnical evaluations. Development in areas subject to liquefaction or containing mining openings and/or underground workings shall be reviewed through preparation of a site-specific design-level geotechnical investigation by qualified soils engineers and geologists to obtain their recommendations prior to development in order to ensure the safety</i>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure including liquefaction; and landslides?		<i>and stability of all construction.</i>	
Impact GEO-2: Would the project result in substantial soil erosion or the loss of topsoil?	S	<p><i>MM GEO-2 All proposed development of the Project site shall comply with Brentwood Municipal Code Chapter 15.52, as applicable.</i></p> <p><i>MM GEO-3 Implement MM GEO-1.</i></p> <p><i>MM GEO-4 An erosion and sediment control plan prepared by a civil engineer, or other professional who is qualified to prepare such a plan, shall be submitted as part of any grading permit application for new development. The erosion and sediment control plan shall delineate measures to appropriately and effectively minimize soil erosion and sedimentation, and shall comply with the design standards and construction site control measures contained in Chapter 15.52 (Grading, Erosion and Sediment Control) of the Brentwood Municipal Code.</i></p>	LTS
Impact GEO-3: Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading,	S	<i>MM GEO-5 Implement MM GEO-1 and MM GEO-2.</i>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
subsidence, liquefaction or collapse?			
<p>Impact GEO-4: Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?</p>	S	<i>MM GEO-6 Implement MM GEO-1 and MM GEO-2 .</i>	LTS
<p>Impact GEO-5: Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?</p>	NI	None required.	N/A
<p>Impact GEO-6: Would the project directly or indirectly destroy a unique paleontological resource or site or</p>	S	<p><i>MM GEO-7 All new development, infrastructure, and other ground-disturbing projects must comply with the following conditions in the event of an inadvertent discovery of cultural resources or human remains:</i></p> <ol style="list-style-type: none"> <i>1. If construction or grading activities result in the discovery of significant historic or prehistoric archaeological artifacts or unique paleontological</i> 	LTS

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
unique geologic feature?		<p><i>resources, all work within 100 feet of the discovery shall cease, the Community Development Director shall be notified, the resources shall be examined by a qualified archaeologist, paleontologist, or historian for appropriate protection and preservation measures; and work may only resume when appropriate protections are in place and have been approved by the Community Development Director.</i></p> <p>2. <i>If human remains are discovered during any ground disturbing activity, work shall stop until the Community Development Director and the Contra Costa County Coroner have been contacted; if the human remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) and the most likely descendants have been consulted; and work may only resume when appropriate measures have been taken and approved by the Community Development Director.</i></p>	
Impact GEO-7: Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	S	<i>MM GEO-8 Oil and gas production (within the boundaries of the Project Site) shall be consistent with Chapter 17.680 of the Brentwood Municipal Code.</i>	LTS
Impact GEO-8: Would the Project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local	NI	None required.	N/A

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
general plan, specific plan or other land use plan?			
Impact GEO-9: Would the off-site infrastructure improvements result in any impacts related to geology, soils, and minerals?	S	<i>MM GEO-9 Implement MM GEO-1, MM GEO-2, MM GEO-4 and GEO-7.</i>	LTS
Impact GEO-10: Would the project result in a cumulative impact to geology, soils, and minerals?	S	<i>MM GEO-10 Implement MM GEO-1, MM GEO-2, MM GEO-4, MM GEO-7, and MM GEO-8.</i>	LTS
Greenhouse Gas Emissions			
Impact GHG-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	S	<i>MM GHG-1 Residential Zero Net Energy. Prior to the issuance of any residential building permit for any development project within the Project site, the Project proponent or its designee shall submit one or more Zero Net Energy (ZNE) Confirmation Reports (ZNE Report). The ZNE Report(s) shall be prepared by a qualified building energy efficiency and design consultant. The Project proponent shall submit the prepared ZNE Report to the city for review and confirmation that the residential development covered by the ZNE Report achieves the ZNE standard specified in this mitigation measure. Although all development within the Project site must be covered within a ZNE Report, ZNE Reports can be prepared for single units, neighborhoods, phases, or the entire Project site, as needed. The purpose of the ZNE requirement is to avoid GHG emissions from building energy consumption. Specifically, a ZNE Report shall demonstrate that the residential development within the Project site subject to application of Title 24, Part 6, of the California Code of Regulations, has been designed and shall be constructed to achieve ZNE, as defined</i>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p>by CEC in its 2015 Integrated Energy Policy Report, which requires the value of the net energy produced by Project’s renewable energy resources is equal to the value of the energy consumed annually by the Project using the CEC’s Time Dependent Valuation metric.</p> <p>A ZNE Report shall provide, at a minimum, the following information:</p> <ul style="list-style-type: none"> ▪ Confirmation that the residential development shall comply with Title 24, Part 6 building standards that are operative at the time of building permit application. ▪ Identification of design-level building and neighborhood features sufficient to achieve the ZNE standard (as defined above), assuming ZNE is not already achieved by meeting the operative Title 24, Part 6 building standards. Design-level building and neighborhood features anticipated for use in meeting the ZNE standard are anticipated to include, but not necessarily be limited to, the following features: <ul style="list-style-type: none"> ○ Solar photovoltaic systems, either installed on individual structures or in neighborhood arrays; ○ Demand response systems such as battery storage and heat pump water heaters to reduce peak hour energy demand and maximize efficacy of on-site photovoltaic systems; ○ High-performance building envelopes to reduce energy demand related to heating and cooling; ○ Implement passive solar designs for neighborhoods and individual parcels; ○ Install only energy efficient appliances; ○ Incorporate natural ventilation features to reduce energy demand related to mechanical ventilation systems; ○ Targeted street tree and landscaping plantings to reduce energy 	

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>demand related to summer cooling and winter heating; and</i></p> <ul style="list-style-type: none"> ○ <i>High efficiency lighting systems.</i> ■ <i>In demonstrating that the residential development achieves the ZNE standard, the ZNE Report may:</i> <ul style="list-style-type: none"> ○ <i>Evaluate multiple buildings and/or land use types. For example, a ZNE Report may cover all of the residential buildings within a neighborhood/community, or a subset thereof, including an individual building.</i> ○ <i>Rely upon aggregated or community-based strategies to support its determination that the subject buildings are designed to achieve ZNE. For example, shortfalls in renewable energy generation for one or more buildings may be offset with excess renewable generation from one or more other buildings. As such, a ZNE Report could determine a building is designed to achieve ZNE based on aggregated or community-based strategies even if the building on its own may not be designed to achieve ZNE.</i> ○ <i>Make reasonable assumptions about the estimated electricity and natural gas loads and energy efficiencies of the subject buildings.</i> <p><i>If use of on-site renewable energy systems and the aforementioned design features is not sufficient to meet the ZNE standard for the proposed development covered by the ZNE Report, the proposed development shall achieve equivalent energy and/or GHG emissions reductions by alternate means such as those enumerated in MM GHG-7.</i></p> <p>MM GHG-2 <i>Non-Residential Zero Net Energy. Prior to the issuance of any building permit for non-residential development within the Project site, the Project proponent or its designee shall submit one or more Zero Net Energy Confirmation Reports (ZNE Report). The ZNE Report(s) shall be prepared by a qualified building energy efficiency and design consultant. The Project proponent shall submit the prepared ZNE Report to the city for review and confirmation that the proposed non-</i></p>	

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		<p><i>residential development covered by the ZNE Report achieves the ZNE standard specified in this mitigation measure. Although all development within the Project site must be covered within a ZNE Report, ZNE Reports can be prepared for single buildings, non-residential areas, phases, or the entire Project site, as needed. The purpose of the ZNE requirement is to avoid GHG emissions from building energy consumption.</i></p> <p><i>Specifically, a ZNE Report shall demonstrate that the commercial development, private recreation centers, and public facilities within the Project site subject to application of Title 24, Part 6, of the California Code of Regulations have been designed and shall be constructed to achieve ZNE, as defined by CEC in its 2015 Integrated Energy Policy Report, which requires the value of the net energy produced by Project renewable energy resources to equal the value of the energy consumed annually by the Project using the CEC’s Time Dependent Valuation metric.</i></p> <p><i>A ZNE Report shall provide, at a minimum, the following information:</i></p> <ul style="list-style-type: none"> ▪ <i>Confirmation that the commercial development, private recreation centers, and/or public facilities shall comply with Title 24, Part 6 building standards that are operative at the time of building permit application.</i> ▪ <i>Identification of design-level building or development features sufficient to achieve the ZNE standard (as defined above), assuming ZNE is not already achieved by meeting the operative Title 24, Part 6 building standards. Design-level building and neighborhood features anticipated for use in meeting the ZNE standard are anticipated to include, but not necessarily be limited to, the following features:</i> <ul style="list-style-type: none"> ○ <i>Solar photovoltaic systems, either installed on individual structures or in neighborhood arrays;</i> ○ <i>Demand response systems such as battery storage and heat pump water heaters to reduce peak hour energy demand and maximize efficacy of on-site photovoltaic systems;</i> ○ <i>High-performance building envelopes to reduce energy demand</i> 	

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>related to heating and cooling;</i></p> <ul style="list-style-type: none"> ○ <i>Implement passive solar designs for neighborhoods and individual parcels;</i> ○ <i>Install only energy efficient appliances;</i> ○ <i>Incorporate natural ventilation features to reduce energy demand related to mechanical ventilation systems;</i> ○ <i>Targeted street tree and landscaping plantings to reduce energy demand related to summer cooling and winter heating; and</i> ○ <i>High efficiency lighting systems.</i> <p><i>In demonstrating that the commercial development, private recreation centers, and/or public facilities achieve the ZNE standard, the ZNE Report may:</i></p> <ul style="list-style-type: none"> ■ <i>Evaluate multiple buildings and/or land use types. For example, a ZNE Report may cover all of the non-residential buildings within a neighborhood/community, or a subset thereof, including an individual building.</i> ■ <i>Rely upon aggregated or community-based strategies to support its determination that the subject buildings are designed to achieve ZNE. For example, short falls in renewable energy generation for one or more buildings may be offset with excess renewable generation from one or more other buildings, or offsite renewable energy generation. As such, a ZNE Report could determine a building is designed to achieve ZNE based on aggregated or community-based strategies even if the building on its own may not be designed to achieve ZNE.</i> ■ <i>Make reasonable assumptions about the estimated electricity and natural gas loads and energy efficiencies of the subject buildings.</i> <p><i>If use of on-site renewable energy systems and the aforementioned design features is not sufficient to meet the ZNE standard for the proposed development covered by</i></p>	

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		<p><i>the ZNE report, the proposed development shall achieve equivalent energy and/or GHG emissions reductions by alternate means such as those enumerated in MM GHG-7.</i></p> <p>MM GHG-3 <i>Residential Electric Vehicle Chargers. Prior to the issuance of any residential building permit, the Project proponent or its designee shall submit building design plans to the city for review and approval, which demonstrate that each residence within the VDCSP area subject to application of Title 24, Part 6, of the California Code of Regulations shall be equipped with a minimum of one single-port electric vehicle (EV) charging station. Each charging station shall achieve a similar or better functionality as a Level 2 charging station (Level 2 charging stations are those that use a higher-output 240-volt power source).</i></p> <p>MM GHG-4 <i>Commercial and Recreational Development Area Electric Vehicle Chargers. Prior to the issuance of any commercial or recreational building permit, the Project proponent or its designee shall submit building design plans to the city that demonstrate that the parking areas for commercial and recreational buildings in the VDCSP area are equipped with EV charging stations that provide charging opportunities to at least 7.5 percent of the total number of required parking spaces.</i></p> <p><i>The EV charging stations shall achieve a similar or better functionality as a Level 2 charging station. In the event that the installed charging stations use more superior functionality/technology other than Level 2 charging stations, the parameters of the mitigation obligation (i.e., number of parking spaces served by EV charging stations) shall reflect the comparative equivalency of Level 2 charging stations to the installed charging stations on the basis of average charge rate per hour. For purposes of this equivalency demonstration, Level 2 charging stations shall be assumed to provide charging capabilities of 25 range-miles per hour.</i></p> <p>MM GHG-5 <i>Transportation Demand Management Plan. Develop a qualifying Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) plan to reduce mobile GHG emissions for all uses. The TDM plan shall be approved by the City of Brentwood prior to the issuance of any building permit and incorporated into the Project's Conditions, Covenants and Restrictions (CC&Rs). In the absence of CC&Rs</i></p>	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>for any portion of the Project, disclosure of the TDM plan shall be provided at the time of escrow for development within the Project site. The TDM plan shall discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. Depending on the type of use proposed, the following measures shall be incorporated into the TDM plan. Any mixed-use project must incorporate both residential and non-residential measures.</i></p> <p><i>Zero-Emission Transit TDM Requirements for All Uses:</i></p> <ul style="list-style-type: none"> ▪ <i>Prior to the issuance of the 500th residential building permit within the Project site, the Project proponent or its designee shall provide the city with proof that the Project includes a zero-emission bus or shuttle service to the nearest BART station, local health care facilities, and other destinations within the city.</i> <p><i>TDM Requirements for Non-Residential (Commercial/Civic) Uses:</i></p> <ul style="list-style-type: none"> ▪ <i>The Project proponent shall include in the tentative map or development plan application, all improvements that will provide access to public transit, ridesharing opportunities and nonmotorized forms of travel.</i> ▪ <i>The Project proponent shall consult with the local transit service provider on the need to provide infrastructure to connect the Project with transit services. Evidence of compliance with this requirement may include correspondence from the local transit provider(s) regarding the potential need for installing bus turnouts, shelters or bus stops at the site.</i> ▪ <i>At a minimum, the following components shall be incorporated into the TDM plan for non-residential uses: ride-matching assistance, preferential carpool parking, flexible work schedules for carpools, half-time transportation coordinators, providing a web site or message board for coordinating rides, designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles, and including bicycle end of trip facilities.</i> 	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>TDM Requirements for Residential Units:</i></p> <ul style="list-style-type: none"> ▪ <i>Owner-Occupied Units. Upon a residential dwelling being sold or offered for sale, the Project proponent shall notify and offer to the buyer or prospective buyer, as soon as it may be done, materials describing public transit, ridesharing, and nonmotorized commuting opportunities available in the vicinity of the Project. Such information shall be transmitted no later than the close of escrow. This information shall be submitted to the City of Brentwood Planning Department for review and approval, prior to the issuance of the first certificate of occupancy.</i> ▪ <i>Rental Units. Upon a residential dwelling being rented or offered for rent, the Project proponent shall notify and offer to the tenant or prospective tenant, materials describing public transit, ridesharing, and nonmotorized commuting opportunities in the vicinity of the development. The materials shall be approved by the City of Brentwood. The materials shall be provided no later than the time the rental agreement is executed. This information shall be submitted to the City of Brentwood Planning Department for review and approval, prior to the issuance of the first certificate of occupancy.</i> <p><i>MM GHG-6 Additional GHG Emissions Reduction Measures The Project proponent shall, at a minimum, be required to implement the following GHG emissions reduction measures into the design of the proposed project:</i></p> <ul style="list-style-type: none"> ▪ <i>Gas powered landscape equipment shall be prohibited in any Conditions, Covenants, and Restrictions (CC&Rs) recorded in the VDCSP area. In the absence of CC&Rs for any portion of the Project, disclosure of this restriction shall be provided at the time of escrow for development within the Project site. Electrical outlets shall be installed on the front and back exteriors of all residential and non-residential structures to enable the use of electric lawn and garden equipment for landscaping maintenance. This measure shall be verified prior to building permit issuance.</i> ▪ <i>Woodburning and natural gas fireplaces of any kind shall be prohibited.</i> 	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>This measure shall be verified prior to building permit issuance.</i></p> <ul style="list-style-type: none"> ■ <i>Install water-efficient irrigation systems and landscape design including reduced turf. This measure shall be verified prior to building permit issuance.</i> ■ <i>Use recycled water for landscape irrigation. This measure shall be verified prior to building permit issuance.</i> ■ <i>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.</i> ■ <i>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 proponent or its success 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.</i> <p><i>If, at the time of building permit issuance or establishment of CC&Rs, any of the above emission reduction features are considered infeasible, the Project proponent shall submit a report to the city for review and approval that substantiates why the specific feature(s) is infeasible and identifies alternate features that will be implemented sufficient to achieve equivalent GHG emissions reductions.</i></p>	
		<p>MM-GHG-7 <i>Offsetting GHG Emissions. The Project proponent shall prepare and implement a GHG Reduction Plan, to the satisfaction of the city, to demonstrate a downward trajectory in GHG emissions, towards the goal of zero net GHG emissions by the year 2045. The GHG Reduction Plan shall cover the entire Project. The Project must</i></p>	

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation																				
		<p>achieve the target in place for the first year in which the phase or subdivision becomes fully operational, consistent with Step 3 below. Refinement of the estimated Project GHG emissions shall be completed as part of the GHG Reduction Plan in order to reflect the most current and accurate data available regarding the Project’s estimated emissions (including emission rates).</p> <p>Prior to issuance of the last certificate of occupancy of any phase or subdivision, the Project proponent shall implement the following steps for that phase or subdivision:</p> <ol style="list-style-type: none"> Using CalEEMod or another model accepted for this purpose by the city, calculate total expected GHG emissions (all sectors) for the proposed phase or subdivision with emission rates applicable at the anticipated time of the last certification of occupancy of that phase or subdivision, taking into account applicable building standards and other adopted regulatory requirements, as well as building design, use of renewable energy, etc. Compare the modeled emissions to the maximum permitted emissions for the applicable year, shown below: <table border="1"> <thead> <tr> <th>Last Certificate of Occupancy Issued on or Before</th> <th>Maximum Permitted Project GHG Emissions (MTCO_{2e})</th> </tr> </thead> <tbody> <tr> <td>12/31/24</td> <td>9,783</td> </tr> <tr> <td>12/31/25</td> <td>9,294</td> </tr> <tr> <td>12/31/26</td> <td>8,805</td> </tr> <tr> <td>12/31/27</td> <td>8,315</td> </tr> <tr> <td>12/31/28</td> <td>7,826</td> </tr> <tr> <td>12/31/29</td> <td>7,337</td> </tr> <tr> <td>12/31/30</td> <td>6,848</td> </tr> <tr> <td>12/31/35*</td> <td>4,402</td> </tr> <tr> <td>12/31/40*</td> <td>1,957</td> </tr> </tbody> </table>	Last Certificate of Occupancy Issued on or Before	Maximum Permitted Project GHG Emissions (MTCO _{2e})	12/31/24	9,783	12/31/25	9,294	12/31/26	8,805	12/31/27	8,315	12/31/28	7,826	12/31/29	7,337	12/31/30	6,848	12/31/35*	4,402	12/31/40*	1,957	
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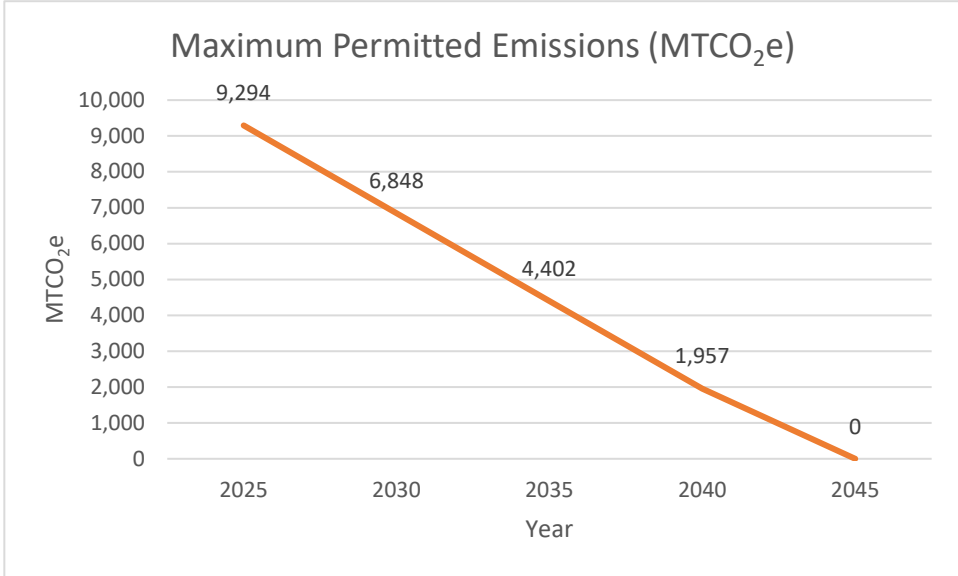
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation												
		<p style="text-align: center;">12/31/45* 0 * (reduction increased by 4.8 percent per year)</p> <div style="text-align: center;">  <table border="1" style="margin: 10px auto;"> <caption>Maximum Permitted Emissions (MTCO₂e)</caption> <thead> <tr> <th>Year</th> <th>MTCO₂e</th> </tr> </thead> <tbody> <tr> <td>2025</td> <td>9,294</td> </tr> <tr> <td>2030</td> <td>6,848</td> </tr> <tr> <td>2035</td> <td>4,402</td> </tr> <tr> <td>2040</td> <td>1,957</td> </tr> <tr> <td>2045</td> <td>0</td> </tr> </tbody> </table> </div> <p>3. Provide a Technical Memorandum of Compliance (TMC) documenting that the Project will not exceed the maximum permitted emissions for the applicable year. Preparation and submittal of the TMC shall be the responsibility of the Home Owners Association (HOA) formed within the Project site. The HOA will be required to prepare the report for all development within the Project site. If the Project requires additional mitigation or reductions to meet the applicable GHG emission target, the proponent shall prepare a GHG Reduction Plan, which can include, but is not</p>	Year	MTCO ₂ e	2025	9,294	2030	6,848	2035	4,402	2040	1,957	2045	0	
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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>limited to, measures such as the following:</i></p> <ul style="list-style-type: none"> a) <i>Construct on-site or fund off-site carbon sequestration projects (such as a forestry or wetlands projects for which inventory and reporting protocols have been adopted). If the Project develops an off-site project, it must be registered with the Climate Action Reserve or otherwise approved by BAAQMD in order to be used to offset project emissions; and/or</i> b) <i>Include additional technology or features in the Project that would reduce GHG emissions.</i> c) <i>Purchase carbon credits to offset Project annual emissions. Carbon offset credits shall be verified and registered with The Climate Registry, the Climate Action Reserve, or another source approved by CARB or BAAQMD. The preference for offset carbon credit purchases include those that can be achieved as follows (in order of most to least preferred): 1) within the city; 2) within the San Francisco Bay Area Air Basin; 3) within the State of California; then 4) elsewhere in the United States. Provisions of evidence of payments, and funding of an escrow-type account or endowment fund shall be overseen by the city.</i> <ul style="list-style-type: none"> 4. <i>Implement the authorized actions and provide evidence of this to the City of Brentwood Community Development Department. The city upon review and acceptance of implementation, shall issue the last certificate of occupancy for the phase or subdivision.</i> 5. <i>Every five years, beginning one year after full operation of the first phase or subdivision until 5 years after the last certificate of occupancy of the last phase or subdivision is issued, the a GHG emissions Reduction Accounting and Program Effectiveness Report shall be submitted for the Project. The report shall be submitted to the city by December 31 of each reporting year. The report shall include annual GHG emissions for the developed and operational portion of the Project, whether the emissions meet the</i> 	

Table 2-1: Draft EIR Summary of Impacts and Mitigation				
Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance with Mitigation
		<i>applicable GHG target, and if not, additional measures that shall be implemented in order to reach such target. Preparation and submittal of the report shall be the responsibility of the HOA formed within the Project site. The HOA will be required to prepare the report for all development within that area of the Project site governed by the HOA.</i>		
Impact GHG-2: Would the project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	S	MM GHG-8	Implement MM AQ-1 and MM GHG-1 through MM GHG-7.	LTS
Hazards, Hazardous Materials, and Wildfire				
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? Impact HAZ-2: Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset	S	MM HAZ-1	<i>If a facility is proposed that has a threshold quantity of a regulated substance greater than as specified by the applicable health and safety code, the user shall coordinate with the East Contra Costa Fire Protection District to prepare and implement a Hazardous Materials Business Plan for facilities that store, handle, or use regulated substances as defined in the California Health and Safety Code 25532 (g) in excess of threshold quantities. This plan shall be reviewed and approved by the Contra Costa County Environmental Health Department (EHD) through the Certified Unified Program Agencies (CUPA) process prior to implementation as required by the California Accidental Release Prevention (CalARP) Program. Generation, storage, and disposal of any hazardous waste must be done in accordance with all applicable local, state, and federal laws.</i>	LTS
		MM HAZ-2	<i>Eight known oil/gas wells have been abandoned within the Project site; although no abandoned pipelines associated with the eight on-site abandoned oil/gas wells have been identified, if such abandoned infrastructure is encountered during grading, it shall be removed. The Project Geotechnical Consultant shall be consulted and the</i>	

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
and accident conditions involving the release of hazardous materials into the environment?		<p><i>soil surrounding the abandoned infrastructure area shall be sampled by a qualified Phase II/Site Characterization Specialist to determine whether there is a need for removal and disposal, in accordance with applicable ordinances.</i></p> <p><i>MM HAZ-3 During Final Map Review, the Project Proponent shall demonstrate that no proposed inhabited structures are located either over an abandoned oil/gas wells or within the required setback from any active oil production wells in compliance with the DOGGR Construction Site Review Program. The City of Brentwood Public Works Department shall verify this prior to approval of the Final Map that includes this situation.</i></p> <p><i>MM HAZ-4 Prior to issuance of the grading permit, DOGGR should be consulted to determine if the abandoned wells or active wells will require modification in casing height, if grading is proposed proximate to these well locations.</i></p> <p><i>MM HAZ-5 Prior to issuance of the grading permit, the Project proponent shall coordinate with Crimson Pipeline, Kinder-Morgan, and PG&E to determine the accurate depths and alignment of the existing on-site gas pipelines and shall conduct field checking and potholing of the pipelines, if necessary. Arrangements for potholing of the pipelines shall be made at least 48 hours in advance. The Project proponent shall be responsible for providing a backhoe and operator, as well as a surveyor if needed. All construction plans that involve pipeline easement encroachments shall be submitted to the applicable pipeline owner to allow for review.</i></p> <p><i>After determining the accurate depths and alignments of the existing and proposed pipelines, the results shall be noted on all project construction plans, subject to review by the City Engineer. For any work occurring within the pipeline easement, construction plans shall demonstrate compliance with applicable local, State, and Federal regulations and development restrictions, which would include, but would not be limited to, the following:</i></p> <ul style="list-style-type: none"> ▪ <i>Maintain a minimum of 12 inches of clearance between the pipelines and other cross-lines that intersect at a 90-degree angle, or a minimum of 24 inches of clearance for intersection angles less than 90-degrees;</i> 	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<ul style="list-style-type: none"> ▪ Maintain a minimum of 24 inches of undisturbed clearance between the top of pipe and bottom of the sub grade for paving and grass or shallow rooted plants within the pipeline easements; ▪ Prohibit deep-rooted trees and structures within pipeline easements; ▪ All excavations within 24-inches of the pipelines shall be accomplished using hand tools only; ▪ Restrict use of heavy vibratory equipment over pipelines; and ▪ Notify Underground Service Alert (USA) at 800-227-2600 at least 48 hours prior to any excavation work. 	
<p>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?</p>	S	MM HAZ-6 Implement MM HAZ-1 through MM HAZ-5.	LTS
<p>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</p>	NI	None required.	N/A

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hazard to the public or the environment?			
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?	NI	None required.	N/A
Impact HAZ-6: Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	S	<i>MM HAZ-7 During construction, emergency access routes shall be kept free of traffic impediments to the satisfaction of the City Engineer.</i>	LTS
Impact HAZ-7: Would the Project expose people or structures, either directly or indirectly,	S	<i>MM HAZ-8 Implement MM GEO-1, MM GEO-2, MM GEO-4, and MM GEO-8.</i>	LTS

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<p>to a significant risk of loss, injury or death involving wildland fires?</p> <p>Impact HAZ-8: If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the Project: substantially impair an adopted emergency response plan or emergency evacuation plan; 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; require the installation or maintenance of associated infrastructure (such as roads, fuel breaks,</p>			

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
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; or expose people or structures to significant risk, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability or drainage changes?			
Impact HAZ-9: Would the off-site infrastructure improvements result in impacts related to hazards and hazardous materials?	S	<i>MM HAZ-9 If unidentified or suspected contaminated soil or groundwater evidenced by stained soil, noxious odors, or other factors, is encountered during off-site improvements, work shall stop in the area of potential contamination, and the type and extent of contamination shall be identified by a Registered Environmental Assessor (REA) or qualified professional. The REA or qualified professional shall prepare a report that includes, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations, relevant environmental screening levels for identified contaminants, whether the contaminants exceed Environmental Screening Levels, thus warranting remediation, and recommendations for appropriate handling and disposal. Off-site improvement activities shall not recommence within the contaminated areas until any necessary remediation identified in the report is complete. The report and verification of proper remediation and disposal shall be submitted to the City of Brentwood Engineering Department for review and approval.</i>	LTS

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
Impact HAZ-10: Would the Project result in cumulative impacts to hazards and hazardous materials?	LTS	None required.	N/A
Hydrology & Water Quality			
Impact HYD-1: Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	S	<p><i>MM HYD-1 Approval of the Drainage Plans by the city. Prior to the approval of each Tentative Map, the Project proponent shall submit a Final Drainage Plan for review and approval by the City of Brentwood Public Works Department. The Final Drainage Plan shall:</i></p> <ul style="list-style-type: none"> <i>a. Demonstrate that the Project’s new stormwater facilities will reduce stormwater pollutants in discharge from the Project site in compliance with the standards in the East Contra Costa County MS4 Permit and consistent with the Stormwater C.3 Guidebook;</i> <i>b. Include analysis and measures to address vector control and algae in storm ponds. These measures shall include the Best Management Practices provided by the Contra Costa Mosquito & Vector Control District;</i> <i>c. Identify whether any basins will have water in the summer months to provide an emergency source of fire-fighting water, and if so, demonstrate that adequate stormwater storage capacity exists;</i> <i>d. Identify the hydrologic modeling methodology, to the satisfaction of the City of Brentwood Public Works Department, as well as the RWQCB.</i> <p><i>MM HYD-2 Approval of the Drainage Plans by the Contra Costa County Flood Control and Water Conservation District. Prior to the issuance of a grading permit for each Phase, the Project proponent shall provide documentation that the Contra Costa County Flood Control and Water Conservation District has approved the Drainage Plans.</i></p> <p><i>MM HYD-3 Approval of a Water Quality Management Plan. Prior to issuance of a grading permit for each Phase, the Project proponent shall submit to the City Engineer for</i></p>	LTS

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>review and approval, a final Water Quality Management Plan. The Water Quality Management Plan shall specify best management practices (BMPs) specific to the Project site, which shall be integrated into the Final Drainage Plan. The plan shall identify specific strategies, including the following.</i></p> <ul style="list-style-type: none"> ▪ <i>Site design features, including maximizing open space, preservation of natural drainages, and minimization of impervious surfaces.</i> ▪ <i>Source control features, including leveraging public outreach and education, use of appropriate landscaping, and covering trash storage areas.</i> ▪ <i>Treatment controls, including the use of bioretention basins. Such basins shall be sized and designed consistent with C.3 Guidebook provisions in the MRP.</i> 	
<p>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?</p>	LTS	None required.	N/A
<p>Impact HYD-3: Would the Project substantially alter the existing drainage pattern of the site or</p>	S	<p><i>MM HYD-4 Implement MM HYD-1 through MM HYD-3.</i></p> <p><i>MM HYD-5 The Project proponent shall pay all required impact fees for new development.</i></p>	LTS

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<p>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:</p> <ul style="list-style-type: none"> i. Result in substantial erosion or siltation on- or off-site? ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? iii. Create or contribute runoff water which would exceed the capacity of 			

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Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?; or iv. Impede or redirect flood flows (less than significant with application of site-specific mitigation measures)			
Impact HYD-4: In a flood hazard, tsunami, or seiche zone, would the Project risk release of pollutants due to project inundation?	LTS	None required.	N/A
Impact HYD-5: Would the off-site infrastructure	S	<i>MM HYD-6 Implement MM HYD-1 through MM HYD-3 and MM HYD-5.</i>	LTS

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improvements result in any impacts to water quality?			
Impact HYD-6: Would the project result in cumulative impacts to hydrology and water quality?	S	<i>MM HYD-7 Implement MM HYD-1 through MM HYD-3 and MM HYD-5.</i>	LTS
Land Use and Population			
Impact LU-1: Would the project physically divide an established community?	NI	None required.	N/A
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?	LTS	None required.	N/A
Impact LU-3: Would the project induce substantial unplanned population growth in an area, either	S	No additional mitigation measures available beyond those identified in the technical sections of this EIR.	SU

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directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			
Impact LU-4: Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	NI	None required.	N/A
Impact LU-5: Would the off-site infrastructure improvements result in any impacts related to land use or population?	LTS	None required.	N/A
Impact LU-6: Would the project create long-term changes in the land use and population associated with cumulative	S	None feasible.	SU

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development of the proposed project in combination with future buildout in the City of Brentwood?			
Noise			
<p>Impact NOI-1: During project construction, would the project result in a substantial temporary 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?</p>	S	<p><i>MM NOI-1 Construction Noise. As a condition to each tentative map for the Project, prior to the issuance of the Grading Permit for that map, the Project proponent shall prepare a Construction Noise Mitigation Plan. This plan shall incorporate Suggested Best Practices 2-12 in Action N 1e of the 2014 General Plan Noise Element, with particular emphasis on the use of the latest “quiet” technology for noise generating construction equipment where necessary to meet the Conditionally Acceptable standard of Figure 4.12-2 above (Table N-1 of the Noise Element). To ensure compliance with these existing standards, the Construction Noise Mitigation Plan shall demonstrate, to the satisfaction of the Brentwood Community Development Department, that the Project complies with the following:</i></p> <ul style="list-style-type: none"> ▪ <i>N-1a: Heavy Construction Activities. Per Brentwood Municipal Code 9.32.050, heavy construction activities shall be restricted to the hours of 7:00 AM and 3:30 PM, or until 5:30 PM with the express written approval of the City Engineer or designee Monday through Friday, 8:00 AM and 5:00 PM on Saturdays with written approval of the City Engineer or designee, and never on Sunday or city holidays. Outside carpentry construction shall be restricted to the hours of 7:00 AM and 7:00 PM Monday through Friday, 9:00 AM and 5:00 PM on Saturdays and never on Sunday or city holidays.</i> ▪ <i>N-1b: Construction Equipment. Properly maintain construction equipment and ensure that all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds (if the equipment had such devices installed as part of its standard equipment package) that are in good condition and appropriate for the equipment. Equipment engine shrouds shall be closed during equipment operation. Contractor, shall</i> 	LTS

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		<p><i>maintain and tune-up all construction equipment to minimize noise emissions.</i></p> <ul style="list-style-type: none"> ▪ <i>N-1c: Vehicle and Equipment Idling. Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use.</i> ▪ <i>N-1d: Stationary Equipment. The construction contractor shall utilize “quiet” models of air compressors and other stationary noise sources where technology exists. All noise-generating stationary equipment such as air compressors or portable power generators shall be located as far as possible from sensitive receptors. Temporary noise barriers shall be constructed to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 10 dBA.</i> ▪ <i>N-1e: Construction Route. All construction traffic to and from the Project site shall be routed using designated truck routes where feasible. All construction-related heavy truck traffic in residential areas shall be prohibited where feasible.</i> ▪ <i>N-1f: Workers’ Radios. All noise from workers’ radios shall be controlled to a point that they are not audible at sensitive receptors near the construction activity.</i> ▪ <i>N-1g: Construction Plan. Prior to issuance of any grading and/or building permits, the contractor shall prepare and submit to the City of Brentwood for approval a detailed construction plan identifying the schedule for major noise-generating construction activity.</i> ▪ <i>N-1h: Disturbance Coordinator. A “noise disturbance coordinator” shall be designated by the contractor. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be</i> 	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>implemented. The coordinator shall post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.</i></p>	
<p>Impact NOI-2: During project operations, would the project result in a substantial 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?</p>	S	<p><i>MM NOI-2 Mechanical Equipment. Prior to the issuance of any building permit, the Project proponent shall demonstrate compliance with the city's Municipal Code provisions pertaining to the types and placement of mechanical equipment. To the satisfaction of the Community Development Department, compliance with the city's Municipal Code shall be demonstrated through preparation of a technical noise memorandum covering the area proposed for development at the time of building permit application. At a minimum, the technical noise memorandum prepared for proposed mechanical equipment shall demonstrate compliance with the city's Municipal Code Exterior Noise Level standards and compliance with the following:</i></p> <ul style="list-style-type: none"> ▪ <i>To the extent feasible, all mechanical equipment shall be oriented away from the nearest noise sensitive receptors; and</i> ▪ <i>All mechanical equipment shall be screened and enclosed to minimize noise or the equipment shall be factory rated at a noise level that would comply with the noise limits set forth in the city's Municipal Code.</i> <p><i>MM NOI-3 Loading and Delivery Areas. Prior to the issuance of any building permit, the Project proponent shall demonstrate, through preparation of a technical noise memorandum, that where a loading/delivery area is located within 250 feet of a residential use, all deliveries of goods and supplies; trash pick-up; and the operation of machinery or mechanical equipment which emits noise levels in excess of 60 dBA, as measured from the closest property line to the equipment, shall only be allowed between the hours of 7:00 AM and 10:00 PM, unless otherwise specified in a separate approval. The separate approval shall require a detailed acoustical study based on architectural plans to demonstrate that loading/delivery noise levels do not exceed the city's 60 dBA standard. If necessary, the acoustical study shall incorporate noise reduction measures to meet the city's standard. Approval of the detailed acoustical study by the City of Brentwood Community Development Department shall be required prior to the issuance of any building permits.</i></p>	SU

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>MM NOI-4 Amphitheater Noise. Prior to the issuance of any building permit for the Amphitheater in the commercial/civic area, a detailed acoustical study based on architectural plans shall be prepared by a qualified acoustical consultant and submitted for approval to the Community Development Department. The acoustical study shall demonstrate that events hosted at the Amphitheater would meet the city's 60 dBA daytime (7:00 AM to 10:00 PM) exterior noise standard, and 45 dBA nighttime (10:00 PM to 7:00 AM) exterior noise standard. The acoustical study shall identify design features or other measures, if necessary, to ensure compliance with the city's standard.</i></p> <p><i>MM NOI-5 Uses on the Project site that introduce commercial noise to nearby residences shall minimize noise exposure for indoor areas of nearby residential areas of such residential uses to the satisfaction of the Community Development Director through the use of noise attenuating building materials, engineering techniques, and site design practices. Site design practices may include, but shall not be limited to, locating mechanical equipment, loading bays, parking lots, driveways, and trash enclosures away from residential uses, and providing noise-attenuating screening features onsite.</i></p> <p><i>MM NOI-6 Residential development along Balfour Road must include appropriate noise attenuation measures in order to maintain interior noise levels of 45 dB Ldn or less. Application of this noise standard is intended to provide for reasonable exterior noise levels while discouraging the use of excessively high and/or unattractive sound walls.</i></p>	
<p>Impact NOI-3: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?</p>	S	<p><i>MM NOI-7 Implement MM NOI-1.</i></p>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
<p>Impact NOI-4: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?</p>	NI	None required.	N/A
<p>Impact NOI-5: Would the project result in exposure of persons or generation of noise in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?</p>	S	<i>MM NOI-8 Implement MM NOI-1 through MM NOI-5.</i>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
Public Services and Recreation			
Impact PSR-1a: Would Project construction, including off-site infrastructure improvements, result in any substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services?	LTS	None required.	N/A
Impact PSR-1b: Would the project result in substantial adverse physical impacts associated	LTS	None required.	N/A

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and medical services?			
Impact PSR-1c: Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable	LTS	None required.	N/A

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
service ratios, response times, or other performance objectives for police protection?			
Impact PSR-1d: Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools?	LTS	None required.	N/A
Impact PSR-1e: Would the project result in substantial adverse physical impacts associated with the provision of	LTS	None required.	N/A

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for libraries?			
Impact PSR-2: 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?	LTS	None required.	N/A
Impact PSR-3: Would the project require the construction or expansion of recreational facilities which might have an adverse physical	LTS	None required.	N/A

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
effect on the environment?			
Impact PSR-4: Would implementation of the project, in combination with past, present, and reasonably foreseeable projects result in cumulative impacts with respect to public services and recreation?	LTS	None required.	N/A
Transportation and Circulation			
Impact TR-1: Would the Project conflict with a program plan, ordinance or policy addressing the local circulation system under the Existing Plus Project scenario?	S	<p><i>MM TR-1 Prior to the approval of each tentative tract or parcel map for development within the Project, the Applicant shall have prepared and shall submit to the city for review and approval, a focused traffic study evaluating the effects of the proposed phase of development at the study intersections under Existing Plus Project conditions. This study shall determine if the potential significant intersection impacts will be triggered by that proposed phase of development. If the focused traffic study finds that one or more of the identified significant impacts would occur as a result of that proposed phase of development, then the applicable Mitigation Measure shall be imposed as a condition of approval to the tentative tract map.</i></p> <p><i>MM TR-2 Balfour Road at Commercial Entrance. Prior to the issuance of the first building permit for the commercial portion of the Project, the commercial access intersection shall be designed and constructed as a signalized intersection in the ultimate condition of Balfour Road to the satisfaction of the City of Brentwood. The improvement shall be completed prior to the issuance of the first building permit for the commercial development area.</i></p> <p><i>MM TR-3 Mountain View Drive at Balfour Road. Prior to the issuance of the first residential building permit, the Project Proponent shall reconstruct the median to prohibit the</i></p>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>northbound left-turn from Mountain View Drive to Balfour Road.</i></p> <p><i>MM TR-4 Foothill Drive/East Country Club Drive at Balfour Road. Prior to the issuance of the building permit for the 1,200th dwelling unit and again prior to issuance of the building permit for the 2,280th dwelling unit (or earlier, if traffic conditions warrant it, subject to the determination of the City Engineer), the Proponent shall engage a licensed transportation engineer to calculate the retiming and coordination of traffic signal timings on Balfour Road between the Project roadway and Fairview Avenue, subject to approval and implementation by the City Engineer. Such retiming and coordination shall achieve acceptable levels of service per city standards. The Project Proponent shall be responsible for all work and costs associated with the effort.</i></p> <p><i>MM TR-5 Balfour Road at Eagle Rock Way/Cortona Way. Implement MM TR-4.</i></p>	
<p>Impact TR-2: Would the Project conflict with a program plan, ordinance or policy addressing the State circulation system under the Existing Plus Project scenario?</p>	LTS	None required.	N/A
<p>Impact TR-3: Would the Project conflict with a program plan, ordinance or policy addressing the local circulation system under the Near-Term Plus Project scenario</p>	S	<p><i>MM TR-6 Implement MM TR-1.</i></p> <p><i>MM TR-7 Balfour Road at Deer Valley Road. Prior to the issuance of the residential building permit for the 600th dwelling unit, the Project proponent shall make a good faith effort to coordinate with the City of Antioch and Contra Costa County to effectuate the design and construction of the signalization of this intersection in conjunction with other planned improvements, which include the construction of a southbound left-turn lane, as well as separate westbound left and right-turn lanes. If the City of Antioch and/or Contra Costa County are unwilling to issue the approvals or permits required to effectuate the foregoing improvements, proponent shall cause design plans for said improvements to be completed and pay the Project's fair share of</i></p>	SU

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>construction costs toward such improvements (payment into the City of Brentwood’s Development Fee Program would account for a portion of this fair share contribution). Prior to the issuance of the residential building permit for the 1,200th dwelling unit, proponent shall design and construct all Balfour Road improvements within City of Brentwood control, including pavement widenings for separate westbound left and right-turn lanes and eastbound lanes, in the ultimate horizontal and vertical alignment to accommodate the signalization of the Balfour Road/Deer Valley Road intersection.</i></p> <p>MM TR-8 <i>Balfour Road at Commercial Entrance. Implement MM TR-2.</i></p> <p>MM TR-9 <i>Mountain View Drive at Balfour Road. Implement MM TR-3.</i></p> <p>MM TR-10 <i>Foothill Drive/East Country Club Drive at Balfour Road. Implement MM TR-4.</i></p> <p>MM TR-11 <i>Balfour Road at Eagle Rock Way/Cortona Way. Implement MM TR-5.</i></p> <p>MM TR-12 <i>Balfour Road at State Route 4 Eastbound Ramps. Prior to the issuance of the building permit for the 1,200th dwelling unit, and again prior to issuance of the building permit for the 2,280th dwelling unit (or earlier if, in the judgment of the City Engineer, traffic conditions warrant it), the proponent shall engage a licensed transportation engineer to calculate the retiming and coordination of traffic signal timings on Balfour Road between the Project roadway and Fairview Avenue, including the Balfour Road at SR-4 Eastbound Ramps, subject to approval by the City Engineer and Caltrans. Such retiming and coordination shall achieve acceptable levels of service per city standards.</i></p> <p>MM TR-13 <i>Balfour Road at Fairview Avenue: Signal Timing. Prior to issuance of the building permit for the 1,200th dwelling unit, and again prior to issuance of the building permit for the 2,280th dwelling unit (or earlier if, in the judgment of the City Engineer, traffic conditions warrant it), the proponent shall engage a licensed transportation engineer to calculate the retiming and coordination of traffic signal timings on Balfour Road between the Project roadway and Fairview Avenue, subject to approval by the City Engineer. Such retiming and coordination shall achieve acceptable levels of service per city standards.</i></p>	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
Impact TR-4: Would the Project conflict with a program plan, ordinance or policy addressing the State circulation system under the Near-Term Plus Project scenario?	S	<i>MM TR-14</i> Prior to the issuance of each building permit, the Project proponent shall pay its fair share towards freeway improvement projects in the area, including the widening of SR-4 between Balfour Road and Marsh Creek Road through the payment of the regional transportation impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA).	SU
Impact TR-5: Would the Project conflict with a program plan, ordinance or policy addressing the local circulation system under the Cumulative Plus Project scenario?	S	<i>MM TR-15</i> Implement MM TR-1. <i>MM TR-16</i> Balfour Road at Deer Valley Road. Implement MM TR-7. <i>MM TR-17</i> Balfour Road at Commercial Entrance. Implement MM TR-2. <i>MM TR-18</i> Balfour Road at Fairview Avenue: Right-of-Way Reallocation. Prior to the issuance of the building permit for the 1,200 th dwelling unit of the Project, the Project proponent shall design and construct improvements to the intersection, including any required signal modifications, to provide dual northbound left-turn lanes, one through lane, and a through-right shared lane, subject to approval of the City Engineer.	SU
Impact TR-6: Would the Project conflict with a program plan, ordinance or policy addressing the State circulation system under the Cumulative Plus Project scenario?	LTS	None required.	N/A
Impact TR-7: Would the Project conflict with a program plan, ordinance or policy	LTS	None required.	N/A

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
addressing the transit, bicycle and pedestrian facilities?			
Impact TR-8: Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	S	<p><i>MM TR-19 The Project shall contribute its fair share to roadway improvements on Deer Valley Road along the Project frontage that result in the roadway meeting current design standards through payment of impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA).</i></p> <p><i>MM TR-20 Consistent with the Project description and Specific Plan, Balfour Road from the existing American Avenue intersection to the Project entry will be constructed as a four-lane roadway concurrently with the first small-lot final subdivision map.</i></p> <p><i>MM TR-21 Concurrent with the construction of the extension of American Avenue and associated signalization at the intersection of Balfour Road, Balfour Road from the Project entry to the new westerly American Avenue intersection shall be improved as an interim two-lane roadway. Consistent with the intent of the Specific Plan to improve safety for pedestrian, bicycle and vehicular use of the roadway, the interim two-lane roadway shall be designed and constructed to meet all current city safety design standards. At minimum, the interim two-lane roadway (one eastbound and one westbound) shall consist of a median, paved vehicle travel lanes, safety buffers, bike lanes, sidewalk (along the northerly side of Balfour Road), and sufficient right-of-way and median width to accommodate future widening to four lanes. In addition, the interim roadway shall include additional paved widening for vehicular turn pockets approaching intersections with sufficient length to accommodate vehicular stacking and deceleration. Said improvements shall be completed to the satisfaction of the City Engineer.</i></p> <p><i>MM TR-22 Consistent with the Specific Plan, Balfour Road, from the Project entry to the new westerly American Avenue intersection, shall be widened from the interim two-lane configuration to four lanes as traffic demand necessitates as evaluated at each small-lot final subdivision map.</i></p> <p><i>MM TR-23 Prior to the issuance of the 1,200th building permit or as traffic demand necessitates as evaluated at each small-lot final subdivision map, whichever occurs first,</i></p>	SU

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>proponent shall construct the same interim two-lane roadway improvements as detailed in MM TR-21 above from the new westerly American Avenue intersection to Deer Valley Road.</i></p> <p><i>MM TR-24 The proponent shall install a drop-off/pick-up area along that portion of American Avenue within the City of Brentwood municipal limits, proximate to Adams Middle School, designed to protect the safety of users to the satisfaction of the City Engineer.</i></p> <p><i>MM TR-25 As part of the construction of the American Avenue extension, conduct a safe-routes to school assessment to identify potential modifications to site access and circulation for all travel modes to Adams Middle School and Heritage High School. The Project proponent shall implement the measures identified from that study, which, in the determination of the City Engineer, are necessary and reasonable to avoid or lessen substantial increases in design hazards. This may include traffic control changes, signing, and striping.</i></p> <p><i>MM TR-26 Create an accessible circulation network that is consistent with guidelines established by the Americans with Disabilities Act (ADA), allowing mobility-impaired users such as the disabled and elderly to safely and effectively travel within and beyond the city, consistent with General Plan Policy CIR 2-4.</i></p>	
Impact TR-9: Would the Project result in inadequate emergency access?	S	<p><i>MM TR-27 Prior to approval of Improvement Plans for Phase 1, the plans shall include an on-site temporary emergency vehicle access road (EVA), which would serve as a second EVA for the project, until such time that Hillcrest Avenue is extended to the site's northern boundary. The design of the temporary EVA shall be subject to review and approval by the City of Brentwood and East Contra Costa Fire Protection District.</i></p>	LTS
Tribal Cultural Resources			
Impact TCR-1: Would the Project cause a substantial adverse change in the significance of a tribal cultural	S	<p><i>MM TCR-1 Implement MM CR-1 through MM CR-6.</i></p>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
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: <ul style="list-style-type: none"> 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)? 			

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall			

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
consider the significance of the resource to a California Native American tribe?			
Impact TCR-2: Would the off-site Infrastructure improvements result in impacts to tribal cultural resources?	S	<i>MM TCR-2 Implement MM CR-1 through MM CR-6.</i>	LTS
Impact TCR-3: Would the Project result in cumulative impacts to tribal cultural resources?	S	<i>MM TCR-3 Implement MM CR-1 through MM CR-6.</i>	LTS
Utilities and Service Systems			
Impact UTIL-1: Does the project have the potential to exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	LTS	None required.	N/A
Impact UTIL-2: Would the project	S	<i>MM UTIL-1 The Project shall construct water system improvements identified below to ensure acceptable water system capacity and operations to the satisfaction of the City</i>	LTS

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage systems or dry utilities, the construction or relocation of which could cause significant environmental effects?		<p><i>Engineer. With regard to the first three improvements listed below, prior to each phase of development, the Project Proponent shall commission and submit to the City a water system analysis to verify the need for the identified improvement. At such time as any future water system analysis determines that a new phase of development will necessitate the identified improvement(s), the Project Proponent shall design and construct said improvement(s) prior to the issuance of the first building permit for that phase.</i></p> <ul style="list-style-type: none"> ▪ <i>The Proponent shall design and construct off-site Pump Station 2.4.</i> ▪ <i>The Proponent shall design and construct Reservoir 2.4 (3 million gallon).</i> ▪ <i>The Proponent shall design and construct Pump Station 3.4.</i> ▪ <i>The Proponent shall design and construct a 16-inch water transmission line from John Muir Parkway to Foothill Drive consistent with the city's 2017 Water Master Plan. This improvement shall be in place and operational prior to the issuance of the first building permit.</i> ▪ <i>Unless otherwise needed to provide water to the Project, the Proponent shall incorporate the design of all water improvements in Balfour Road as part of the roadway construction plans. This includes both Zone 2 and Zone 3 improvements.</i> ▪ <i>Prior to each phase of development, Proponent shall commission and submit to the city a sewer analysis to evaluate the wastewater impact of the development proposed within that phase. At such time as any future sewer analysis determines that a new phase of development will cause the flow performance of the existing 12" sewer pipe beneath Balfour Road from West Country Club Drive to Ranchwood Drive to exceed available capacity, Proponent shall design and construct a new parallel wastewater line of sufficient size to accommodate such overage and to the satisfaction of the City Engineer. Construction of said facility shall be completed prior to the</i> 	

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
		<p><i>issuance of any building permits within the development phase analyzed in the analysis.</i></p> <p><i>MM UTIL-2 Implement MM HYD-1 through MM HYD-3.</i></p>	
<p>Impact UTIL-3: Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?</p>	LTS	None required	N/A
<p>Impact UTIL-4: Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?</p>	LTS	None required.	N/A
<p>Impact UTIL-5: Would the project generate solid waste</p>	LTS	None required.	N/A

Table 2-1: Draft EIR Summary of Impacts and Mitigation			
Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance with Mitigation
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?			
Impact UTIL-6: Would the project comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?	LTS	None required.	N/A
Impact UTIL-7: Would implementation of the project, in combination with past, present, and reasonably foreseeable projects, result in significant cumulative impacts with respect to utilities and service systems?	S	<i>MM UTIL-3 Implement MM UTIL-1 and MM UTIL-2.</i>	LTS

2.6 Alternatives to the Proposed Project

The following summary provides brief descriptions of the three alternatives to the proposed Project that are evaluated in this Draft EIR. Chapter 5, Alternatives to the Project, provides a more thorough discussion of the Project alternatives.

Alternative 1: No Project / No Development Alternative

Consideration of the No Project Alternative is required by Section 15126.6(e) of the CEQA Guidelines. The analysis of the No Project Alternative must discuss the existing conditions at the time the Notice of Preparation was published, as well as: “what would be reasonably expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services” [CEQA Guidelines Section 15126.6 (e)(2)]. The requirements also specify as the proposal of some other Project, this ‘no Project’ consequence should be discussed” [CEQA Guidelines Section 15126.6 (e)(3)(B)].

This alternative assumes that the Voter Initiative is not successful and discretionary actions related to the Project are not approved by the lead or responsible agencies. Under these circumstances, the approximately 815-acre site would be managed as it is today, with limited dryland farming and limited agricultural use.

Alternative 2: Reduced Density (1,195 Residential Units) Alternative

Alternative 2 assumes that the current Voter Initiative is not successful and the Special Planning Area SPA 2 is planned and developed under the SPA Planning Process as defined in the Brentwood General Plan. Similar to the current Voter Initiative, Alternative 2 assumes that SPA 2 would ultimately be the subject of a Specific Plan adopted by the City, an ULL adjustment, a SOI amendment, annexation into the City of Brentwood and all other discretionary actions necessary to implement development. Entitlements would be granted, and the appropriate boundary reorganization would occur.

The Project would introduce a higher residential density in SPA 2 due to its age-restricted housing component. In comparison, Alternative 2 analyzes a development scenario based on allowable General Plan densities with non-age restricted housing. Alternative 2 is intended to meet most of the basic project objectives, while also serving to minimize or eliminate one or more potentially significant impact that would occur with implementation of the Project.

Under Alternative 2, SPA 2 would be developed assuming approximately 50% of the Project site would be Ranchette Estate (RE - 1.0 du/acre) and approximately 50% would be Residential Very Low Density (R-VLD 3.0 du/acre). Total dwelling unit count is assumed to be 1,195 non-age restricted-units. The alternative also assumes twenty (20) acres of local serving General Commercial providing goods and services to the immediate area consistent with the SPA 2 definition. Alternative 2 also includes 200 acres of open space, which is slightly less than the minimum 225 acres proposed for the Project. The 200 acres of open space reflects a “significant

area” of open space, also consistent with the SPA definition in the General Plan. Under Alternative 2, backbone roadway and utility infrastructure improvements would be required similar to the Project in order to service the low-density development areas because this alternative would not include any multi-family uses and would therefore cover approximately the same area as the Project.

Alternative 3: Reduced Density (583 Residential Units) Alternative

Alternative 3 assumes that the Voter Initiative is not successful, and that development of the site would be pursued under the City of Brentwood General Plan SPA 2 land use designations (Ranchette Estate and Very Low Density Residential) at the low end of the density range as evaluated under the 2014 General Plan EIR. The 2014 General Plan EIR assumed that the Planning Area Buildout for SPA 2 would be approximately 583 dwelling units and 79,899 square feet of non-residential building square footage. This assumes development at the low end of the permitted density range for the residential uses and limited local-serving General Commercial uses as allowed within SPA 2. For purposes of Alternative 3, it is assumed that preparation of a Specific Plan or Planned Development Zoning would be pursued under this Alternative as per the requirements identified for the two SPAs designated by the General Plan (SPA 1 and SPA 2).

The Project would introduce a higher residential density than currently exists within the immediate Project area. As a result, the focus of this Alternative is on the analysis of a development alternative that would be reasonably feasible and meets most of the Project objectives, while also serving to minimize potentially significant impacts that would occur with implementation of the Project related to aesthetics, agriculture, air quality, land use, noise, public services, and traffic. This alternative also strives to achieve the majority of the Project objectives as required by Section 15126.6 of the State CEQA Guidelines.

As noted above, the 2014 General Plan EIR assumes 583 residential units and 79,899 square feet (1.8 acres) of commercial space would be constructed by buildout of the Planning Area identified as SPA 2. The 2014 General Plan EIR estimates that buildout of SPA 2 would result in a new population growth of 1,877 people.

Environmentally Superior Alternative

CEQA Guidelines Section 15126(e)(2) requires that the environmentally superior alternative be identified. If the environmentally superior alternative is the No Project Alternative, the EIR shall identify an environmentally superior alternative among the development alternatives.

In comparison to the alternatives analyzed, the No Project Alternative would be the environmentally superior alternative because it would eliminate all of the Project’s significant and unavoidable impacts, would require no mitigation, and would reduce all of the Project’s less than significant impacts. However, in accordance with CEQA Guidelines Section 15126(e)(2), Alternative 3 was identified as the environmentally superior alternative among the development alternatives.

Alternative 3 reduces several impacts due to the reduced development intensity associated with this alternative, including a reduction in vehicle trips generated by the Project, which accounts for a reduction in air quality, GHG, noise, and traffic impacts. Notably, Alternative 3 would avoid the significant and unavoidable noise impact of the Project.

While Alternative 2 meets many of the overall Project objectives identified in Chapter 3, Project Description, of this Draft EIR, this alternative would not avoid any of the significant and unavoidable impacts of the Project. Further, as discussed above, Alternative 2 would not completely meet the Project objectives because it would not include age-restricted housing and would include less protected open space than the Project.

3 Project Description

3.1 The Initiative

The project evaluated in this EIR (the Project) is the development of an approximately 815-acre site located adjacent to the western municipal boundary of the City of Brentwood, California (the Project site). The principal legislative actions approving key components of the Project are the subject of a proposed citizen-sponsored initiative that may be considered by Brentwood voters on a future ballot (the Initiative). The Initiative would:

- Modify the city’s ULL to include the Project site;
- Amend the city’s General Plan to (i) rename the Project site as *SPA 2 / VDCSP*, (ii) establish new policies with respect to the development and use of the Project site, and (iii) make certain other conforming amendments; and
- Adopt the VDCSP, establishing, among other things, the uses to be permitted on the Project site and specific conditions to be applied to the development of the Project site;
- Amend the City of Brentwood Zoning Ordinance (Title 17 of the Municipal Code) to (i) establish the *Vineyards at Deer Creek* (VDCSP) zoning district, (ii) pre-zone the Project site to the VDCSP district, and (iii) make certain other conforming amendments to Municipal Code Ch. 17.820 (Design and Site Development Review).

This chapter of the EIR describes the location and area included within the VDCSP (current site conditions and existing uses), and the development that would be allowed under the VDCSP. It also identifies the Project objectives and required approvals associated with implementing the VDCSP.

3.2 Project Overview

As further described below, the VDCSP allows for development of up to 2,400 residential units across multiple neighborhoods within the Project site, as well as approximately 20 acres of commercial uses, approximately 15 acres of community recreation uses, and at least 225 acres of open space. The VDCSP requires that at least 80 percent of all residential units must be “active adult age-restricted,” meaning occupied by “seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law.” In addition, “[a]ny and all multi-family units must be age-restricted.” No more than 20 percent of the 2,400-unit maximum may be non-age restricted. The Project also includes the construction of certain off-site improvements. (Note: For purposes of convenience, the off-site improvements, though part of the “Project” evaluated by this EIR, are not included within this EIR’s references to the 815-acre “Project site.”)

3.3 Project Location

The proposed project is located west of the City of Brentwood, in unincorporated Contra Costa County, north of Balfour Road, east of Deer Valley Road, and west of the Shadow Lakes and Deer Ridge neighborhoods, as shown in Figure 3-1, Regional Location, and Figure 3-2, Project Location. The Project site totals ±815 acres and is comprised of four assessor's parcel numbers (APN(s)): 019-120-002 (±160 acres); 019-120-007 (±80 acres); 019-120-008 (±307 acres) and a portion of 057-060-008 (±270 acres). The City of Antioch city limits are located along the northern boundary of the Project site, as well as the southwestern portion of the Project site.

As further described below, the Project site is located within the Planning Area of the Brentwood General Plan, but not within the City of Brentwood's municipal boundaries or SOI, and any proposed changes to the municipal boundary or SOI must be approved by the Contra Costa LAFCo. Development of the Specific Plan requires SOI expansion, annexation to the City of Brentwood, and annexation to the East Contra Costa Irrigation District, all of which must be approved by the Contra Costa LAFCo pursuant to separate process(es) under State law.

3.4 Project Site History

Over the past 80 years, the Project site has been used for limited agriculture, dryland grass farming and limited seasonal cattle grazing. Past uses of the property have also included limited oil drilling and natural gas extraction. While the vast majority of the property is free of any surface encumbrances for surface oil and gas activities, four, 3.0 – 5.0-acre areas within the Project site have maintained active oil and natural gas production operations on an area located at the northwest corner of the property; it is anticipated that these areas would continue to produce oil and natural gas during operation of the uses developed under the Specific Plan.¹

In 2004, the voters of Contra Costa County adopted Measure J, which requires local jurisdictions to adopt a voter-approved ULL in order to continue to receive certain County transportation funding. The ULL is a county-wide growth management tool that is used to ensure that each jurisdiction in the County regulates the geographic extent of urban growth and has a plan for transportation improvements and urban services triggered by growth.

In November 2006, Contra Costa County voters adopted Measure L, which approved a ULL for Contra Costa County. Subsequently, the Contra Costa Transportation Authority adopted a Revised Growth Management Program, providing that local jurisdictions could satisfy Measure J's ULL requirement in various ways, including by adopting their own ULL or by adopting the County's voter-approved ULL if it had been approved by a majority of the local jurisdiction's voters in the 2006 Measure L election. In 2008, the Brentwood City Council satisfied Measure J's ULL requirement by adopting the County's ULL (which had been approved by a majority of Brentwood voters voting on Measure L) as the City of Brentwood's ULL (Resolution No. 2008-3).

¹ Personal Communication, Bob Nunn, April 2019.

**Figure 3-1
Regional Location**

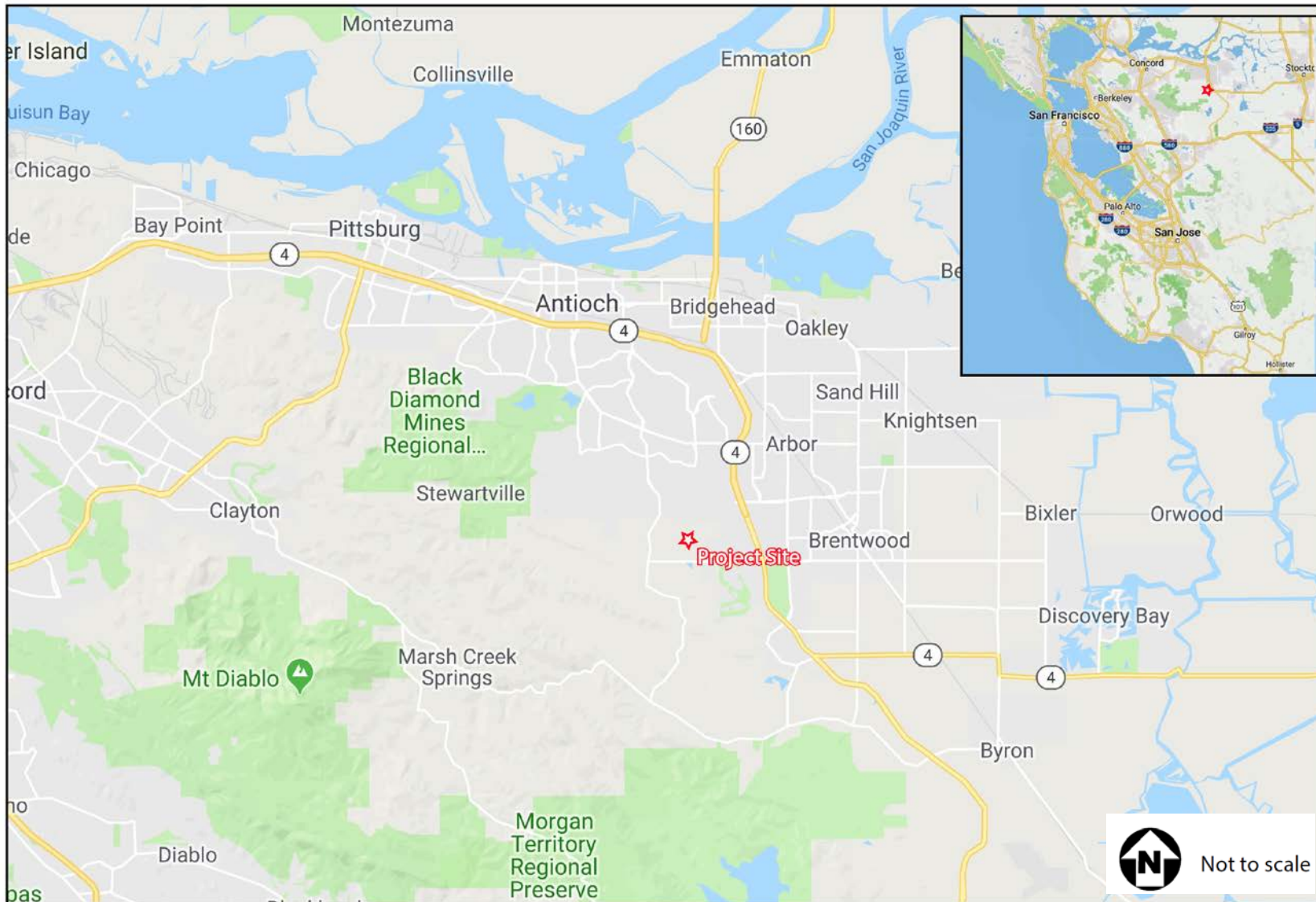
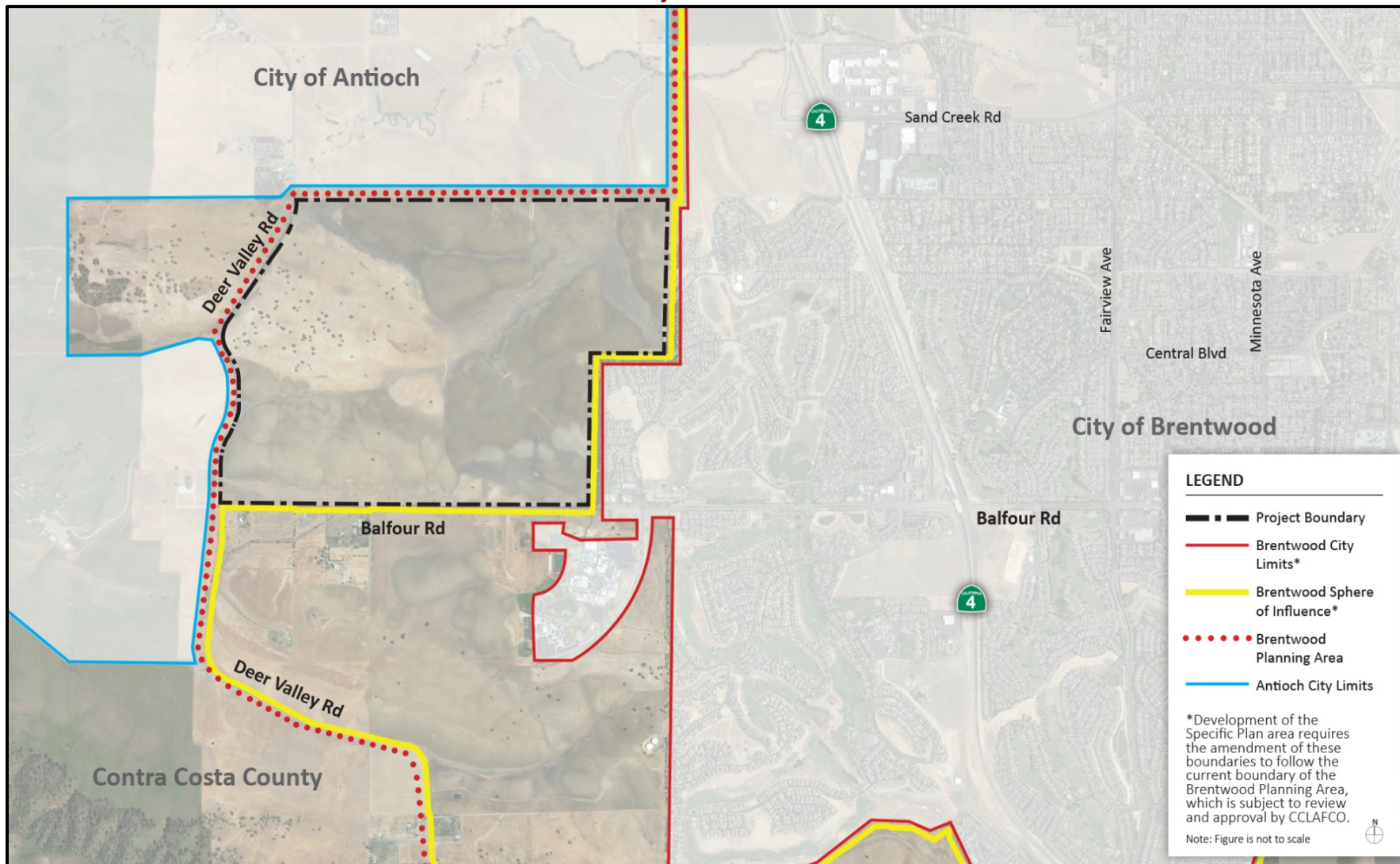


Figure 3-2
Project Location



In 2014, in connection with the General Plan Update, the city adopted the City of Brentwood ULL as Figure LU-3 of the city's General Plan.

Prior to the proposed Initiative, the Project site has not been the subject of any additional site-specific or recent land use entitlement efforts. As discussed below, the Project site is identified in the city's 2014 General Plan as SPA 2 (which would be renamed as SPA 2 / VDCSP by the Initiative). The city adopted its General Plan and certified the 2014 General Plan EIR (SCH # 2014022058) on July 22, 2014. The 2014 General Plan EIR evaluated the environmental impacts associated with implementation of the General Plan, including development of the Project site, as further described below.

3.5 Environmental and Regulatory Setting

Regional Setting

The City of Brentwood is located in eastern Contra Costa County on the eastern perimeter of the San Francisco Bay Area Metropolitan Area. The city encompasses 14.8 square miles and is located immediately east of the Diablo Range, on the western edge of the San Joaquin Valley, as shown in Figure 3-1. Immediately beyond Brentwood to the south and east are farmlands and the Delta waterways. The city's location is approximately 50 miles from San Francisco to the southwest, and Sacramento to the northeast.

Existing and Adjacent Land Uses on the Project Site

As shown in Figure 3-2, the Project site is undeveloped and currently used for agricultural purposes, including dryland grass farming and limited seasonal cattle grazing. Portions of the Project site include gently rolling hills ranging in elevation from approximately 191 to 385 feet above sea level. Deer Creek extends parallel and adjacent to Balfour Road along a portion of the Specific Plan Area. Approximately 100 blue oak trees in various condition (good, fair, poor) are located within the westerly portion of the VDCSP area.

The Project is located within the Lower Marsh Creek Watershed hydrologic area, one of six such areas in the city's larger planning area. There are three regional drainage sheds in the VDCSP area. Most of the site drains to a headwater watershed that flows generally to the northeast and north to join Sand Creek, approximately 2,500 feet north of the Project area boundary, and downstream of the recently constructed Upper Sand Creek Basin flood control facility. This headwater system is referred to in this EIR as the "unnamed tributary." It begins west of Deer Valley Road, upstream of the western Project area boundary, and flows approximately 7,500 feet across the site. At the northeast boundary of the Project area, the unnamed tributary drains about 0.9 square miles, with about 97 percent of that drainage lying within the Project area boundaries.

The northwestern portion of the Project site drains northwestward into Horse Valley Creek, which is a relatively large tributary watershed to Sand Creek. The southern portion of the Project site drains southward into Deer Creek. Deer Creek enters the Project boundary at the

southwest border through an undersized culvert under Balfour Road. Deer Creek meanders eastward within the Project site for approximately 2,500 feet until passing through another culvert under Balfour Road and entering the Contra Costa County Flood Control and Water Conservation District's Deer Creek Reservoir, from which it continues eastward following the south side of Balfour Road. The project will generally maintain the existing drainage patterns.

There are no existing buildings on the Project site. Limited infrastructure exists on the Project site, including pipelines previously used for oil and gas exploration and a current active well and associated oil and gas infrastructure located in the northwest area of the Project site.

Adjacent land uses include the single-family Shadow Lakes and Brentwood Hills residential neighborhood to the east, single-family Deer Ridge residential neighborhood to the southeast, and agricultural and open space to the north, west, and south. In addition, Roddy Ranch lies to the west of the Project site, across Deer Valley Road, as does a future East Bay Regional Parks District facility. The area to the north of the Project site is planned for residential development, as set forth under the City of Antioch's General Plan. The area to the south of the Project site, in the vicinity of the proposed extension of American Avenue, is planned for residential development under the City of Brentwood's General Plan. Heritage High School and Adams Middle School are located southeast of the Project site and are accessed from American Avenue.

General Plan Designation

The Project site is located in an area presently designated in the City of Brentwood General Plan as SPA 2. The General Plan policies applicable to SPA 2 apply to development of the Project site. Policy LU 1-9 of the General Plan supports and encourages annexation of SPA 2 into the city stating that the city should "[s]upport and encourage the annexation" of SPA 2 into the City of Brentwood. The General Plan envisions the future development for SPA 2 as the following:

The General Plan states that the SPA designation was assigned, in part, to "facilitate comprehensive planning of large strategic areas utilizing progressive planning techniques to ensure high quality development and integrate development with the provision of infrastructure." The General Plan requires that "the City shall adopt a specific plan [...] or planned development zone district" for development of SPA 2.

As described in the General Plan, development within a SPA shall occur in accordance with the following process:

1. The city shall adopt a specific plan, as defined by Sections 65450-65457 of the California Government Code, or a Planned Development zone district shall be applied with substantially the same contents as a specific plan. This shall address the entire SPA except as noted in (2) below;
2. Preparation of multiple specific plans or planned development zone districts for a SPA may be allowed when the city finds that this would be in the public interest due to ownership pattern, size of the SPA, timing of development, or other similar factors.

However, in no case shall a specific plan or planned development zone district contain less than 50 acres or represent less than 25 percent of the developable acreage of a SPA; and

3. Once a specific plan or planned development zone district is adopted, discretionary approvals (such as subdivision maps, rezoning, or design review) may be granted by the city.

Zoning Designation

The Project site currently does not have a zoning designation under the city's Zoning Ordinance and Zoning Map. The Project site is currently located in unincorporated Contra Costa County and is zoned A-4 (Agricultural Preserve District) under Title 8 of the Contra Costa County Code.

3.6 Proposed Project

The VDCSP would be used as a planning document to be implemented by the City of Brentwood over time. The VDCSP would allow for development of up to 2,400 residential units across multiple neighborhoods within the Project site, commercial uses envisioned for agricultural and farm-to-table related civic and commercial uses and functions, community recreation uses, and at least 225 acres of open space. The Project also includes the off-site improvements, described separately in this chapter (see section entitled "Off-Site Improvements").

Land Use Designations

The VDCSP allows for and defines land use designations to be utilized within the Project site. These land use designations implement the policies of the VDCSP. These four land use designations are:

1. Residential (VDC-R)
2. Community Recreation (VDC-CR)
3. Commercial/Civic (VDC-CC)
4. Open Space (VDC-OS)

These VDCSP land use designations are unique to the Project site and implement the policies of the VDCSP. These land use designations, as implemented through the pre-zoning of the Project site to the VDCSP zoning district (which, as a legislative action, is anticipated to be approved through the citizen's Initiative), prevents the future application of any other zoning districts or planned developments without a further vote of the people for a period of 20 years after passage of the Initiative. After that time, the Brentwood City Council would be authorized to amend the VDCSP (as may be allowed by law). The precise locations of the Residential (VDC-R), Community Recreation (VDC-CR), and Open Space (VDC-OS) land use designations are not yet determined and are subject to further refinement as development plans progress to allow for site constraints, market trends and other factors that change over time. Nonetheless, if developed, the Commercial/Civic (VDC-CC) land use designation would be located on, and

limited to, approximately 20 acres in the southwestern corner of the Project site off Balfour Road.

Table 3-1 identifies the approximate acreages proposed within each land use category, as depicted in Figure 3-3, Vineyards at Deer Creek Conceptual Land Use Plan. All numbers are rounded to the nearest whole number. In no event would there be less than 225 acres of Open Space in the Project site.

Land Use	Gross Acres ¹
Residential ^{1,2}	±555
Community Recreation Center ¹	±15
Commercial/Civic	±20
Open Space ³	±225
Total	±815
Notes:	
1. Inclusive of roadways, and other miscellaneous areas; rounded to the nearest whole number.	
2. Inclusive of stormwater basins. The total residential acreage may increase by up to and not more than 20-acres if the Commercial/Civic uses are not developed.	
3. Consistent with the General Plan, open space may include agricultural, parks, permanent open space, and other similar uses, as well as waterways; per VDCSP policy, the Project site must include at least 225 acres of Open Space.	

Residential

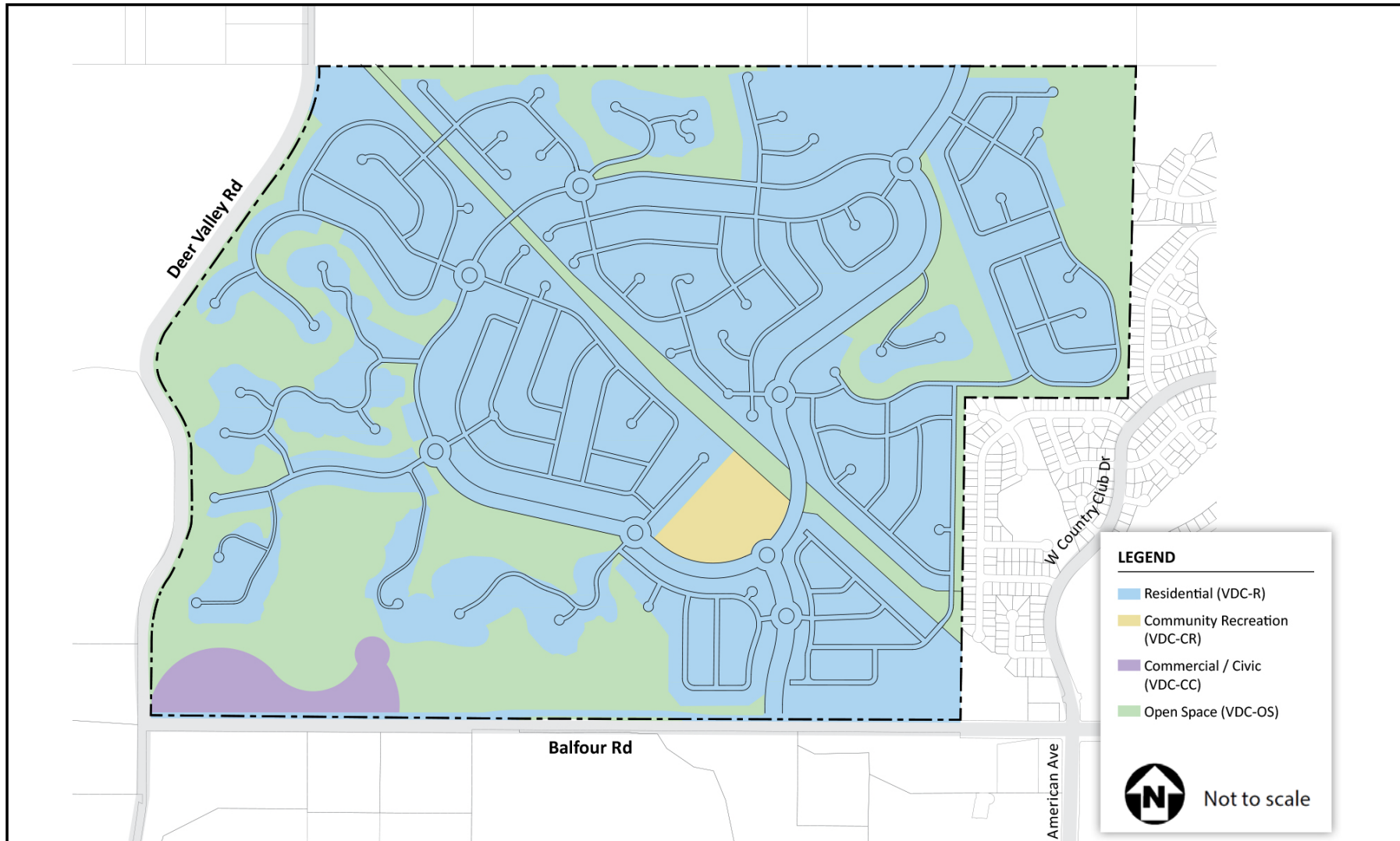
The proposed project would allow for the development of a maximum of 2,400 residential units. Of these, at least 80 percent must be active-adult age-restricted, and no more than 20 percent may be non-age restricted. The phasing of age-restricted and non-age restricted units, respectively, would depend on financing and market considerations. The proposed project does not require that the phasing of development satisfy the required 80/20 ratio at any time prior to buildout of the Project.

The VDCSP requires that “[a]ny and all multi-family units must be age-restricted.” Therefore, all references to the multi-family units in this chapter assume that those units will be age-restricted. The multi-family units could be either rental or ownership.

Further, the multi-family residential units may not be located on hilltops or ridges, or adjacent to the 100-foot buffer along the eastern boundary of the VDCSP area. Along the eastern boundary of the Project site, where it adjoins existing residential development, there would be a 100-foot buffer (which may include landscaping and roads). Uses adjacent to the buffer would be limited to single-story/single-story profile, single-family residential units.

The residential units would be developed on approximately 555 acres within the 815-acre Project site for an overall gross density of no more than three dwelling units per acre for the entire Project site.

Figure 3-3
Vineyards at Deer Creek Conceptual Land Use Plan



The housing types are envisioned to include a combination of single-family attached and detached, and multi-family residential units. Senior care facilities are considered to be a commercial use on the Project site and therefore would not be included in the 2,400-unit maximum residential unit limitation. However, for purposes of this proposed project, senior care facilities may be located in either the residential (VDC-R) or commercial (VDC-CC) sub-designations and have been considered in this EIR's environmental analysis.

With build-out of the Project site expected to take 20+ years, the final household types, specific densities and lot locations within the Project site would be determined based on site conditions and market trends, subject to review and approval by the city through subdivision approval and/or design and site development review processes pursuant to the Brentwood Municipal Code.

The Project envisions that all active-adult age restricted neighborhoods proposed in the Project site would be gated for privacy, and if so, private streets would be maintained by the residents that use them. Non-age restricted neighborhoods could also be gated for privacy, and, if so, these private streets would also be maintained by the residents that use them. Gating of specific development proposals would be evaluated by the city during design and site development review, consistent with Chapter 6, Design Guidelines, of the VDCSP.

The Project envisions that each residential neighborhood could include a smaller private neighborhood recreation center, with denser housing types (e.g., multi-family or attached residential) located adjacent to such neighborhood social areas. Placement of smaller private neighborhood recreation centers could work to create a clustered focal point for each neighborhood, although, the final constructed mix of amenity uses would be market-driven.

Community Recreation

The Community Recreation land use designation (VDC-CR) would allow for the development of approximately 15-gross acres of community recreation uses.

Depending on market trends and to allow a degree of flexibility, the proposed project allows for development of one community recreation center, a series of neighborhood recreation centers, or a combination of the two. It is anticipated that the final constructed mix of amenity uses within any recreation center would be market-driven. While being recreation focused, the ultimate indoor and outdoor offerings of the community recreation center would be refined based on the mix of housing types, evolving market trends, and programming requirements.

Indoor amenities could include a multi-purpose room for community events, a post office, a fitness center, an indoor pool, locker rooms, a restaurant, a health spa, a demonstration kitchen, and space for various informal recreation activities (e.g. library, craft room, pool table, or similar activities). Outdoor recreation amenities could include a separate outdoor pool, tennis/pickleball courts, bocce ball courts, barbecues, informal gardens, parks, trails, dog park, putting greens, or similar activities. It is anticipated that the community recreation center would

be linked to the rest of the Project site through pedestrian, bicycle, and local use vehicle (e.g., golf cart) accessible connections.

Commercial/Civic

The Commercial/Civic (VDC-CC) land use sub-designation would allow for the development of a commercial/civic area, that if developed, would be located on approximately 20 acres in the southwestern corner of the Project site off Balfour Road.

The VDCSP allows for a range of commercial uses. Although the commercial uses are not known at this time, this area is envisioned for agricultural and farm-to-table related civic and commercial, uses and functions. Uses of this commercial/civic area could include an outdoor amphitheater, a winery, a “farm to table” restaurant/bar, hotel uses, and a wine barn for tastings, weddings, and other community events. In support of the agrarian theme, this area is envisioned to potentially include a commercial nursery, an indoor community greenhouse, and outdoor community garden plots. Alternative limited commercial uses, including hotel uses, would also be permitted within this area. Because no specific uses are proposed for the commercial site, this environmental analysis assumes 91,500 square feet (sf) of general retail space. Since the precise combination of commercial/civic uses are not known at this time, commercial retail was assumed to provide the most conservative estimate of the amount and types of vehicle trips that would be generated by potential commercial/civic uses.

If not developed with commercial uses, residential uses, as described in the VDCSP, may be permitted in the southwestern corner of the Project site off Balfour Road. Consistent with city policy, senior care facilities are considered to be a commercial use and therefore would not be included in the 2,400-unit maximum residential unit limitation. However, for purposes of this Project (and environmental analysis provided herein), senior care facilities may be located in the VDC-R or VDC-CC sub-designations.

Open Space

The Open Space (VDC-OS) land use sub-designation allows for—and requires—a minimum of 225 acres within the Project site that would consist of open space, a portion of which would be permanent agricultural crops, such as vineyards and olive groves.

Uses could include permanent agricultural crops, natural areas, formal or informal parkland, low-impact (permeable and semi-permeable) trails, and waterways. Other uses could include those that support the maintenance and preservation of the open space uses including barns, maintenance buildings, irrigation facilities, and gravel or improved access roads, as well as underground and above ground utilities.

It is anticipated that the open space would ultimately be owned and maintained by a Homeowners Association(s) (HOA), or a similar entity that would be expected to utilize a third-party organization(s) to conduct the farming (i.e., cultivation, pruning, irrigation, harvesting, etc.) and related operations on-site. The permanent agricultural areas could include vineyards

and olive groves. Open space management (i.e., weed abatement, mowing, pest control) and public landscaping could potentially be maintained by a Lighting and Landscape District (LLD), or similar entity.

The VDC-OS sub-designation may include areas along existing utility easements and areas surrounding the existing oak trees located within the Project site. Where feasible, existing oak trees in good health would be retained, and those identified by a licensed arborist as being in poor health or those that may pose a potential risk would be replaced on-site.

Project Construction/Phasing

The proposed project would be implemented over time and in a phased approach. Specific details regarding phasing would be determined by the developer(s) in response to market trends, availability of financing, and other factors.

The anticipated sequence of Project construction is shown in Figure 3-4, Conceptual Phasing Plan. This sequencing envisions up to five or more phases developed over the next 20+ years. Generally, the phases are anticipated to begin in the south-central portion of the site and would be built out in a counterclockwise order. Phase 1 would be located north of Balfour Road, within the south-central area of the Project site. Phase 1 is anticipated to include residential land uses, as well as the proposed community recreation center. Phases 2, 3, and 4 would include residential and open space land uses. Phase 5 would be located in the southwestern portion of the Project site and would include the commercial/civic area land use along Balfour Road. The phases described above are only conceptual at this time, with details to be determined by the developer(s) in response to market conditions, availability of financing, and other factors.

As described in Chapter 8 of the VDCSP, any future development would be responsible for the construction of both private and public infrastructure necessary to support each phase within the Project site and, in relevant circumstances (e.g. water, sewer, stormwater), in adjacent off-site areas. As each phase with infrastructure is built, the constructed public infrastructure would be dedicated to and accepted by the City of Brentwood.

Although the Project could be built out over a 20+ year period, in some instances a more conservative phasing approach is assumed to allow for an accelerated construction timeline. Instances in which the construction phasing analysis varies from the 20+ year timeframe noted above are discussed in their respective chapters or sections of this EIR.

Project Design, Engineering, and Infrastructure

Access, Circulation, and Parking

On-Site Roadways

As shown in Figure 3-5, Conceptual Street Network and Hierarchy, primary access to the Project site would be via a four-lane divided minor arterial north from Balfour Road. This roadway would provide access to at least two residential neighborhoods.

**Figure 3-4
Conceptual Phasing Plan**

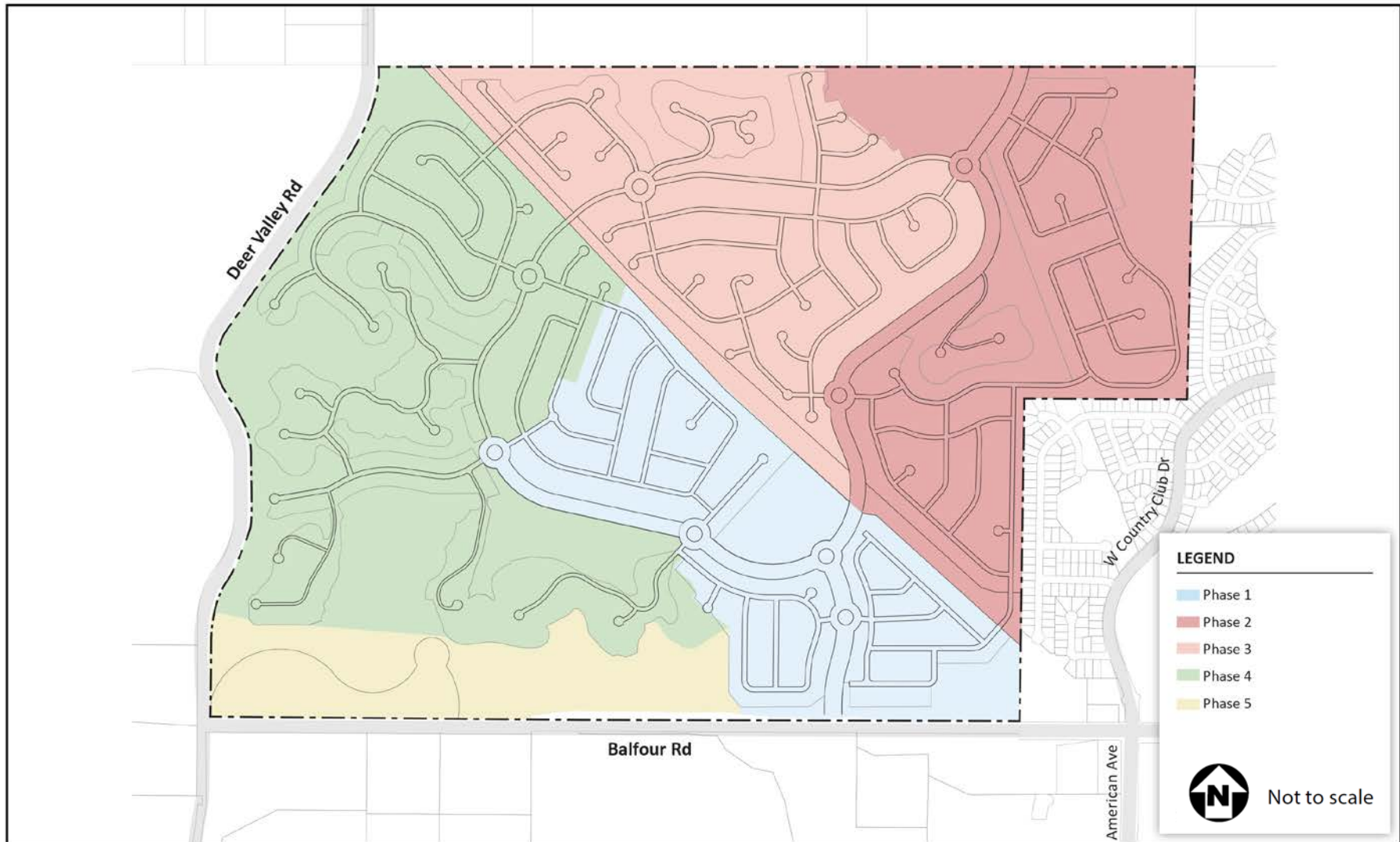
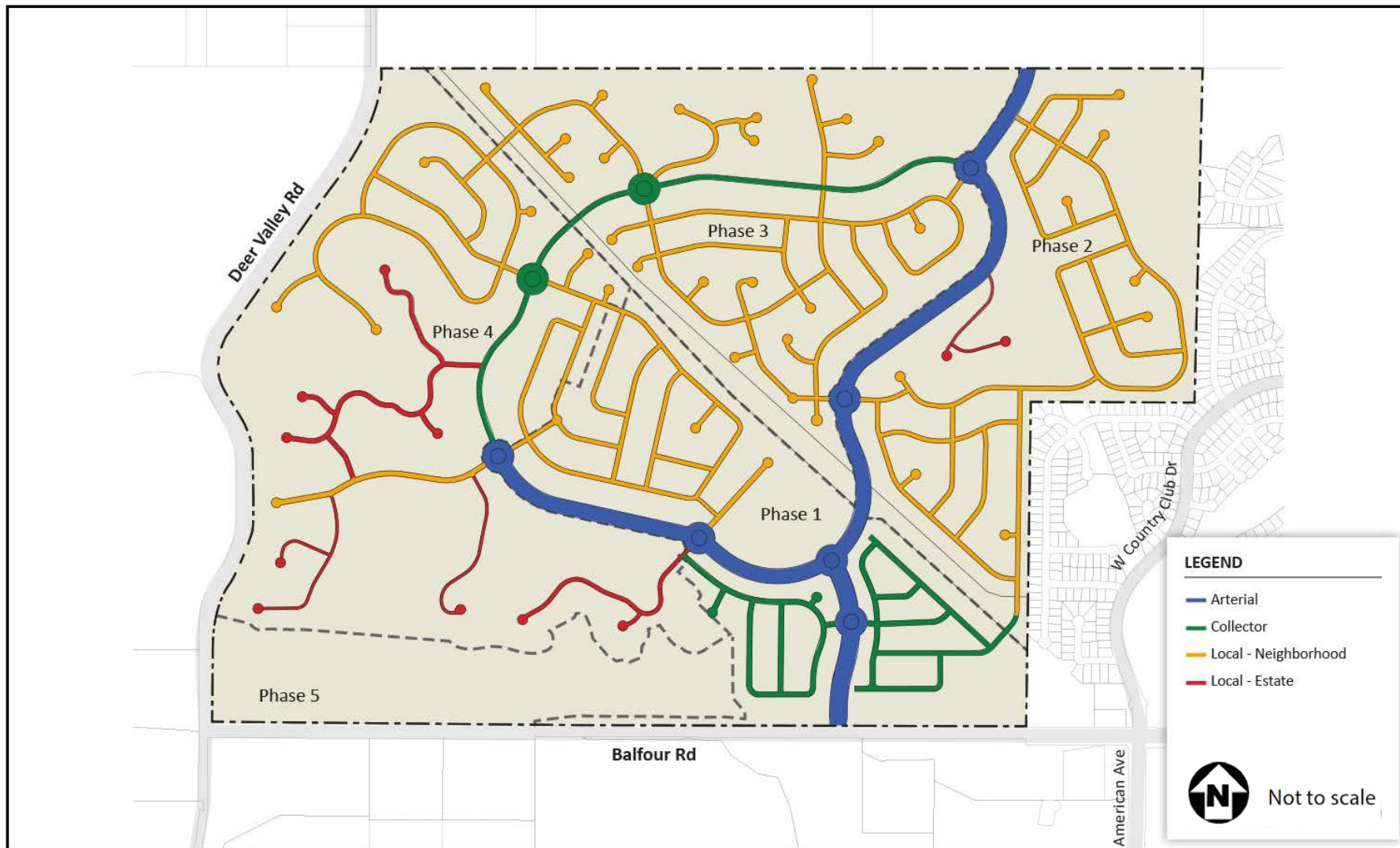


Figure 3-5
Conceptual Street Network and Hierarchy



If a community recreation center is developed, it is anticipated that this primary entry road would additionally provide public access to such community recreation center, and further to gated entry(s) to the age-restricted neighborhoods beyond.

Vehicular access to residential areas within the Project site would consist of a series of collector and local streets providing access to the residential neighborhoods. A number of roundabouts are proposed along the main loop road, providing access to the residential neighborhood areas. Roadways would transect the lineal open space area at four locations. The individual neighborhoods are designed to facilitate pedestrians, bicyclists, and local use vehicle drivers throughout the Specific Plan area.

Secondary controlled access for Project residents would be from Hillcrest Avenue once the northerly section has been constructed, which is anticipated to be completed in the future by other parties and/or agencies. This secondary controlled access would also provide additional emergency vehicle access.

Pedestrian Network

The Specific Plan emphasizes pedestrian circulation by providing an interconnected network of sidewalks along internal streets and a series of trails in the open space areas. With the exception of local roads serving estate-style homes, pedestrian connections would be provided throughout residential neighborhoods and to open space and recreation centers. Sidewalks would be a minimum of four feet in width.

Bicycle Circulation

Bicycle circulation would be integrated throughout the Specific Plan area through on-street bike lanes and separated off-street bike or multi-use paths. Where bike lanes are not provided (such as along local roads), bicyclists and slower-moving vehicles would share the road.

Multi-Use Paths

Multi-use (or shared) paths are envisioned adjacent to arterial and collector roads. A separated multi-use path is also envisioned along the east side of Deer Valley Road. Multi-use paths would be designed to support multiple recreation and mobility opportunities, such as walking, jogging, bicycling, inline skating and individuals requiring handicap accessibility. They would be physically separated from motor vehicle traffic and may include a landscaped buffer or barrier.

Grading

Activities associated with phasing, clearing, grading and subsequent construction would be conducted in three phases. Phase 1 would require approximately 1,154,000 cubic yards of cut and 734,000 cubic yards of fill. Phase 2 would require 1,526,000 cubic yards of cut and 377,000 cubic yards of fill. Phase 3 would require approximately 1,367,000 cubic yards of cut and 1,770,000 cubic yards of fill, and Phases 4 and 5 would require 1,317,000 cubic yards of cut and

2,341,000 cubic yards of fill. Phase 1 and 2 earthwork spoils would be stockpiled and used on Phase 3 and 4. Earthwork is expected to balance on-site and would not require soil to be imported or exported.² Stockpiling soil on-site to balance earthwork between all of the construction phases would eliminate the need for truck trips importing soil from borrow sites or exporting soil to disposal sites. These estimates are based on conceptual plans prepared to date and represent the maximum amount of earthwork anticipated in any given phase. Any substantial change to the grading assumptions made in this EIR's grading analysis potentially will require additional analysis pursuant to CEQA prior to the issuance of grading permits.

Landscaping

The landscape elements (planting, lighting, fencing, walls, etc.) within the public realm of the Project site would be designed to reflect landscape styles that are characteristic of a Mediterranean environment which is similar to that of Brentwood topography and climate.

Public realm refers to all exterior publicly accessible and common spaces, linkages and built forms, regardless of ownership. These elements could include streetscapes, pedestrian paths and trails, bridges, plazas, and passive and active open space areas. This includes land that is either publicly owned (e.g. some streets) or land that is owned and managed by an HOA(s) or owner of rental property. Landscaping in the public realm would be maintained in accordance with Chapter 8 of the VDCSP.

Proposed On-Site Infrastructure

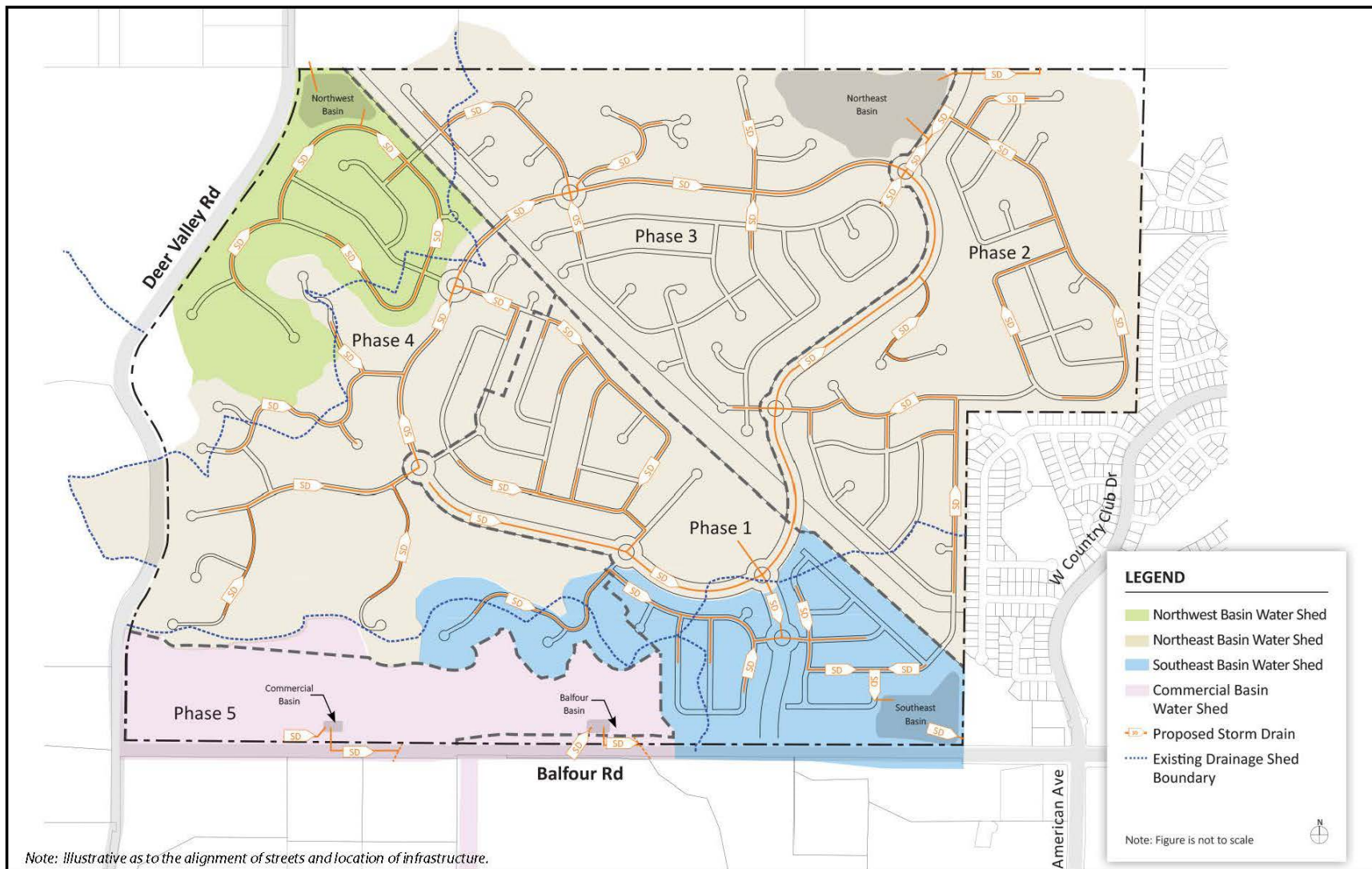
Stormwater Management

Build-out of the Project would necessitate construction of new drainage systems (see Figure 3-6). The overarching element of the stormwater management strategy would be to maintain existing connection points to Deer Creek, Sand Creek, and the unnamed tributary of Sand Creek, while assuring that sufficient facilities are in place to minimize potential changes in water quality, flow duration, and peak flood flows.

The overall combined watershed area within the Project would remain the same and the proposed grading plan strives to maintain existing drainage boundaries to the maximum extent practicable. The proposed stormwater management strategy would require four Drainage Management Areas (DMAs) in order for proposed development on the site to meet regulatory requirements and fully mitigate any potential adverse impacts with respect to water-quality, hydromodification, and flood control.

² These earthwork volumes result in 142,000 cubic yards more cut than fill. The additional cut would be used on-site and would not be hauled away.

Figure 3-6
Existing and Proposed Stormwater Conveyance



Source: Carlson, Barbee & Gibson, Inc, 2019

The existing points of connection would consist of three new outfalls for three of the DMAs. The Northeast DMA would drain to a stormwater basin and outfall at the northeast property boundary. The Northwest DMA would drain via another stormwater basin to a proposed outfall to Horse Valley Creek. The Commercial DMA, located in the southwestern portion of the site, would drain to a stormwater basin located north of Balfour Road that would also accommodate runoff from a portion of the Balfour Road and American Avenue improvements. The Commercial DMA basin would discharge to a new outfall to Deer Creek, tentatively to be co-located with replacement of the undersized, upstream culvert on Deer Creek. The only DMA that would not have a new outfall is the Southeast DMA, which would be connected to an existing 30-inch storm drain line that currently drains to Deer Creek downstream of the Deer Creek Reservoir.

The Central Valley Regional Water Quality Control Board (RWQCB) is the local division of the State Water Resources Control Board (SWRCB) that has oversight authority over the Project regarding program of actions designed to preserve and enhance water quality and to protect beneficial uses of water in California. As mandated by the Central Valley RWQCB, the new stormwater drainage facilities would be planned and designed to satisfy the RWQCB's Municipal Regional Permit (MRP) requirements.

Through planning and design, newly installed stormwater 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 stormwater flows and associated sediments, particulates, and contaminants contained within the runoff, would be collected and treated within the Project site, and treated runoff would then be discharged appropriately to the existing municipal storm drain system and subsequently conveyed to permitted treatment facilities.

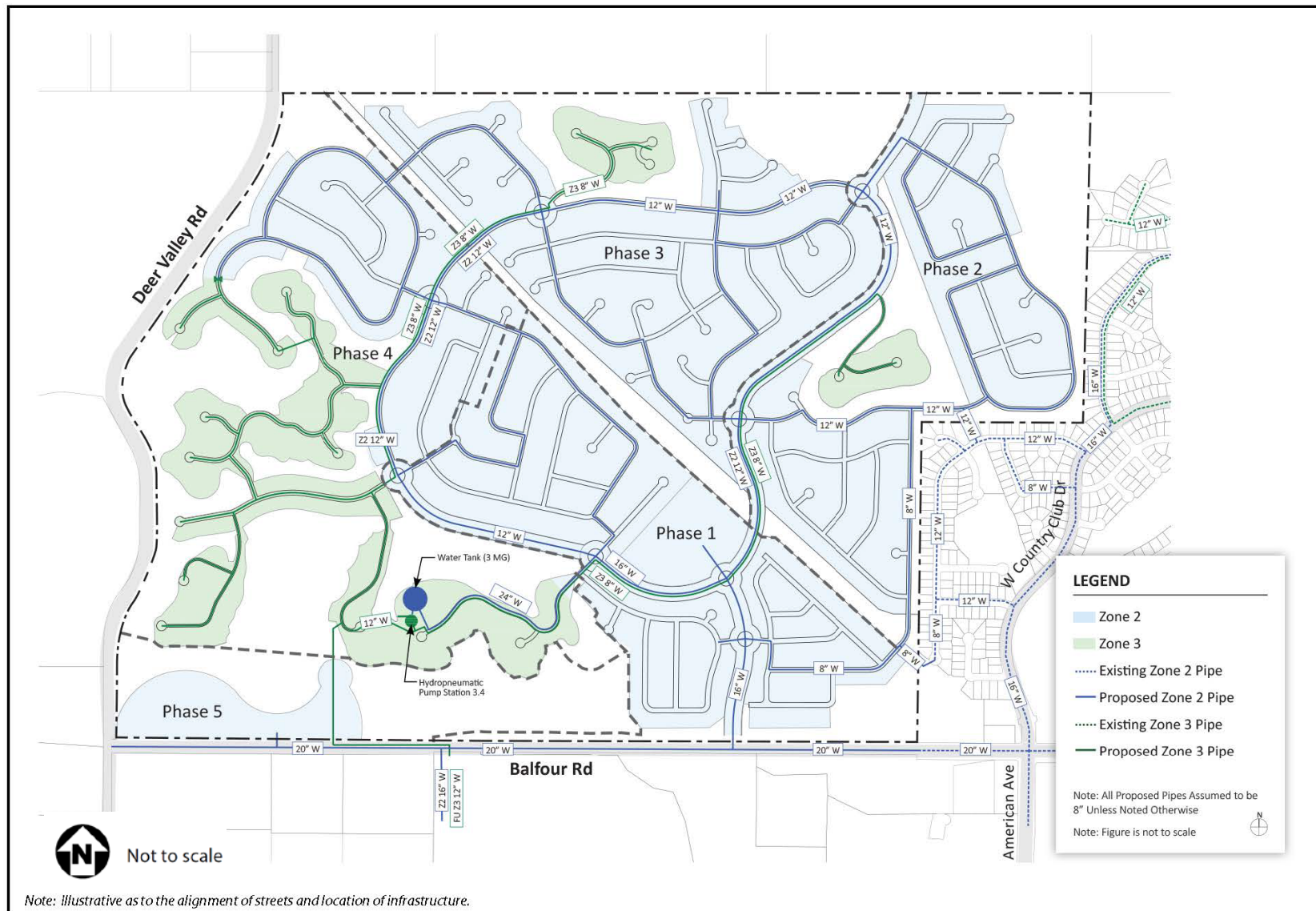
Potable Water

Potable water would be provided by the City of Brentwood, which utilizes ground water and surface water for its fresh water sources. The City of Brentwood's distribution system consists of six water tanks with a total storage capacity of 18.8 million gallons, three pressure zones, and six water booster pump stations located within the city limits.

Water for the Project site would be delivered via a new 20-inch water line in Balfour Road; and the water system would be looped via a connection to the Brentwood Hills neighborhood (see Figure 3-7). Within the Project site, the water system would consist of a main water line with smaller service laterals.

To address water storage and ensure adequate water pressure, a new three-million-gallon (minimum) potable water tank and hydropneumatic pump station would be constructed at a high point within the southwest quadrant of the Project site. In addition, a new Zone 2 pump station would be constructed adjacent to Reservoir 1.3, located in the Shadow Lakes neighborhood. These improvements are included in the city's Water Master Plan.

Figure 3-7
Existing and Proposed Potable Water



It is anticipated that the potable water storage and distribution system would be owned and operated by the City of Brentwood.

Off-site Improvements

The Project requires implementation of several off-site improvements, which will be discussed in the following sections.

Roadways

As shown in Figure 3-8, development of the Project would include the off-site improvements, consisting of (i) the completion of American Avenue consisting of its extension west and north to Balfour Road and (ii) the widening of certain portions of Balfour Road from two to four lanes.

The developer's commitment to the American Avenue extension is contained in the "Pre-Annexation Agreement" proposed for the Project. As described below, the American Avenue extension would create two points of connection to Balfour Road, thus reducing the current traffic congestion associated with the Heritage High School and Adams Middle School drop-off/pick up schedule. Also, as described below, the widening of Balfour Road and related improvements and the western extension of American Avenue would improve traffic circulation and safety for pedestrian, bicycle, and vehicular use of these public roadways.

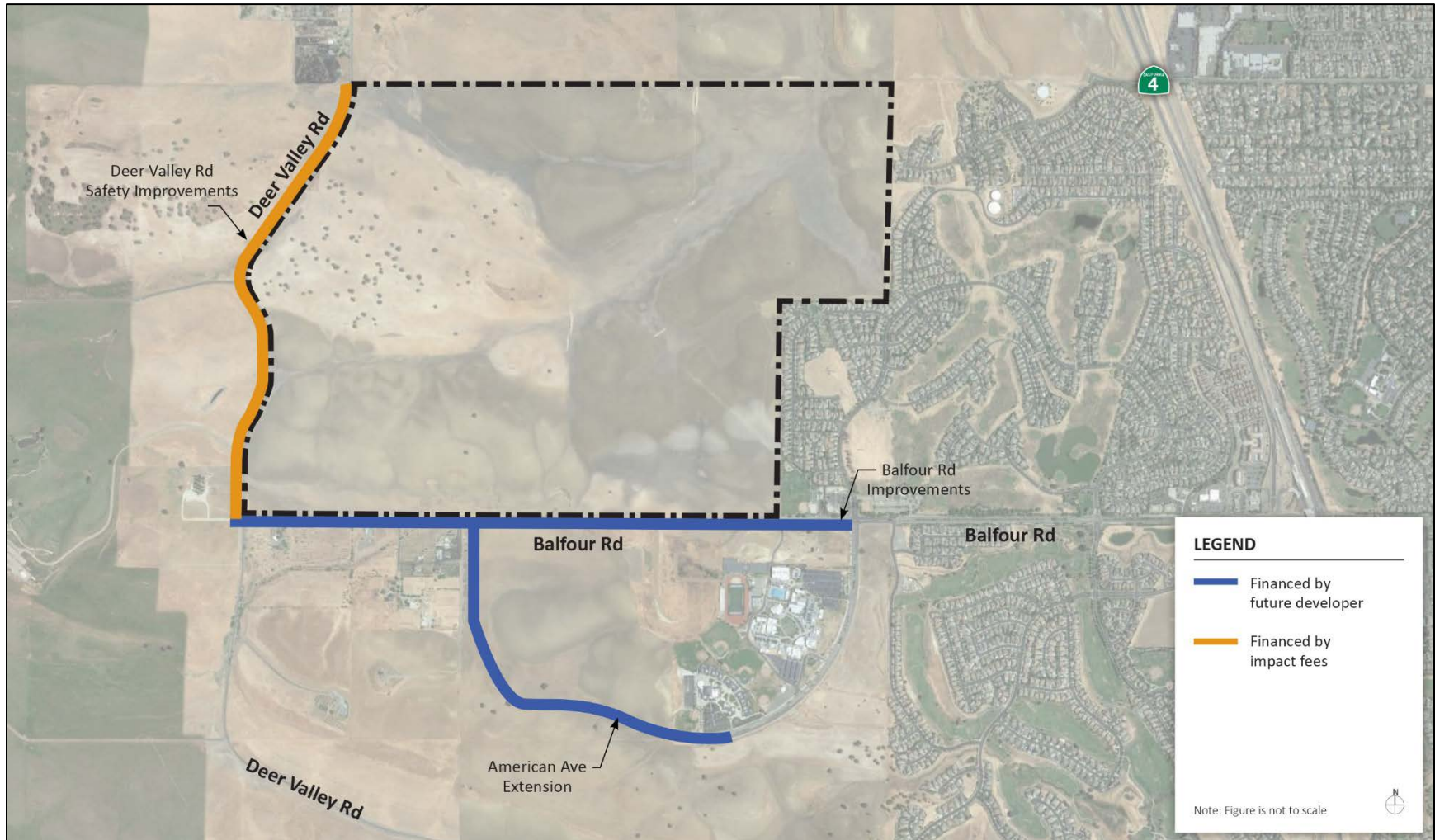
In addition to these improvements, development of the Project site would generate substantial funding that would be available for the improvement of the surrounding roadway network, a portion of which the Project proponents encourage to be allocated to future safety improvements to Deer Valley Road. The funding of these improvements would be subject to priorities established by the City Council and other agencies with jurisdiction over the affected facilities.

American Avenue Extension

American Avenue currently contains two travel lanes in each direction, a bike lane, parking lane, and sidewalk on the western side. The road terminates south and adjacent to Adams Middle School. Consistent with the General Plan, this roadway would be extended west and north to reconnect to Balfour Road, creating a continuous loop road. The proposed location for the extension of American Avenue, south of Balfour Road, is currently used for agricultural purposes, specifically, farming of dryland hay and safflower crops.

The interim design would include a landscaped median and one travel lane, a parking or bike lane, and sidewalk in each direction. The improvements to American Avenue are intended to improve safety for pedestrian, bicycle, and vehicular use of these public roadways. To improve access onto the existing American Avenue from the east, the two-existing westbound left turn lanes would be extended along Balfour Road.

Figure 3-8
Project Site and Off-Site Improvements



Construction of the American Avenue extension would occur in connection with the first phase of residential development within the VDCSP. To assure completion of these improvements, bonds or other improvement security for the American Avenue extension would be provided in accordance with the requirements of the Subdivision Map Act.

Balfour Road Widening

The Project includes the ultimate widening of Balfour Road from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection (described above). Specifically, the Project includes improvements to Balfour Road to be completed in at least three phases, as follows:

- Phase 1: Balfour Road would be widened from two- to four-lanes from the existing American Avenue intersection to the entry point of the Vineyards at Deer Creek and then improved as a two-lane road west to Deer Valley Road. This widening would occur concurrently with other improvements required for the first small-lot final subdivision map within the Project site. Bonds or other financial security for this improvement would be provided to the extent required under the Subdivision Map Act.
- Phase 2: Balfour Road would then be widened from two- to four-lanes from the primary entry into the Project site, west to the new American Avenue intersection (described above). This improvement would occur as traffic demand necessitates, which would be evaluated at each small-lot final subdivision map within the Project site. Bonds or other financial security for this improvement would be provided to the extent required under the Subdivision Map Act.
- Phase 3: Balfour Road would then be improved as a two-lane road from the new western American Avenue intersection west to Deer Valley Road. Phase 3 improvements to Balfour Road are intended to improve safety for pedestrian, bicycle, and vehicular use of these public roadways. These improvements are consistent with the General Plan and the improvements would not preclude this portion of Balfour Road from being subsequently widened from two- to four-lanes. This improvement would occur as traffic demand necessitates, which would be evaluated at each small-lot final subdivision map within the Project site. Bonds or other financial security for this improvement would be provided to the extent required under the Subdivision Map Act.

Funding for Deer Valley Road Safety Improvements

Under existing conditions, Deer Valley Road contains a travel lane and gravel shoulder in each direction. Public safety concerns associated with the current configuration of Deer Valley Road have driven future plans to improve roadway geometric changes (e.g. to improve line-of-site clearances). The East Contra Costa Regional Fee Program anticipates that Deer Valley Road would undergo various roadway improvements to improve roadway safety conditions. The City of Brentwood has no authority to make or require improvements to Deer Valley Road.

Future development within the Project site would require payment of impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA). Subject to the prioritization of

these funds by the applicable authority, the VDCSP suggests but cannot guarantee, the allocation of some portion of development fees generated by development within the VDCSP for these or similar safety improvements to Deer Valley Road.

Potable Water

The proposed project would include extending the existing 16-inch water line within American Avenue along the proposed American Avenue extension and connecting to the proposed 20-inch line within Balfour Road.

Non-Potable Water

It is anticipated that the Project site would eventually be annexed into the East Contra Costa Irrigation District (ECCID) to utilize irrigation water for the cultivation of agricultural crops (e.g. vineyards and olive groves). This water source may also be used to irrigate landscaping along roadways, in the recreation centers and parks and open space, and other landscaped common areas.

There are four alternatives being considered to bring ECCID water to the Project site (see Figure 3-9); however, Alternative 1 is the preferred option for the Project at this time, and is therefore assumed for purposes of analysis in this EIR.

Alternative 1 (Preferred) would require a new turnout and pump station from the 48-inch ECCID pipe at the intersection of John Muir Parkway and Balfour Road. A new line would be constructed west on Balfour Road to the Project area from this location.

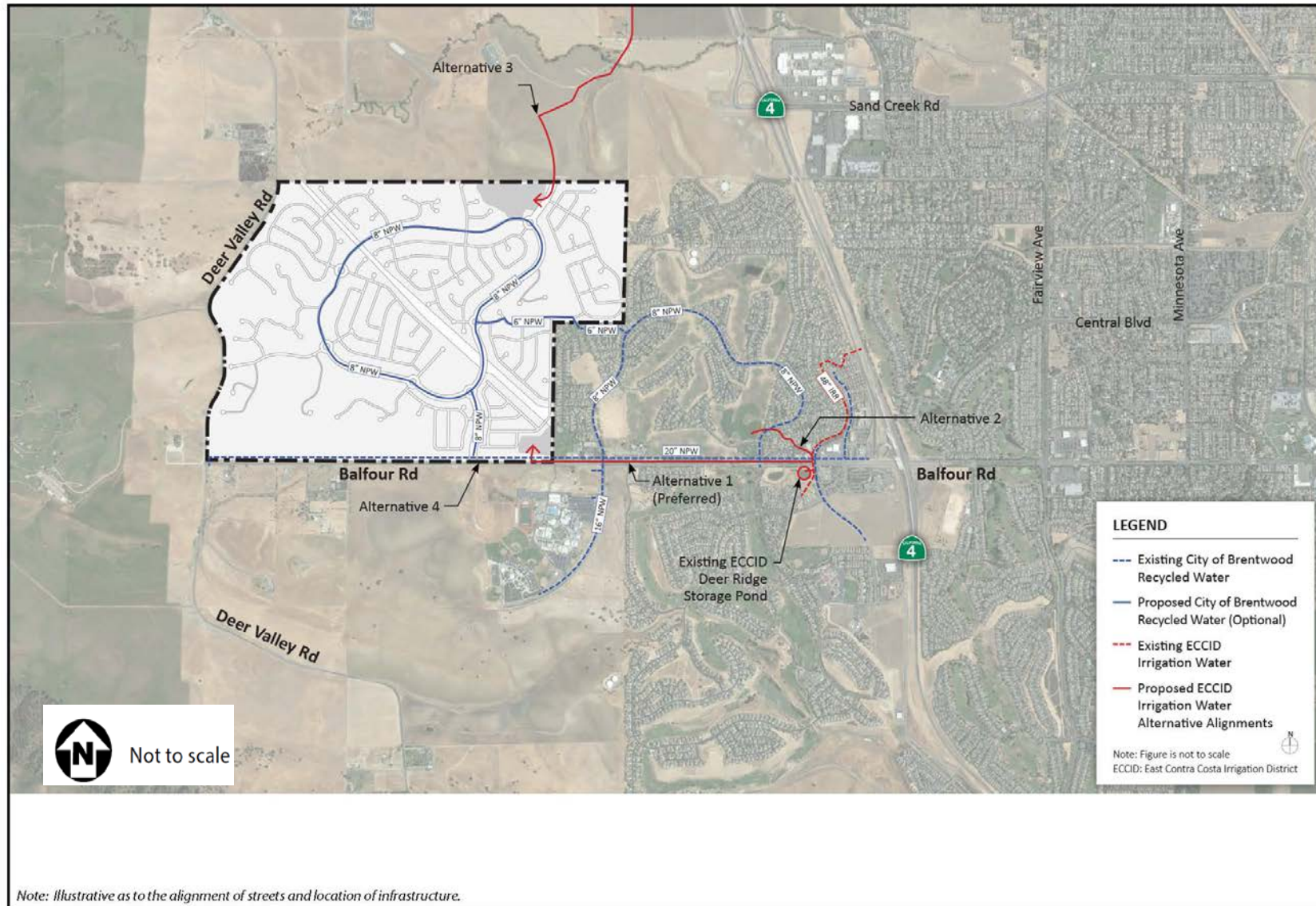
Alternative 2 would require a new turnout and pump station from the 48-inch ECCID pipe at the intersection of John Muir Parkway and Balfour Road. A new line would be constructed west on Balfour Road to the Project site.

Alternative 3 would utilize the existing ECCID water facilities for either Shadow Lakes or Deer Ridge golf course. This would include utilization of the existing basins and/or modifications to the existing pumping facilities. A new line would be constructed west on Balfour Road to the Project site.

Alternative 4 would utilize the City of Brentwood raw water accessed from a 20-inch line (the Roddy line) located in Balfour Road. In the future though, the city intends to blend this line with recycled water.

Because irrigation water would be utilized during the dry months, it is anticipated that for any alternative, the ECCID irrigation water would be stored in the respective basin, which during these months would typically be at or near empty. Just before the rainy season (generally November to March), the basin would gradually be drawn down to allow capacity for storm events. Within the Project site, it is anticipated that the irrigation water system, including all underground pipes and storage tanks, would be owned and operated by an HOA, or other entity.

Figure 3-9
Existing and Proposed Irrigation and Recycled Water



As an alternative for ECCID water for landscaping, the Project may include use of recycled water provided from the City of Brentwood. An existing 20-inch untreated water line runs from the Roddy Ranch Pump Station on Fairview Avenue, west along Balfour Road. Ultimately, the City of Brentwood will connect its recycled water system to the Roddy Ranch Pump Station and blend the untreated and recycled water together. Even with ECCID service to the Specific Plan area, a future developer may also choose to connect to the existing non-potable water lines. Options for connection include tying into the existing 20-inch line within Balfour Road. In addition, a connection could be made to the existing six-inch non-potable line located within Canmore Court of the Shadow Lakes and Brentwood Hills residential neighborhoods to the east. The recycled water lines would provide alternate irrigation options for landscape areas.

Sanitary Sewer Service

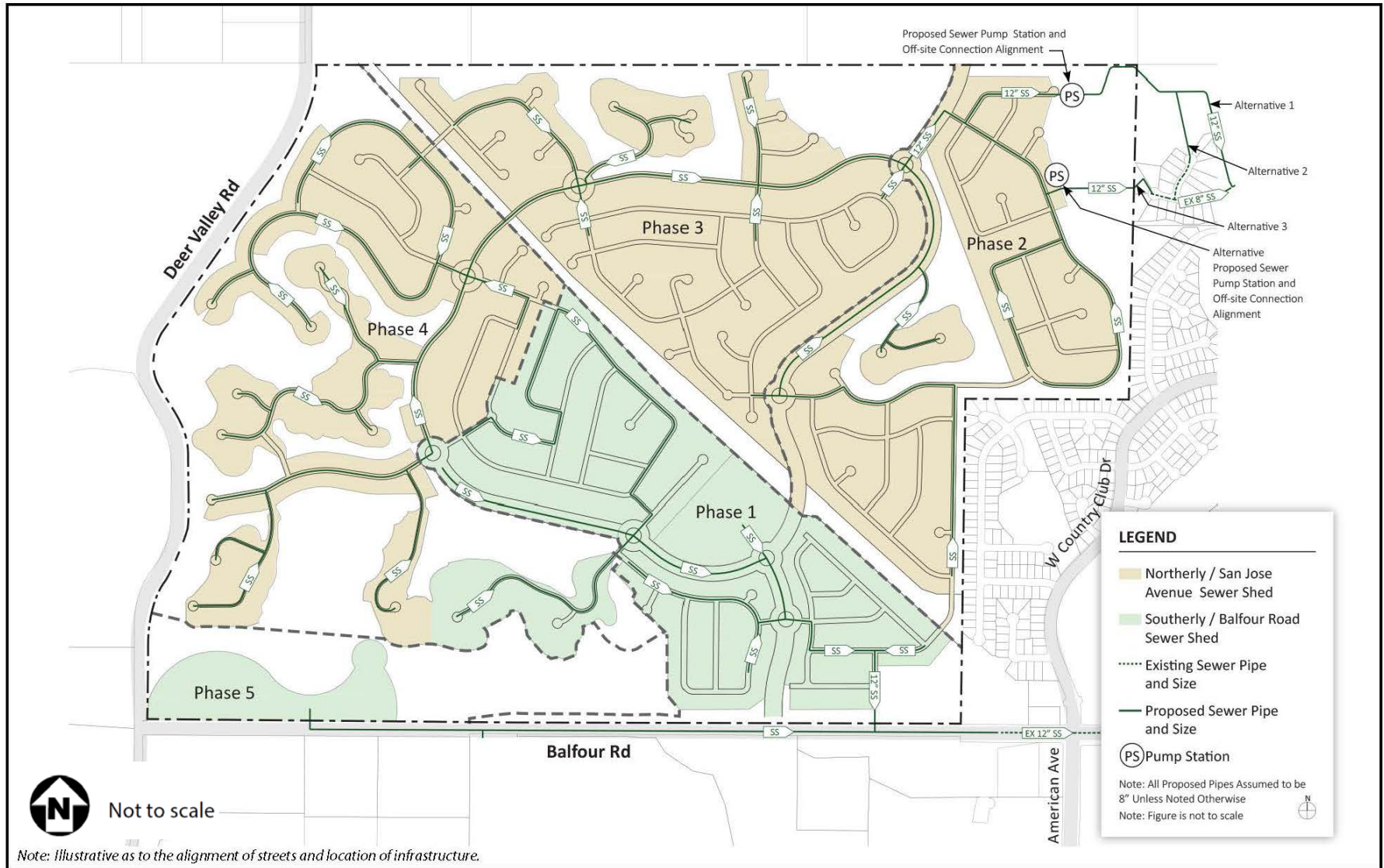
As mentioned above, the proposed project would include a new pump station and associated improvements within the northeastern portion of the site. Three alternatives for the pump station and improvements are being considered. The sewer alternatives are shown in Figure 3-10. The first two sewer alternatives would involve a pump station located near the northeastern-most cul-de-sac within the project site. For Alternative 1, a 12-inch sewer line would extend east from the pump station, then follow adjacent to an existing gas line easement south, and connect to the existing eight-inch line within St. Regis Avenue, west of the intersection with Capilano Drive. For Alternative 2, a 12-inch sewer line would extend east from the pump station, then cut south to the cul-de-sac of Copperfield Court, where the line would connect to an existing eight-inch line. Alternative 3 would involve a pump station located farther south within the northeastern portion of the site. A 12-inch sewer line would connect the pump station to the existing eight-inch line within the westernmost terminus of St. Regis Avenue. For all sewer alternatives, a portion of the existing eight-inch sewer line within St. Regis Avenue is proposed to be upsized to 12 inches to the San Jose Avenue force main, or a parallel line would be required, in order to ensure sufficient capacity.

Open Space Preservation

The Project site would include a minimum of 225 acres of open space, a portion of which would be permanent agricultural crops, such as vineyards and olive groves, to the greatest extent feasible. To the extent feasible, the open space and agricultural areas would be located predominantly on steeper slopes and other strategic areas throughout the Project site, particularly around the Project site's perimeter where they would serve as both a land use buffer to adjacent properties and enhance aesthetics. Open space areas would also include the existing transmission line easement and natural drainage courses (to the extent practical).

It is anticipated that the open space area would be owned and managed by a HOA(s) and would utilize a third-party organization(s) to conduct the farming (i.e. planting, pruning, irrigation, harvesting, etc.) and open space management practices (i.e., weed abatement, mowing, pest control). Agriculture areas are proposed to be commercially viable and professionally managed, not simply ornamental. As such, the project would create water efficient, irrigated agricultural land.

Figure 3-10
Existing and Proposed Sanitary Sewer



Tree Preservation

A total of 107 Blue Oaks (*Quercus Douglasii*) are located within the Project site. Except for two (which are located in the south-central area), all of these Blue Oaks are located in the northwestern portion of the Project site.

The following policies from Chapter 7 of the VDCSP would guide preservation of the healthy Blue Oaks:

- It is the intent of the VDCSP to ensure that all design, grading, construction and landscaping give priority to the preservation of healthy native oak trees where feasible. The location and preservation of the healthy native trees should be a primary factor in site design.
- The preservation or removal of native oaks, as well as any regulated activities within the protective zones of native oaks shall be consistent with the environmental review of a specific development proposal within the Project site.
- Prior to issuance of a grading permit for a particular phase of the project, the Proponent shall submit a tree removal and protection plan as part of the grading plans for that phase which includes the location, diameter-at-breast-height, and status (good, fair, poor, dead,) of native trees to be protected or removed.

Habitat Protection

The VDCSP area is located within the boundaries of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCHCP/NCCP). The ECCHCP/NCCP provides a framework to protect natural resources in eastern Contra Costa County, while improving and streamlining the environmental permitting process for impacts on endangered species. The Project site is currently located outside of the City of Brentwood ULL and, thus, is excluded from the coverage area associated with the HCP/NCCP. However, Chapter 1 the HCP/NCCP states that the HCP/NCCP coverage area will expand or contract as a result of local land use decisions made independently of the HCP/NCCP. As discussed in Section 4.4, Biological Resources, of this EIR, the proposed project is eligible to be included in the proposed modified urban development area. Thus, the VDCSP has an opportunity to participate in the Plan to mitigate its impacts on protected species and resources.

Pursuant to the City of Brentwood Municipal Code, future development activity would be subject to either: 1) A development fee imposed upon and collected for each acre of land permanently disturbed; or 2) A dedication of land in lieu of some or all of the development fee that would otherwise be imposed upon a development project. Any offer of dedication may be considered for acceptance only if the land dedication is considered by the Community Development Director to be consistent with the ECCHCP/NCCP and implementing agreement.

3.7 Project Objectives

Section 15124 of the CEQA Guidelines requires that a clearly written statement of project objectives be presented in an EIR to help lead agencies develop a reasonable range of alternatives, and to aid the decision makers in preparing findings of significant effects and a statement of overriding considerations, as may be necessary. The Project proponent has identified the following Project objectives:

- To implement the city's General Plan Policies by preparing a specific plan for the area designated as SPA 2 to facilitate the comprehensive planning of this area and to ensure both high quality development and integration of development with the provision of infrastructure.
- To implement the city's General Plan Policies that support and encourage the annexation of SPA 2, prioritizing the placement of SPA 2 within the Brentwood's planned expansion boundary.
- To develop a residential community of up to 2,400 dwelling units, which would predominantly be restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law (age-restricted).
- To establish a community that provides for the social, recreational, and housing needs of seniors who share common interests and lifestyles that would enable residents to remain in the Brentwood community and continue their involvement in its social fabric over time.
- To provide diverse housing by allowing multi-family units within the Project, provided that they are age-restricted.
- To provide a mixture of residential unit types appropriate to the projected active-adult and non-age restricted housing needs of the City of Brentwood and the greater East Contra Costa region.
- To develop a project of sufficient capacity to allow the developer to commit to extend American Avenue from the current terminus north and west to create a loop road that connects to Balfour Road, even though the Project's impacts do not necessitate the extension. The extension will help to reduce traffic and parking congestion at Heritage High School and Adams Middle School.
- To provide for the widening of Balfour Road from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection.
- To develop a community that would generate substantial funding available for the improvement of the surrounding roadway network, including future safety improvements to Deer Valley Road.
- To create a community with high-quality architectural and landscape design and site planning, resulting in a distinctive identity and strong sense of place.

- To provide opportunity for space for commercial/civic uses that supports both community-based activities and services and supports the agricultural values of the region.
- To promote a long-term financially viable project that provides for the creation of new jobs, recreational opportunities, and expanded housing opportunities.
- To incorporate flexibility for location of land uses to ensure the Project is responsive to site conditions and market trends.
- To retain flexibility to build the Project in phases that respond to market conditions.
- To enhance vehicular, bicycle, and pedestrian circulation and access within the Project site, allowing for future connections to the area surrounding the Project site.
- To maximize the potential for energy conservation through building and landscape designs and orientations which recognize the climatic conditions in the area.
- To provide for and enhance agricultural activities within the Project site that contribute to the protection of the rural character and agricultural economy of East Contra Costa County.
- To integrate the natural and built environments to minimize the disruption of natural features and blend with the site's existing landforms, trees, and drainage courses.
- To locate new employment-generating development within close proximity to the State Route 4/Balfour Road interchange.

3.8 Permits, Approvals, and Agreements

Approvals Subject to the Citizen's Ballot Initiative

As referenced above, the VDCSP is a part of a citizen-initiative that may be considered by Brentwood voters on a future ballot (Initiative). If approved by the voters, the proposed Initiative would, in addition to adopting the VDCSP:

- Modify the city's ULL to include the Project site;
- Amend the city's General Plan to rename the Project site as *SPA 2 / VDCSP*, modify the General Plan by establishing new policies with respect to the development and use of the Project site; and make certain other conforming amendments; and
- Amend the City of Brentwood Zoning Ordinance (Title 17 of the Municipal Code) to establish the *Vineyards at Deer Creek* (VDCSP) zoning district, pre-zone the Project site to the VDCSP district, and make certain other conforming amendments to Municipal Code Chapter 17.820 (Design and Site Development Review).

Urban Limit Line Amendment (By Voter Initiative Pursuant to Measures J and L)

Implementation of the Specific Plan would require an amendment to the city's ULL. The Brentwood City Council adopted the Contra Costa County Measure L Voter-Approved Urban Limit Line (Resolution No. 2008-3) as the City of Brentwood's ULL on January 8, 2008. As

discussed in the General Plan, any changes to the ULL are required to be in accordance with the provisions of City Council Resolution No. 2008-3 and consistent with the provisions of Measure J (an extension of Contra Costa County's Measure C Sales Tax, requiring the adoption of an ULL for each jurisdiction). Thus, any modifications to the ULL are subject to voter ballot initiative.

General Plan Amendment

The proposed VDCSP builds upon the policy framework and direction set forth for SPA 2 (proposed to be renamed as SPA 2/VDCSP by the Initiative), as described in the General Plan. Implementation of the Specific Plan would require General Plan amendments to modify the ULL (as depicted in General Plan Figure LU-3) and conforming text amendments to the General Plan, including language in the Land Use Element, as well as amendments to various General Plan maps and figures to be consistent with the ULL modification, VDCSP, and pre-zoning. The Project includes the following amendments to the General Plan:

- Description of the 2019 voter-approved modifications to the ULL and voter initiative process;
- Modification of the ULL;
- Description of the voter approval and subsequent LAFCo action as related to the realignment of the city limits and the SOI;
- Revisions to the applicable General Plan maps to include amendments to the current demarcations indicating the city limits and the SOI and related infrastructure and circulation improvements;
- Modification of applicable text and graphics to rename SPA 2 as Special Planning Area 2/ Vineyards at Deer Creek Specific Plan (SPA 2/VDCSP);
- Modification of allowed residential uses to allow for a mix of residential densities within the SPA 2/VDCSP, provided that overall density does not exceed three dwelling units per gross acre;
- Amend the General Plan Land Use Designation and Zoning Districts/Combining Zones Compatibility within the Land Use Element (Chapter 9) of the City of Brentwood General Plan to add the "VDCSP (Vineyards at Deer Creek Specific Plan)" zoning district;
- Revision of text to allow for Community Recreation and Open Space uses, as defined in the VDCSP;
- Revision of text to allow for local-serving General Commercial within SPA 2/VDCSP, as provided in the VDCSP; and
- Description of density calculation based on total acreage of the SPA 2/VDCSP area.

Vineyards at Deer Creek Specific Plan

The VDCSP, incorporated by reference into this EIR, would establish the permitted land uses for the Project site as required by Government Code Section 65451, which sets forth the basic content required for specific plans. The VDCSP would provide a framework for development of

a residential community supporting a predominantly age-restricted active-adult community, with a non-age restricted residential development component set among an agriculturally-themed landscape of vineyards and olive groves.

The VDCSP serves as the implementing guide for developing and using land within the Project site. VDCSP Policies, as identified in Chapter 1 of the VDCSP, are intended to develop a residential community for both age-restricted and non-age restricted households within a community that provides for social, recreational, and housing needs, while also providing high-quality architectural and landscape design, space for commercial/civic uses and the integration of the natural and built environments. The VDCSP policies also address site planning and design; mobility and circulation; infrastructure and public services; and resource management.

The VDCSP contains land use, site development standards, design guidelines, and conceptual public facility improvement plans, which together, govern development of the Project site. The VDCSP would function as a hybrid document, in that it contains a vision and a series of Goals/Policies, as well as development standards for implementation.

Pre-Zoning

The Initiative includes the pre-zoning of the Project site in anticipation of its incorporation within the city's SOI, and ultimately, its annexation to the city. The pre-zoning includes amendments to the City of Brentwood Zoning Ordinance (currently Title 17 of the Municipal Code) and the Zoning Map to designate the Project site with a newly adopted Zoning designation, the VDCSP zone, and makes other conforming amendments to the Municipal Code with respect to design and site development review. Pre-zoning of the Project site is consistent with State law requiring cities to pre-zone land proposed for annexation, as the Contra Costa LAFCo must determine that annexation is consistent with the planned use of the property based on the city's General Plan and pre-zoning designation.

Approvals Following Adoption of Initiative

At present, the Project site is not located within the Brentwood city limit lines, SOI, or ULL. Implementation of the VDCSP requires approval of modification to the voter-adopted ULL to include the Project site within the ULL. Separately, development of the VDCSP would require SOI expansion, annexation to the City of Brentwood, and annexation to the ECCID, all of which must be approved by the Contra Costa LAFCo, pursuant to a separate process(es) under State law, as further discussed below. As further described below, it is anticipated that implementation of the Specific Plan would require discretionary approvals or permits from the City of Brentwood and may include or require concurrent or subsequent discretionary approvals or permits from other Federal, State, and regional agencies.

City of Brentwood

Implementation of the Specific Plan would require discretionary approvals, permits, or actions from the City of Brentwood, which may include:

- Pre-Annexation Agreement;

- Development Agreement between city and developer(s);
- Subdivision map(s);
- Conditional Use Permits;
- Design and Site Development Review; and/or
- 1992 Memorandum of Understanding

Pre-Annexation Agreement

The Project proponent intends to enter into a Pre-Annexation Agreement (Agreement) with the City of Brentwood in anticipation of annexation of the Project site into the city's boundaries. Annexation is subject to LAFCo approval, and would occur following adoption of the ULL modification through the Initiative. The intent of the Agreement would be to establish the terms and conditions under which the landowner would agree to annex the Property to the city and the city would agree to that annexation. It also would establish the terms and conditions necessary for LAFCo to approve the SOI and the annexation.

Development Agreement

If the Initiative is approved, the landowner and the city may enter into a Development Agreement (DA). The DA would further memorialize the landowner's commitments to provide public benefits to the city and the community in return for assuring that the Project can be developed pursuant to the Initiative. The DA would be examined in light of this EIR to determine what additional environmental review, if any, must be undertaken. The Project proponent and city would be required to confirm and substantiate that the terms of the DA are in conformance with the VDCSP and that any environmental effects are within the scope of those analyzed within this EIR. If the environmental effects are determined to be within the parameters and timeframe analyzed within this EIR, no additional environmental review would be required.

Subdivision Approval

Implementation of the Specific Plan requires subdivision of the Project site, which requires the submission and approval of a tentative (or vesting tentative) tract map(s) pursuant to the city's Municipal Code and State law. It is anticipated that subdivision will be accomplished through recordation of multiple phased vesting maps to facilitate the full implementation and build-out of the plan area as required by the city's Municipal Code and State law. Subdivision maps shall provide for all infrastructure and off-site roadway improvements necessary to support each phase in substantial conformance with the Specific Plan, as required by the city's Municipal Code and State law. Large-lots maps may be appropriate for financing or sale purposes. Per CEQA Guidelines Section 15182, future subdivision maps approved within the Project site would not require additional environmental review if such maps are consistent with the densities included in the proposed VDCSP.

Conditional Use Permits

Initiation and operation of any of the proposed conditional uses within the VDCSP would require approval of a conditional use permit pursuant to the Brentwood Municipal Code.

Design and Site Development Review Approval

Design review for development within the Project site will be conducted in accordance with the city's design and site development review process pursuant to the Brentwood Municipal Code, as amended by the Initiative.

1992 Memorandum of Understanding

The Project site is currently unincorporated and located outside the SOIs of both the City of Brentwood and the City of Antioch. In 1992, the cities of Antioch and Brentwood adopted a Memorandum of Understanding (MOU), which expires in October 2022 if not terminated earlier by either city, that recognizes the mutual interest of the two cities in resolving boundary issues, including the SPA 2 property. Along with several development standards (open space buffers, ridgeline protection, grading, visual, tree protection, circulation, etc.), the MOU stipulates that neither city shall file to change its SOI or to annex within the boundary line of the other city. If the Initiative is approved by the voters, the MOU would need to be terminated for the Project to proceed.

Regional, State and Federal Permits and Approvals

Contra Costa Local Agency Formation Commission

Sphere of Influence (SOI) Expansion Approval

If the Initiative is approved by the voters, implementation of the VDCSP would require the city to apply to LAFCo to initiate the SOI expansion approval, in anticipation of annexation of the Property into the City of Brentwood.

Annexation

If the Initiative is approved by the voters, implementation of the VDCSP would require annexation approval through LAFCo to include the Project site within the municipal boundaries of the City of Brentwood. The property would also require LAFCo's approval of annexation of the Project site to the ECCID to provide non-potable water service from District facilities to the site.

Additional Approvals

If the Initiative is approved by the voters and the Project site is annexed into the city, as discussed above, it is anticipated that future development within the Project site may include or require concurrent or subsequent discretionary approvals or permits from other Federal, State, and regional agencies including:

- Certain Federal regulatory agencies with jurisdiction over the Project, which may include:
 - U.S. Fish and Wildlife Service (USFWS)
 - U.S. Army Corps of Engineers (USACE)
- Certain State and regional agencies, which may include:
 - Contra Costa County Flood Control & Water Conservation District (CCCFCD)
 - Contra Costa Transportation Authority (CCTA)
 - Contra Costa Water District (CCWD)
 - California Department of Fish and Wildlife (CDFW)
 - Central Valley Regional Water Quality Control Board (RWQCB)
 - Bay Area Air Quality Management District (BAAQMD)
 - California Department of Transportation (Caltrans)
 - East Contra Costa Irrigation District (ECCID)
 - East Contra Costa Fire Protection District (ECCFPD)
 - East Contra Costa County Habitat Conservancy (ECCCHC)

4.0 Introduction to Environmental Analysis

4.0.1 Environmental Assessment Methodology

This chapter discusses the potential environmental impacts that would result with implementation of the proposed Project. The following environmental topics are evaluated in sections 4.1 through 4.16 of this Draft EIR:

- Aesthetics and Visual Resources
- Agricultural and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy Conservation
- Geology, Soils, and Minerals
- Greenhouse Gas Emissions
- Hazards, Hazardous Materials, and Wildfire
- Hydrology and Water Quality
- Land Use and Population
- Noise and Vibration
- Public Services and Recreation
- Transportation and Circulation
- Tribal Cultural Resources
- Utilities and Service Systems

Environmental Setting

This environmental setting provides a brief overview of relevant plans, policies, and regulations that compose the regulatory framework for the Project and describes the existing, physical environmental conditions on the Project site and in the surrounding area, as relevant. The existing conditions are the on-site and (as relevant) physical environmental conditions in existence on April 2, 2019 (the time of publication of the NOP), pursuant to the CEQA Guidelines Section 15125. For purposes of this analysis, the environmental setting constitutes the baseline physical conditions by which the City of Brentwood, as Lead Agency, determines whether an impact is significant.

Environmental Analysis

As described in detail in Chapter 1, Introduction, this Draft EIR has been prepared as a Program EIR in accordance with Section 15168 of the CEQA Guidelines. This Program EIR is intended to serve as the primary environmental document for all future discretionary actions associated with implementation of the Project. The analysis contained within this Program EIR provides environmental information to responsible agencies, trustee agencies, and other public agencies which may be required to grant approvals and permits or coordinate with the City of Brentwood as part of the Project's implementation.

Environmental Impacts and Mitigation Measures

Impacts

This subsection describes changes that would potentially result to the existing physical environment should the Project be approved, in accordance with State CEQA Guidelines Sections 15126 and 15126.2, as amended, effective December 2018. Pursuant to State CEQA Guidelines Section 15143, the discussion focuses on the significant effects that might result if the Project is implemented.

For purposes of this Draft DEIR analysis, where the General Plan Goals, Policies, or Actions identify requirements for new development to mitigate their potential impacts through additional recommended steps, measures or actions, these are identified as required site-specific mitigation measures as needed to mitigate identified impacts. This methodology is applied consistent with the premise that a project is consistent with the general plan if, considering all its aspects, it will further the objectives and policies of the general plan and not obstruct their attainment. Perfect conformity is not required, but a project must be compatible with the objectives and policies of the general plan. Throughout this EIR, the analysis demonstrates how the Project compares to the General Plan's goals and policies, including imposing affirmative commitments on the Project proponent, in the form of mitigation measures where necessary, to comply with applicable General Plan provisions to ensure compatibility.

Impacts are numbered sequentially within each section. For example, impacts discussed in Section 4.2, Agricultural and Forest Resources, of this EIR are numbered AG-1, AG-2, etc. Within each impact statement, a discussion that provides supporting analysis and justification for the impact determination is presented first. Impacts are stated second and conclude with a summary description of the level of significance of the potential impact. If site-specific mitigation is required to reduce the significance of the impact, it is stated third. Finally, where site-specific mitigation measures are required, a concluding statement that describes the level of significance of the impact after implementation of mitigation is presented.

Mitigation

Pursuant to State CEQA Guidelines Sections 15002, 15021, and 15126.4, mitigation measures are required (as feasible) when significant impacts are identified. Unless otherwise noted, all mitigation measures contained herein are proposed by the lead agency. If a mitigation measure itself would cause a significant impact, in addition to the impact caused by the Project alone, that impact is also discussed, although at a lesser level of detail than the Project impact (pursuant to State CEQA Guidelines Section 15126.4 (A)(1)(d) as amended, effective December 2018). "Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments" (pursuant to State CEQA Guidelines Section 15126.4(A)(2), as amended, effective December 2018), and "mitigation measures must be consistent with all applicable constitutional requirements" (pursuant to State CEQA Guidelines Section 15126.4(A)(4), as amended, effective December 2018). Inclusion of mitigation measures pertaining to the construction of public facilities within this document does not preclude the potential availability of reimbursement for the cost of construction of such facilities that exceed

the size, length, or capacity necessary to address the impacts of the Project. In no event will the proposed project be permitted to bear less than its fair share of the cost of any such improvements.

Impact Organization

An example of the format of the impact statement organization for each technical section of the EIR is shown below:

Impact XX-1: Statement of Impact

Discussion of impact for the Project in paragraph format. A statement of the ***level of significance*** of impact is included at the end of each impact discussion.

Mitigation Measures

MM XX-1 *Required mitigation measure(s) presented in italics and numbered in consecutive order.*

MM XX-2 *Any additional required mitigation measure(s).*

Mitigation Monitoring

PRC Section 21081.6 establishes two distinct requirements for agencies involved in the CEQA process. Subdivisions (a) and (b) of the section relate to mitigation monitoring and reporting, and the obligation to mitigate significant effects where possible. Pursuant to subdivision (a), whenever a public agency completes an EIR and makes a finding pursuant to Section 21081.6(a) of the PRC taking responsibility for mitigation identified in the EIR, the agency must adopt a program of monitoring or reporting which will ensure that mitigation measures are complied with during implementation of the Project. Pursuant to Section 21081.6(b), a public agency must provide that measures to mitigate significant effects are fully enforceable through permit conditions, agreements, or other measures.

Significance Determinations

This Draft EIR includes as much detail as is currently available to maximize information available for public review and thus avoid and/or minimize the need for future environmental documentation (see Chapter 1, Introduction, of this Draft EIR for further explanation of the EIR Process). This Draft EIR includes information gathered from NOP comments, available literature and reference documents, technical reports prepared to support preparation of the Specific Plan and applicable data from preparation of prior city EIRs.

The analysis of the Project's impacts, as contained in this Draft EIR, is presented to clearly indicate the significance determination for each of the impacts. The significance determinations are based on the thresholds of significance identified in each section.

The environmental analysis specifies the significance thresholds (i.e., the condition or state, which if reached or surpassed by the Project, would signify a negative physical change to the

environment [environmental impact]). These thresholds are derived from Appendix G of the State CEQA Guidelines as amended, effective December 2018, 2014 Brentwood General Plan policies, ordinances, generally accepted professional standards, and quantified thresholds established by the City of Brentwood or other agencies (such as level-of-service standards for traffic impacts).

The following is an explanation of the different significance determinations made in this Draft EIR:

- **No Impact:** Due to the nature or location of the Project, this impact will not occur. For example, underground facilities do not have the potential for long-term visual impacts.
- **Less Than Significant:** Although an impact may occur, it will not be at a significant level based on applicable standards and thresholds. For example, construction-related air emissions that fall below the adopted standards are less than significant. Where there is an impact that may be potentially significant, however, the significance of this impact will be reduced to a less-than-significant level through adherence to and/or implementation of mitigation measures, the final significance level after mitigation would still be less than significant.
- **Significant and Unavoidable:** This determination is made for a potentially significant impact where there is either no mitigation available, or the recommended mitigation measures are not sufficient to reduce the impact to a less-than-significant level. This determination requires a Statement of Overriding Considerations, pursuant to CEQA guidelines Section 15093.

Cumulative Impacts

CEQA Requirements

Under the CEQA Guidelines, “a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the environmental impact report (“EIR”) together with other projects causing related impacts” (14 CCR Section 15130(a)(1)). According to the CEQA Guidelines an EIR must discuss cumulative impacts if the incremental effect of a project, combined with the effects of other projects is “cumulatively considerable” (14 CCR Section 15130(a)). Such incremental effects are to be “viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects” (14 CCR Section 15164(b)(1)). Together, these projects compose the cumulative scenario which forms the basis of the cumulative impact analysis.

Cumulative impacts analysis should highlight past actions that are closely related either in time or location to the project being considered, catalogue past projects, and discuss how they have harmed the environment and discuss past actions even if they were undertaken by another agency or another person. Both the severity of impacts and the likelihood of their occurrence are to be reflected in the discussion, “but the discussion need not provide as great a level of detail as is provided for the effects attributable to the project alone. The discussion of cumulative impacts shall be guided by standards of practicality and reasonableness, and shall

focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact” (14 CCR Section 15130(b)).

The cumulative analysis must be in sufficient detail to be useful in deciding whether, or how, to alter the project to lessen cumulative impacts.

There are two commonly used approaches for establishing the cumulative impact setting or scenario. One approach is to use a “list of past, present, and probable future projects producing related or cumulative impacts” (14 CCR Section 15130(b)(1)(A)). The other is to use a “summary of projects contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact” (14 CCR Section 15130(b)(1)(B)).

This EIR uses the summary of projects approach based on the buildout assumptions contained in the 2014 General Plan EIR (SCH# 2014022058), which was certified by the City Council on July 22, 2014 (Resolution No. 2014-110). (Refer also to Chapter 1, Introduction, of this EIR for a more comprehensive discussion relative to the General Plan EIR).

Cumulative Impact Analysis Methodology

The area within which a cumulative effect can occur varies by resource. For example, air quality impacts generally affect a large area (such as the regional Air Basin), while traffic impacts are typically more localized. For this reason, the geographic scope for the analysis of cumulative impacts is identified for each resource area in the following sections.

The analysis of cumulative effects considers a number of variables, including geographic (spatial) limits, time (temporal) limits, and the characteristics of the resource being evaluated. The geographic scope of each analysis is based on the topography surrounding the Project site and the natural boundaries of the resource affected, rather than jurisdictional boundaries. The geographic scope of cumulative effects will often extend beyond the scope of the direct effects, but not beyond the scope of the direct and indirect effects of the proposed project.

4.1 Aesthetics and Visual Resources

4.1.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to aesthetic resources that could result from implementation of the proposed project. The current condition and quality of aesthetic resources was used as the baseline against which to compare potential impacts of the Project.

Topography and Land Uses

The approximately 815-acre Project site consists of hills and valleys that range in elevation from approximately 191 feet above sea level to 385 above sea level. A shallow seasonal creek channel crosses the southeastern corner of the site and a natural drainage area crosses the site from west to east. The area south of Balfour Road where the extension of American Avenue is proposed to be located is currently used for agricultural purposes, specifically, farming of dryland hay and safflower crops.

The Project site is undeveloped and currently used for agricultural purposes including dryland grass farming and limited seasonal cattle grazing. Existing buildings are not located on the Project site. Adjacent land uses include the single-family Shadow Lakes and Brentwood Hills residential neighborhoods to the east and agricultural and open space to the north, west, and south. The area to the north of the Project site is planned for residential development as set forth under the City of Antioch's General Plan. The area to the south of the Project site is planned for residential development under the City of Brentwood's General Plan. Heritage High School and Adams Middle School are located southeast of the Project site and are accessed from American Avenue.

Scenic Views and Roadways

The Aesthetics and Visual Resources section of the 2014 General Plan EIR identifies scenic views throughout the city and the surrounding Brentwood Planning Area, which includes the Project site. A significant visual feature outside the Brentwood Planning Area is Mt. Diablo. Rising to an elevation of 3,849 feet above mean sea level, Mt. Diablo is a prominent landmark dominating the western skyline. Views of Mt. Diablo can be seen from the Project site.

Several drainage basins in the Brentwood Planning Area can also be viewed in the city. Lone Tree Valley, Horse Valley, Deer Valley, and Briones Valley form a set of drainage basins that collect seasonal rainfall and direct runoff into a network of small creeks in the Brentwood area. Marsh Creek is the largest of the waterways within the Brentwood Planning Area, and has been dammed in the southern portion of the Planning Area to create the Marsh Creek Reservoir. Marsh Creek continues north from the reservoir, collecting water from Sand Creek, Deer Creek, and Dry Creek. Marsh Creek eventually converges with the San Joaquin River, north of the Planning Area. Dry Creek flows across the southern portion of the Project site, in the vicinity of Balfour Road.

Riparian vegetation generally represents a valuable scenic resource within any area. However, much of the naturally occurring riparian vegetation along the creeks in the Brentwood Planning Area has been reduced or eliminated due to flood control measures or agricultural encroachment in the past. The most well-developed riparian communities are found along Marsh Creek, south of its confluence with Dry Creek, and along Sand Creek, east of Fairview Avenue. Neither location is within the Project site.

The vast expanses of agricultural land surrounding Brentwood also define the visual character of the city. Large open fields dominate particular areas of the city. The open space creates a visual contrast between Brentwood's rural heritage and the numerous suburban land uses that have emerged during the past decades, including single-family homes and multi-family homes, retail, office, and light industrial developments.

A "scenic highway" or a "scenic route" is a highway designated by the State or Contra Costa County as a "scenic highway." For example, in Contra Costa County, Interstate 680 is a State-designated scenic highway for a 14-mile stretch from the Alameda County line to State Route (SR) 24. The nearest eligible or designated State Scenic Highway to the Project site is SR 4, located approximately 0.5 miles east of the Project site. SR 4 is designated as an Eligible State Scenic Highway Corridor from the junction with Byron Highway to the junction with SR 160 in Antioch.

Project Viewshed

The viewshed or area of potential visual effect (the area within which the Project could potentially be seen) consists predominately of existing single-family homes located in the Shadow Lakes and Brentwood Hills residential neighborhoods to the east, existing single-family homes located in the Deer Ridge residential neighborhood, Heritage High School, and Adams Middle School to the southeast, and agricultural and open space to the north, west, and south. The area to the north of the Project site is planned for residential development as set forth under the City of Antioch's General Plan. The area to the south of the Project site is planned for residential development under the City of Brentwood's General Plan.

Light and Glare

Two primary sources of nighttime light exist: light emanating from building interiors that pass through windows and light from exterior sources (e.g., street lighting, parking lot lighting, vehicle/truck lighting, building illumination, security lighting, and landscape lighting). Depending on the location of the light sources and its proximity to adjacent light sensitive uses, lighting can be a nuisance affecting adjacent areas and diminishing the view of the clear night sky. Light spillage is typically defined as unwanted illumination from light fixtures on adjacent properties. During daytime hours, sources of glare can include reflective sources such as windows or glazing on buildings, and glare reflected from motor vehicles.

The proposed project is located west of single family uses, and nighttime lighting is considered a common feature. Nighttime lighting currently exists in the vicinity of the Project site in the form of residential lighting, street lighting, parking lot lighting, light from the headlights of

motor vehicles on the surrounding roadways, and light emanating from the park to the east and the high school football field to the southeast. Minimal nighttime lighting (mostly associated with street lighting) exists within the Project site.

Glare is the unwanted and potentially objectionable result from looking directly into a light source or a reflection which can impact sensitive uses such as residences. Potential sources of glare on the Project site come from vehicle headlights and windshields traveling along Balfour Road, American Avenue, and Deer Valley Road.

Key Viewpoints (KVPs)

As shown in Figure 4.1-1 (Location of Key Viewpoints) and Figure 4.1-2 through Figure 4.1-10 (Key Viewpoints), key viewpoints (KVPs) selected for the Project were based on the overall potential for the Project site to impact a scenic vista from each KVP.

- KVP 1 –depicts viewpoints looking to the east and southeast from the northern site boundary at Deer Valley Road.
- KVP 2 –depicts viewpoints looking east from Deer Valley Road.
- KVP 3 –depicts viewpoints looking to the north and east from Deer Valley Road.
- KVP 4 –depicts viewpoints looking from the north to the east and southeast at the intersection of Deer Valley Road and Balfour Road.
- KVP 5 –depicts viewpoints looking to the north and west from Balfour Road at the approximate location of the proposed intersection of American Avenue and Balfour Road.
- KVP 6 –depicts viewpoints looking from east to west along Balfour Road.
- KVP 7 –depicts viewpoints looking from the east to the west and north from Balfour Guthrie Park.
- KVP 8 –depicts viewpoints looking west and north from Waterville Drive at the intersection of Lenzie Court.
- KVP 9 –depicts viewpoints looking north from American Avenue near the current terminus, south of Balfour Road, to the north.

Figure 4.1-1
Viewpoint Locations

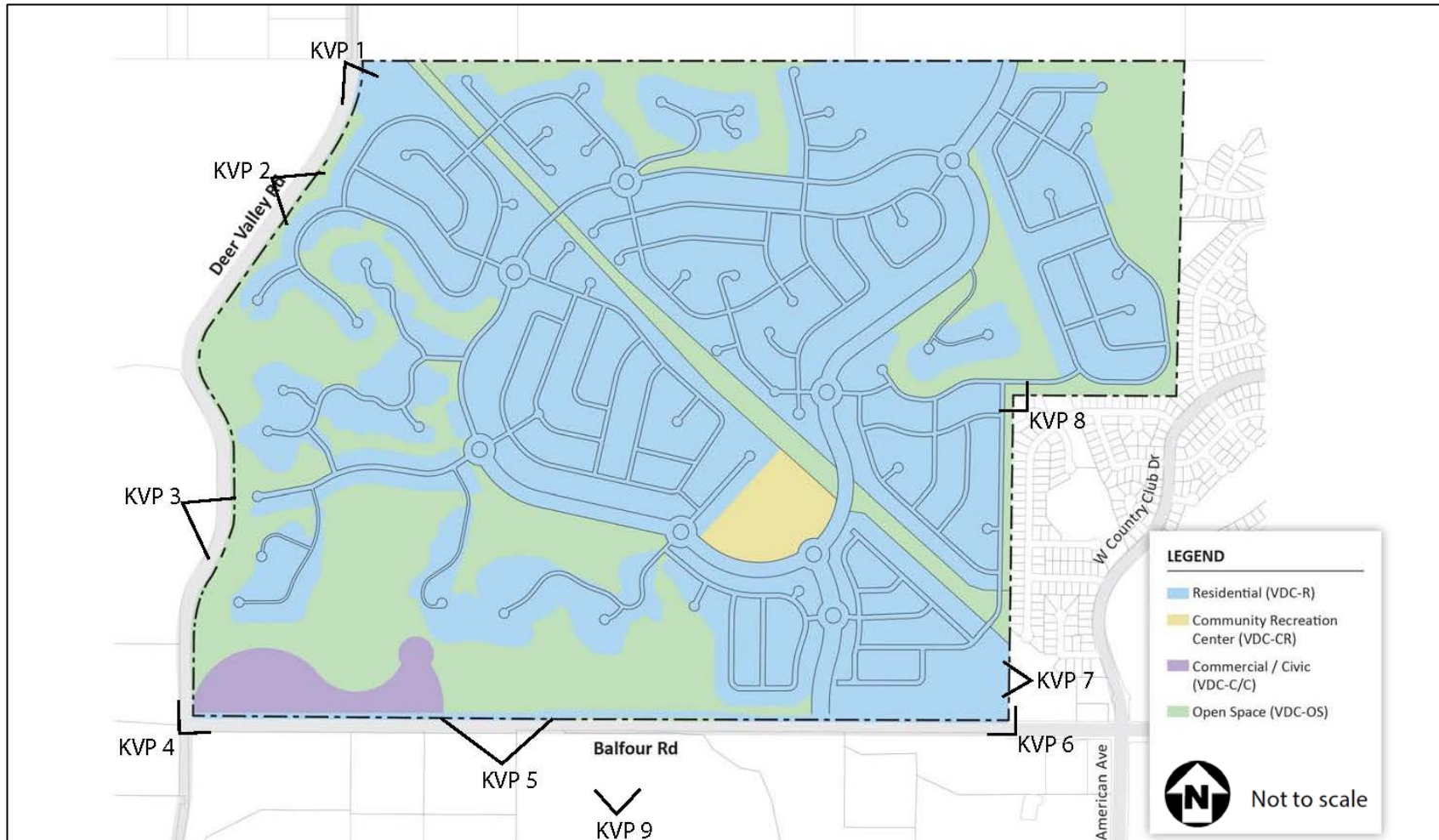


Figure 4.1-2
KVP-1

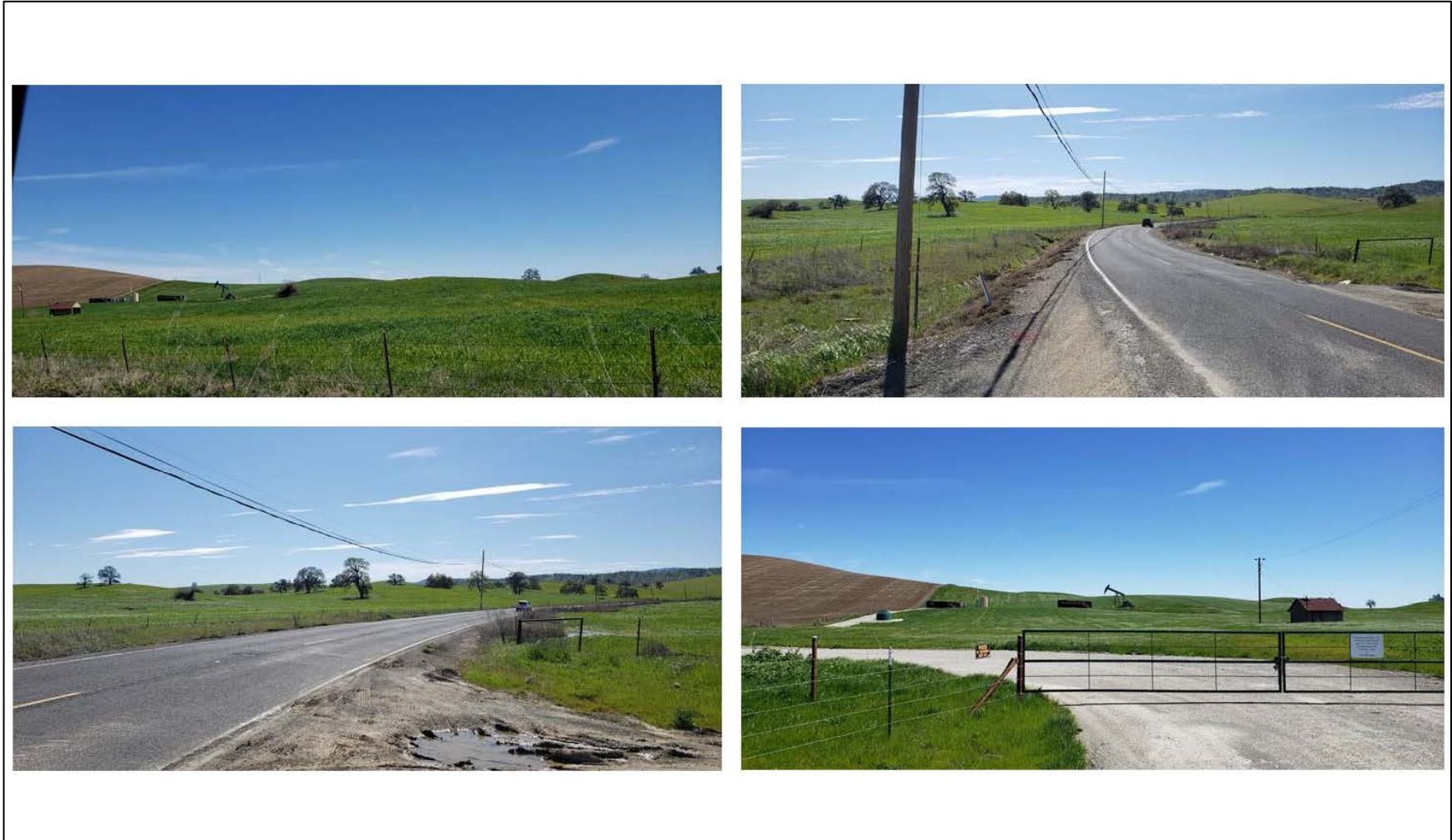


Figure 4.1-3
KVP-2

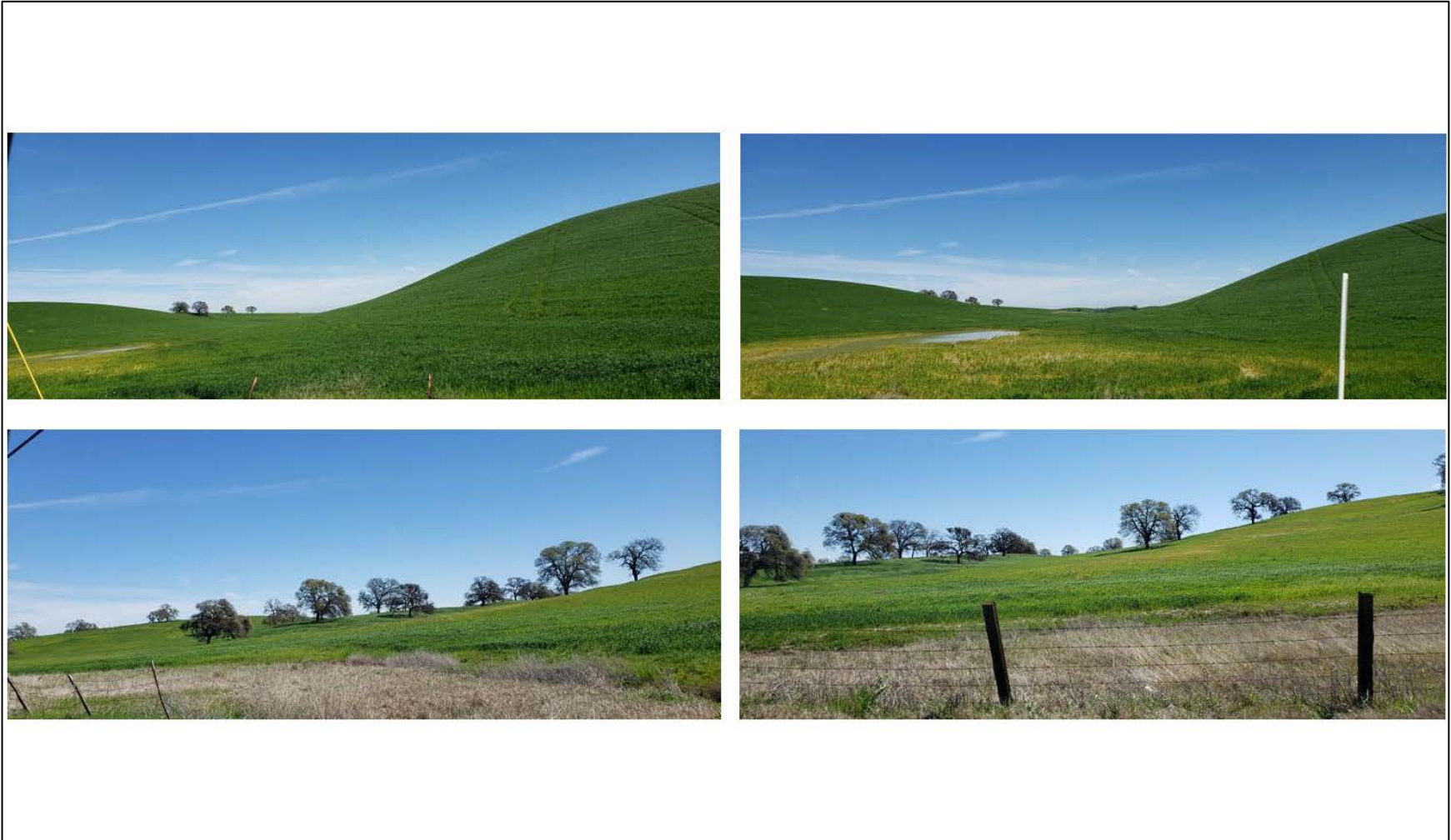


Figure 4.1-4
KVP-3

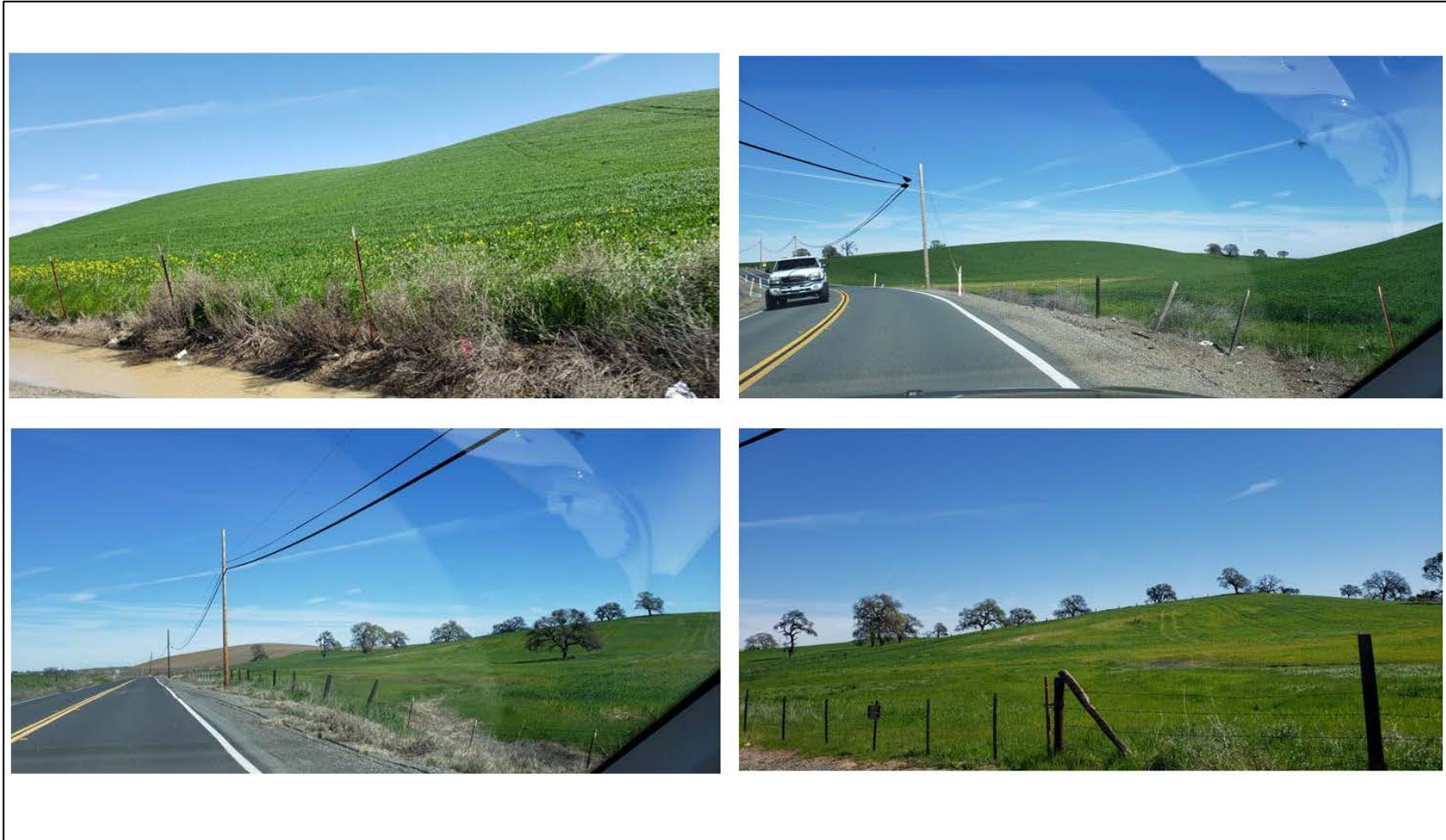


Figure 4.1-5
KVP-4



Figure 4.1-6
KVP-5



Figure 4.1-7
KVP-6



Figure 4.1-8
KVP-7



Figure 4.1- 9
KVP-8



Figure 4.1-10
KVP-9



Brief descriptions of the aesthetic and visual resources available from each of the KVPs are provided below.

KVP 1

KVP 1 was selected to characterize the aesthetic impact to travelers looking to the east and southeast from the northern site boundary along Deer Valley Road. Travelers along Deer Valley Road would view a portion of the Project site when looking south. Views from KVP 1 are currently characterized by grassland, oak savannah, rolling hills, and limited development. Existing structures visible from KVP 1 include oil derricks, outbuildings (located off-site), and above ground utility infrastructure. Distant views of foothills are visible past the Project site, on the horizon. The area north of KVP 1 is planned for residential development by the City of Antioch.

KVP 2

KVP 2 was selected to characterize the aesthetic impact to travelers on the northerly portion of Deer Valley Road looking east toward the proposed project. Views of the Project site in close proximity to KVP 2 are available to the public along Deer Valley Road, and consist of rolling hills, grasslands, and oak savannah landscapes. The rolling hills visible from KVP 2 form a ridgeline that partially obscures the majority of the Project site, beyond the ridgeline.

KVP 3

KVP 3 was selected to characterize the aesthetic impact to travelers on the southerly portion of Deer Valley Road looking east toward the Project site. Similar to KVP 2, views from KVP 3 are characterized by rolling hills oak savannah landscapes, and grasslands. The rolling hills visible from KVP 3 form a ridgeline that partially obscures the majority of the Project site, beyond the ridgeline.

KVP 4

KVP 4 was selected to characterize the aesthetic impact as viewed from the intersection of Deer Valley Road and Balfour Road looking to the north, east, and northeast, toward the Project site. The public view looking northeast from the intersection of Deer Valley Road and Balfour Road is currently unobstructed. From KVP 4, rolling hills and grassland within the Project site are visible. The area southeast of the intersection of Deer Valley Road and Balfour Road is planned for commercial development.

KVP 5

KVP 5 was selected to characterize the aesthetic impact to travelers on Balfour Road looking west toward Mt. Diablo and north, directly at the Project site from the approximate location of the future western intersection with American Avenue. Travelers along Balfour Road view a portion of the Project site when looking north; however, the existing ridges within the Project site obscure views of the site beyond the ridgeline. The visible portion of the Project site is characterized by grasslands and small drainages.

KVP 6

KVP 6 was selected to characterize the aesthetic impact looking to the east and west from Balfour Road. From KVP 6, the Project site is characterized by rolling hills and annual grasslands. Travelers along Balfour Road would view a portion of the Project when looking west. A large area east of KVP 6 is developed with single-family residential uses.

KVP 7

KVP 7 was selected to characterize the aesthetic impact to views looking west and north across the Project site from Balfour Guthrie Park. Views of the Project site from Balfour Guthrie Park are currently characterized by panoramic open space, annual grasslands, and rolling hills. Beyond the Project site, foothills and Mt. Diablo are visible on the horizon. KVP 7 is bordered by existing residential development to the east and public facilities to the south.

KVP 8

KVP 8 was selected to characterize the aesthetic impact from viewpoints looking west from Waterville Drive at the intersection of Lenzie Court. A portion of the Project site is visible to travelers along Lenzie Court and Waterville Drive. Views from Lenzie Court and Waterville Drive are limited due to the presence of residential developments and landscaping; however, Rolling Hills Park affords expansive views of the rolling hills and grasslands within the Project site.

KVP 9

KVP 9 was selected to characterize the aesthetic impact to future travelers on American Avenue, south of Balfour Road. Views from KVP 9 are currently characterized by rolling hills and annual grasslands. Ridgelines within the Project site would partially obscure views across the site from KVP 9.

4.1.2 Regulatory Setting

Federal

There are no Federal laws specifically related to aesthetics, as directly applicable here.

State

California Department of Transportation (Caltrans)

In 1963, the California Legislature established the State's Scenic Highway Program, which is intended to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. The State laws governing the Scenic Highway Program are found in the Streets and Highways Code at Section 260, et seq.

The State Scenic Highway Program, established by the Streets and Highways Code, is administered by Caltrans. The State Scenic Highway System includes highways that are either eligible for designation as scenic highways or have been designated as such.

For Caltrans to grant an eligible route official status as a California State Scenic Highway, the local jurisdiction must implement a Corridor Protection Program by either adopting ordinances, zoning, and/or planning policies to preserve the scenic quality of the corridor, or documenting that such regulations already exist in various portions of local codes. Policies to prevent visual degradation of these view corridors might include restriction of dense and continuous development, reflective surfaces, ridgeline development, extensive cut and fill grading, disturbed hillsides and landscape, exposed earth, and non-native vegetation (Caltrans, 2014).

According to the California Scenic Highway Mapping System, the City of Brentwood does not contain officially designated State Scenic Highways. However, there is one Eligible Scenic Highway in the vicinity of the Project site: SR 4. SR 4, west of the junction with Byron Highway to the junction with SR 160 in Antioch, is designated as an Eligible State Scenic Highway Corridor and is located approximately 0.5 miles east of the Project site.

Regional and Local

City of Brentwood General Plan

The City of Brentwood's General Plan includes Goals and Policies in the Land Use Element and the Conservation and Open Space Element that shape the aesthetic character of the city.

Land Use Goal 6: Maintain and enhance the visual quality of Brentwood by promoting the highest standards of architecture and site design for all development projects, both public and private.

- **Policy LU 6-1:** Create residential areas in Brentwood that include innovative designs which are linked with bikeways and pedestrian trails, commercial and employment centers, and transit stops.
- **Policy LU 6-2:** Maintain the character of existing neighborhoods by ensuring new development is compatible in style, size, color, and footprint with the existing residences in the neighborhood.
- **Policy LU 6-3:** Residential neighborhoods should be well-defined with park and recreation facilities, schools, open space, and neighborhood commercial land uses that incorporate unifying landscape and architectural themes.
- **Policy LU 6-4:** Apply design standards regulating setbacks, landscaping, screening, and architectural style to new residential development and rehabilitation projects.
- **Policy LU 6-6:** Encourage quality landscape and design.

Conservation and Open Space Goal 1: Ensure the provision and preservation of diverse and accessible open spaces throughout the Brentwood Planning Area.

- **Policy COS 1-1:** General Plan land use designations that include agriculture, permanent open space, parks, and similar uses, as well as waterways (i.e., Marsh Creek, Dry Creek, Deer Creek, and Sand Creek), shall be considered open space.
- **Policy COS 1-2:** Preserve open space for conservation, recreation, and agricultural uses.

- Policy COS 1-3: Conversion of open space, as defined under Policy COS 1-1, to developed residential, commercial, industrial, or other similar types of uses, shall be strongly discouraged. Undeveloped land that is designated for urban uses may be developed if needed to support economic development, and if the proposed development is consistent with the General Plan Land Use Map.
- Policy COS 1-4: Where possible, integrate open space and stream corridors with trails and other recreational open space in an environmentally sustainable manner.
- Policy COS 1-5: Recognize urban open space as essential to maintaining a high quality of life within the city limits of Brentwood.
- Policy COS 1-6: Support regional and local natural resource preservation plans of public agencies that retain and protect open space within the city limits, the Sphere of Influence, and the Planning Area.
- Policy COS 1-7: Encourage public and private efforts to preserve open space.
- Policy COS 1-8: Common or private open space that is not City property shall be privately maintained.
- Policy COS 1-9: Encourage the protection and incorporation of existing, native, mature, non-orchard trees and areas of natural vegetation as part of new development.

Conservation and Open Space Goal 2: Preserve designated agricultural lands in Brentwood's Planning Area.

- Policy COS 2-7: Require the use of buffers such as greenbelts, drainage features, parks, or other improved and maintained features in order to separate residential and other sensitive land uses, such as schools and hospitals, from agricultural lands and agricultural operations.
- Policy COS 2-8: Require new development to have structural setbacks that respect agricultural operations.
- Policy COS 2-9: Developers shall be responsible for mitigating impacts upon nearby agriculture. Setbacks and buffers shall be provided by the developer and not encroach upon productive agricultural areas.
- Policy COS 2-10: Limit incompatible uses (i.e., schools, hospitals, and high density residential) near agriculture.
- Policy COS 3-4: Conserve existing native vegetation where possible and integrate regionally native plant species into development and infrastructure projects where appropriate.
- Policy COS 3-5: Avoid removal of large, mature trees that provide wildlife habitat or contribute to the visual quality of the environment to the greatest extent feasible through appropriate project design and building siting. If full avoidance is not possible, prioritize planting of replacement trees on-site over off-site locations.

Conservation and Open Space Goal 7: Protect hillsides and ridgelines from visual impacts and erosion.

- **Policy COS 7-1:** Protect Brentwood’s ridgelines (hilltops and steep hillsides) from erosion, slope failure, and development.
- **Policy COS 7-2:** Preserve the topography of Brentwood’s hills by discouraging unnecessary leveling/grading activities prior to site-building on hillsides.
- **Policy COS 7-3:** Preserve and protect prominent community views of scenic resources, including Mount Diablo, local hills and ridgelines, and open space areas surrounding Brentwood, and consider community visual access and view corridors when reviewing development proposals.
- **Policy COS 7-4:** Discourage development on hillsides and ridgelines where structures would interrupt the skyline.

City of Brentwood Urban Forest Guidelines

The City of Brentwood has developed the Urban Forest Guidelines to assist landscape architects, city planners, and designers to specify the types of trees to be planted in order to create a more beautiful and unified city. Homeowners also benefit from these guidelines as they can be used as a reference to make informed choices when planting trees.

Trees add scale and comfort to streets and their colors, shapes, and textures enhance the atmosphere and the identity of the city. The city’s trees can be thought of as an “urban forest” and can be a diverse mixture of tree species. There are many growth characteristics and tree forms in street trees, and attention needs to be given to the trees chosen for individual projects. Street trees will grow for many years, and they must be properly placed and intelligently managed to maximize effects and minimize problems.

City of Brentwood Municipal Code, Chapter 17.820: Design and Site Development Review

The City of Brentwood Municipal Code contains the city’s ordinances. The Municipal Code is organized by Title, Chapter, and Section. Title 17 of the Municipal Code is the city’s Zoning Ordinance. The Zoning Ordinance includes development standards for each zoning district, including maximum building height, building setbacks, parking, landscaping, etc. In conjunction with the city’s standard conditions of approval, the Zoning Ordinance also includes design standards regarding lighting. The development and design standards within the Zoning Ordinance serve to protect the city’s visual character and control light and glare. City of Brentwood Residential Design Guidelines.

The City of Brentwood maintains design guidelines that are applicable to all new residential subdivision housing within the city. The city’s design guidelines are intended to ensure integration of new neighborhoods with existing neighborhoods, encourage visual variety within subdivisions, encourage distinct neighborhood identifies, and facilitate positive interfaces between subdivisions and the public road network.

City of Brentwood Residential Design Guidelines

The City of Brentwood maintains design guidelines that are applicable to all new residential developments within the city. The city's design guidelines are intended to ensure integration of new neighborhoods with existing neighborhoods, encourage visual variety within subdivisions, encourage distinct neighborhood identities, and facilitate positive interfaces between subdivisions and the public road network.

Chapter 6 of the VDCSP includes a set of Design Guidelines to address site design, architecture, circulation, parking, lighting, and other distinguishing features. The Design Guidelines largely adhere to the city's already adopted Design Guidelines. Furthermore, it is anticipated that the VDCSP Design Guidelines would be implemented through the city's existing Chapter 17.820 Municipal Code Design and Site Development review process.

4.1.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for aesthetics and visual resources were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as amended effective December 2018, as well as the previously certified 2014 General Plan EIR. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria.

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Also given consideration are any General Plan Goals, Policies, or designations that are designed to reduce aesthetic impacts. Conflicts with such laws, ordinances, regulations, and standards can constitute evidence of a significant aesthetic impact. Lastly, a significant aesthetic impact could occur if the Project's incremental aesthetic impact would be cumulatively considerable.

Method of Analysis

To determine potential impacts, the impact significance criteria identified above were applied to construction and operation of the Project, which proposes development of up to 2,400 residential units in multiple residential neighborhoods set among an agriculturally-themed landscape. Additional uses on the Project site would consist of a central recreation center or multiple neighborhood recreation centers; a commercial/civic agriculturally-themed area

located in the southwestern corner of the Project site along Balfour Road and intended for limited commercial and agricultural and farm-to-table related civic uses and functions; and a minimum of 225 acres of open space, a portion of which would be permanent agricultural crops such as vineyards and olive groves. The Project would also consist of off-site improvements, including widening a portion of Balfour Road from two to four lanes, extending American Avenue west and north to Balfour Road, extension of a new irrigation line within Balfour Road, and extension of a new off-site sewer line connecting between the northeastern portion of the Project site and an existing sewer line located in St. Regis Avenue.

Within the southwest quadrant of the Project site, the Project would include construction of a new three-million-gallon (minimum) potable water tank and associated pump station at a high point along a ridgeline (see Figure 3-3 of the Project Description Chapter of this EIR). In addition, a new Zone 2 pump station would be constructed adjacent to Reservoir 1.3, located in the Shadow Lakes neighborhood. Such improvements have been included in the city's Water Master Plan.

Development within Brentwood is required to be consistent with the General Plan. Goal COS 1 and Policies COS 1-1 through 1-9 in the Conservation and Open Space Element promote the protection of open space lands throughout the city. Goal COS 7 and Policies COS 7-1 through 7-4 protect hillsides and ridgelines from visual impacts associated with urban development, and Policy COS 7-3 includes specific language that preserves and protects prominent community views of scenic resources, including Mt. Diablo, local hills and ridgelines, and open space areas surrounding Brentwood.

Determination of Visual Quality

The analysis of the visual environment was made by describing the visual resources and character of the Project area and vicinity, determining the contrast of the Project with the setting, and estimating the potential viewer response to these changes in the visual environment. Viewer responses to visual changes were inferred from a variety of factors, including visual quality, viewer concern, viewer exposure, and visual sensitivity.

Off-Site Improvements

Impacts related to off-site infrastructure improvements associated with implementation of the Project are primarily addressed in Section 4.16, Utilities and Service Systems, of this EIR. In addition, the technical chapters of the EIR include a focused discussion of the impacts of off-site infrastructure improvements as they relate to each chapter. Finally, potential impacts to aesthetics and visual resources from off-site improvements are analyzed in the discussion of Impact AES-5 below.

Impacts of the Proposed Project

Impact AES-1: Would the project have a substantial adverse effect on a scenic vista? (*less-than-significant impact with application of site-specific mitigation measures*)

A substantial adverse effect to a scenic vista is one that degrades the view of the scenic resource from a public viewpoint. Public views, as opposed to private views, are experienced by the collective public. In the case of the Project, public views would include views from Deer Valley Road, Balfour Road, American Avenue, select public roadways within the existing residential developments to the east of the Project site, Balfour Guthrie Park, and Rolling Hills Park. CEQA (PRC, § 21000 et seq.) case law has established that only public views, not private views, are protected under CEQA. For example, in *Association for Protection etc. Values v. City of Ukiah* (1991) 2 Cal.App.4th 720, the court determined that “we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188: “[A]ll government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general.” Therefore, it is appropriate to focus the impact analysis for aesthetic and visual resources on potential impacts to public views. In addition, Appendix G of the CEQA Guidelines has recently been revised to reflect that the focus of environmental analyses related to aesthetic and visual resources should be on public views, which are defined as “those that are experienced from publicly accessible vantage point.”

While there are no officially designated scenic vistas located in the vicinity of the Project site, the General Plan provides that open space areas are of scenic value to the city.¹ In particular, the 2014 General Plan EIR identifies Mt. Diablo and the Diablo Range, in addition to local hills and ridgelines and open space areas as significant visual features. In addition to views of Mt. Diablo and the Diablo Range, significant visual resources in the city include views of Lone Tree Valley, Horse Valley, Deer Valley, and Briones Valley as well as expansive views of agricultural lands, particularly to the south and east of the city; wildlife habitat areas and natural riparian areas along Marsh Creek, Sand Creek, Deer Creek, and Dry Creek; Marsh Creek Reservoir; gently rolling hillsides with natural grasslands and oak tree habitat; and Marsh Creek State Park.

In addition to scenic highways discussed above, local roads within the Brentwood Planning Area with scenic vistas are discussed in the 2014 General Plan EIR. These roads include Camino Diablo Road, Marsh Creek Road, Walnut Boulevard, Deer Valley Road, and Lone Tree Way. As discussed in the 2014 General Plan EIR, between them, these roads possess distant panoramic vistas of the Diablo Range and Mt. Diablo, rural farmland in the flatland areas, and the surrounding hillsides.

¹ City of Brentwood. 2014. *General Plan* [pg. 4-1]. Prepared by De Novo Planning Group.

Although Mt. Diablo is located outside of the city, approximately 9 miles west of the Project site, it is a prominent landscape feature of the western skyline as viewed from the Project area and surrounding viewshed or area of potential visual effect (the area within which the Project could potentially be seen). Deer Creek flows across the southern portion of the Project site, in the vicinity of Balfour Road. Sand Creek is mapped along the western boundary of the Project site, running parallel to a portion of Deer Valley Road. The Project site includes rolling hills and oak trees, found scattered throughout the northwestern portion of the Project area. The viewshed includes existing single-family homes located in the Brentwood Hills and Shadow Lakes residential neighborhoods to the east, existing single-family homes located in the Deer Ridge residential neighborhood, Heritage High School and Adams Middle School to the southeast, as well as open space to the north, west, and south. Property owned and maintained by the East Bay Regional Park District (EBRPD) is to the west of the Project site.

The Project site currently does not have a zoning designation under the city's Zoning Ordinance and Zoning Map. The Project includes pre-zoning of the Project site in anticipation of its incorporation within the city's ULL and SOI, and ultimately, its annexation to the city. The Project would also require General Plan amendments to modify the ULL and make conforming text, map, and figure amendments to the General Plan to be consistent with the ULL modification, the Specific Plan, and pre-zoning.

Chapter 6 of the VDCSP includes a set of Design Guidelines to address site design, architecture, circulation, parking, lighting, and other distinguishing features. The Design Guidelines largely adhere to the city's already adopted Design Guidelines. Furthermore, it is anticipated that the VDCSP Design Guidelines would be implemented through the city's existing Chapter 17.820 Municipal Code Design and Site Development review process.

As shown in Figure 4.1-2 through Figure 4.1-10, the Project is located in an area with open space, scattered oak trees, elevated ridges, and pockets of lower elevation. Mt. Diablo, rolling hillsides, and oak trees are visible from most KVPs, particularly KVP 1, 2, 5, 6, 7, and 9. Views along Deer Valley Road would be altered due to the implementation of the Project. Views of Deer Creek and Sand Creek would also be altered in conjunction with increased residential development. As noted for KVPs 2, 3, and 5, the topography of the Project site limits views across the site, which would minimize views of the proposed development from such KVPs. However, other KVPs, such as KVP 1, 4, 6, 7, 8, and 9 would have clear views of large portions of the Project site. Views from KVP 1, 4, 6, 7, 8, and 9 would be changed from open grassland, rolling hills, and oak woodland to commercial or residential developments. Furthermore, the proposed potable water tank and associated pump station would likely be visible from KVP 3, 4, 5, 6 and 9. However, as noted previously, construction of such infrastructure has been previously anticipated per the city's Water Master Plan. Due to the rolling hills that exist throughout the site, views of the water tank would be fleeting for motorists travelling along Deer Valley Road. Nevertheless, considering the placement of the proposed potable water tank on an elevated portion of the Project site, the water tank may be visible from portions of Balfour Roads and other public viewpoints, and may partially obstruct views of visual resources.

The Project would include development of an open space area where significant views of Mt. Diablo exist, but other views could be obstructed by the proposed development. Further, along the eastern boundary of the VDCSP area, the Project provides for a 100-foot buffer that would include landscaping and limit adjacent uses to single-family, single-story residential units.

Although the development proposed as a part of the Project would not completely obscure views of visual resources, implementation of the Project would alter the surrounding area due to the transition from rural to urban development. Some views from the surrounding area would maintain the rural farmland and agricultural setting described as a significant visual feature in the 2014 General Plan EIR.

General Plan Policies COS 7-2 and COS 7-4 discourage development on hillsides and ridgelines. COS 7-3 likewise looks to the preservation and protection of prominent community views of scenic resources, including Mt. Diablo, and local hills and ridgelines. As discussed in Chapter 3 of this EIR, the Project would include open space along the ridgelines, but preclude the construction of multifamily units along the elevated ridges (hilltops). In addition, the VDCSP (Chapter 1, Introduction) states that age-restricted multi-family residential uses shall not be located on hilltops. Since the Project allows some development in ridgeline and hillside areas, it could potentially conflict with General Plan Policies COS 7-2 and COS 7-4.

The only non-single-family use allowed in the ridgeline and hillside areas is senior care facilities. So, while the Project does allow for some low density development on hillsides and ridgelines, it complies with General Plan Policies COS 7-2 and COS 7-4 by restricting high density, multi-family units in those areas. Further, Mitigation Measure AES-1 will require any senior care facilities located in ridgeline or hillside areas to comply with design guidelines that will be developed specifically to limit the appearance and bulk of larger structures in ridgeline and hillside areas. Implementation of Mitigation Measure AES-1 therefore ensures consistency with General Plan Policies COS 7-2 and COS 7-4 by limiting the appearance of ridgeline and hillside development.

The only non-single-family use allowed in the ridgeline and hillside areas is senior care facilities. So, while the Project does allow for some low density development on hillsides and ridgelines, it complies with General Plan Policies COS 7-2 and COS 7-4 by restricting high density, multi-family units in those areas. Further, Mitigation Measure AES-1 will require the Development Agreement to include provisions requiring any senior care facilities located in ridgeline or hillside areas to comply with design guidelines that will be developed specifically to limit the appearance and bulk of larger structures in ridgeline and hillside areas. Implementation of Mitigation Measure AES-1 therefore ensures consistency with General Plan Policies COS 7-2 and COS 7-4 by limiting the appearance of ridgeline and hillside development.

Therefore, with implementation of MM AES-1, impacts to scenic vistas would be reduced to a ***less-than-significant*** level.

Mitigation Measures

MM AES-1: *The Project proponent shall comply with Design Guidelines for Senior Care Facilities to be set forth in the Development Agreement for the Project or other instrument. Such Design Guidelines for Senior Care Facilities shall include, but shall not be limited to, standards for height, setbacks, and lot coverage that reduce the visibility of development on hillsides and ridgelines consistent with General Plan policies COS 7-2 and COS 7-4. The Design Guidelines and related standards shall ensure that the height of any Senior Care Facility does not extend above the existing peak elevation of the applicable hillside or ridgeline, thereby minimizing grading activity and interruption of the skyline.*

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)**

The State of California Department of Transportation has a Scenic Highway Program under the Streets and Highways Code (Sections 260-263) that designates highways based upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent that development modifies traveler's enjoyment of the view. There are no historic buildings in the vicinity of the Project site and there are no highways that have been officially designated as State Scenic Highways within Brentwood. SR 4 is eligible for designation as a scenic highway, but is located outside the boundaries of the overall Project site and the Project site is not visible from SR 4 due to existing development to the west of SR 4. Viewpoints KVP 1, 2, 3, and 4, shown in Figure 4.1-2 through Figure 4.1-5, would be altered due to the development of the Project adjacent to Deer Valley Road.

The 2014 General Plan EIR concluded that buildout of the General Plan would result in significant and unavoidable impacts to scenic views, including views from eligible State Scenic Highways. The only eligible State Scenic Highway within the Project area is SR 4. The Project site is not visible from SR 4, and development of the Project would not result in any changes to views from SR 4. Therefore, **no impact** related to scenic resources within a State Scenic Highway would result due to implementation of the Project.

Mitigation Measures

None required.

Impact AES-3: **Would the project substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point) (significant and unavoidable even with application of site-specific mitigation measures)**

Adjacent land uses to the Project include the single-family Shadow Lakes residential neighborhood to the east and agricultural and open space to the north, west, and south. The area to the north of the Project site is planned for residential development, including Hillside, Estate, and Executive Residential/Open Space designations, as well as Senior Housing/Open Space and a small portion of Commercial/Open Space, as set forth under the City of Antioch's General Plan. The City of Brentwood's General Plan has designated the area to the south of the Project site for Low-Density and Very Low Density Residential development, as well as a small portion of General Commercial development which is planned for the area immediately south of Balfour Road and east of Deer Valley Road. The single-family Deer Ridge residential neighborhood, Heritage High School, and Adams Middle School are located southeast of the Project site. As discussed in Chapter 3 (Project Description), the Project would limit the area for commercial/civic uses to the southwestern portion of the Project site, adjacent to planned commercial development to be located south of Balfour Road, with the exception of Senior Care Facilities, which could be located in the residentially designated areas of the Project site. In addition, the Project would include construction of a water tank and associated pump station within the southwest quadrant of the site within an elevated portion of the Project site (see Figure 3-3 of the Project Description Chapter of this EIR).

As shown in Figure 4.1-2 through Figure 4.1-10, the site topography includes ridges and pockets of lower elevations. Deer Creek flows across the southern portion of the Project site, in the vicinity of Balfour Road. Sand Creek is mapped along the western boundary of the Project site, running parallel to a portion of Deer Valley Road. The Project site includes rolling hills with grasslands and oak trees, found scattered throughout the northwestern portion of the Project area, as well as some dryland farming. While the Project would utilize the existing ridgelines to partially obscure the residential developments, and incorporate a minimum of 225 acres of agriculture and open space, some of which would form buffers from public roadways, where views of the site are afforded to passing vehicles, the overall change in visual character of the Project would represent a substantial degradation in visual character and quality of the site. This conclusion is consistent with the 2014 General Plan EIR, which concluded that buildout of the 2014 General Plan would result in significant and unavoidable impacts related to the visual character of the city of Brentwood, even with implementation of goals and policies related to aesthetics. When concluding significant and unavoidable, the General Plan EIR makes specific mention of new development on agricultural lands.

For the above reasons, consistent with the General Plan EIR conclusion, and despite the implementation of site-specific mitigation measures, development of the Project could result in substantial degradation of the existing visual character and quality of the site, constituting a **significant and unavoidable** impact.

Mitigation Measures

Compliance with the following mitigation measures shall be achieved through project-level conditions of approval to be included on any subdivision maps on the Project site:

MM AES-2 *The Project shall be required to comply with all applicable development standards and design guidelines in order to ensure that development is compatible in style, size, color, and footprint as the VDCSP Area is built out.*

Impact AES-4: **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 with additional site-specific mitigation measure*)**

The Project site is comprised of vacant land with no existing sources of light or glare. Nearby sources of light and glare include street lighting and vehicle traffic along Balfour Road, American Avenue, and Deer Valley Road. Other sources of existing lighting and glare in the surrounding area include residential lighting, street lighting, parking lot lighting, light from the headlights of motor vehicles on the surrounding roadways, and light emanating from Balfour-Guthrie Park to the east and the Heritage High School athletic field to the southeast.

The Project would generate additional sources of light and glare via additional vehicle trips, lighting from residential and commercial uses, security lighting, and street lights. Areas to the south, west, and north are characterized primarily by agricultural uses and scattered low intensity residential development, and generally have lower levels of ambient nighttime lighting and daytime glare. Chapter 6 of the Specific Plan includes the Design Guidelines that the Project would be subject to, including the exterior lighting standards that address light and glare standards in accordance with the city's existing Municipal Code. The Design Guidelines would be implemented through the process delineated in Chapter 17.820 of the city's Municipal Code. The 2014 General Plan does not include any policies specifically intended to reduce impacts related to light and glare that are applicable to the Project.

Given that the VDCSP is a program-level document, formal detailed development plans are not included as part of the Project. As such, the extent to which future development could introduce new sources of light and glare to the project area cannot be determined at this time, and a potentially significant impact related light and glare could occur.

To reduce potential impacts on aesthetic and visual resources, MM AES-3 shall be implemented, which requires that future lighting plans be subject to existing city processes used to confirm that new development will not exceed light and glare performance standards. Accordingly, implementation of MM AES-3 would reduce any impacts related to the generation of light and glare to a ***less-than-significant*** level.

Mitigation Measures

MM AES-3 *Exterior Lighting Control Plan: To minimize the potential adverse impact associated with light and glare, the project applicant for any future housing facility or commercial use shall submit an exterior lighting control plan, which must be reviewed and approved by the Planning Commission in conjunction with a formal design review application on the Project site.*

The Project proponent shall design and install all permanent exterior lighting and all temporary construction lighting such that: (a) lamps and reflectors are not directly visible from beyond the Project site, as is feasible; (b) lighting does not cause excessive reflected glare; (c) direct lighting does not illuminate the nighttime sky; (d) illumination of the project and its immediate vicinity is minimized; and (e) the lighting mitigation plan complies with all relevant local policies and ordinances.

The exterior lighting control plan shall include the following:

- *A photometric study that demonstrates spillover horizontal foot-candle (fc) levels do not exceed 1.0 fc at the Project site boundary;*
- *Identification of the location and direction of light fixtures that take the lighting control requirements into account;*
- *Lighting design that considers setbacks of project features from the site boundary to aid in satisfying the lighting control requirements;*
- *Lighting design that incorporates fixture hoods/shielding, with light directed downward or toward the area to be illuminated;*
- *Light fixtures that are visible from beyond the project boundary shall have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security;*
- *All lighting shall be of minimum necessary brightness consistent with operational safety and security; and*
- *Lights in high illumination areas not occupied on a continuous basis shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.*

Impact AES-5: Would the off-site infrastructure improvements result in any impacts to aesthetic or visual resources? (*less than significant*)

As noted in Chapter 3, Project Description, off-site improvements associated with the project would include the extension of a new off-site sewer line connecting between the northeastern portion of the Project site and an existing sewer line located in St. Regis Avenue, extension of a new irrigation line within Balfour Road, extension of American Avenue west and north to Balfour Road, and the widening and/or improvement of certain portions of Balfour Road from two to four lanes.

Off-site Sewer Pipe Improvements

Alternatives 2 and 3 for the proposed off-site sewer improvements would both involve off-site ground-disturbing activity (trenching) to the east of the Project site boundary. The off-site sewer improvement area consists primarily of ruderal grasses, as well as portions of paved

roadway. Off-site sewer pipe infrastructure would result in temporary disturbance of the area overlying the proposed alignment; however, the sewer pipe would be installed underground, and disturbed areas would be restored following placement of the infrastructure. The sewer pipeline infrastructure would not involve any substantial above ground structures or installation of features that would produce light and glare. Therefore, off-site sewer pipe improvements would not result in impacts related to aesthetics and visual resources.

Off-site Irrigation Pipe Improvements

The proposed off-site irrigation line improvement (Alternative 1) would occur entirely within the Balfour Road right-of-way. Installation of the below ground irrigation line would result in temporary ground disturbance; however, such improvements would not involve the installation of any substantial above ground structures or installation of features that would produce light and glare. Therefore, off-site irrigation pipe improvements would not result in impacts related to aesthetics and visual resources.

Off-site Roadway Improvements

American Avenue Extension

The American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. Extension of American Avenue to Balfour Road would involve grading and development activity that would alter the visual character of the area and introduce sources of light and glare (i.e. streetlights, street signs, lights and glare from vehicles) into an area where such sources do not currently exist. Although American Avenue would be extended through an area that is currently undeveloped, development of the area, including extension of American Avenue has been planned for in the 2014 General Plan. Consequently, impacts to aesthetics and visual resources from the proposed extension of American Avenue have been previously analyzed in the 2014 General Plan EIR. The extension of American Avenue would be designed in compliance with the city's standard roadway design requirements. Considering that the proposed roadway extension has been previously planned for and analyzed as part of the 2014 General Plan and General Plan EIR, and the design would comply with the city's standard requirements, off-site development of the American Avenue Extension would not result in a significant impact related to aesthetics and visual resources.

Balfour Road Widening

Consistent with the 2014 General Plan, Balfour Road would ultimately be widened from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection. Because the Balfour Road widening was planned in the 2014 General Plan, potential impacts to aesthetics and visual resources due to such widening have been previously analyzed in the 2014 General Plan EIR. The proposed widening would be designed in compliance with the city's standard roadway design requirements. Therefore, the Balfour Road widening would not be anticipated to result in a significant impact related to aesthetics and visual resources.

Conclusion

Based on the discussions above, the off-site infrastructure improvements included in the Project would result in a ***less-than-significant*** impact related to aesthetic and visual resources.

Mitigation Measures

None required.

Cumulative Impact Analysis

Impact AES-6: Would the project create long-term changes in the visual character of the region associated with cumulative development of the proposed project in combination with future buildout in the City of Brentwood? (*significant and unavoidable, even with application of site-specific mitigation measures policies*)

Project-specific impacts related to light and glare can act cumulatively to increase potential impacts, especially related to nighttime sky glow due to light pollution. As discussed in Impact AES-3, the proposed project would not result in impacts related to the creation of light and glare, and implementation of MM AES-3 would ensure that lighting from the Project site would not create a significant impact. Thus, the Project would not result in a cumulatively considerable impact related to light and glare.

The potential impacts related to views and aesthetics are generally site-specific. Nevertheless, as discussed above, the 2014 General Plan EIR concluded that buildout of the 2014 General Plan would result in significant and unavoidable impacts to scenic vistas and substantial degradation of visual character and quality of the city. The Project is located in an area with existing scenic views of Mt. Diablo and the site itself consists of rolling hills with grasses and areas used for dryland farming, and implementation of the Project would result in a significant and unavoidable impact to scenic vistas, as viewed from public areas in the site vicinity, and substantial degradation of the visual character and quality of the site and its surroundings.

As discussed in the 2014 General Plan EIR, although the 2014 General Plan includes goals, policies, and actions to reduce impacts to scenic views of Mt. Diablo and the foothills, buildout of the 2014 General Plan would continue to result in significant impacts to such resources and visual character. Avoidance of such impacts would require severely limiting development potential within the city, which would be incompatible with the goals of the 2014 General Plan. MM AES-1, MM AES-2, and MM AES-3 would work to reduce potential impacts related to implementation of the Project, but the foregoing mitigation measures would not be sufficient to eliminate such impacts to less-than-significant levels; therefore, cumulative impacts would remain significant and unavoidable.

Considering the potential for the Project to result in significant impacts to scenic views of Mt. Diablo and substantial degradation of visual character, implementation of the Project would

result in a cumulatively considerable and *significant and unavoidable* impact related to aesthetics and visual resources.

Mitigation Measures

MM AES-4 *Implement MM AES-1, MM AES-2, and MM AES-3.*

4.2 Agricultural and Forest Resources

4.2.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to agricultural lands, agricultural resources, and forest/timber resources in the Project area. The Project Setting describes the baseline characteristics of the Project related to the site's agricultural characteristics, soils and resources.

The existing setting discussion is followed by a discussion of the regulatory framework, including Federal, State, and local policies and regulations that pertain to agricultural resources and conservation of farmland. The impact analysis determines impacts based on the significance criteria as outlined by CEQA Guidelines Appendix G, and appropriate mitigation measures are identified where necessary.

Regional Setting

The Brentwood General Plan covers a 42-square mile "Planning Area" that includes the City of Brentwood and nearby lands in Contra Costa County.

The 9,000 acres of Prime Farmland in the areas surrounding Brentwood constitute one of the largest, most productive farming regions remaining in the Bay Area. Agricultural lands surrounding the city are primarily designated Agricultural Conservation (AC or AGCON) on the General Plan Land Use Map. The AC or AGCON land use category encompasses lands with continuing commercial agricultural potential, which are concentrated in the eastern portion of the General Plan's Planning Area. In the western portion of the Planning Area, which is west and south of the existing city limits and where the Project site is located, land is dedicated to regional park land, open space, and future residential development. Land west of the city limits is hilly and consists mostly of limited grazing and dryland farming.

Project Setting

The Project site is located in unincorporated Contra Costa County, within the Planning Area west of the city limits as stated in the city's 2014 General Plan. The approximately 815-acre Project site consists of low rolling hills and valleys supporting oaks and grasslands, ranging in elevation from approximately 160 feet above sea level to 380 feet above sea level. Under the County General Plan, the property is designated as Agricultural Land (AL) and is zoned A-4, Agricultural Preserve District, under Title 8 of the County Municipal Code. The A-4 District is intended to provide areas that primarily support the commercial production of food and fiber, and other compatible uses "consistent with the intent and purpose of the Land Conservation Act of 1965." Allowable uses include a wide range of agriculture, agricultural support, and related uses. Although the County Municipal Code mentions the Land Conservation Act (Williamson Act) of 1965 in the zoning description, the property itself is not under a Williamson Act contract.

The Project site is essentially unimproved and entirely unirrigated, supporting the production of dryland crops. The property has been grazed in the past but has not been grazed in approximately 15 years¹. More recently, a portion of the site has been used to grow hay, safflower, and miscellaneous dry grains, and there is no evidence of past irrigated agriculture. Dryland farming occurs on approximately 95 percent of the property, where the slopes are not excessive. Surrounding properties to the north, west, and south support similar uses, including grazing and agricultural operations, and they contain similar natural characteristics, topography, and soils (City of Brentwood, 2014 General Plan).

Off-Site Improvement Areas

Off-site improvements associated with the Project would include the extension of American Avenue west and north to Balfour Road, the widening and improvement of certain portions of Balfour Road from two to four lanes, the improvement of an additional portion of Balfour Road, extension of a new irrigation line within Balfour Road, and extension of a new off-site sewer line connecting between the northeastern portion of the Project site and an existing sewer line located in St. Regis Avenue.

The American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. The off-site improvement area associated with widening of Balfour Road and extension of the proposed irrigation line would be primarily limited to the existing paved right-of-way and the graveled shoulders of the roadway, which contain scattered shrubs and ruderal grasses. The off-site sewer improvement area consists primarily of ruderal grasses, as well as portions of paved roadway.

Existing Farmland and Soil Classifications

Existing Farmland

According to the Contra Costa County Important Farmland Map (California Natural Resources Agency, 2016), the entire approximately 815-acre Project site is classified as Farmland of Local Importance, which as further described below, is not recognized in the CEQA thresholds of significance with respect to farmland conversion. Similarly, the off-site improvement area for the proposed American Avenue extension is classified as Farmland of Local Importance. This State classification of “Farmland of Local Importance” is explained as follows:

The lands within the Tassajara area, extending eastward to the County boundary and bordered on the north by the Black Hills, the Deer, Lone Tree and Briones valleys, the Antioch area, and the Delta. These lands are typically used for livestock grazing. They are capable of producing dryland grain on a two-year summer fallow or longer rotation with volunteer hay and pasture. The farmlands in this category are included in the U.S. Natural Resources Conservation Services’ Land Capability Classes I, II, III and IV, and lack some irrigation water.

¹ Personal Communication with Bob Nunn, March 2019.

Figure 4.2-1 provides the Contra Costa County Important Farmland Map (California Department of Conservation, 2016).

In the hierarchy of farmland quality recognized by the California Farmland Mapping and Monitoring Program (FMMP), Farmland of Local Importance is neither Prime Farmland, Farmland of Statewide Importance, nor Unique Farmland. Farmland of Local Importance ranks below these categories in terms of quality and importance and is not recognized in the CEQA thresholds of significance with respect to farmland conversion.

Soil Classifications

The Storie index is a method of soil rating based on soil characteristics that govern the land's potential utilization and productivity capacity. The most favorable or ideal soil conditions for plant growth are rated at 100 percent using the Storie Index. Class (or grade) I and II soils are best suited for crop production, whereas Class III and IV soils represent poorer quality soils, which are better suited for grazing and dry land farming. According to the Soil Survey of Contra Costa County, CA (U.S. Department of Agriculture [USDA], Bureau of Chemistry and Soils, 1939), the Project site consists primarily of Altamont adobe clay (Class III), Arnold sandy loam (Class III-IV), and Anton clay loam (Class IV). The Soil Survey of Contra Costa County remains an important and relevant data resource, as the survey methods included field sampling and verification rather than interpretation of imagery. The Class III and IV soils at the Project site represent poorer quality soils, are better suited for grazing and dry land farming, and all have a Storie Index of 55 or lower².

According to the General Soil Map of Contra Costa County, California (USDA, Soil Conservation Service, 1976), the site consists of two primary "soil associations." An association consists of two or more geographically associated soils that are shown as one unit on the map because the pattern and relative proportion of the soils are similar. The dominant association comprising most of the site (Association 11) is the Altamont-Diablo-Fontana association, which is characterized by strongly sloping to very steep, well drained clays and silty clay loams that formed in material weathered from soft, fine-grained sandstone and shale on uplands. The second association (Association 3) is the Capay-Rincon association, located around the boundaries of the Project site. This association consists of nearly level to strongly sloping, moderately well drained and well drained clays and clay loams on valley fill. These generalized soil associations and characteristics are indicative of soils with low infiltration rates and generally of lower quality with limited agricultural production capacity.

Figure 4.2-2 provides the USDA Soil Associations Map.

² Soil Survey of Contra Costa County, CA (U.S. Department of Agriculture, Bureau of Chemistry and Soils), 1939.

**Figure 4.2-1
Contra Costa Important Farmland Map**

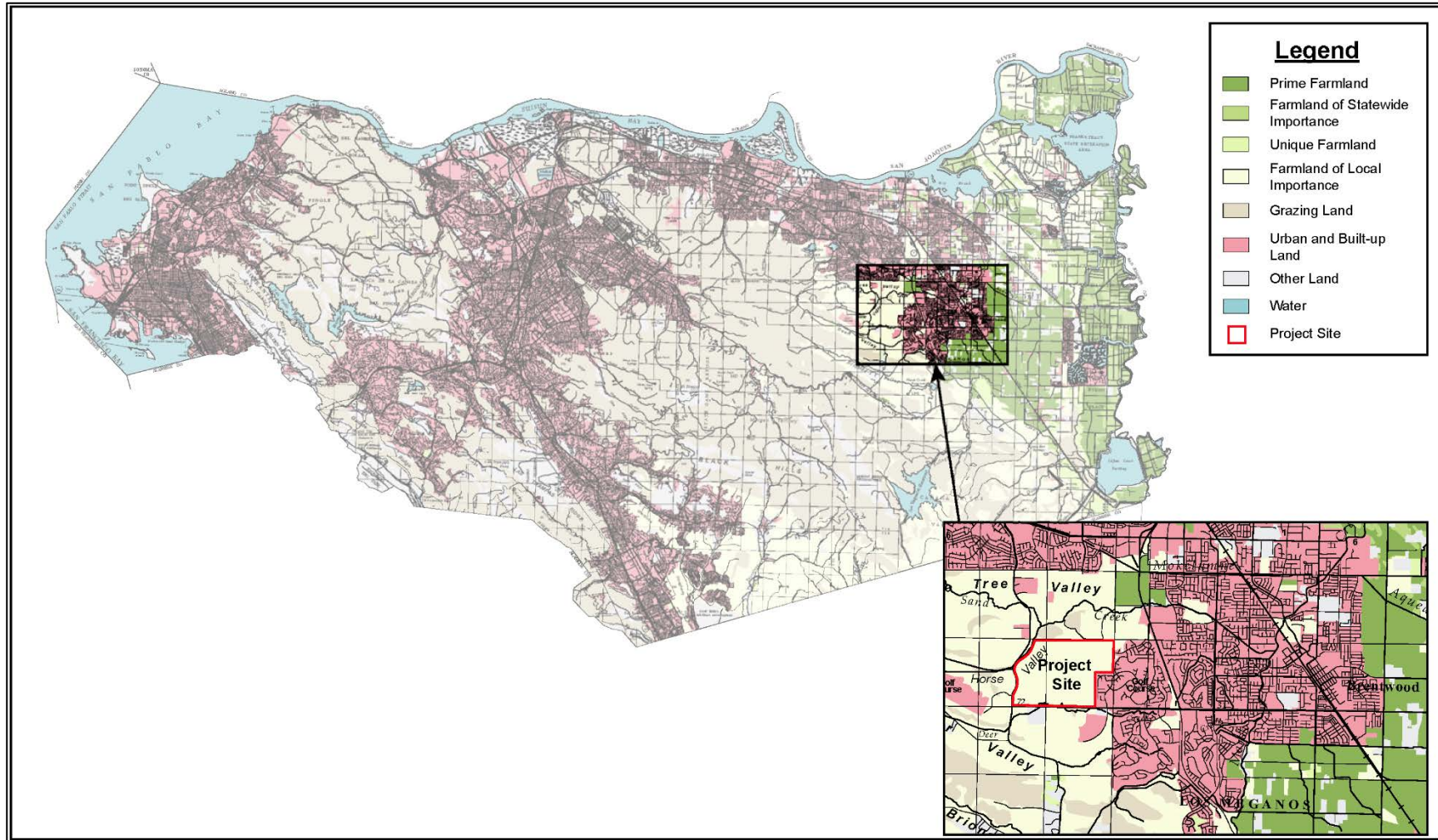
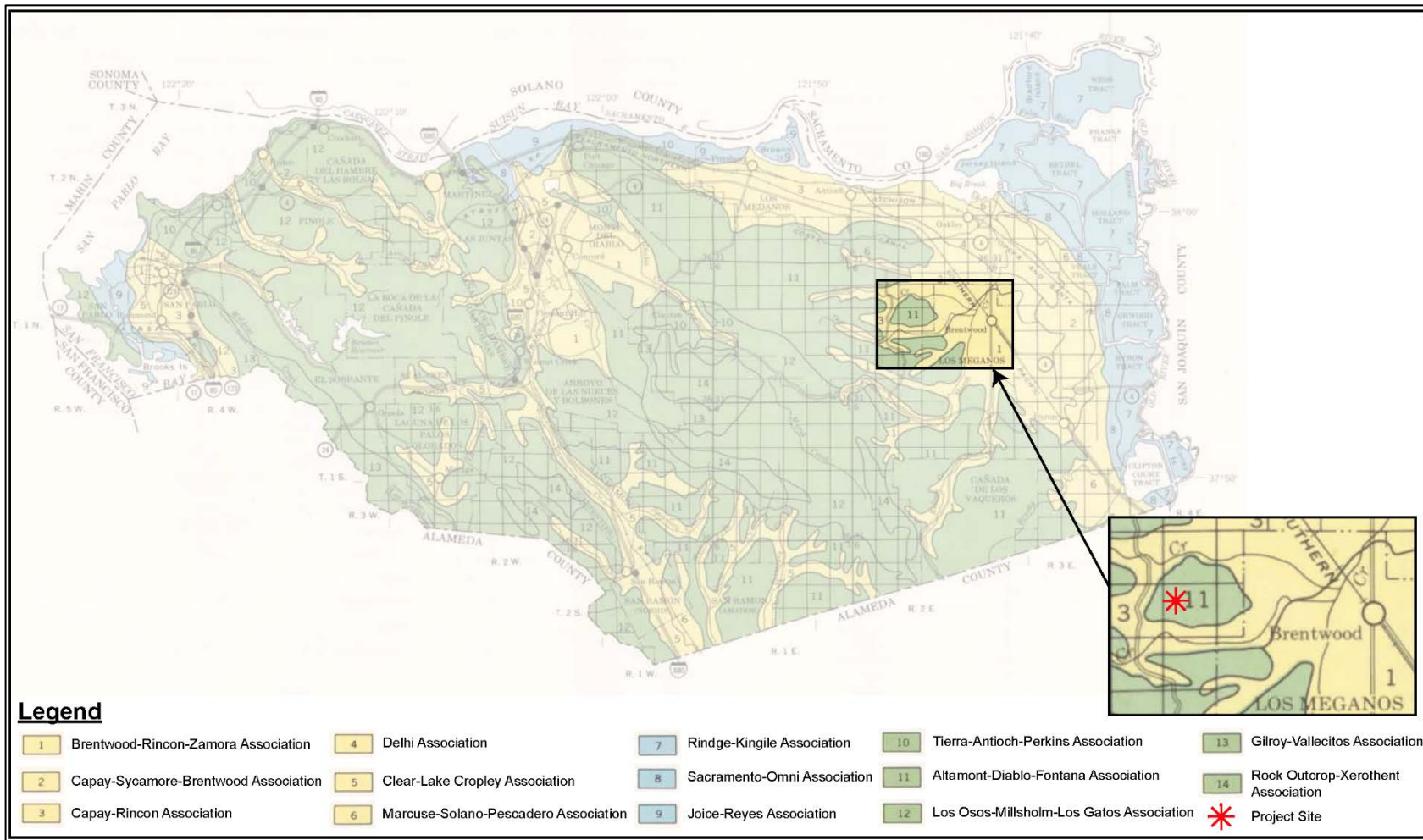


Figure 4.2-2
USDA General Soil Map for Contra Costa County



Residual natural soils, derived by in-place weathering of the underlying parent bedrock, were encountered during the Project's geotechnical investigation in some of the test pits excavated in the hillside portions of the site (ENGEO, 2019). Colluvial deposits (Qc) have been mapped along the base of slopes and within hollows or ravines during a 2001 field exploration (ENGEO, 2019). Colluvial deposits are typically deposited as a result of soil creep and are moderately compressible and weak. Similarly, alluvial deposits (Qal) have been mapped in the main drainages and on the gently sloping plains of the site. Local alluvium is derived from weathering of the adjacent hillside areas.

Forest and Timber Lands

Forest land is defined by Public Resources Code Section 12220(g) and includes "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits."

Timber land is defined by Public Resources Code Section 4526, and means "land, other than land owned by the federal government and land designated by the [State Board of Forestry and Fire Protection] as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis."

The Project site does not contain resources that can be characterized as forest lands or timberlands using these definitions.

4.2.2 Regulatory Setting

This section provides a brief overview of relevant Federal, State, County, city, and LAFCo policies regarding agricultural land that may factor into the city's, and ultimately LAFCo's, decision making.

Federal

Farmland Protection Policy Act (FPPA)

The Natural Resources Conservation Services (NRCS), an agency within the USDA, is responsible for implementation of the FPPA. The purpose of the FPPA is to minimize Federal programs' contribution to the conversion of farmland to non-agricultural uses.

Farm and Ranch Lands Protection Program (FRPP)

The NRCS also administers the FRPP, a voluntary program aimed at keeping productive farmland in agricultural use. Under the FRPP, the NRCS provides matching funds to state, local or tribal government entities and nonprofit organizations with existing farmland protection programs to purchase conservation easements.

State

California Department of Conservation

The California Department of Conservation administers and supports a number of programs, including the Williamson Act, the California Farmland Conservancy Program (CFCP), the Williamson Act Easement Exchange Program (WAEEP), and the FMMP. These programs are designed to preserve agricultural land and provide data on conversion of agricultural land to urban use.

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, was adopted to encourage the preservation of the state's agricultural lands and to prevent their premature conversion to urban uses. The Act established an agricultural preserve contract procedure that incentivizes land owners to maintain land in agricultural use via lower tax rates.

Farmland Security Zones

A Farmland Security Zone is an area created within an agricultural preserve by a board of supervisors or city council upon request of a landowner or group of landowners. An agricultural preserve defines the boundary of an area within which a city or county will enter into contracts with landowners that reduce property taxes based on a property valuation formula.

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, California Government Code Section 56000, et seq. ("CKH Act") establishes the procedures for local government organizational changes, including city incorporations, annexation to a city or special district, and city and special district consolidations. Broadly, the CKH Act contains a number of references that link local land use and open space policies, including Williamson Act contracts, to the SOI amendment and annexation processes of local land use jurisdictions.

The CKH Act, LAFCo's enabling and guiding legislation, begins with the following statement:

The Legislature finds and declares that it is the policy of the State to encourage orderly growth and development which are essential to the social, fiscal, and economic well-being of the State. The Legislature recognizes that the logical formation and determination of local agency boundaries is an important factor in promoting orderly development and in balancing that development with sometimes competing State interests of discouraging urban sprawl, preserving open space and prime agricultural lands, and efficiently extending government services. (Section 56001).

Pursuant to Section 56652 of the CKH Act, an application initiating a boundary change must include a specific set of requirements. Any proposal involving agricultural land, open space land, and/or land covered under a Williamson Act land contract must include a specific "Agricultural & Open Space Impact Analysis."

With respect to the conversion of open space under Section 56377 of the CKH Act, LAFCo must consider the following issues in making determinations regarding reorganization proposals which could reasonably be expected to induce, facilitate, or lead to the conversion of existing open space lands to uses other than open space:

- Development or use of land for other than open space uses shall be guided away from existing prime agricultural lands in open-space use toward areas containing non-prime agricultural lands, unless that action would not promote the planned, orderly, efficient development of an area; and
- Development of existing vacant or nonprime agricultural lands for urban uses within the existing jurisdiction of a local agency or within the sphere of influence of a local agency should be encouraged before any proposal is approved which would allow for or lead to the development of existing open-space lands for non-open-space uses which are outside of the existing jurisdiction of the local agency or outside of the existing sphere of influence of the local agency.

Regional and Local

Contra Costa County

Contra Costa County Zoning Code-65/35 Land Preservation Standard

Consistent with Measure C, the 1991 voter-approved ballot measure that established the County's original ULL, the Contra Costa County Code includes a "65/35 land preservation standard" requiring that (i) urban development in the County be limited to no more than 35 percent of the total land in the County and (ii) that the remaining 65 percent of total land must be preserved for agriculture, open space, wetlands, parks and other non-urban uses.

Contra Costa LAFCo

Agricultural and Open Space Preservation Policy

In December 2016, the Contra Costa LAFCo finalized its first Agricultural and Open Space Preservation Policy, or AOSPP. The AOSPP is relevant to the Project because the Project site is not currently located within the City of Brentwood's municipal boundaries or SOI, and it is anticipated that development of the Project site will include SOI expansion approval by the Contra Costa LAFCo and annexation approval by LAFCo. Any application for LAFCo action, including an SOI amendment or annexation, will be evaluated for consistency with the adopted AOSPP. In evaluating an application's consistency with LAFCo policies, LAFCo may also consider whether the public good served by a proposal outweighs the purpose of LAFCo policies; however, as LAFCo's website acknowledges, nothing in LAFCo's AOSPP is construed to automatically disqualify an application.

In general, the purposes of the AOSPP are (i) to provide guidance to applicants for reorganization on how to assess the impacts on prime agricultural, agricultural and open space lands, and enable the applicant to explain how the applicant intends to mitigate those impacts; and (ii) to provide a framework for LAFCo to evaluate and consistently review and process

applications submitted to LAFCo that involve or impact these resources. The AOSPP provides for a mitigation hierarchy which: (a) encourages avoidance of impacts to prime agricultural, agricultural and open space lands; (b) minimizes impacts to these lands; and (c) mitigates impacts that cannot be avoided while pursuing orderly growth and development.

Several terms are important in understanding LAFCo's responsibility and authority to protect prime agricultural, agricultural and open space lands. The following terms and definitions identified in the AOSPP are relevant to the Project, and are defined in the CKH Act as follows:

56016. "Agricultural lands" means land currently used for the purpose of producing an agricultural commodity for commercial purposes, land left fallow under a crop rotational program, or land enrolled in an agricultural subsidy or set-aside program.

56064. "Prime agricultural land" means an area of land, whether a single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:

- (a) Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not the land is actually irrigated, provided that irrigation is feasible.
- (b) Land that qualifies for rating 80 through 100 Storie Index Rating.
- (c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.
- (d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars (\$400) per acre.
- (e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars (\$400) per acre for three of the previous five calendar years.

56059. "Open space" means any parcel or area of land or water which is substantially unimproved and devoted to an open-space use, as defined in Section 65560 of the CKH Act.

Specifically, the AOSPP contains a section entitled Goals, Policies and Guidelines. The Goals are intended to be the outcome LAFCo wants to achieve. The Policies provide direction regarding how those Goals should be achieved by providing specific guidance for decision makers and proponents. Guidelines give stakeholders procedures and practical tips regarding what information LAFCo commissioners and staff need to evaluate an application that affects prime agricultural and/or open space lands.

The AOSPP provides a broader policy context and works in concert with LAFCo's application questionnaires to assist LAFCo with its application reviews. As the Project involves both an SOI amendment and annexation, the application to LAFCo must address the application

questionnaires related to assessing agricultural impacts, as well as consistency with the Guidelines of the AOSPP.

City of Brentwood

City of Brentwood General Plan

General Plan policies for agricultural and open space resources that are relevant to the proposed project are addressed below. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below. The City of Brentwood developed and adopted the General Plan to include goals, policies, and actions that, when implemented, will serve to balance the interests of agriculture protection and logical growth in and around the city through buildout of the General Plan.

The General Plan includes consideration of the city's mitigating Policies and Actions that are designed to address potential impacts related to implementation of the General Plan. Thus, the discussion below assumes that the Project will incorporate all requirements of General Plan Policies and Actions applicable to the Project in order to avoid or lessen potential environmental impacts of the Project.

Brentwood's 2014 General Plan also includes several policies regarding coordination with LAFCo for designation of the SOI boundary and agricultural land conversion. The 2014 General Plan states that the vast majority of lands outside of the city limits are intended to remain as agricultural lands. However, the General Plan notes that lands designated as a SPA may be suitable for annexation in the future. The Project area is identified in the General Plan as SPA 2 and includes descriptions of suitable future land uses in this area. Land Use Policy 1-9 states that annexation of SPA 2 into the City of Brentwood should be encouraged. SPA 2, as described in the General Plan, should include a significant area of protected open space, with open space protection prioritized for hillsides, sensitive natural habitat, and areas of exceptional beauty. Residential uses may include Ranchette Estate and Very Low Density Residential. An increase in the overall residential density within SPA 2 may be allowed to accommodate development of age-restricted housing units. Limited areas of local-serving General Commercial land uses may also be allowed within SPA 2.

The General Plan Goals and Policies identified below include numerous requirements that would reduce the potential for or degree of project-specific impacts related to agricultural resources.

Conservation and Open Space Goal 1: Ensure the provision and preservation of diverse and accessible open spaces throughout the Brentwood Planning Area.

- **Policy COS 1-1:** General Plan land use designations that include agriculture, permanent open space, parks, and similar uses, as well as waterways (i.e., Marsh Creek, Dry Creek, Deer Creek, and Sand Creek), shall be considered open space.
- **Policy COS 1-2:** Preserve open space for conservation, recreation and agricultural uses.

- Policy COS 1-3: Conversion of open space, as defined under Policy COS 1-1, to developed residential, commercial, industrial, or other similar types of uses, shall be strongly discouraged. Undeveloped land that is designated for urban uses may be developed if needed to support economic development, and if the proposed development is consistent with the General Plan Land Use Map.
- Policy COS 1-9: Encourage the protection and incorporation of existing native, mature, non-orchard trees and areas of natural vegetation as part of new development.

Conservation and Open Space Goal 2: Preserve designated agricultural lands in Brentwood's Planning Area.

- Policy COS 2-1: Support and encourage the preservation of agricultural lands throughout Brentwood's Planning Area, particularly in areas to the south and east of the city limits.
- Policy COS 2-2: Maintain permanent agricultural lands surrounding the city limits to serve as community separators and continue the agricultural heritage of Brentwood.
- Policy COS 2-3: Encourage and support programs that create or establish permanent agricultural areas in Brentwood's Planning Area.
- Policy COS 2-4: Participate in regional planning efforts with agencies such as Contra Costa County, the cities of Antioch and Oakley, land trusts, and other regional partners to establish and maintain permanent agricultural areas surrounding Brentwood.
- Policy COS 2-5: Work with the Local Agency Formation Commission (LAFCO) on issues of mutual concern including the conservation of agricultural land through consistent use of LAFCO policies, particularly those related to conversion of agricultural lands and establishment of adequate buffers between agricultural and non-agricultural uses, and the designation of a reasonable and logical Sphere of Influence (SOI) boundary for the City.
- Policy COS 2-6: Minimize conflicts between agricultural and urban land uses.
- Policy COS 2-7: Require the use of buffers such as greenbelts, drainage features, parks, or other improved and maintained features in order to separate residential and other sensitive land uses, such as schools and hospitals, from agricultural lands and agricultural operations.
- Policy COS 2-8: Require new development to have structural setbacks that respect agricultural operations.
- Policy COS 2-9: Developers shall be responsible for mitigating impacts upon nearby agriculture. Setbacks and buffers shall be provided by the developer and not encroach upon productive agricultural areas.
- Policy COS 2-10: Limit incompatible uses (i.e., schools, hospitals, and high density residential) near agriculture.
- Policy COS 2-11: Work with agricultural landowners to improve practices that have resulted in adverse impacts to adjacent properties. Such practices include site drainage and flood control measures.

- Policy COS 2-12: Promote best management practices in agricultural operations to reduce emissions, conserve energy and water, and utilize alternative energy sources.
- Policy COS 2-13: Assist agricultural landowners and farmers with a variety of programs aimed at preserving agricultural lands, increasing opportunities for local sales of agricultural products, and increasing access to local commodities markets.
- Policy COS 2-14: Encourage agricultural landowners in Brentwood's Planning Area to participate in Williamson Act contracts and other programs that provide long-term protection of agricultural lands.
- Policy COS 2-15: Support the procurement of expanded and additional water rights which provide for contractual supply reliability for agricultural use.
- Policy COS 2-16: Encourage small-scale food production, such as community gardens and cooperative neighborhood growing efforts, on parcels within the city limits, provided that the operations do not conflict with existing adjacent urban uses.
- Policy COS 2-17: Encourage and support the development of new agricultural related industries featuring alternative energy, utilization of agricultural waste, biofuels, and solar or wind farms.

Land Use Goal 1: Establish a land use pattern in Brentwood that provides for a diverse, self-sufficient community that offers a broad spectrum of job opportunities, housing types, community facilities, and commercial services.

- Policy LU 1-4: Require new development to occur in a logical and orderly manner, focusing growth on infill locations and areas designated for urbanization on the Land Use Map (Figure LU-1), and be subject to the ability to provide urban services, including paying for any needed extension of services.
- Policy LU 1-5: Encourage new development to be contiguous to existing development, whenever possible.
- Policy LU 1-9: Support and encourage the annexation of SPA 2 (as depicted on the Land Use Map) into the City of Brentwood.

Land Use Goal 2: Establish and maintain residential neighborhoods as safe and attractive places to live with convenient access to commercial services, recreational facilities, employment opportunities, public services, and other destinations.

- Policy LU 2-7: Strongly encourage residential development in the city in a balanced pattern that reduces sprawl, preserves open space, and creates convenient connections to other land uses.

Land Use Goal 5: Preserve Brentwood's agricultural heritage by protecting and maintaining significant areas of agricultural lands around the city.

- Policy LU 5-1: Maintain significant areas of permanent agricultural lands and open space surrounding the city limits.

- Policy LU 5-2: Protect agricultural land from urban development except where the General Plan Land Use Map has designated the land for urban uses.

As noted above, several General Plan goals and policies encourage maintaining permanent agricultural lands around the city limits, participation in regional planning efforts, mitigation of direct impacts associated with agricultural land conversion, and the direction and pattern of urban growth. The Brentwood Agricultural Preservation Program (described below) provides the mechanism for addressing the impacts to agriculture and open space lands.

Right to Farm Ordinance

Chapter 8.01 of the Brentwood Municipal Code contains what is commonly called a “Right to Farm” ordinance. A fundamental purpose of this ordinance is to prevent loss of agricultural resources and damage to the local agricultural industry by creating a presumption that proper agricultural operations may not be deemed a public nuisance. An additional purpose is to promote a good neighbor policy by requiring notification to purchasers and users of property near agricultural operations of the potential inconveniences with such operations.

Brentwood Agricultural Preservation Program

In 2001, the City Council adopted Ordinance No. 683 establishing an Agricultural Preservation Program, codified as Chapter 17.730 of the Brentwood Municipal Code, to implement the agricultural preservation policies contained in the General Plan. Generally, compliance with the Agricultural Preservation Program can be accomplished through either direct preservation of agricultural land through recordation of a permanent conservation easement (essentially purchasing development rights) through the city or a qualified land trust, or payment of an in-lieu impact fee as established by the city.³ Mitigation can also be accomplished through a transfer of agricultural credits from “agricultural donor parcels” within the transfer of agricultural credits target area to “receiver parcels.” It is the policy of the city that conservation easements and fee title purchase programs are important for the long-term protection of agricultural lands.

Agricultural preservation under the city’s program is required for subdivisions or any other discretionary land use entitlement that will permanently change agricultural land over one acre in size to any nonagricultural use (Brentwood Municipal Code Section 17.730.030). “Agricultural land” for the purposes of the Agricultural Preservation Program means “those land areas of Contra Costa County specifically designated as agricultural core (AC) or agricultural lands (AL) as defined in the Contra Costa County General Plan; those land areas near the city designated as agricultural conservation (AGCON) as defined in the Brentwood General Plan; and/or other lands upon which agricultural activities, uses, operations or facilities exist or could exist that contain Class I, II, III or IV soils as defined by the United States Department of Agriculture Natural Resource Conservation Service.” (Brentwood Municipal Code Section 17.730.020).

³ City of Brentwood. *Cost Allocation Plan and Schedule of City Fees* [pg. 234]. December 2018.

Although the Project site is designated as SPA 2 in Figure LU-1 of the General Plan and is not designated as agricultural conservation (AGCON), conversion of the Project site from existing agricultural and open space to residential and related uses would require compliance with this program because the Project site would be considered “other lands” upon which agricultural activities exist and contains Class III and IV soils. The Project site is not designated as Agricultural Core (AC) in the Contra Costa County General Plan, but is designated as Agricultural Lands (AL).

According to the Contra Costa LAFCo, the city’s program has collected more than \$12 million in mitigation fees, and through conservation organizations, has acquired the development rights of over 1,000 acres of agricultural lands (Contra Costa LAFCo AOSPP, 2016). The Project would require participation in this program, as set forth by the General Plan and implemented through Brentwood Municipal Code Chapter 17.730.

4.2.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for agricultural and forest resources were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as well as the previously certified General Plan EIR. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria.

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).
- Result in the loss of forest land or conversion of forest land to non-forest use.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

As stated above, the Project site does not contain resources that can be characterized as forest lands or timberlands and, thus, would not result in any impacts associated with such. Therefore, the third and fourth bulleted items listed above, as well as the portion of the fifth bulleted item listed above related to forest land, are not addressed further in this EIR.

Method of Analysis

Evaluation of potential impacts of the proposed project on agricultural resources is based on the following: the Brentwood General Plan and associated EIR, the Contra Costa County

Important Farmland Map, and the NRCS Web Soil Survey. The standards of significance listed above are used to delineate the significance of any potential impacts.

Impacts related to off-site infrastructure improvements associated with implementation of the Project are primarily addressed in Section 4.16, Utilities and Service Systems, of this EIR. In addition, the technical sections of the EIR include a focused discussion of the impacts of off-site infrastructure improvements as they relate to each environmental issue area.

Impacts of the Proposed Project

Impact AG-1: Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (*less than significant*)

Based on the California Resources Agency FMMP, and as explained in the Environmental Setting section above, the Project site is classified as Farmland of Local Importance. In the hierarchy of farmland quality recognized by the FMMP, Farmland of Local Importance is neither Prime Farmland, Farmland of Statewide Importance, nor Unique Farmland. Farmland of Local Importance ranks below these categories in terms of quality and importance and is not recognized in the CEQA thresholds of significance with respect to farmland conversion.

Although not a CEQA standard, the CKH Act also provides a definition for Prime Agricultural Land for use by LAFCo statewide. Table 4.2-1, Project Relationship to LAFCo Definition of Prime Farmland, below provides the qualifications for this definition against the Project’s characteristics. As shown in the table, the Project does not meet the definition for Prime Farmland per the CKH Act.

Table 4.2-1: Project Relationship to LAFCo Definition of Prime Farmland	
CKH Act Prime Farmland Qualifying Characteristic	Does the Project Quality?
Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not the land is actually irrigated, provided that irrigation is feasible.	No. Class III and Class IV soils that predominate the site have severe to very severe limitations that reduce the choice of plants or require special conservations practices, or both.
Land that qualifies for rating 80 through 100 Storie Index Rating.	No. Soils have a Storie Index Rating of 55 or lower.
Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.	No. The Project site has a history of livestock grazing but has not been grazed for approximately 15 years. Historic grazing practices have not exceeded 1 animal per acre.
Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less	No. The land is not planted with these crops.

Table 4.2-1: Project Relationship to LAFCo Definition of Prime Farmland

CKH Act Prime Farmland Qualifying Characteristic	Does the Project Quality?
than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars (\$400) per acre.	
Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars (\$400) per acre for three of the previous five calendar years.	No. The dryland farming practices on the site have been reported to yield less than \$300 annual gross value, and cultivation is not consistent from year to year.

Because the Project site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the FMMP maps, it would not convert Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, the impact is ***less than significant***.

Mitigation Measures

None required.

Impact AG-2: Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract? (*less than significant*)

The Project site is zoned A-4 under Title 8 of the County Municipal Code, which is intended to provide areas that primarily support the commercial production of food and fiber, and other compatible uses “consistent with the intent and purpose of the Land Conservation Act of 1965.” Allowable uses include a wide range of agriculture, agricultural support, and related uses. Although the County Municipal Code mentions the Land Conservation Act (Williamson Act) of 1965 in the zoning description, the property itself is not under Williamson Act contract according to the California Department of Conservation Williamson Contract maps.

The Project site currently does not have a zoning designation under the city’s Zoning Ordinance and Zoning Map. As discussed in Chapter 3, Project Description, of this EIR, pre-zoning of the Project site would be required prior to annexation into the City of Brentwood. The Project is, however, designated in the city’s General Plan as SPA 2. As noted previously, residential uses in the SPA 2 area may include Ranchette Estate and Very Low Density Residential; however, an increase in overall residential density may be allowed to accommodate development of age-restricted housing units. Limited areas of General Commercial are also allowed within SPA 2, per the General Plan’s description. city policies encourage annexation of SPA 2, and the SPA 2 land uses are identified and analyzed within the 2014 General Plan EIR.

As described in Chapter 3, Project Description, the Voter Initiative would include pre-zoning of the property, make minor amendments to the city’s General Plan, and refine the development assumptions and densities that would occur within SPA 2 as detailed within the VDCSP. With

the approval of the Voter Initiative, development of the Project would be consistent with the General Plan and SPA 2/VDCSP designations.

The Project site has been previously anticipated for urban development under the SPA 2 General Plan designation and, as part of the proposed project, the site would be rezoned to comply with the VDCSP zoning designations. In addition, the Project site is not under a current Williamson Act contract. Thus, implementation of the Project would not result in a conflict with existing zoning for agricultural use or a Williamson Act contract and a *less-than-significant* impact would occur.

Mitigation Measures

None required.

Impact AG-3: Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use? (*significant and unavoidable, even with application of site-specific mitigation measures*)

As detailed in the Environmental Setting section above, the Project site is classified as Farmland of Local Importance and has been used historically for dryland farming of hay and dry grains. In the hierarchy of farmland quality recognized by the California FMMP, Farmland of Local Importance is neither Prime Farmland, Farmland of Statewide Importance, nor Unique Farmland. Farmland of Local Importance ranks below these categories in terms of quality and importance and is not recognized in the CEQA thresholds of significance with respect to Farmland conversion.

However, as discussed under the Brentwood Agricultural Preservation Program in the Regulatory Setting section above, the Brentwood Municipal Code, Section 17.730.020, defines “Agricultural land” for the purposes of the Agricultural Preservation Program as “those land areas of Contra Costa County specifically designated as agricultural core (AC) or agricultural lands (AL) as defined in the Contra Costa County General Plan; those land areas near the city designated as agricultural conservation (AGCON) as defined in the Brentwood General Plan; and/or other lands upon which agricultural activities, uses, operations, or facilities exist or could exist that contain Class I, II, III, or IV soils as defined by the USDA Natural Resource Conservation Service.” Under the County General Plan, the property is designated as Agricultural Land (AL). In addition, the Project site has been used historically for dryland farming, the Project would incorporate a minimum of 225 acres of open area, most of which would be used for irrigated agriculture, and the Project site consists of Class III and IV soils. For the aforementioned reasons, the Project meets the city’s definition for agricultural land.

As a result, the Project would be subject to the requirements of the Brentwood Agricultural Preservation Program, which, as detailed previously, requires that projects of one acre or more that will permanently change agricultural land to non-agricultural mitigate this conversion by one of two methods: 1) the granting of a farmland conservation easement, farmland deed

restriction or other conservation mechanism (including fee title purchase by the city or qualifying entity) on qualifying lands; or 2) the payment of an in-lieu fee based upon a formula for a one-to-one land area ratio. As identified in the Regulatory Setting section above, the Contra Costa County Zoning Code, Section 82-1.006, includes a “65/35” land preservation standard requiring that (i) urban development in the unincorporated County be limited to no more than 35 percent of the total land area, and (ii) that the remaining 65 percent of total land area must be preserved for non-urban uses (“non-urban” includes a range of land uses including agriculture, parks, open space, wetlands, etc.) (Measure C, 1990). As of 2013, the inventory of non-urban land in the County was documented at over 8,000 acres below the 35 percent threshold (Contra Costa County, 2013). The Project would represent approximately 10 percent of that inventory. Based upon a review of 2016 inventory data from the California Department of Conservation for Contra Costa County, total County land area is 514,017 acres. Urban and built-up land accounted for 152,117 acres, or 30 percent. All other areas including agriculture, water, grazing, and other lands account for the remaining 70 percent. With the addition of the Project area, urban land would increase to 152,932 acres and would not change the existing 70/30 ratio on a countywide basis. Based on this data, removal of approximately 815 gross acres of non-urban land from the County via annexation would not exceed the 65/35 ratio and would not conflict with Section 82-1.006 of the County Zoning Code.

Because the Project site is not located within the City of Brentwood’s municipal boundaries or SOI, the Project would require approval of an SOI expansion and annexation by the Contra Costa LAFCo. The Project’s application for LAFCo action will be evaluated for consistency with the adopted AOSPP, as well as for support of other regulations related to agricultural land such as the city standards described above. The AOSPP provides for a mitigation hierarchy which: (a) encourages avoidance of impacts to prime agricultural, agricultural and open space lands; (b) minimizes impacts to these lands; and (c) mitigates impacts that cannot be avoided while pursuing orderly growth and development. The Project would comply with the requirements of the Brentwood Agricultural Preservation Program, as well as provide on-site agriculture land for agricultural crop production and appropriate buffers between agricultural and non-agricultural uses. Accordingly, the Project would include mitigation, which would be consistent with the mitigation hierarchy of the LAFCo AOSPP. For a detailed discussion regarding the Project’s consistency with the LAFCo AOSPP, please refer to Section 4.11, Land Use and Population, of this EIR.

Based on the above, the Project would be subject to the Brentwood Agricultural Preservation Program. Compliance with this requirement, in combination with the enhancement of on-site agriculture, and application of mitigating General Plan policies would reduce the Project-specific impacts. However, conversion of agricultural land, including the land of the Project area, would still occur, and would be a **significant and unavoidable** impact.

Mitigation Measures

Compliance with the measures noted below shall be required as a Condition of Approval on future subdivision maps and/or design reviews.

MM AG-1 *The Project proponent shall comply with any and all Local Agency Formation Commission (LAFCo) conditions of approval to the annexation of the Project site into the municipal boundaries of the City of Brentwood.*

MM AG-2 *The Project shall use appropriate buffers between agricultural and non-agricultural uses to respect agricultural operations and mitigate impacts associated with noise, odors, and use of chemicals upon nearby agriculture to the satisfaction of the Community Development Director. These buffers may include, but are not limited to, greenbelts, drainage features, parks, or other improved and maintained features.*

MM AG-3 *As future development projects within the Project site are approved by the city, the Project applicant(s) must preserve agricultural lands by one of the following mechanisms, consistent with Chapter 17.730 of the Brentwood Municipal Code (Ord. 877 § 2, 2010):*

- 1. Granting an agricultural conservation easement to or for the benefit of the city and/or a qualified land trust approved by the city on agricultural land deemed acceptable by the city. The easement shall encumber the exact acreage of the proposed entitlement, including any land used for park and recreation purposes and may encumber land acquired by the city and/or qualified land trust in fee; or*
- 2. Payment of an in-lieu fee established by City Council resolution. The fee may be adjusted annually but may not be increased by more than ten percent during any twelve-month period. Collection of fees shall be required prior to grading permit issuance.*

Impact AG-4: **Would the off-site infrastructure improvements result in any impacts related to conversion of Farmland or other agricultural land to non-agricultural use? (significant and unavoidable, even with site-specific mitigation measures)**

As noted above and discussed in detail in Chapter 3, Project Description, off-site improvements associated with the Project would include the extension of a new off-site sewer line connecting between the northeastern portion of the Project site and an existing sewer line located in St. Regis Avenue, extension of a new irrigation line within Balfour Road, extension of American Avenue west and north to Balfour Road, and the widening and improvement of certain portions of Balfour Road from two to four lanes, as well as the improvement of an additional portion of Balfour Road.

Off-site Sewer Pipe Improvements

Alternatives 2 and 3 for the proposed off-site sewer improvements would both involve off-site ground-disturbing activity (trenching) to the east of the Project site boundary. The off-site sewer improvement area consists primarily of ruderal grasses, as well as portions of paved

roadway. Therefore, the off-site sewer improvements would not result in the conversion of Farmland or other agricultural land to non-agricultural use.

Off-site Irrigation Pipe Improvements

The proposed off-site irrigation line improvement (Alternative 1) would occur entirely within the Balfour Road right-of-way. Therefore, such improvements would not involve the conversion of any Farmland or other agricultural land to non-agricultural use.

Off-site Roadway Improvements

American Avenue Extension

The American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. The area is classified as Farmland of Local Importance on the Contra Costa County Important Farmland Map and has similar soil types as the Project site. Although the American Avenue improvement area does not meet the criteria to be considered Farmland, due to the existing use of the area for agricultural purposes, as well as the soil types present, the area would be considered agricultural land in accordance with the city's definition. Therefore, the American Avenue extension would convert agricultural land to non-agricultural uses, which would be considered a significant impact.

Balfour Road Widening

As part of the Project, consistent with the General Plan Circulation Diagram, Balfour Road would be improved and/or widened from the existing American Avenue intersection west to Deer Valley Road. The proposed widening would be primarily limited to the existing paved Balfour Road right-of-way and the graveled shoulders of the roadway, which contain scattered shrubs and ruderal grasses. Given the disturbed nature of the improvement area, the Balfour Road widening improvements would not result in the conversion of any Farmland or agricultural land to non-agricultural use.

Conclusion

Based on the above, the off-site improvements related to sewer and irrigation pipes, as well as the improvements to Balfour Road, would not result in the conversion of any Farmland or agricultural land to non-agricultural use. However, the American Avenue improvement area would be considered agricultural land and, thus, development of the American Avenue extension would result in conversion of agricultural land to a non-agricultural use. As discussed above, the Project would be subject to the Brentwood Agricultural Preservation Program. Compliance with this requirement, in combination with the enhancement of on-site agriculture, would reduce the Project-specific impacts. However, conversion of agricultural land, including the land of the off-site American Avenue extension improvement area, would still occur, which would be considered a **significant and unavoidable** impact.

Mitigation Measures

MM AG-4 *Implement MM AG-1 through MM AG-3.*

Cumulative Impact Analysis

Impact AG-5: **Would the Project result in cumulative impacts related to conversion of Farmland or other agricultural land to non-agricultural use? (*significant and unavoidable, even with application of site-specific mitigation measures*)**

The geographic context for the analysis of cumulative agricultural impacts includes all agricultural lands in the Brentwood Planning Area. Cumulative projects are those that could be considered in proximity to the Project site and, when taken together, would result in a substantial change to agricultural resources greater than the potential impact of the Project itself.

As discussed above, the Project consists of land classified as Farmland of Local Importance, which is not considered Prime Farmland, Farmland of Statewide Importance, nor Unique Farmland. However, the Project site has been used historically for dryland farming of hay and dry grains and consists of Class III and IV soils, which would meet the city's definition for agricultural land. Thus, the Project would convert approximately 590 acres of agricultural land to non-agricultural use. However, as noted under Impact AG-3 above, annexation of the Project site would not change the existing 70/30 ratio of agricultural/undeveloped land to urban land on a countywide basis.

The Project would incrementally contribute to the cumulative loss of agricultural land in the region, despite programs and policies adopted to mitigate such impacts on a project-by-project basis. This larger, cumulative impact to agricultural resources was analyzed and considered by the City of Brentwood in the 2014 General Plan EIR and found to be a significant and unavoidable consequence of future planning and economic development in the city.

The Project would partially mitigate the loss of agricultural resources through the incorporation of 225 acres of on-site open space to be used primarily for agriculture, as well as through compliance with the Brentwood Agricultural Preservation Program, which requires granting of a farmland conservation easement, farmland deed restriction or other conservation mechanism, or the payment of in-lieu fees. Nonetheless, because conversion of agricultural land would still occur, the Project's incremental contribution to the significant cumulative impact would be considered ***significant and unavoidable***.

Mitigation Measures

MM AG-5 *Implement MM AG-1 through MM AG-3.*

4.3 Air Quality

4.3.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to air quality conditions that could result from implementation of the proposed project. The Environmental Setting provides information on the baseline conditions in the region. The significance of each impact after the incorporation of identified mitigation measures is included at the end of this section.

Climate and Topography

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 Bay Area Air Quality Management District (BAAQMD) is responsible for local control and monitoring of criteria air pollutants throughout the Basin.

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. During radiation inversions downwind transport is slow, the mixing depths are shallow, and turbulence is minimal, all factors which contribute to ozone formation.

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.

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.

The Basin is characterized by moderately wet winters (November through March) and dry summers. The rainfall in the mountains reaches 40 inches while the valley sees less than 16 inches. Generally, coastal temperatures can be 35 degrees Fahrenheit cooler than temperatures 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.

The Project site is located immediately west of the city of Brentwood, in unincorporated Contra Costa County; on the eastern perimeter of the San Francisco Bay. The City of Brentwood is located within the Carquinez Strait subregion which runs from Rodeo to Martinez. The prevailing winds are from the west in the Carquinez Strait and in the summer and fall months flow at speeds of 15 to 20 mph eastwards. Occasionally, atmospheric conditions shift and cause more polluted air from the east to flow westward. In the summer, maximum temperatures in the subregion can reach about 90 Fahrenheit while minimum temperatures in the winter are in the high 30’s Fahrenheit. The regulatory section below discusses the various buffer zones around sources of air pollution sufficient to avoid adverse health and nuisance impacts on nearby receptors.

Air Pollutants of Primary 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 (SO₂), coarse particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}), lead, and fugitive dust—are those that are emitted directly from sources. Of these, CO, NO_x, SO₂, PM₁₀, 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 (O₃) and nitrogen dioxide (NO₂) are the principal secondary criteria pollutants. Table 4.3-1 provides a description of each of the criteria air pollutants and their known health effects.

Table 4.3-1: Air Contaminants and Associated Public Health Concerns		
Pollutant	Major Man-Made 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

(Continued on next page)

Pollutant	Major Man-Made Sources	Human Health Effects
		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.
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	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

(Continued on next page)

Table 4.3-1: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
	incinerators, utilities, and lead-acid battery manufacturers.	low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.

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 ROG and VOCs. Both ROG 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).

Source: California Air Pollution Control Officers Association, Health Effects, <http://www.capcoa.org/health-effects/>, Accessed March 5, 2019.

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. NO_x emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begin 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.

Current Ambient Air Quality

Local air districts and CARB monitor ambient air quality to assure that air quality standards are met, and if they are not met, to also develop strategies to meet the standards. Air quality monitoring stations measure pollutant ground-level concentrations (typically, ten feet aboveground level).

The closest air monitoring station to the proposed project is the Bethel Island Road Monitoring Station located approximately 7.5 miles northeast of the Project area. The Bethel Island Road Monitoring Station does not monitor PM_{2.5}. The Concord-Treat Boulevard Monitoring Station is the next closest monitoring station to the Project site that includes PM_{2.5}. Local air quality data from 2015 to 2017 are provided in Table 4.3-2. This table lists the monitored maximum concentrations and number of exceedances of federal/state air quality standards for each year.

Pollutant	2015	2016	2017
Ozone (O₃)¹			
1-hour Maximum Concentration (ppm)	0.080	0.089	0.090
8-hour Maximum Concentration (ppm)	0.072	0.080	0.071
<i>Number of Days Standard Exceeded</i>			
CAAQS 1-hour (>0.09 ppm) (Nonattainment)	0	0	0
NAAQS 8-hour (>0.070 ppm) (Nonattainment)	1	2	1
Carbon Monoxide (CO)¹			
1-hour Maximum Concentration (ppm)	1.05	2.023	1.604
<i>Number of Days Standard Exceeded</i>			
NAAQS 1-hour (>35 ppm) (Attainment)	0	0	0
CAAQS 1-hour (>20 ppm) (Attainment)	0	0	0
Nitrogen Dioxide (NO₂)¹			
1-hour Maximum Concentration (ppm)	28.9	32.1	34.2
<i>Number of Days Standard Exceeded</i>			
NAAQS 1-hour (>100 ppm) (Attainment)	0	0	0
CAAQS 1-hour (>0.18 ppm) (Attainment)	0	0	0
Particulate Matter Less Than 10 Microns (PM₁₀)¹			
National 24-hour Maximum Concentration	31.1	25.5	52.1
State 24-hour Maximum Concentration	33.0	26.0	52.0
<i>Number of Days Standard Exceeded</i>			
NAAQS 24-hour (>150 µg/m ³) (Unclassified/Attainment)	0	0	0
CAAQS 24-hour (>50 µg/m ³) (Nonattainment)	0	0	1
Particulate Matter Less Than 2.5 Microns (PM_{2.5})²			
National 24-hour Maximum Concentration	31.0	20.7	89.4
State 24-hour Maximum Concentration	31.0	20.7	89.4
<i>Number of Days Standard Exceeded</i>			
NAAQS 24-hour (>35 µg/m ³) (Nonattainment)	0	0	6
NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m ³ = micrograms per cubic meter			
Notes:			
1. Measurements taken at the Bethel Island Monitoring Station located at 5551 Bethel Island Road, Bethel Island CA 94511 (CARB# 07442).			
2. Measurements taken at the Concord -2975 Treat Boulevard Monitoring Station located at 2975 Treat Boulevard, Concord, CA 94518 (CARB# 07448).			
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/aqdsselect.php).			

As shown in Table 4.3-2, in general, the Bay Area experiences low concentrations of most pollutants when compared to Federal standards, except for O₃ and 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, preparation of a State Implementation Plan (SIP) is currently not required. The Basin's nonattainment status with respect to ozone 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 (AAQS).

The region is also considered to be in nonattainment with the California Ambient Air Quality Standards (CAAQS) for PM₁₀ and PM_{2.5}. Area sources generate the majority of these airborne particulate emissions. The Basin is considered in attainment or unclassified with respect to the CO, NO₂ and SO₂ National Ambient Air Quality Standards (NAAQS) and CAAQS. Refer to Table 4.3-4 below, in the Regulatory Setting for the AAQS for criteria pollutants potentially impacted by the project established by CARB and the U.S. Environmental Protection Agency (USEPA) along with the San Francisco Bay Area's attainment status.

In response to the USEPA's designation of the Basin for the previous nonattainment 8-hour federal ozone standard, the BAAQMD, the Association of Bay Area Governments (ABAG), and the Metropolitan Transportation Commission (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 (TAC), and greenhouse gases (GHG).

Under CEQA, the BAAQMD is a commenting responsible agency on air quality within its jurisdiction or impacting its jurisdiction. The 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.

As indicated in Table 4.3-2, there were Federal ozone exceedances at the nearest BAAQMD monitoring station for 2015, 2016 and 2017 for 8-hour ozone. There were no State ozone exceedances for ozone. The State and Federal standards for PM₁₀ were exceeded for approximately 1 day in 2017.

Hazardous Air Pollutants/Toxic Air Contaminants

Both the USEPA and CARB regulate hazardous air pollutants (HAPs)/TACs. According to Section 39655 of the California Health and Safety Code, a TAC is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." 189 substances that have been listed as HAPs pursuant to Section 7412 of Title 42 of the United States Code are also listed as TACs under the State's air toxics program pursuant to Section 39657 (b) of the California Health and Safety Code.

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 identified diesel particulate matter (DPM) as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases 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.

Diesel Exhaust and Diesel Particulate Matter

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This mixture makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs.

In 1998, CARB identified particulate emissions from diesel-fueled engines (DPM) as a TAC and developed diesel risk reduction plans. This led to the creation of Airborne Toxic Control Measures (ATCMs) for stationary and portable diesel engines that apply statewide. CARB maintains a statewide Portable Equipment Registration Program that allows owners and operators to register their equipment (powered by diesel engines rated at 50 brake horse power [bhp] or larger) to operate throughout California without having to obtain individual permits from local air districts.

Additional regulatory programs affect medium- and heavy-duty diesel trucks that generate the bulk of DPM emissions from California highways.¹ These include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleet regulations, and the heavy-duty diesel truck and bus regulations. In 2011, CARB approved the latest regulation to reduce emissions of DPM and NO_x from existing on-road heavy-duty diesel fueled vehicles.² These requirements are phased in over the compliance period and depend on the model year of the vehicle.

¹ The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) provides grant funding for cleaner-than-required engines and equipment. Local air districts administer these grants and select which projects to fund.

² Title 13, Section 2205. CARB, California Air Resources Board. 2018. <http://www.arb.ca.gov/msprog/onrdiesel/onrdieselreportinginfo.htm>. Available at: <https://www.arb.ca.gov/msprog/onrdiesel/onrdieselreportinginfo.htm>.

With implementation of CARB's Risk Reduction Plan, DPM concentrations are expected to be reduced by 85 percent in 2020 from the estimated year-2000 level.³ As emissions are reduced, risks associated with exposure to emissions also are expected to be reduced.

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 4.3-3 for Project specific sensitive receptors. The nearest sensitive receptors to the proposed project are single-family residences located adjacent to the eastern boundary of the proposed project. As identified in Chapter 3, Project Description, the proposed project includes an approximate 100-foot buffer between the existing uses and the Project site. Other sensitive receptors are Heritage High School and Adams Middle School located approximately 600 feet and 1,530 feet south of the Project's boundary.

Receptor Type/ Description	Distance and Direction from the Project Site¹
Single Family Residential	100 feet east of the Project area
Single Family Residential	250 feet south of the Project area
Single Family Residential	560 feet northwest of the Project area
Heritage High School	600 feet southeast of the Project area
Adams Middle School	1,530 feet south of the Project area

¹ Distance calculated from property line of proposed project Site and property line of the sensitive receptors.

4.3.2 Regulatory Setting

This analysis has been prepared pursuant to the California Environmental Quality Act of 1970 and associated Guidelines (PRC 21000 *et seq.* and CCR, Title 14, Chapter 3 sections 15000 – 15387) and in accordance with local, State, and Federal laws, including those administered by the BAAQMD, CARB, and the USEPA. The principal air quality regulatory mechanisms include the following:

- Federal Clean Air Act (FCAA), in particular the 1990 amendments.

³ California Air Resources Board. 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*.
California Air Resources Board. 2018. *Aerometric Data Analysis and Measurement System (ADAM) Top Four Summaries from 2015 to 2017*.

- California Clean Air Act (CCAA).
- California Health and Safety Code (HSC), in particular Chapter 3.5 (Toxic Air Contaminants) (HSC Section 39650 et seq.) and Part 6 (Air Toxics “Hot Spots” Information and Assessment) (HSC Section 44300 et seq.).
- BAAQMD’s Rules and Regulations and air quality planning documents.

Federal

As discussed more fully below, the Federal and State governments have been empowered by FCAA and CCAA, respectively, to regulate the emission of airborne pollutants and have established AAQS for the protection of public health. The USEPA is the Federal agency designated to administer air quality regulation, while CARB is the State equivalent in California. Local control in air quality management is provided by CARB through county-level or regional (multi-county) air pollution control districts (APCDs). CARB establishes air quality standards and is responsible for control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. CARB has established 14 air basins statewide.

Federal Clean Air Act

Air quality is federally protected by the Clean Air Act and its amendments. Under the FCAA, the USEPA developed the primary and secondary NAAQS for the criteria air pollutants including ozone, NO₂, CO, SO₂, PM₁₀, PM_{2.5}, and lead. Depending on whether the standards are met or exceeded, the local air basin is classified as in “attainment” or “nonattainment.” Some areas are unclassified, which means no monitoring data are available. Unclassified areas are considered to be in attainment. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires each state to prepare a SIP to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The USEPA 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 USEPA is required to develop a federal implementation plan for the identified nonattainment area or areas. The USEPA has designated enforcement of air pollution control regulations to the individual states. The BAAQMD attainment status with respect to federal standards is summarized in Table 4.3-4.

National Ambient Air Quality Standards

The FCAA requires the USEPA to establish primary and secondary NAAQS for a number of criteria air pollutants. The air pollutants for which standards have been established are considered the most prevalent air pollutants that are known to be hazardous to human health. NAAQS have been established for the following pollutants: O₃, CO, SO₂, PM₁₀, PM_{2.5}, and lead.

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
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 ₂ S)	1 Hour	0.03 ppm (0.15 µg/m ³)	U	NA	-
Vinyl Chloride (C ₂ H ₃ Cl)	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/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter; - = not indicated or no information available.

Notes:

- California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM₁₀, 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 PM₁₀ 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.
- 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 PM₁₀ standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour PM_{2.5} standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.

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 PM₁₀ is met if the 3-year average falls below the standard at every 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

(Continued on next page)

Table 4.3-4: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards ¹		Federal Standards ²	
		Concentration	Attainment Status	Concentration ³	Attainment Status
<p>standard.</p> <p>3. National air quality standards are set by the U.S. EPA at levels determined to be protective of public health with an adequate margin of safety.</p> <p>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. U.S. 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.</p> <p>5. The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.</p> <p>6. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.</p> <p>7. In June 2002, CARB established new annual standards for PM_{2.5} and PM₁₀.</p> <p>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.</p> <p>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.</p> <p>10. On January 9, 2013, U.S. 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 U.S. EPA action, the Bay Area will continue to be designated as “nonattainment” 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.</p> <p>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.</p> <p>12. On June 2, 2010, the U.S. EPA established a new 1-hour SO₂ 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 SO₂ NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO₂ NAAQS.</p> <p>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.</p> <p>14. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.</p> <p>15. In December 2012, U.S. EPA strengthened the annual PM_{2.5} NAAQS from 15.0 to 12.0 micrograms per cubic meter (µg/m³). In December 2014, U.S. 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.</p> <p>Source: Bay Area Air Quality Management District, <i>Air Quality Standards and Attainment Status</i>, 2017c http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status, accessed February 26, 2019.</p>					

Title III of the Federal Clean Air Act

As discussed above, HAPs are the air contaminants identified by the USEPA as known or suspected to cause cancer, other serious illnesses, birth defects, or death. The FCAA requires the USEPA to set standards for these pollutants and reduce emissions of controlled chemicals. Specifically, Title III of the FCAA requires the USEPA to promulgate National Emissions Standards for Hazardous Air Pollutants (NESHAP) for certain categories of sources that emit one or more pollutants that are identified as HAPs. The FCAA also requires the USEPA to set standards to control emissions of HAPs through mobile source control programs. These include programs that reformulated gasoline, national low emissions vehicle standards, motor vehicle emission standards, gasoline sulfur control requirements, and heavy-duty engine standards.

HAPs tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. Many HAPs originate from human activities, such as fuel combustion and solvent use. Emission standards may differ between “major sources” and “area sources” of

the HAPs/TACs. Under the FCAA, major sources are defined as stationary sources with the potential to emit more than 10 tons per year (tpy) of any one HAP or more than 25 tpy of any combination of HAPs; all other sources are considered area sources. Mobile source air toxics (MSATs) are a subset of the 188 HAPs. Of the 21 HAPs identified by the USEPA as MSATs, a priority list of six HAPs were identified that include: diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. While vehicle miles traveled in the United States are expected to increase by 45 percent over the period 2010 to 2050, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.⁴

State

California Clean Air Act

The CCAA, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practical date. CARB is the State air pollution control agency and is a part of the California Environmental Protection Agency (Cal EPA). CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California, and for implementing the requirements of the CCAA. CARB oversees local district compliance with California and Federal laws, approves local air quality plans, submits the SIPs to the USEPA, monitors air quality, determines and updates area designations and maps, and sets emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

California Air Resources Board

CARB administers the air quality policy in California. The CAAQS were established in 1969 pursuant to the Mulford-Carrell Act and are generally more stringent and apply to more pollutants than the NAAQS; refer to Table 4.3-4. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The CCAA 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 SIP for meeting federal clean air standards for the State of California. Like the USEPA, 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's attainment status with respect to state standards is summarized in Table 4.3-4.

⁴ Federal Highway Administration (FHWA), 2016. Updated. Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents.

Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

TACs⁵ in California primarily are regulated through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) (Hot Spots Act). As discussed above, HAPs/TACs are a broad class of compounds known to cause morbidity or mortality (cancer risk). HAPs/TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g. dry cleaners). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and Federal level.

AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are necessary before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted the USEPA's list of HAPs as TACs. In 1998, DPM was added to CARB's list of TACs. Once a TAC is identified, CARB adopts an Airborne Toxic Control Measure for sources that emit that particular TAC. If a safe threshold exists at which no toxic effect occurs from a substance, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

The Hot Spots Act requires existing facilities that emit toxic substances above a specified level to prepare a toxic emissions inventory and a risk assessment if the emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CAPCOA Health Risk Assessments for Proposed Land Use Projects

The California Air Pollution Control Officer's Association (CAPCOA), which is a consortium of air district managers throughout California, provides guidance material to addressing air quality issues in the state. As a follow-up to CARB's 2005 *Air Quality and Land Use Handbook*, CAPCOA prepared the *Health Risk Assessments for Proposed Land Use Projects*.⁶ CAPCOA released this guidance document to ensure that the health risk of projects be identified, assessed, and avoided or mitigated, if feasible, through the CEQA process. The CAPCOA guidance document provides recommended methodologies for evaluating health risk impacts for development projects.

California Green Building Code

The California Green Building Code (CALGreen) is a set of mandatory green building standards for new construction that went into effect throughout California on January 1, 2011. These building standards apply to all new public and privately-constructed commercial and residential buildings. CALGreen is referred to officially as the California Green Building Standards Code and includes a matrix of mandatory requirements tailored to residential and non-residential building classifications, as well as two sets of voluntary measures (CALGreen Tier 1 and Tier 2)

⁵ TACs are referred to as HAPs under the FCAA.

⁶ CAPCOA. 2009. Health Risk Assessments for Proposed Land Use Projects.

that provide a host of more stringent sustainable building practices and features. 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; AIR QUALITY 3.3 Draft Environmental Impact Report – 2014 Brentwood General Plan 3.3-23;
- 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

The BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG), MTC, county transportation agencies, cities and counties, and various nongovernmental 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.

BAAQMD periodically develops air quality plans that outline the regional strategy to improve air quality and protect the climate. The most recent plan, 2017 Bay Area Clean Air Plan, includes a wide range of control measures designed to reduce emissions of air pollutants and GHG, including the following examples that may be relevant to this project: reduce emissions of toxic air contaminants by adopting more stringent limits and methods for evaluating toxic risks; implement pricing measures to reduce travel demand; accelerate the widespread adoption of electric vehicles; promote the use of clean fuels; promote energy efficiency in both new and existing buildings; and promote the switch from natural gas to electricity for space and water heating in Bay Area buildings.

Air Quality Management Plan Consistency

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 PM₁₀ standard). The BAAQMD is responsible for developing a Clean Air Plan, which

guides the region's air quality planning efforts to attain the CAAQS. The BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate* on April 19, 2017, by the 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 the 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 GHG 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 USEPA revoked the 1-hour ozone standard and adopted an 8-hour ozone standard. The BAAQMD will address the new federal 8-hour ozone planning requirements once they are established.

If approval of a project would not result in significant and unavoidable air quality impacts after the application of all feasible mitigation, the project would be considered consistent with the 2017 Clean Air Plan. In addition, 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.

BAAQMD CEQA Air Quality Guidelines

BAAQMD also publishes CEQA Air Quality Guidelines to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the Bay Area Air Basin. The Guidelines address evaluating, measuring, and mitigating air quality impacts generated from land development construction and operation activities. The Guidelines focus on criteria air pollutant, GHG, TAC, and odor emissions generated by projects and plans. For projects, the Guidelines provide Thresholds of Significance and Screening Criteria to determine the level of analysis needed, and assessment methods and mitigation measures for operational-related, local community risk and hazards, local CO, odors, and construction-related impacts. In May 2011, the updated BAAQMD *CEQA Air Quality Guidelines* were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts. The 2017 BAAQMD Air Quality Guidelines have been used in the evaluation of air quality impacts from the proposed project. The BAAQMD is currently working to revise any outdated information as part of its update to the CEQA Air Quality Guidelines and thresholds of significance.

CARE Program

Initiated in 2004, the Community Air Risk Evaluation (CARE) program 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. Brentwood is not listed as one of the six communities.

For commercial and industrial sources, the 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, the BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area.

Local

City of Brentwood General Plan

Project relevant General Plan policies for air quality are addressed in this section. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below. Relevant General Plan Goals and Policies that directly address reducing and avoiding natural resources impacts include the following:

Circulation Goal 2: Proactively support and encourage travel by non-automobile modes by maintaining and expanding safe and efficient pedestrian, bicycle, equestrian, and transit networks.

Circulation Goal 3: Coordinate circulation facilities with land use and development patterns to create an environment that encourages walking, bicycling, and transit use.

Conservation and Open Space Goal 8: Reduce air pollutants and greenhouse gas (GHG) emissions.

- **Policy COS 8-1:** Improve air quality through continuing to require a development pattern that focuses growth in and around existing urbanized areas, locating new housing near places of employment, encouraging alternative modes of transportation, and requiring projects to mitigate significant air quality impacts.
- **Policy COS 8-2:** Minimize exposure of sensitive receptors to concentrations of air pollutant emissions and toxic air contaminants.
- **Policy COS 8-3:** Require discretionary projects involving sensitive receptors such as children, the elderly, or people with illnesses that are proposed within 500 feet of the State Route 4 corridor to include an analysis of mobile source toxic air contaminant health risks. The analysis, if necessary, shall identify feasible mitigation measures to reduce health risks to acceptable levels.
- **Policy COS 8-4:** Encourage new development or significant remodels to install fireplaces, wood stoves, and/or heaters which meet Bay Area Air Quality Management District (BAAQMD) standards.
- **Policy COS 8-5:** Continue to require all construction projects and ground disturbing activities to implement BAAQMD dust control and abatement measures.

- Policy COS 8-9: Preserve, protect, and enhance, as appropriate, the City’s carbon sequestration resources, also referred to as “carbon sinks,” to improve air quality and reduce net carbon emissions.
- Policy COS 8-10: Encourage public transit, ridesharing and van pooling, shortened and combined motor vehicle trips to work and services, use of bicycles, and walking. Minimize single passenger motor vehicle use.
- Policy COS 8-11: Encourage new construction to incorporate passive solar features.

Conservation and Open Space Goal 9: Promote conservation of energy and other natural resources.

- Policy COS 9-1: Require all new public and privately constructed buildings to meet and comply with the most current “green” development standards in the California Code of Regulations (CCR), Title 24.
- Policy COS 9-2: Support innovative and green building best management practices including, but not limited to, LEED certification for all new development, and encourage project applicants to exceed the most current “green” development standards in the California Code of Regulations (CCR), Title 24, if feasible.
- Policy COS 9-3: Promote the use of alternative energy sources in new development.
- Policy COS 9-4: Incorporate innovative green building techniques and best management practices in the site design, construction, and renovation of all public projects.
- Policy COS 9-5: Promote water conservation among water users.
- Policy COS 9-6: Continue to require new development to incorporate water efficient fixtures into design and construction.
- Policy COS 9-7: Promote the use of reclaimed water and other non-potable water sources.
- Policy COS 9-8: Encourage large-scale developments and golf course developments to incorporate dual water systems.
- Policy COS 9-9: Encourage and support the use of drought-tolerant and regionally native plants in landscaping.
- Policy COS 9-10: Ensure that the layout and design of new development and significant remodels encourages the use of transportation modes other than automobiles and trucks.
- Policy COS 9-11: Continue the citywide recycling program and actively encourage recycling.
- Policy COS 9-12: Continue efforts to reduce solid waste generation throughout the life of the General Plan.
- Policy COS 9-13: Continue to encourage and support the use of bicycles as an alternative means of transportation.

4.3.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for air quality were derived from the Environmental Checklist in the State CEQA Guidelines Appendix G, as amended effective December 2018, as well as the previously certified General Plan EIR. An impact of the Project would be considered significant and would require mitigation if it met one of the following criteria:

- 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 nonattainment 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.

Air Quality Thresholds

Under CEQA, the BAAQMD is an expert commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the FCAA, the BAAQMD has adopted Federal attainment plans for O₃ and PM_{2.5}. The BAAQMD reviews projects to ensure that they would not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any Federal attainment plan.

The BAAQMD Options and Justification Report (dated October 2009) establishes thresholds based on substantial evidence, and the thresholds are consistent with the thresholds outlined within the 2010/2011 BAAQMD CEQA Air Quality Guidelines (and current 2017 CEQA Air Quality Guidelines). The thresholds have been developed by the BAAQMD in order to attain State and Federal AAQS. Therefore, projects below these thresholds would not violate an air quality standard and would not contribute substantially to an existing or projected air quality violation.

The BAAQMD's CEQA Air Quality Guidelines provides significance thresholds for both construction and operation of projects. If the 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 outlined in Table 4.3-5, a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts and potentially implement mitigation measures.

Table 4.3-5: 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
NOX	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)	
Risk and Hazards for new sources and receptors (Individual Project)	Same as Operational Thresholds	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >10.0 in a million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient PM _{2.5} increase: > 0.3 µg/m ³ annual average <u>Zone of Influence</u> : 1,000-foot radius from property line of source or receptor	
Risk and Hazards for new sources and receptors (Cumulative Threshold)	Same as Operational Thresholds	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >100.0 in a million Increased non-cancer risk of > 10.0 Hazard Index (Chronic or Acute) PM _{2.5} increase: > 0.8 µg/m ³ annual average (from all local sources) <u>Zone of Influence</u> : 1,000-foot radius from property line of source or receptor	
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors, or new receptors locating near stored or used acutely hazardous materials considered significant.	
Odors	None	5 confirmed complaints per year averaged over three years	

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 the following are not 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

According to the 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 planning level project exceeds these emission thresholds, the BAAQMD CEQA Air Quality Guidelines states that the significance of the planning level 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.

Method of Analysis

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 the BAAQMD CEQA Air Quality Guidelines for assessing and mitigating air quality impacts. The proposed project's construction-related 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. Analysis of potential impacts related to Project construction included impacts related to Project-related off-site improvements.

The BAAQMD CEQA Air Quality Guidelines also provide significance thresholds for emissions associated with proposed project operations (refer to Table 4.3-5). Operational emissions associated with the proposed project are estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software - a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions from land use projects. CalEEMod emissions modeling was performed for both operational and construction activities related to implementation of the Project.

Construction of the Project is anticipated to occur in five separate construction phases. However, to provide a conservative analysis of Project construction, project modeling assumed that construction of Phases 4 and 5 would occur concurrently. Off-site improvements related to the Project were assumed to occur in Phase 1 of the Project. Phase 1 of Project construction would require approximately 1,154,000 cubic yards of cut and 734,000 cubic yards of fill. Phase 2 would require 1,526,000 cubic yards of cut and 377,000 cubic yards of fill. Phase 3 would require approximately 1,367,000 cubic yards of cut and 1,770,000 cubic yards of fill, and Phases 4 and 5 would require 1,317,000 cubic yards of cut and 2,341,000 cubic yards of fill. Phase 1 and 2 earthwork spoils would be stockpiled and used on Phase 3 and 4. Earthwork is

expected to balance on-site and would not require soil to be imported or exported.⁷ Stockpiling soil on-site to balance earthwork between all of the construction phases would eliminate the need for truck trips importing soil from borrow sites or exporting soil to disposal sites. These estimates are based on conceptual plans prepared to date and represent the maximum amount of earthwork anticipated in any given phase.

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 Transportation Impact Analysis prepared by Fehr and Peers (2019). This impact analysis assumes full occupancy of the Project site based on the 2019 Traffic Analysis prepared by Fehr and Peers.

To assess project effects on air quality, it is assumed that if the Project emissions are below the applicable thresholds established by BAAQMD following the implementation of necessary mitigation, that the impacts would be less than significant with respect to the associated air quality impact. A brief explanation of this approach is presented in the Approach to Analysis section below.

Health Impact Analyses

To determine whether the proposed project would result in human health related impacts during construction or operations, two health impact analyses were performed. The first analysis focused on impacts related to TAC emissions during project construction, while the second analyzed potential health effects related to the emission of criteria air pollutants.

Construction Health Impact Analysis

The USEPA-recommended screening model AERSCREEN has been used to evaluate potential health effects to sensitive receptors from construction DPM emissions. AERSCREEN is based on the AERMOD dispersion model and produces estimates of worst-case concentrations without the need for hourly meteorological data. According to the USEPA 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 (OEHHA, 2015).

⁷ These earthwork volumes result in 142,000 cubic yards more cut than fill. The additional cut would be used on-site and would not be hauled away.

Criteria Air Pollutant Health Impact Analysis

Ramboll Environmental (Ramboll) prepared an analysis of potential health impacts resulting from project-related emissions of NO_x, VOC, ozone, PM_{2.5}. NO_x and VOCs are not criteria air pollutants but in the presence of sunlight, they do form ozone and contribute to the formation of secondary PM_{2.5} and, thus, were analyzed by Ramboll.

In order to estimate the health impacts of criteria pollutants for the Project, Ramboll applied a photochemical grid model (PGM), Comprehensive Air-quality Model with extensions (CAMx),⁸ to estimate the small increases in concentrations of ozone and PM_{2.5} in the region as a result of the emissions of criteria and precursor pollutants from the Project. Ramboll then applied an USEPA-authored program, the Benefits Mapping and Analysis Program (BenMAP)⁹, to estimate the resulting health impacts from the small increases in concentration. Only the impacts of ozone and PM_{2.5} are estimated, as those are the pollutants that USEPA uses in BenMAP in the default mode to estimate the impact of emissions of NO_x, VOCs, and PM_{2.5}. In addition, ozone and PM_{2.5} are thought of as having the most critical health impacts.

The first step in the process is to run the PGM with appropriate information to assess the small increases in ambient air concentrations that the Project would cause. PGMs require a database of information including the spatial allocation of emissions in the area to be modeled. This includes both baseline emissions and Project emissions. The latest publicly available PGM database for Northern California, which contains baseline emissions, was developed by BAAQMD in support of the 2012 Central California Ozone Study (CCOS)¹⁰ and was adapted for the analysis prepared by Ramboll. The PGM database developed by BAAQMD is tailored for Northern California using California-specific input tools (e.g., the CARB's Emission Factors (EMFAC)¹¹ mobile source emissions model) and uses a high-resolution 4-kilometer (km) horizontal grid to better simulate meteorology and air quality in the complex terrain and coastal environment of California.

USEPA's air quality modeling guidelines¹² and ozone and PM_{2.5} modeling guidance¹³ recommends using a PGM to estimate ozone and secondary PM_{2.5} concentrations. USEPA's modeling guidance does not recommend specific PGMs but provides procedures for determining an appropriate PGM on a case-by-case basis. USEPA's air quality modeling

⁸ CAMx. *Comprehensive Air Quality Model with Extensions*. Available at: <http://www.camx.com/>.

⁹ U.S. Environmental Protection Agency. *Benefits Mapping and Analysis Program (BenMAP)*. Available at: <https://www.epa.gov/benmap/benmap-ce-manual-and-appendices>.

¹⁰ Bay Area Air Quality Management District. *Research and Modeling*. Available at <http://www.baaqmd.gov/about-air-quality/research-and-data/research-and-modeling>.

¹¹ California Air Resources Board. *EMFAC Web Database*. Available at: <https://www.arb.ca.gov/emfac/>.

¹² U.S. Environmental Protection Agency. *Revisions to the Guideline on Air Quality Models: Enhancements to the AERMOD Dispersion Modeling System and Incorporation of Approaches to Address Ozone and Fine Particulate Matter*. Available at: https://www3.epa.gov/ttn/scram/appendix_w/2016/AppendixW_2017.pdf.

¹³ U.S. Environmental Protection Agency. *Memorandum: Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5} and Regional Haze*. Available at https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling_Guidance-2018.pdf.

guidelines and guidance notes that both the CAMx and the Community Multiscale Air Quality (CMAQ)¹⁴ PGMs have been used extensively in the past and would be acceptable PGMs. USEPA has prepared a memorandum¹⁵ documenting the suitability for using CAMx and CMAQ for ozone and secondary PM_{2.5} modeling of single-sources or groups of sources.

To estimate the potential air quality impacts of the proposed project's emissions, the Project's emissions were added to the CAMx 4-km annual PGM modeling database.¹⁶ Operational emissions from the Project were estimated as described above.

For use in PGMs, each Project emissions source must be spatially distributed across the modeling grid cells so that they can be incorporated into the gridded emission inventory. The total estimated mitigated emissions for the Project was used in the analysis. This includes area, energy and mobile source emissions. The energy and area source emissions are located on-site, and were therefore allocated to the grid cell representing the Project. The mobile source category includes both passenger vehicles and trucks. The mobile sources are spatially distributed in the site's grid cell and other grid cells representing travel routes based on the location of the site and average travel distances used in estimates of air quality emissions. Annual emission estimates from the Project were spatially gridded, temporally allocated, and chemically speciated to be used for photochemical grid modelling using the Sparse Matrix Operating Kernel Emissions (SMOKE) modelling system supported by the USEPA.

The Northern California 2012 CCOS modeling database was used for the Project. The Northern California 4-km PGM modeling databases is based on a 2012 base meteorological year and includes two future year emission scenarios. 2035 future year projections were used for this analysis as representative of the modeled peak year of 2031.¹⁷ The future year (2035), four years after the peak emissions year (2031), is considered representative for modeling of health impacts.¹⁸ The Project's emissions were tagged for treatment by the source apportionment tools in CAMx to obtain the incremental ozone and PM_{2.5} concentration impacts due to the Project's emissions.

¹⁴ U.S. Environmental Protection Agency. CMAQ: The Community Multiscale Air Quality Modeling System. Available at: <https://www.epa.gov/cmaq>.

¹⁵ U.S. Environmental Protection Agency. *Memorandum: Use of Photochemical Grid Models for Single-Source Ozone and Secondary PM_{2.5} Impacts for Permit Program Related Assessments and for NAAQS Attainment Demonstrations for Ozone, PM_{2.5} and Regional Haze*. Accessible at: https://www3.epa.gov/ttn/scram/guidance/clarification/20170804-Photochemical_Grid_Model_Clarification_Memo.pdf.

¹⁶ BAAQMD performed WRF meteorological modeling for the CCOS 4-km domain and 2012 calendar year that will be processed by WRF-CAMx to generate CAMx 2012 4-km meteorological inputs for the CCOS domain. The CMAQ 2012 emissions will be converted to the format used by CAMx using the CMAQ2CAMx processor.

¹⁷ A 24.3 percent reduction to the consumer product VOC emissions was applied to reflect additional regulatory amendments since 2008, the year for which the CalEEMod default emission factor is based on.

¹⁸ The use of a later future modeling year is conservative as overall air quality is generally expected to be better in future years.

USEPA's BenMAP^{19, 20} program was used to estimate the health impacts of the Project's contribution to ozone and PM_{2.5} concentration produced by the CAMx source apportionment modeling. BenMAP uses the concentration estimates along with population and health effect concentration-response (C-R) functions to estimate various health effects of the concentration increases. BenMAP has a wide history of applications by USEPA and others, including for local-scale analysis²¹ as needed for assessing the health impacts of a Project's emissions. For the purposes of this analysis, the USEPA default BenMAP health effects C-R functions that are typically used in national rulemaking, such as the health effects impact assessment²² were used for the 2012 PM_{2.5} NAAQS. The health effects that were used by Ramboll for PM_{2.5} include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). For ozone, the endpoints are mortality, emergency room visits (respiratory), and hospital admissions (respiratory).

Approach to Analysis

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; as such, the Project would exceed the screening criteria established by BAAQMD and must assess impacts through comparison against thresholds of significance for each criteria pollutant. As noted above, construction and operation emissions were quantified using CalEEMod.

Project operating conditions were compared against the BAAQMD's established screening criteria for CO emissions. According to the 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 Impact Analysis conducted for the proposed project.

BAAQMD CEQA Guidelines recommend assessment of risks and hazards on receptors within 1,000 feet. Risk and hazard impacts to nearby sensitive receptors from Project construction

¹⁹ U.S. Environmental Protection Agency. *Benefits Mapping and Analysis Program (BenMAP)*. Available at: <https://www.epa.gov/benmap/how-benmap-ce-estimates-health-and-economic-effects-air-pollution>.

²⁰ U.S. Environmental Protection Agency. *Environmental Benefits Mapping and Analysis Program – Community Edition: User's Manual*. Accessible at: https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce_user_manual_march_2015.pdf.

²¹ U.S. Environmental Protection Agency. *Benefits Mapping and Analysis Program (BenMAP)*. Available at: <https://www.epa.gov/benmap/benmap-ce-applications-articles-and-presentations#local>

²² U.S. Environmental Protection Agency. *Quantitative Health Risk Assessment for Particulate Matter*. Available at: https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf.

DPM emissions were evaluated with the USEPA recommended screening model AERSCREEN. The analysis evaluated the Project's impact on increased cancer risk, non-cancer hazard index, and ambient PM_{2.5} concentrations.

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. A qualitative discussion assessing potential odor impacts is included in the impact discussions.

Impacts of the Proposed Project

Impact AQ-1: Would the project result in a considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard or conflict with or obstruct implementation of the applicable air quality plan? (significant and unavoidable, even with application of site-specific mitigation measures)

Construction Emissions

Construction air emissions would occur during demolition, grading, and building construction associated with implementation of the proposed project. 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 the BAAQMD's thresholds of significance. Construction 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 exhaust emissions occur from equipment exhaust, as well as motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment. Fugitive dust emissions include 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 the anticipated construction equipment requirements and schedule. The proposed project would be constructed in up to five phases (Phase 4 and 5 could be concurrent), with each phase lasting approximately three years. Although the Project could be built out over a 20- to 25-year period, for analysis purposes it is assumed construction of the Project would occur in early 2021 and last approximately twelve years. As the exact timing and duration of construction phases are currently unknown and would depend on various market factors, a conservative construction phase scenario of twelve years was utilized. As such, the analysis accounts for minor modifications as project plans evolve from conceptual planning to final mapping. If construction phases start at a later time, it is assumed that project emissions would be lower because

CalEEMod incorporates lower emissions factors in future years due to improved emissions controls and fleet turnover. Additionally, if construction phases were to have a longer duration, construction emissions would be lower on a daily basis because the intensity of construction activities would be lower and spread out over a longer period of time.

Project construction would involve site preparation, mass grading of the Project site, utilities installation, paving, building construction, architectural coatings, and off-site construction activity. As noted in the Method of Analysis section above, CalEEMod was used to calculate expected pollutant emissions generated from the construction of the proposed project.

Project construction equipment would include graders, rubber-tired dozers, scrapers, and tractors/loaders/backhoes during grading; cranes, forklifts, tractors, and welders during building construction; and pavers, rollers, tractors, and paving equipment during paving; and air compressors during architectural coating. The foregoing equipment would primarily be operated within the Project site; however, the Project would include off-site roadway and utility improvements, which have also been considered in this analysis.

It should be noted that all off-site construction activity was assumed to occur in Phase 1 of Project development.

Unmitigated Construction Emissions

Table 4.3-6 displays the maximum daily unmitigated construction 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 the BAAQMD.

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, PM₁₀, 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 on-site or off-site.

Mitigated Construction Emissions

Table 4.3-7 shows that, with incorporation of mitigation, the proposed project would not exceed BAAQMD thresholds for any of the listed pollutants.

Table 4.3-6: Unmitigated Daily Construction Emissions

Emissions Source	Pollutant (maximum pounds per day) ¹					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Phase 1 - 2021	8.97	67.87	2.82	2.59	18.21	9.97
Phase 1 - 2022	27.48	59.70	1.23	1.17	19.36	5.19
Phase 1 - 2023	26.59	49.23	1.05	1.00	19.36	5.19
Phase 2 - 2024	7.60	47.81	1.95	1.79	18.21	9.97
Phase 2 - 2025	24.31	39.16	0.79	0.75	16.76	4.49
Phase 2 - 2026	24.05	38.63	0.79	0.75	16.76	4.49
Phase 3 - 2027	5.50	40.72	1.63	1.50	18.21	9.97
Phase 3 - 2028	23.51	37.69	0.78	0.74	16.76	4.49
Phase 3 - 2029	23.24	37.25	0.77	0.73	16.76	4.49
Phase 4 and 5 - 2030	5.48	29.64	0.74	0.74	18.21	9.97
Phase 4 and 5 - 2031	24.52	32.18	0.29	0.29	17.15	4.59
Phase 4 and 5 - 2032	24.28	31.88	0.29	0.28	17.15	4.59
Maximum Unmitigated	27.48	67.87	2.82	2.59	19.36	9.97
<i>BAAQMD Significance Threshold²</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	Yes	No	No	N/A	N/A

Notes:
 1. Emissions were calculated using CalEEMod.
 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 B, Air Quality and GHG Data.

Table 4.3-7: Mitigated Daily Construction Emissions

Emissions Source	Pollutant (maximum pounds per day) ¹					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Phase 1 - 2021	7.66	44.38	0.29	0.28	15.70	4.28
Phase 1 - 2022	25.81	42.94	0.29	0.28	18.38	4.95
Phase 1 - 2023	25.07	33.97	0.24	0.23	18.38	4.95
Phase 2 - 2024	5.95	27.16	0.22	0.21	13.68	4.28
Phase 2 - 2025	23.02	26.21	0.20	0.19	15.90	4.28
Phase 2 - 2026	22.76	25.68	0.20	0.19	15.90	4.28
Phase 3 - 2027	4.64	24.39	0.17	0.16	13.56	4.28
Phase 3 - 2028	22.22	24.74	0.19	0.18	15.90	4.28
Phase 3 - 2029	21.95	24.30	0.18	0.17	15.90	4.28
Phase 4 and 5 - 2030	4.01	24.13	0.19	0.19	13.88	4.28
Phase 4 and 5 - 2031	23.36	24.49	0.15	0.14	16.27	4.38
Phase 4 and 5 - 2032	23.12	24.19	0.14	0.14	16.27	4.38

(Continued on next page)

Table 4.3-7: Mitigated Daily Construction Emissions

Emissions Source	Pollutant (maximum pounds per day) ¹					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Maximum Mitigated	25.81	44.38	0.29	0.28	18.38	4.95
<i>BAAQMD Significance Threshold^{2, 3}</i>	54	54	82	54	BMPs	BMPs
BAAQMD Threshold Exceeded?	No	No	No	No	No	No

Notes:

1. Emissions were calculated using CalEEMod. Mitigated emissions include compliance with the 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.
2. Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, updated May 2017.
3. BMPs = Best Management Practices. The BAAQMD recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds.

Source: Refer to the CalEEMod outputs provided in Appendix B, Air Quality and GHG Data.

The BAAQMD requires the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds. Additionally, the exceedance of NO_x emissions would require the implementation of the BAAQMD's recommended Additional Construction Recommended Measures; refer to MM AQ-1. The Additional Construction Recommended Measures include increasing watering, installing wind breaks, using vegetative ground cover, limiting simultaneous construction activities, using wheel washers and other track-out controls, and erosion control measures for fugitive dust emissions. Additional Construction Recommended Measures for exhaust emissions include minimizing idling time of diesel-powered construction equipment to two minutes and using a clean equipment fleet and BACT for emission reductions of NO_x and PM. The Additional Recommended Measures to control construction exhaust have been incorporated into MM AQ-1 to reduce NO_x emissions. Additionally, paints would be required to exceed the ROG content limitations for architectural coatings, such as paint, required by BAAQMD *Regulation 8, Rule 3: Architectural Coating*.

Construction emissions that incorporate the BAAQMD's Basic and Additional Construction Recommended Measures and MM AQ-1 are shown in Table 4.3-7. As shown in Table 4.3-7, all pollutants would be below BAAQMD threshold after mitigation. Therefore, construction impacts are less than significant after implementation of MM AQ-1.

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 (DOC, 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.

Construction Summary

As shown in Table 4.3-7, proposed project construction would not cause exceedances of 54 pounds per day for ROG, NO_x, and PM_{2.5}, or 82 pounds per day for PM₁₀ with the implementation of MM AQ-1. Although the BAAQMD does not have numerical thresholds for fugitive PM₁₀ and PM_{2.5} emissions, the proposed project would be required to comply with the BAAQMD Basic Construction Measures. Best Management Practices (BMPs) in the form of BAAQMD-specified Basic Construction Mitigation Measures must be implemented for any construction project in order to control fugitive dust emissions. If a project implements these BMPs, then project fugitive dust impacts are considered by the BAAQMD to be less than significant. Additionally, the Project would 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 largest source of emissions would be NO_x during the earlier phases of building construction. This is primarily due to the Project-related trenching and building construction. The calculated emission results from CalEEMod demonstrate that the construction of this Project would not exceed average daily thresholds created by the BAAQMD with the implementation of the BAAQMD Additional Construction Measures required in MM AQ-1 to reduce exhaust.

Operational Emissions

Unmitigated 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 4.3-8 shows the maximum unmitigated daily operational emissions associated with each phase of the proposed project.

Emissions Source	Pollutant (maximum pounds per day) ¹					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Phase 1						
Area	17.57	4.29	0.57	0.57	0.00	0.00
Energy	0.18	1.50	0.12	0.12	0.00	0.00
Mobile	5.01	19.41	0.17	0.16	22.02	5.89
Total	22.75	25.19	0.87	0.86	22.02	5.89
<i>BAAQMD Significance Threshold²</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
Phase 2						
Area	17.32	4.29	0.57	0.57	0.00	0.00
Energy	0.18	1.50	0.12	0.12	0.00	0.00
Mobile	3.50	16.76	0.15	0.14	22.01	5.89
Total	21.00	22.54	0.85	0.84	22.01	5.89
<i>BAAQMD Significance Threshold²</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
Phase 3						
Area	17.32	4.29	0.58	0.58	0.00	0.00
Energy	0.18	1.50	0.12	0.12	0.00	0.00
Mobile	3.5	14.45	0.12	0.11	22.00	5.88
Total	20.99	20.23	0.81	0.81	22.00	5.88
<i>BAAQMD Significance Threshold²</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
Phases 4 & 5						
Area	19.54	4.29	0.58	0.58	0.00	0.00
Energy	0.18	1.55	0.13	0.13	0.00	0.00
Mobile	5.82	30.46	0.22	0.20	48.81	13.05
Total	25.54	36.30	0.92	0.90	48.81	13.05
<i>BAAQMD Significance Threshold²</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
Notes:						
1. Proposed Project mobile emissions are based on Project Traffic Impact Analysis trip generation of 11,280 daily vehicle (although specific details regarding phasing will be determined based on market trends, financing, and other factors. For analysis purposes, construction has been split into five development phases, with Phases 4 and 5 occurring concurrently).						
2. Bay Area Air Quality Management District, <i>California Environmental Quality Act Air Quality Guidelines</i> , 2017.						
Source: Refer to the CalEEMod outputs provided in Appendix B, <i>Air Quality and GHG Data</i> .						

The project is anticipated to develop a maximum of 2,400 dwelling units. The VDCSP may be implemented over time and in a phased approach. Specific details regarding phasing would be determined by the developer(s) in response to market trends, availability of financing, and other factors. The anticipated sequence of VDCSP area construction is shown in the VDCSP (refer to Figure 3-3, Conceptual Phasing Plan). This sequencing envisions up to five phases or more developed over the next 20+ years. It is anticipated that the exact boundaries of these

phases, sequencing and development timing of the neighborhoods are subject to change due to market trends, site constraints and other factors.

As shown in Table 4.3-8, emissions related to project operations occur due to area, energy, and mobile sources. Operations of any individual phase would not result in emissions in excess of the BAAQMD's operational thresholds.

Mitigated Operational Emissions

The proposed project would include various design features as well as mitigation measures incorporated into the Project that would reduce air emissions. The Project would include amenities to serve future residents and reduce the need to travel off-site. For example, the Project design includes a main clubhouse and a variety of recreation amenities such as a multi-purpose room for community events, a fitness center, an indoor pool, locker rooms, a restaurant, a health spa, and space for various informal recreation activities (e.g. library, craft room, pool table, etc.). Outdoor recreation amenities may include a separate outdoor pool, tennis/pickleball courts, bocce ball courts, barbecues, informal gardens, walking/hiking trails, dog park, etc. The Project also includes approximately 20 acres of commercial/civic uses that would serve the future residents.

Additionally, it should be noted that a majority of the proposed development would be designated as age-restricted active adult communities. As indicated in the Project Traffic Impact Analysis and noted in the VDCSP, residents of active adult communities drive approximately one third less than those in conventional single-family residential neighborhoods. These residents are typically retired or nearing retirement and, thus, many do not make daily commutes to work. The daily trips made by active adult residents generally remain within the community and may be taken outside of an automobile by way of walking, bicycling, or using local use vehicles (LUVs) (e.g., golf carts, neighborhood electric vehicles).

Chapter 6 of the VDCSP includes the design principles, design guidelines, and architectural and landscape recommendations for the proposed project Site. Some of the proposed design features include the following (refer to Chapter 6 of the VDCSP for a complete list):

- Passive solar design. In passive solar building design, windows, walls, and floors are made to collect, store, reflect, and distribute solar energy in the form of heat in the winter and reject solar heat in the summer. Building design and siting would take advantage of natural ventilation, heating, and cooling, sun and wind exposure, and solar energy opportunities.
- Exterior horizontal surfaces must be a light color or painted with reflective paint (or if a roof, be covered with solar panels).
- Use radiant barrier roof sheathing.
- Locate cooling equipment in shaded areas.

- Heat Gain Reductions. Parking lots and other potential heat islands would incorporate trees, vegetation, and other landscape screening/shading devices. Roof-top solar panels are required and parking lot solar panels are encouraged.
- Easy-Access Recreation. Community and neighborhood recreation centers to minimize vehicle trips. A minimum of 225 acres of open space will be preserved and used for passive recreational uses serving the proposed project.
- Use Local Use Vehicles (LUVs) (e.g., golf carts, neighborhood electric vehicles).
- Complete Streets. The VDCSP requires street designs to accommodate multiple modes of transportation, including walking, bicycling, or driving a local use vehicle or automobile. Pedestrians and cyclist paths must connect the residential, commercial, and open space.
 - Bicycle circulation is integrated throughout the VDCSP area through on-street bike lanes and separated off-street bike or multi-use paths. Multi-use paths are designed to support multiple recreation and mobility opportunities.
 - Multi-use (or shared) paths would be located adjacent to arterial and collector roads. A separated multi-use path is also envisioned along the east side of Deer Valley Road.
- Water Efficiency. The Project would utilize recycled water supply for irrigation. Community landscaping would consist of native and drought-tolerant species of trees, shrubs, and ground cover.
- Lawn and turf area reductions – use of turf areas should be minimized to reduce water use.
- Energy efficient LED street lighting is required.
- Low VOC construction materials are proposed.
- Construction and operational waste would be recycled to the maximum extent feasible.

As CalEEMod does not differentiate between Project design features and mitigation measures, the Project design features were incorporated into the CalEEMod mitigation module. The maximum mitigated daily operational emissions associated with each individual development phase are shown in Table 4.3-9. It should be noted that the emissions presented in Table 4.3-9 conservatively only includes the reduction measures that are tied to specific performance standards and can be quantified by the model and are also required in MM GHG-1 through GHG-7 (refer to Section 4.8, Greenhouse Gas Emissions). These measures include mixing of land uses, traffic calming measures, improved pedestrian measures, neighborhood electric vehicle (NEV) network, implement voluntary trip reduction programs, employee ride sharing and vanpool/shuttle (applicable commercial/civic uses only), prohibiting hearths, use of energy efficient appliances, use of reclaimed water, and reduce turf area (note that energy efficiency and water efficiency measures would not substantively reduce criteria pollutant emissions). Table 4.3-9 shows that the proposed project individual development phases would not exceed BAAQMD operational significance thresholds.

In addition to presenting emissions from individual development phases, Table 4.3-9 presents operational emissions at buildout of the Project, which includes combined emissions from all individual operational phases of the Project. The buildout emissions were modeled through a separate CalEEMod run that included operations of all anticipated land uses within the Project. The buildout emissions modeling included implementation of MM GHG-1 through MM GHG-7, as described above. For the purposes of this analysis, MM GHG-1 through MM GHG-7 would collectively be implemented by MM AQ-2, included in this Section. Despite the application of all feasible mitigation measures (MM AQ-2), emissions resulting from operations of the Project following Project buildout would exceed the BAAQMD's operational thresholds for ROG and NO_x. Consequently, the project would be anticipated to result in a significant and unavoidable impact related to operational emissions of criteria pollutants at buildout of the Project.

Emissions Source	Pollutant (maximum pounds per day) ^{1,2}					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Phase 1						
Area	13.28	0.45	0.20	0.20	0.00	0.00
Energy	0.11	0.96	0.08	0.08	0.00	0.00
Mobile	4.36	15.41	0.12	0.11	14.62	3.91
Total	17.75	16.82	0.40	0.39	14.62	3.91
<i>BAAQMD Significance Threshold³</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
Phase 2						
Area	13.10	0.45	0.20	0.20	0.00	0.00
Energy	0.11	0.96	0.08	0.08	0.00	0.00
Mobile	3.22	15.10	0.13	0.12	18.19	4.87
Total	16.43	16.51	0.41	0.40	18.19	4.87
<i>BAAQMD Significance Threshold³</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
Phase 3						
Area	13.09	0.45	0.20	0.20	0.00	0.00
Energy	0.11	0.93	0.07	0.07	0.00	0.00
Mobile	2.44	12.02	0.08	0.08	14.91	3.99
Total	15.65	13.40	0.36	0.36	14.91	3.99
<i>BAAQMD Significance Threshold³</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
Phases 4 & 5						
Area	14.93	0.45	0.20	0.20	0.00	0.00
Energy	0.11	0.98	0.08	0.08	0.00	0.00
Mobile	4.78	25.17	0.15	0.14	31.21	8.34
Total	19.82	26.61	0.43	0.42	31.21	8.34
<i>BAAQMD Significance Threshold³</i>	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A

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Operational Emissions at Buildout ^{4,5}						
Total	68.28	62.88	1.48	1.45	73.43	21.08
<i>BAAQMD Significance Threshold³</i>	<i>54</i>	<i>54</i>	<i>82</i>	<i>54</i>	<i>N/A</i>	<i>N/A</i>
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
Notes: 1. Proposed Project mobile emissions are based on Project Traffic Impact Analysis trip generation of 11,280 daily vehicle (although specific details regarding phasing will be determined based on market trends, financing, and other factors. For analysis purposes, construction has been split into five development phases, with Phases 4 and 5 occurring concurrently). 2. Project Design Features were incorporated into the CalEEMod mitigation module. These design features include mix of land uses, traffic calming measures, improved pedestrian measures, NEV network, implement voluntary trip reduction programs, employee ride sharing and vanpool/shuttle (applicable commercial/civic uses only), use low VOC paint, prohibiting hearths, use energy efficient appliances, use reclaimed water, and reduce turf. 3. Bay Area Air Quality Management District, <i>California Environmental Quality Act Air Quality Guidelines</i> , 2017. 4. A separate model run including full, simultaneous operations of all project phases was prepared to assess operational emissions at buildout of the Project. Due to the interaction of mitigation measures and the inherent assumptions within CalEEMod, such as vehicle fleet assumptions based on operational years, the emissions presented under the Operational Emissions at Buildout section in this table may not equate to the sum of operational emissions from each phase, which were modeled separately. 5. Operational Emissions at Buildout include implementation of MM AQ-2 Source: Refer to the CalEEMod outputs provided in Appendix B, <i>Air Quality and GHG Data</i> .						

Combined Construction and Operational Emissions

Unmitigated Combined Emissions

As discussed above, specific details regarding phasing will be determined based on market trends, financing, and other factors. However, for analysis purposes, construction has been split into four phases (development Phases 4 and 5 could be constructed concurrently) of approximately three years each over approximately twelve years starting in 2021. Therefore, the initial phases would be operational during construction of the later phases (e.g., Phase 1 would be operational during Phase 2 construction, etc.). Overlap would begin after completion of Phase 1 and would occur between subsequent construction and operation of the various phases until full buildout.

Because emissions related to construction and operations occur over differing timeframes and typically originate from different sources, BAAQMD maintains separate thresholds for the analysis of emissions related to project operations and project construction. Considering BAAQMD’s use of different thresholds to address potential impacts from construction and operations, significance conclusions regarding a project’s criteria air pollutant emissions during periods of time when both construction and operations are occurring simultaneously are not necessary or required. Although the significance of impacts during periods of time when project construction and operations overlap is not required by BAAQMD, for informational purposes, Table 4.3-10 shows the unmitigated construction and operations pollutant emissions. As shown in Table 4.3-10, unmitigated combined construction and operational emissions would exceed BAAQMD’s ROG and NO_x thresholds.

Table 4.3-10: Unmitigated Combined Construction and Operational Emissions						
Emissions Source	Pollutant (maximum pounds per day)					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
2024 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Construction (2024)	7.60	47.81	1.95	1.79	18.21	9.97
2024 Total	30.35	73.00	2.81	2.65	40.23	15.86
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	Yes	No	No	N/A	N/A
2025 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Construction (2025)	24.31	39.16	0.79	0.75	16.76	4.49
2025 Total	47.06	64.35	1.66	1.61	38.78	10.38
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	Yes	No	No	N/A	N/A
2026 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Construction (2026)	24.05	38.63	0.79	0.75	16.76	4.49
2026 Total	46.80	63.81	1.66	1.61	38.78	10.38
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	Yes	No	No	N/A	N/A
2027 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Operations	21.00	22.54	0.85	0.84	22.01	5.89
Phase 3 Construction (2027)	5.50	40.72	1.63	1.50	18.21	9.97
2027 Total	49.25	88.44	3.35	3.20	62.24	21.75
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	Yes	No	No	N/A	N/A
2028 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Operations	21.00	22.54	0.85	0.84	22.01	5.89
Phase 3 Construction (2028)	23.51	37.69	0.78	0.74	16.76	4.49
2028 Total	67.26	85.41	2.50	2.44	60.79	16.27
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
2029 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Operations	21.00	22.54	0.85	0.84	22.01	5.89
Phase 3 Construction (2029)	23.24	37.25	0.77	0.73	16.76	4.49
2029 Total	66.99	84.97	2.49	2.43	60.79	16.27
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A

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Table 4.3-10: Unmitigated Combined Construction and Operational Emissions

Emissions Source	Pollutant (maximum pounds per day)					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
2030 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Operations	21.00	22.54	0.85	0.84	22.01	5.89
Phase 3 Operations	20.39	20.23	0.81	0.81	22.00	5.88
Phase 4 and 5 Construction (2030)	5.46	29.64	0.74	0.74	18.21	9.97
2030 Total	69.60	97.59	3.27	3.24	84.24	27.63
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
2031 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Operations	21.00	22.54	0.85	0.84	22.01	5.89
Phase 3 Operations	20.39	20.23	0.81	0.81	22.00	5.88
Phase 4 and 5 Construction (2031)	24.52	32.18	0.29	0.29	17.15	4.59
2031 Total	88.66	100.13	2.82	2.79	83.18	22.25
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
2032 Unmitigated						
Phase 1 Operations	22.75	25.19	0.87	0.86	22.02	5.89
Phase 2 Operations	21.00	22.54	0.85	0.84	22.01	5.89
Phase 3 Operations	20.39	20.23	0.81	0.81	22.00	5.88
Phase 4 and 5 Construction (2032)	24.28	31.88	0.29	0.28	17.15	4.59
2032 Total	88.42	99.84	2.82	2.78	83.18	22.25
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
Total Unmitigated Operations 2033						
Area	71.52	17.14	203.96	0.11	0.00	2.30
Energy	0.71	6.05	2.60	0.04	0.00	0.49
Mobile	15.89	68.81	194.84	0.96	112.05	0.50
2033 Total	88.11	92.00	401.39	1.10	112.05	3.29
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A

Source: Refer to the CalEEMod outputs provided in Appendix B, *Air Quality and GHG Data*.

Mitigated Combined Emissions

As shown in Table 4.3-10, unmitigated total Project emissions would exceed BAAQMD thresholds and mitigation would be required. BAAQMD requires projects within the District's

jurisdiction to implement Basic Construction Measures related to dust control and abatement. Additionally, General Plan Policies 8-10 and COS 9-13 encourage public transit, ridesharing and vanpooling, and shorter trips to services as well as encouraging bicycle use. General Plan Policies 8-10 and COS 9-13 would be fulfilled through implementation of MM GHG-5, which requires implementation of a Commute Trip Reduction (CTR)/Transportation Demand Management (TDM). The CTR/TDM would include means of encouraging the use of public transit, and all development within the Project site would be required to include infrastructure necessary to encourage non-motorized forms of transportation. As described above, the Project includes services on-site and has multi-use paths and would facilitate NEV use and non-motorized travel. General Plan Policies COS 8-11 and COS 9-1 through COS 9-6 promote the use of passive solar design and energy efficient features. General Plan Policies COS 9-7 through COS 9-12 encourage and promote water efficiency, energy efficiency, and waste reduction measures. As discussed above, the design guidelines of the VDCSP would fulfill the foregoing General Plan policies by requiring that future development within the site incorporate passive solar, energy efficiency measures, water efficiency measures, and waste reduction measures.

Table 4.3-11 shows that following incorporation of the Project design features/mitigation described above, combined construction and operational project-related emissions would not be reduced to a level below the BAAQMD's ROG and NO_x thresholds. As shown in Table 4.3-11, mobile source emissions make up the majority of the Project's NO_x emissions, while area sources make up the majority of the Project's ROG emissions. Area sources consist of architectural coatings, consumer products, hearths, and landscaping. Consumer product emissions consist of approximately 78 percent of the Project's area source emissions. Consumer products are chemically formulated products used by household and institutional consumers, including, but not limited to, detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Project-level mitigation is not available to control emissions from consumer products as these emissions are regulated by local air districts and State standards. Further, as the Project primarily involves residential development, there are no feasible mitigation measures to further reduce mobile source emissions beyond what is currently included in the Project. It should be noted that the 2014 General Plan EIR concluded that operational air quality emissions would be less than significant. The 2014 General Plan EIR did not include project-specific emissions modeling or consideration of the combination of construction-related and operational emissions from any projects, and the less-than-significant impact conclusion was based on consistency with the BAAQMD Clean Air Plan. However, General Plan Action COS 8b requires development, infrastructure, and planning projects to be reviewed for consistency with BAAQMD requirements during the CEQA review process. Action COS 8b requires the analysis and identification of: (1) air pollutant emissions associated with the project during construction, project operation, and cumulative conditions; (2) potential exposure of sensitive receptors to toxic air contaminants; (3) significant air quality impacts associated with the project for construction, project operation, and cumulative conditions; and (4) mitigation measures to reduce significant impacts to less than significant or the maximum extent feasible where impacts cannot be mitigated to less than significant. As shown above,

emissions for individual development phases would not exceed thresholds, but total emissions from operations of all development phases would exceed thresholds for ROG and NO_x emissions. The analysis within this EIR addresses the requirements of General Plan Action COS 8b and includes Project-specific emissions modeling and analysis. As described above, BAAQMD does not require the analysis of emissions from the combination of construction and operations of a project; therefore, this analysis is presented for informational purposes only, and is not the basis of significance conclusions under CEQA.

Table 4.3-11: Mitigated Combined Construction and Operational Emissions						
Emissions Source	Pollutant (maximum pounds per day) ¹					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
2024 Mitigated						
Phase 1 Operations	17.27	13.88	0.36	0.36	9.16	2.45
Phase 2 Construction (2024)	5.95	27.16	0.22	0.21	13.68	4.28
2024 Total	23.22	41.04	0.58	0.57	22.84	6.73
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
2025 Mitigated						
Phase 1 Operations	17.75	16.82	0.40	0.39	14.62	3.91
Phase 2 Construction (2025)	23.02	26.21	0.20	0.19	15.90	4.28
2025 Total	40.77	43.03	0.60	0.59	30.52	8.19
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
2026 Mitigated						
Phase 1 Operations	17.75	16.82	0.40	0.39	14.62	3.91
Phase 2 Construction (2026)	22.76	25.68	0.20	0.19	15.90	4.28
2026 Total	40.51	42.50	0.60	0.58	30.52	8.19
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
2027 Mitigated						
Phase 1 Operations	17.75	16.82	0.40	0.39	14.62	3.91
Phase 2 Operations	16.43	16.51	0.41	0.40	18.19	4.87
Phase 3 Construction (2027)	4.64	24.39	0.17	0.16	13.56	4.28
2027 Total	38.82	57.72	0.98	0.96	46.37	13.06
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	No	No	No	N/A	N/A
2028 Mitigated						
Phase 1 Operations	17.75	16.82	0.40	0.39	14.62	3.91

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Emissions Source	Pollutant (maximum pounds per day) ¹					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Phase 2 Operations	16.43	16.51	0.41	0.40	18.19	4.87
Phase 3 Construction (2028)	22.22	24.74	0.19	0.18	15.90	4.28
2028 Total	56.40	58.07	1.00	0.98	48.71	13.06
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
2029 Mitigated						
Phase 1 Operations	17.75	16.82	0.40	0.39	14.62	3.91
Phase 2 Operations	16.43	16.51	0.41	0.40	18.19	4.87
Phase 3 Construction (2029)	21.95	24.30	0.18	0.17	15.90	4.28
2029 Total	56.13	57.63	0.99	0.97	48.71	13.06
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
2030 Mitigated						
Phase 1 Operations	17.75	16.82	0.40	0.39	14.62	3.91
Phase 2 Operations	16.43	16.51	0.41	0.40	18.19	4.87
Phase 3 Operations	15.65	13.40	0.36	0.36	14.91	3.99
Phase 4 and 5 Construction (2030)	4.01	24.13	0.19	0.19	13.88	4.28
2030 Total	53.84	70.86	1.37	1.35	61.61	17.05
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	No	Yes	No	No	N/A	N/A
2031 Mitigated						
Phase 1 Operations	17.75	16.82	0.40	0.39	14.62	3.91
Phase 2 Operations	16.43	16.51	0.41	0.40	18.19	4.87
Phase 3 Operations	15.65	13.40	0.36	0.36	14.91	3.99
Phase 4 and 5 Construction (2031)	23.36	24.49	0.15	0.14	16.27	4.38
2031 Total	73.19	71.21	1.33	1.30	64.00	17.14
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
2032 Mitigated						
Phase 1 Operations	17.75	16.82	0.40	0.39	14.62	3.91
Phase 2 Operations	16.43	16.51	0.41	0.40	18.19	4.87
Phase 3 Operations	15.65	13.40	0.36	0.36	14.91	3.99
Phase 4 and 5 Construction (2032)	23.12	24.19	0.14	0.14	16.27	4.38
2032 Total	72.95	70.91	1.32	1.29	64.00	17.14
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A

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Emissions Source	Pollutant (maximum pounds per day) ¹					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
Total Mitigated Operations 2029						
Area	54.24	1.81	150.14	0.01	0.00	0.82
Energy	0.45	3.86	1.65	0.02	0.00	0.31
Mobile	13.59	57.21	136.10	0.65	73.43	0.34
Total	68.28	62.88	287.89	0.68	73.43	1.48
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
BAAQMD Threshold Exceeded?	Yes	Yes	No	No	N/A	N/A
Notes:						
1. Project Design Features were incorporated into the CalEEMod mitigation module. These design features include mix of land uses, traffic calming measures, improved pedestrian measures, NEV network, implement voluntary trip reduction programs, employee ride sharing and vanpool/shuttle (applicable commercial/civic uses only), use low VOC paint, prohibiting hearths, use energy efficient appliances, use reclaimed water, and reduce turf.						
Source: Refer to the CalEEMod outputs provided in Appendix B, <i>Air Quality and GHG Data</i> .						

Criteria Pollutant Health Impacts

While EIRs have long evaluated the health impacts of air toxic pollutants, such as diesel particulate matter, EIRs have not historically evaluated the specific health impacts of the increase in criteria pollutants²³ other than to note the general effect of criteria air pollutants on health without tying those general impacts to the project. Ramboll prepared an analysis to estimate the health impacts of criteria pollutants and precursors, specifically those that are evaluated by the USEPA in rulemaking: NO_x, VOC, O₃, PM_{2.5}. NO_x and VOCs are not criteria air pollutants but in the presence of sunlight, they do form O₃ and contribute to the formation of secondary PM_{2.5} and thus were analyzed by Ramboll. The health effects that were used by Ramboll for PM_{2.5} include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). For ozone, the endpoints are mortality, emergency room visits (respiratory) and hospital admissions (respiratory).

The results of the Ramboll analysis demonstrated that PM_{2.5} related health outcomes resulting from Project-related PM_{2.5} emissions included less than one additional incidence of asthma-related emergency room visits, asthma-related hospital admissions, all cardiovascular-related hospital admissions (not including myocardial infarctions), all respiratory-related hospital admissions, mortality, and non-fatal acute myocardial infarction. Ozone-related health outcomes resulting from Project-related emissions included less than one additional incidence

²³ As discussed throughout this Section, criteria pollutants include PM, SO_x, NO_x, and O₃, among other pollutants.

of all respiratory-related hospital admissions, mortality, and asthma-related emergency room visits for any age range. For all of these health endpoints, the number of estimated incidences is less than 0.0008 percent of the baseline number of incidences. The “baseline incidence” is the actual incidence of health effects as measured in the local population in the absence of additional emissions from the Project.

The results are approximate and conservative. The uncertainty in the results is due to the combination of the uncertainty of the increase in concentration resulting from the PGM and the uncertainty of the BenMAP health effects C-R increase estimate. In addition, the health impacts estimated using this method presumes that impacts seen at large concentration differences can be linearly scaled down to small increases in concentration. This methodology of linearly scaling impacts is broadly accepted for use in regulatory evaluations and is considered as being health protective because one may not see any increase in health impacts due to small increases in concentration.²⁴ Thus, these health impacts are conservatively estimated, and the actual impacts may be zero.

Considering the above, health impacts related to criteria air pollutant emissions resulting from implementation of the Project would be considered less than significant.

Consistency with Current Air Quality Plan

For plan-level projects, such as the proposed project, the BAAQMD’s guidance states that potential impacts should be determined based on the Project’s conformance with current air quality plans. The most recently adopted air quality plan (AQP) for the San Francisco Bay Area Air Basin (SFBAAB) is the BAAQMD’s 2017 Clean Air Plan. To assess the Project’s conformance, the BAAQMD specifies that the following three questions shall be considered:

- Does the project support the primary goals of the AQP?
- Does the project include applicable control measures from the AQP?
- Does the project disrupt or hinder implementation of any AQP control measures?

As stated in the 2017 Clean Air Plan, the goals of the plan are to protect air quality and health at the regional and local scale, and to protect the climate. Protection of air quality and health at the regional and local scale would be accomplished by attaining all State and national air quality standards and eliminating disparities among communities in the SFBAAB in relation to disproportionate impacts of TACs. Attainment of State and national air quality standards is a result of emissions from the entire SFBAAB, and is not significantly impacted by any single development project in isolation. However, the BAAQMD’s thresholds of significance are

²⁴ U.S. Environmental Protection Agency (2010). *Quantitative Risk Assessment for Particulate Matter – Final Report*. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-452/R-10-005. June 2010. Available at: https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf.

intended to represent an emissions level above which a proposed project could result in a considerable incremental contribution to regional nonattainment. As discussed above, operation of the proposed project would result in emissions in excess of the BAAQMDs thresholds of significance, therefore, the proposed project could inhibit the attainment of State and/or national AAQS. Although the project's emissions of criteria pollutants would exceed the BAAQMD's thresholds, Ramboll environmental determined that such emissions would not have the potential to result in health impacts; thus, implementation of the proposed project would comply with the 2017 Clean Air Plan's goal of protecting health at the regional and local scale.

As further discussed in Section 4.8, Greenhouse Gas Emissions, of this EIR, the Project would adhere to statewide GHG emissions reductions goals with implementation of MM GHG-1 through MM GHG-8. The 2017 Clean Air Plan's goal of protecting the climate is based on fulfilling the statewide GHG emissions reductions targets. Consequently, because the Project would adhere to statewide GHG emissions reductions goals, the Project would fulfill the 2017 Clean Air Plan's goal of protecting the climate.

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 4.3-12, the Project would comply with city, State, and regional requirements.

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. SS21 is used in the assessment of new stationary sources of TACs; however, the Project would not include the installation or operation of any major permanent sources of TACs.
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. As discussed in further depth in Impact AQ-2 above, MM AQ-1 would ensure that the ROG content of paint used during construction of the Project would be further reduced.
SS26: Surface Prep and Cleaning Solvent	
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 be required to comply with all applicable BAAQMD measures.
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

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Table 4.3-12: Project Consistency with Applicable Clean Air Plan Control Measures	
Control Measure	Project Consistency
	to meet the BAAQMD’s emissions standards for back-up generators.
SS33: Commercial Cooking Equipment	Consistent. If any of the proposed restaurants install a charbroiler, a catalytic oxidizer system must also be installed pursuant to BAAQMD Rule 6-2.
SS34: Wood Smoke	Consistent. With implementation of MM GHG-6, 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 Regulation 7 to strengthen odor standards and enhance enforceability.
Transportation Control Measures	
TR2: Trip Reduction Programs	Consistent. A majority of the proposed development would be designated as age-restricted active adult communities. Residents of active adult communities drive approximately one third less than those in conventional single-family residential neighborhoods. The daily trips made by active adult residents generally remain within the community and may be taken outside of an automobile by way of walking, bicycling, or using local use vehicles (LUVs) (e.g., golf carts, neighborhood electric vehicles).
TR8: Ridesharing and Last-Mile Connections	<p>The Project would include amenities to serve future residents and reduce the need to travel off-site. For example, the Project design includes a main clubhouse and a variety of recreation amenities such as a multi-purpose room for community events, a fitness center, an indoor pool, locker rooms, a restaurant, a health spa, and space for various informal recreation activities (e.g. library, craft room, pool table, etc.). Outdoor recreation amenities may include a separate outdoor pool, tennis/pickleball courts, bocce ball courts, barbecues, informal gardens, walking/hiking trails, dog park, etc. The Project also includes approximately ± 20 acres of commercial/civic uses that would serve the future residents.</p> <p>Additionally, MM GHG-4 (refer to Section 4.8 (Greenhouse Gas Emissions) requires implementation of a Traffic Demand Management (TDM) plan that would include residential and non-residential measures to discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The TDM Plan could include ride-matching assistance, preferential carpool parking, ride-matching assistance, transportation coordinators, and bicycle end of trip facilities.</p>
TR9: Bicycle and Pedestrian Access Facilities	Consistent. With implementation of MM GHG-5, and the CTR/TDM Plan required therein, the Project would comply with General Plan Policy COS 8-10, which encourages public transit, ridesharing and van pooling, as well as the use of bicycles and walking. General Plan Policy COS 9-13 also encourages and supports the use of bicycles as an alternative means of transportation. The design guidelines included in the VDCSP fulfill COS 9-13 by requiring street designs to

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Table 4.3-12: Project Consistency with Applicable Clean Air Plan Control Measures	
Control Measure	Project Consistency
	accommodate multiple modes of transportation, including walking, bicycling, or driving a local use vehicle or automobile. Pedestrians and cyclist paths must connect the residential, commercial, and open space. Furthermore, MM GHG-5 requires that all tentative maps include improvements that provide access to nonmotorized forms of transit.
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 amenities to 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 development standards set forth in the VDCSP, which is proposed to be adopted as the relevant zoning regulations for the Project site through incorporation into the City of Brentwood 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 Mitigation Measure AQ-1, 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 Brentwood 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 Brentwood’s CalGreen Residential 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 225 acres of open space would be preserved and used for passive recreational uses serving the proposed project. The VDCSP requires parking lots and other potential heat islands to 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	

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Table 4.3-12: Project Consistency with Applicable Clean Air Plan Control Measures

Control Measure	Project Consistency
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 City of Brentwood Municipal Code Section 17.630.010 Adoption of the Model Water Efficient Landscaping Ordinance which includes various specifications for plant types, water features, and irrigation design etc.
Source: BAAQMD, <i>Clean Air Plan</i> , 2017 and Kimley-Horn & Associates, 2019.	

Another method to determine if a project is consistent with the 2017 Clean Air Plan is to compare a project’s vehicle activity growth with its population growth. The BAAQMD CEQA Air Quality Guidelines state that for plan-level projects if projected VMT increase is less than or equal to the projected population increase (i.e., the ratio of daily project-related VMT to daily countywide VMT is less than or equal to the ratio of project-related population growth to countywide population growth), then impacts would be considered to have a less-than-significant impact on criteria pollutants and precursor emissions. Projects with VMT growth that is lower than population growth would be more efficient than other development in the region.

Based on the Transportation Impact Assessment prepared by Fehr and Peers for the Project, the daily VMT increase would be approximately 133,240 miles, while Contra Costa County’s daily VMT is approximately 30,177,798 miles. Therefore, the proposed project’s daily VMT increase would be approximately 0.44 percent of the countywide VMT. Considering that VMT is a regional issue, the use of county-wide VMT and population growth is reasonable for the Project. The proposed project’s population increase would be approximately 4,406 residents compared to the County’s 88,786 person increase by 2029. The Project’s population ratio compared to the County is approximately 4.96 percent. The Project’s VMT growth is less than the population growth and therefore would not result in a significant impact related to VMT growth.

Although the proposed project would not result in significant VMT growth, and would be consistent with the 2017 Clean Air Plan’s goals related to climate protection and the protection of health at the regional and local scale, the proposed project would result in emissions of criteria air pollutants in excess of the BAAQMD’s thresholds of significance. The BAAQMD’s thresholds of significance have been developed in order to attain State and Federal AAQS. Thus, exceedance of the BAAQMD’s thresholds indicates that Project-related emissions may inhibit attainment of State and Federal AAQS, attainment of which is the primary goal of the 2017 Clean Air Plan. Therefore, the proposed project would be inconsistent with the current AQP for the area and implementation of the project would result in a significant impact related to such, despite the implementation of all feasible mitigation.

Conclusion

As discussed above, unmitigated construction-related emissions of NO_x would exceed the applicable BAAQMD threshold of significance resulting in a significant impact. However, implementation of Mitigation Measure MM AQ-1 would be sufficient to reduce emissions from on-site and off-site construction activity to below BAAQMD's thresholds of significance, and, as a result, the proposed project would result in a less-than-significant impact related to construction emissions.

When considered individually, operation of each phase of the Project would result in emissions below the BAAQMD's thresholds of significance with or without consideration of mitigation measures. However, when emissions resulting from Project operations at full buildout are analyzed, even with the implementation of MM AQ-2, the operational emissions related to Project buildout would exceed the BAAQMD's applicable thresholds of significance for ROG and NO_x. Moreover, despite implementation of the foregoing measures, the proposed project could conflict with or obstruct implementation of the BAAQMD's 2017 Clean Air Plan. Consequently, the proposed project would result in a **significant and unavoidable** impact related to contributing to a considerable net increase of criteria pollutants for which the project region is under nonattainment or conflicting with or obstructing implementation of the applicable air quality plan.

Mitigation Measures

MM AQ-1: *BAAQMD Additional Construction Mitigation Measures. Prior to any grading activities, 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 Community Development Department. 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 Project (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.*

MM AQ-2: *Implement MM GHG-1 through MM GHG-7.*

Impact AQ-2: **Would the project expose sensitive receptors to substantial pollutant concentrations? (*less than significant*)**

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 100 feet to the east and 250 feet south, and two schools located approximately 600 feet and 1,530 feet south of the Project site. The closest sensitive receptors to the Project site are the residences to the east and south and schools to the south of the Project site.

Toxic Air Contaminants

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. The BAAQMD considers exposure to annual PM_{2.5} concentrations that exceed 0.3 µg/m³ from a single source to be significant. The BAAQMD significance threshold for non-cancer hazards is 1.0.

Construction TACs

Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known TAC. Diesel exhaust from construction equipment operating at the site and in off-site improvement areas poses a health risk to nearby sensitive receptors. On- and off-site construction would result in the generation of 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 TAC 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 Project site for long durations.

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 in various phases throughout the approximately ± 815-acre site and off-site improvement areas. Additionally, construction activities would limit idling to no more than two minutes (MM AQ-1), 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 and in off-site improvement areas 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 analysis conservatively used emissions from the construction phase with the highest PM_{2.5} emissions (Phase 1, which includes off-site improvements related to the Project) to calculate the constant emissions rate (grams per second) used in AERSCREEN. Results of this assessment indicate that the maximum concentration of PM_{2.5} during construction would be 0.0001137 µg/m³, which is below the BAAQMD threshold of 0.3 µg/m³. The highest calculated carcinogenic risk from Project construction is 0.27 cases per million, which is below the BAAQMD threshold of 10 in one million. Non-cancer hazards for DPM would be below the BAAQMD threshold of 1.0, with a chronic hazard index computed at 0.00002 and an acute hazard index of 0.0005. The calculations assume a twelve-year exposure duration, 95th percentile breathing rates, and the highest age sensitivity factor of 10 and fraction of time at home of 0.85. As described above, worst-case construction risk levels based on screening-level modeling (AERSCREEN) and conservative assumptions would be below the 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-1, the proposed project is not located in an area designated by the State of California as likely to contain naturally-occurring asbestos. 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.

Project Operational TACs

The proposed project would not involve any operations that would be considered a source of TACs that would pose a possible risk to off-site uses. The Project involves the future development of a mixed-use Project that would include residential, commercial, and civic uses. The Project would not include stationary sources that emit TACs and would not generate a significant amount of heavy-duty truck trips (a source of DPM). Therefore, no impacts to surrounding receptors associated with operational TACs would occur.

Existing Stationary Sources of TACs

Based on the BAAQMD's Stationary Source Screening Analysis Tools and consultation with the BAAQMD, no stationary sources were identified within a 1,000-foot radius of the Project site.

The closest existing sources of TACs include sources at the Kaiser Antioch Deer Valley facility located 3,660 feet northwest of the site, a dry cleaner located 5,353 feet northeast of the site, and a backup generator located 3,831 feet east of the site. As these sources are located more than 1,000 feet away from the Project site, impacts would be less than significant.

Localized CO Hotspots

The primary mobile-source criteria pollutant of local concern is CO. 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 SFBAAB is designated as attainment for CO. Emissions and ambient concentrations of CO have decreased dramatically in the SFBAAB 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, the BAAQMD screening criteria notes that CO impacts may be determined to be less than significant if a project 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. Following implementation of the Project, traffic would increase along surrounding roadways during long-term operational activities.

According to the Transportation Impact Assessment prepared for the proposed project, the entire Project would generate 748 net new a.m. peak hour trips and 1,361 net new p.m. peak hour trips. The Project study intersection with the highest traffic volumes (SR-4 Westbound Ramps/Sand Creek Road) would have 5,834 vehicles during the AM peak hour and 5,462 vehicles during the PM 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 generate a significant number of vehicle trips and impacts associated with CO concentrations would be less than significant.

Conclusion

Considering the above, the proposed project is not located in proximity to existing sources of TACs nor would the project involve substantial TAC emissions during either construction or operations. Consequently, the Project would not result in the exposure of existing off-site or future on-site sensitive receptors to substantial concentrations of pollutants, and a ***less-than-significant*** impact would occur.

Mitigation Measures

None required.

Impact AQ-3: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? (*less than significant*)

Construction Odors

According to the 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 the 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. Only the eastern edge of the Project site is bordered by existing receptors. Although buildout of the Project is anticipated to occur over approximately 20 years, construction activity in proximity to the existing sensitive receptors is anticipated to occur over a small fraction of the total development period. Thus, construction activity with the potential to result in emissions that could adversely affect nearby receptors would occur over a relatively small period of time. 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.

The proposed project may include restaurants in the proposed commercial/civic portion of the site. Odors from restaurants usually emanate from charbroilers, griddles, and deep fat fryers. Furthermore, the Project could result in odors related to the proposed agricultural operations. However, per the city's Right to Farm ordinance (Chapter 8.01 of the Brentwood Municipal Code), proper agricultural operations may not be deemed a public nuisance.

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. Considering BAAQMD's existing regulations, any odors resulting from Project operations that were found to be a nuisance to a considerable number of persons would be required to eliminate or reduce such odors. Consequently, Project operations would not be anticipated to result in substantial long-term emissions of odors or impacts related to such.

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 located near the Project site. Impacts would be less than significant.

Conclusion

Based on the above, construction and operation of the Project would not result in other emissions (such as those leading to odors) that would adversely affect a considerable number of people, and a ***less-than-significant*** impact would occur.

Mitigation Measures

None required.

Cumulative Impact Analysis

Impact AQ-4: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard? (*significant and unavoidable, even with application of site-specific mitigation measures*)

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.

The BAAQMD CEQA Air Quality Guidelines do not include separate significance thresholds for cumulative operational emissions. Rather, the BAAQMD considers individual development projects that cause emissions in excess of the operational thresholds of significance to result in a cumulatively significant impact to air quality. For plan-level Projects (such as the proposed Specific Plan discussed herein) the BAAQMD specifies that consistency with the current AQP may be assessed by considering whether a project supports the primary goals of the AQP, includes applicable control measures from the AQP, and disrupts or hinders implementation of

any AQP control measures. BAAQMD notes that consistency with the current AQP would result in a less-than-significant impact. As discussed in Impact AQ-1, the proposed project would incorporate applicable control measures from the 2017 Clean Air Plan, and would not disrupt or hinder implementation of any control measures. Furthermore, the Project complies with the 2017 Clean Air Plan's goals of protecting health at a regional and local scale as well as protecting the climate. However, operational emissions of criteria pollutants would exceed the BAAQMD's thresholds of significance, which are intended to represent an emissions level above which a proposed project could result in a considerable incremental contribution to regional nonattainment. Thus, Project operations may inhibit attainment of State and Federal AAQS, attainment of which is the primary intent of the 2017 Clean Air Plan. Thus, the Project would not be considered consistent with the BAAQMD's 2017 Clean Air Plan and impacts related to a conflict or obstruction of implementation of the applicable AQP would be considered to potentially significant.

Cumulative Construction Emissions

The SFBAAB is designated nonattainment for O₃, PM₁₀, and PM_{2.5} for State standards and nonattainment for O₃ 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 the BAAQMD significance thresholds for criteria pollutants.

Because 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. The BAAQMD recommends Basic Construction Mitigation Measures for all projects whether or not construction-related emissions exceed the thresholds of significance. Further construction-related mitigation is required by MM AQ-2. Compliance with BAAQMD construction-related mitigation requirements and MM AQ-2 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

The 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 AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. The BAAQMD developed the operational thresholds of significance based on the level above which a project's individual emissions would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. Therefore, a project that exceeds the BAAQMD operational thresholds would also represent a cumulatively considerable contribution to a significant cumulative impact. Project design features and MM AQ-2, include measures that would minimize operational emissions of cumulative development projects.

However, as shown in Table 4.3-11, the proposed project's operational emissions would exceed BAAQMD thresholds for ROG and NO_x despite the implementation of various project design features described above that would minimize operational emissions. Consequently, operational emissions associated with the proposed project would result in a cumulatively considerable contribution to significant cumulative air quality impacts.

It should be noted that a cumulative HRA was not conducted due to lack of TAC sources within the zone of influence, as discussed in further depth in Impact AQ-3.

Conclusion

Considering the above, implementation of the Project would involve operational emissions in excess of the BAAQMD's thresholds. Despite the implementation of MM AQ-1 and MM AQ-2, the operational emissions of the Project at buildout would continue to exceed the BAAQMD's thresholds for ROG and NO_x. Therefore, despite the implementation of all feasible mitigation measures, the Project's contribution to cumulative air quality impacts related to increases of criteria air pollutant emissions would be considered ***significant and unavoidable***.

Mitigation Measures

MM AQ-3: *Implement MM AQ-1 and MM AQ-2.*

4.4 Biological Resources

4.4.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to biological resources in the Project area. The Baseline Data Collection provides information on baseline conditions in the Project region from literature search, review of existing data, and site surveys.

Information used to prepare this section came from Monk & Associates, Inc. (M&A). The purpose of this analysis is to provide a description of existing biological resources on the Project site and to identify potentially significant impacts that could occur to sensitive biological resources from the construction of the proposed development.

Biological resources include common plant and animal species, and special-status plants and animals, as designated by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS) and, with respect to plant species, the California Native Plant Society (CNPS). Biological resources also include Waters of the U.S. and the State of California, as regulated by the U.S. Army Corps of Engineers (Corps) and California Regional Water Quality Control Board (RWQCB), and streambed resources regulated by CDFW.

Property Setting

The Project site has been farmed since the 1930s and consists primarily of non-native vegetation. Deer Creek flows west to east along Balfour Road and briefly flows across the Project site in the central portion of the southern project boundary. Sand Creek is located approximately 0.25-mile north of the Project site, flowing west to east and eventually flows into Marsh Creek in the City of Brentwood.

Topography and Hydrology

The southern portion of the Project site drains to Deer Creek, an intermittent creek, that flows west to east along a portion of the Project site's southern boundary. During field surveys performed by M&A in 2019, several pools of standing water up to 10 inches deep were observed in the drainage feature. This creek flows onto the Project site from a culvert under Balfour Road in the central portion of the southern boundary and flows along a meandering channel until it exits the Project site and flows to the south via another culvert under Balfour Road. This creek receives sheet flow runoff from agricultural land to the west and south. The average distance between ordinary high-water marks (OHWMs) in Deer Creek is three feet and it is approximately six feet wide between the top-of-banks (TOBs). Deer Creek is incised approximately four feet below the existing grade of the Project site with steeply-sloped banks.

The northern portion of the site drains to an ephemeral drainage channel in the northeast corner of the Project site. This channel is fed by two channel segments that converge into one channel before flowing north to Sand Creek approximately 0.40-mile north of the property

boundary. These drainages receive sheet flows within the main east-west valley and from a valley in the eastern portion of the Project site. The channel is approximately one foot wide between OHWMs, five feet wide between TOBs, and three feet below the surrounding grade.

The western portion of the Project site drains to an ephemeral drainage that flows south to north along the eastern shoulder of Deer Valley Road. This unnamed ephemeral drainage flows into Sand Creek, north of the Project site. The ephemeral drainage is one foot wide between OHWMs and is approximately three feet wide between the TOBs. The banks are gently sloped approximately three feet below the existing grade of the Project site. This drainage supports abutting seasonal wetlands in sporadic locations. Finally, the main east-west valley and the valley on the eastern portion of the Project site support numerous seasonal wetlands. The drainages mapped on the Project site are shown in Figure 4.4-1.

Vegetation Communities

M&A biologists examined the habitats and characterized the vegetation present on the Project site, as well as along the proposed off-site American Avenue extension alignment. A complete list of plant species observed within the Project site in 2019 is presented in Table 1 in Appendix C. Most of the Project site and the proposed American Avenue extension alignment is farmed annually, resulting in limited vegetation diversity and an agrestal plant community.

Remnant areas of non-native annual grassland are located along the northern and southern hillsides and within the proposed American Avenue extension alignment that have not been disked or seeded due to steep slopes or rocky outcroppings. Five plant communities that occur on the Project site and within the proposed American Avenue extension alignment, including “agrestal” (farmed), non-native annual grassland, oak savanna, drainage channels, and seasonal wetlands. Nomenclature used for plant names follows *The Jepson Manual* Second Edition (Baldwin 2012) and changes made to this manual as published on the Jepson Interchange Project website (<http://ucjeps.berkeley.edu/interchange/index.html>). Table 2 in Appendix C provides a list of wildlife species observed on the Project site. Nomenclature for wildlife follows CDFW’s *Complete list of amphibian, reptile, bird, and mammal species in California* (2016) and any changes made to species nomenclature as published in scientific journals since the publication of CDFW’s list.

“Agrestal” Plant Community

An “agrestal” community is a weed-dominated community growing within cultivated fields (Holland & Keil 1995). Agrestal communities form in areas that have been disturbed by cultivation. Most of the Project site is an agrestal community that has been planted primarily to wheat (*Triticum aestivum*) for decades. Many species of weeds thrive in the same environments as crop plants. The Project site has been disked and planted in the fall to dryland crops for decades (Google Earth images). These plantings germinate from winter rainfall and are harvested in the mid-summer.

Figure 4.4-1
Drainages within the Project Site



Source: Monk & Associates, 2019.

The existing vegetation over most of the proposed project area is classified as agrestal and is the result of long-term ground manipulation and cultivation. Plants introduced by humans, generally for agricultural commodity crops, dominate these communities. The cultivation of agricultural fields continually disturbs the soil. As a result, these areas typically do not support native plant species or communities. The dominant weeds in the Project site's wheat fields include species such as California burclover (*Medicago polymorpha*), milk thistle (*Silybum marianum*), cheeseweed (*Malva parviflora*), common vetch (*Vicia sativa*), short-podded mustard (*Hirschfeldia incana*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*).

The dominant weeds in the wheat fields within the proposed American Avenue extension alignment include species such as wild mustard (*Sinapis arvensis*), short-podded mustard, milk thistle, chick lupine (*Lupinus microcarpus*), bicolored lupine (*Lupinus bicolor*), bindweed (*Convolvulus arvensis*), and Russian thistle (*Salsola tragus*).

In general, agrestal areas do not provide habitat that is suitable for many wildlife species. The intense disking and manipulation of the soil tend to limit the number of species that occupy or use cropland habitats. Nevertheless, the disked field on the Project site provides potential habitat for species such as California ground squirrel (*Otospermophilus beecheyi*), wintering western burrowing owl (*Athene cunicularia hypugaea*), and foraging habitat for species such as coyote (*Canis latrans*), golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), European starling (*Sturnus vulgaris*) and American pipit (*Anthus rubescens*).

Non-Native Annual Grassland

Small pockets of remnant non-native annual grassland are present on steep slopes or areas with rocky outcroppings that occur within the Project site and within the proposed American Avenue extension alignment. The plant community in these areas are dominated by non-native grasses such as ripgut brome Italian ryegrass (*Festuca perennis*), slender wild oat (*Avena barbata*), and hare barley (*Hordeum murinum leporinum*). Herbaceous plants include tarweed (*Holocarpha* sp.), blue dicks (*Dichelostemma capitatum capitatum*), red maids (*Calandrinia menziesii*), miniature lupine (*Lupinus bicolor*), windmill-pink (*Silene gallica*), Tocalote (*Centaurea melitensis*), California man-root (*Marah fabaceus*), cut-leaf geranium (*Geranium dissectum*), broad-leaf filaree (*Erodium botrys*), common vetch, winter vetch (*Vicia villosa*), and sheep sorrel (*Rumex acetosella*).

Non-native annual grassland, where it is found on the Project site and within the proposed American Avenue extension alignment, provides wildlife with burrowing, denning, and foraging opportunities. Wildlife species observed utilizing this habitat include California ground squirrel, California meadow vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), red-tailed hawk, and western fence lizard (*Sceloporus occidentalis*).

Oak Savanna

Oak savanna is a characteristic vegetational cover in the foothills of California. This plant community occurs at elevations from 30 to 5,000 feet where summers are warm and dry, and winters are mild. Oak savanna is a transitional plant community between the grasslands of the hot dry valleys and the montane forests of moist cool uplands. The most common woodland type consists of scattered trees and shrubs with an understory of grasses and forbs. The shrubs, often species that also occur in chaparral or coastal scrub communities, may grow both under and between the trees (Holland & Keil 1995).

The occurrence of oak savanna is primarily limited to hillslopes within the western portion of the Project site. This community is dominated by blue oaks (*Quercus douglasii*), although also supports a few valley oaks (*Quercus lobata*). The understory is dominated by common chickweed (*Stellaria media*), bull mallow (*Malva nicaeensis*), white-stem filaree (*Erodium moschatum*), fiddleneck (*Amsinckia* sp.), miner's lettuce (*Claytonia parviflora*), and dwarf nettle (*Urtica urens*).

Oaks provide foraging, roosting, and nesting habitat for a large variety of wildlife species, including raptors such as red-shouldered hawk (*Buteo lineatus*) and red-tailed hawk. Common birds identified in oak savanna include northern flicker (*Colaptes auratus*), oak titmouse (*Baeolophus inornatus*), western bluebird (*Sialia mexicana*), lesser goldfinch (*Spinus psaltria*), and yellow-rumped warbler (*Setophaga coronata*).

Drainage Channels

As described above, three drainage channels occur on the Project site (see Figure 4.4-1). Deer Creek, an intermittent creek that flows west to east along Balfour Road, is largely dominated by Italian ryegrass (*Festuca perennis*), prickly lettuce (*Lactuca serriola*), curly dock (*Rumex crispus*), cocklebur (*Xanthium strumarium*), and scattered almond (*Prunus dulcis*) trees. Vegetation along the banks include Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*), ripgut brome, and milk thistle. The unnamed ephemeral drainage channel that flows south to north along the eastern shoulder of Deer Valley Road in the northwestern corner of the Project site is dominated by curly dock and salt grass (*Distichlis spicata*). The third unnamed ephemeral drainage channel in the northeast corner of the Project site is dominated by creeping wildrye (*Elymus triticoides*), Great Valley gumplant (*Grindelia camporum*), and alkali heath (*Frankenia salina*). Vegetation along the banks include ripgut brome, California burclover, yellow starthistle (*Centaurea solstitialis*), and hare barley.

Ephemeral and intermittent drainage channels provide a drinking source and migration corridors for wildlife species when these features have water in them. If drainages are inundated for long periods, they can also provide breeding habitat for amphibians such as Sierran tree frog (*Pseudacris sierra*) and California toad (*Anaxyrus boreas halophilus*), as well as common invertebrates. Western fence lizard, California meadow vole, California ground squirrel, and raccoon (*Procyon lotor*) prints were observed utilizing the drainage channels onsite.

Seasonal Wetlands

Seasonal wetlands are habitats that may be dry in the summer and fall months, but by the first significant rains of the year become saturated or inundated for periods of several weeks to months. Seasonal wetlands occur in the topographic low areas of the Project site. The wetlands are dominated by hydrophytic plant species including annual beard grass (*Polypogon monspeliensis*), Italian ryegrass, curly dock, and alkali heath. Seasonal wetlands provide wildlife with a seasonal water source that allows animals to drink and forage in the water during the winter and spring months.

Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors also provide access routes to food, cover, and water resources within restricted habitats. The Project site is located within an identified regional wildlife corridor for the San Joaquin kit fox. Further information related to the movement of the San Joaquin kit fox is provided under the discussion of special-status wildlife species below. In addition, the Project site likely supports a number of local wildlife corridors that are used by common mammal species.

Jurisdictional Waters

Deer Creek, an intermittent creek, flows west to east along Balfour Road and briefly enters the Project site in the central portion of the southern project boundary (see Figure 4.4-1). Deer Creek is a tributary to Marsh Creek, which is a tributary to the San Joaquin River, a Traditional Navigable Water of the U.S. Therefore, pursuant to Section 404 of the Clean Water Act, any impacts to Deer Creek below the OHWM would be regulated as a “water of the U.S.” by the Corps. Similarly, this creek would be regarded as a “water of the State” subject to the regulatory authority of the California RWQCB pursuant to Section 401 of the Clean Water Act. Finally, impacts to Deer Creek could also be regulated by the CDFW pursuant to Section 1602 of the Fish and Game Code that regulates impacts to stream channels.

In addition, there are two ephemeral drainages in the northern half of the Project site (see Figure 4.4-1). One ephemeral drainage in the northwestern corner of the Project site flows south to north along the eastern shoulder of Deer Valley Road. This unnamed ephemeral drainage flows into Sand Creek and any proposed impacts to this feature would also be regulated as a water of the U.S. and State. A second ephemeral drainage channel in the

northeast corner is fed by two sporadically occurring channel segments that converge into one channel in the northeast corner of the Project site before flowing north to Sand Creek. This drainage would also be regulated as a water of the U.S. and State. Finally, where these drainages support a defined channel bed and bank, impacts to these drainages would be subject to regulation pursuant to Section 1602 of the Fish and Game Code.

In addition, as noted above, there are numerous seasonal wetlands on the Project site that would be regulated as waters of the U.S. by the Corps and as waters of the State by the RWQCB pursuant to Sections 404 and 401 of the Clean Water Act (respectively), or with respect to non-Federal Waters of the State, the provisions of California's Porter-Cologne Water Quality Act.

A delineation of wetlands and other waters located on the entire Project site, as well as the American Avenue extension alignment, is currently in preparation using criteria prescribed in the Corps' 1987 Wetland Delineation Manual (Corps 1987) and the Corps' Regional Supplement for the Arid West Region (Corps 2008). This delineation will identify waters of the State in addition to waters of the U.S. Because the Project site, as well as the proposed off-site American Avenue extension location, has been disked and farmed for approximately 80 years, thus reducing the reliability of vegetation and soils as indicators of wetland presence, M&A biologists have been mapping hydrology, which is likely to be the primary parameter used by the Corps to ascertain jurisdictional areas within the Project site.

A *Draft Aquatic Resources Delineation Map* will be submitted to the Corps along with a request that the Corps confirm a Preliminary Jurisdictional Determination (PJD). The PJD will allow an accurate assessment of impact to Corps and RWQCB jurisdictional features on the Project site and within the proposed American Avenue extension alignment. For non-Federal waters of the State, the RWQCB may also be required to approve a jurisdictional delineation. Completion of the delineation(s) and acquisition of formal permits from the Corps and RWQCB for any and all impacts to waters of the U.S. and State will be required for this Project (see Impacts and Mitigation section below). In addition, a formal compensation plan would be provided to mitigate impacts to waters of the U.S. and State. Any impacts to tributaries supporting a channel bed and bank would also be subject to regulation by the CDFW pursuant to Section 1602 of the Fish and Game Code.

Trees

An arborist survey of the Project site was performed by Stewart's Tree Service, Inc. on October 18, 2018. Based on the results of the survey, the Project site contains a total of 108 trees. Of the 108 trees on-site, 106 are native oaks, one is a willow, and one is a tamarisk. The 106 native oaks are primarily Blue Oaks (*Quercus Douglasii*), which are joined by two native Valley Oaks (*Quercus lobata*). Three of the Blue Oaks were noted as dead, and one trunk of a multi-trunk Blue Oak was also noted as dead. The remaining trees were marked as poor, fair, or good by Stewart's Tree Service, Inc. This information, including location of each tree, can be found within the Tree Survey Report (Appendix C). It should be noted that a small number of non-native almond trees are located on the site along Deer Creek; however, such trees were not of a sufficient diameter to warrant inclusion in the tree survey.

Special-Status Species

Definitions

For purposes of this analysis, special-status species are plants and animals that are legally protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the CNPS). More specifically, special-status species are defined as:

- Plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code § 2050 et seq.; 14 CCR § 670.1, et seq.) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);
- Plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code § 2068);
- Plants and animals that meet the definition of endangered, rare, or threatened under CEQA (14 CCR § 15380) that may include species not found on either State or Federal Endangered Species lists;
- Plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' electronic Inventory (CNPS 2001). The CDFW recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFW requests their inclusion in EIRs. Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information (more on CNPS Rank species below);
- Migratory nongame birds of management concern listed by USFWS (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);
- Animals that are designated as "species of special concern" by CDFW (2017);
- Animal species that are "fully protected" in California (Fish and Game Code Sections 3511, 4700, 5050, and 5515).
- Bat Species that are designated on the Western Bat Working Group's (WBWG) Regional Bat Species Priority Matrix as: "RED OR HIGH." This priority is justified by the WBWG as follows: "Based on available information on distribution, status, ecology, and known threats, this designation should result in these bat species being considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being

implemented should a commitment to management exist. These species are imperiled or are at high risk of imperilment.”

In the descriptions below, further definitions of legal status are provided as they pertain to the special-status species discussed in this Section.

Federal Endangered or Threatened Species

A species listed as Endangered or Threatened under the FESA is protected from unauthorized “take” (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a Federally-listed Endangered or Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened Species

A species listed as Threatened under the CESA (§ 2050 of California Fish and Game Code) is protected from unauthorized “take” (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to “take” a State-listed Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from CDFW prior to initiating the “take.”

California Species of Special Concern

These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR § 15380), some species of special concern could be considered “rare.” Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a “significant effect on the environment” (§ 15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Rank Species

The CNPS maintains an “Inventory” of special-status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also State or Federally-listed species), CDFW requests the inclusion of Rank 1 species in environmental documents. In addition, other State and local agencies may request the inclusion of species on other lists as well. The Rank 1 and 2 species are defined below:

- Rank 1A: Presumed extinct in California;
- Rank 1B: Rare, threatened, or endangered in California and elsewhere;
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;

- Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.

All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) of the Fish and Game Code, and are eligible for State listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern, and are reviewed by CDFW and maintained on “watch lists.”

Additionally, in 2006 CNPS updated their lists to include “threat code extensions” for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows:

- 1 is considered “seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)”;
- 2 is “fairly endangered in California (20%-80% of occurrences threatened)”;
- 3 is “not very endangered in California (less than 20% of occurrences threatened or no current threats known).”

Under the CEQA review process only CNPS Rank 1 and 2 species are considered because these are the only CNPS species that meet CEQA’s definition of “rare” or “endangered.” Impacts to Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds

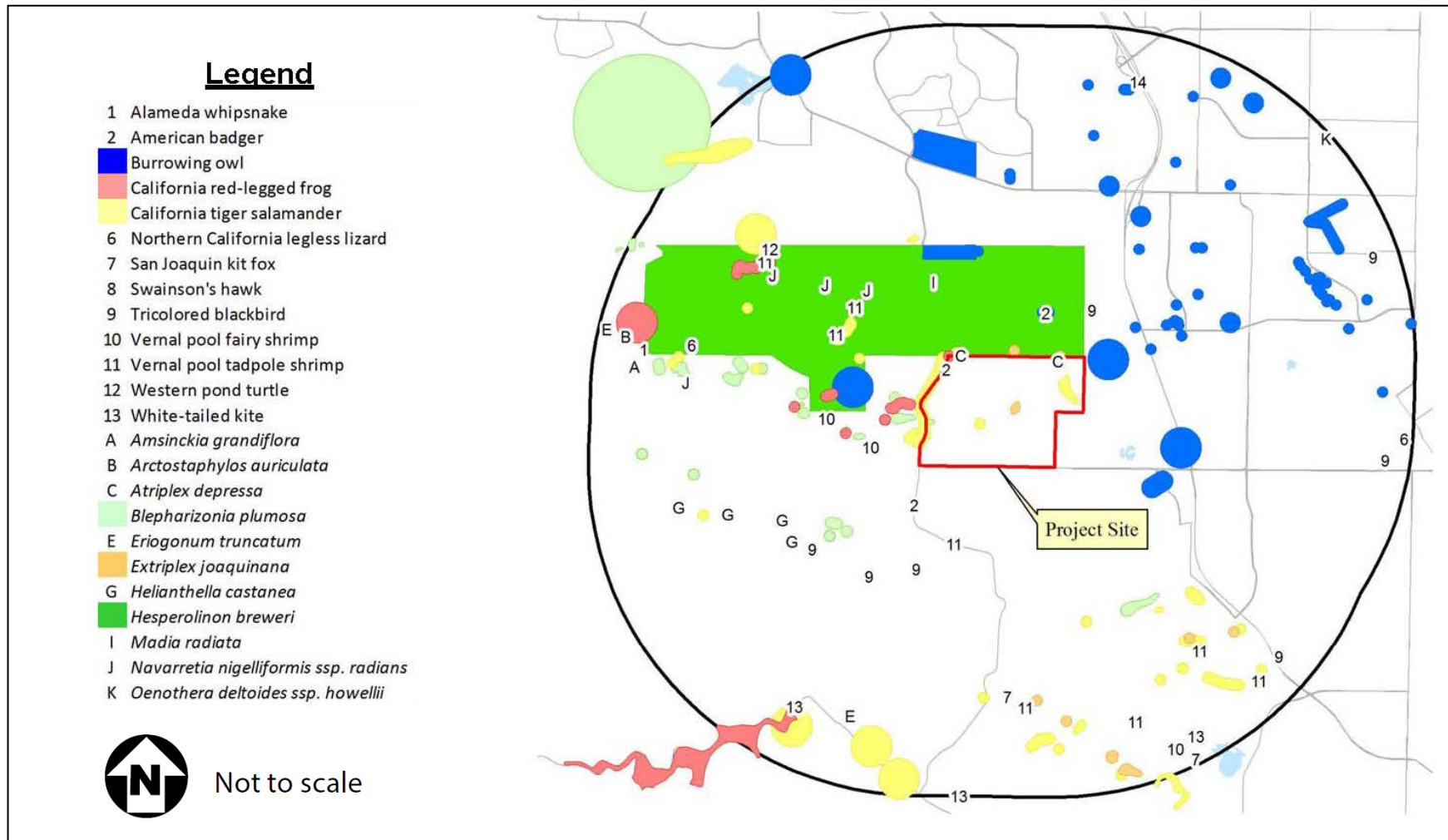
Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§ 3511). Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time.

Occurrences

Figure 4.4-2 provides a graphical illustration of known California Natural Diversity Database (CNDDDB) records for special-status species within three miles of the Project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the Project site.

According to the CDFW’s CNDDDB, a total of 11 special-status plant species are known to occur in the vicinity of the Project site. Several of the plants from Table 3 in Appendix C occur in specialized habitats such as chaparral, coastal scrub, chenopod scrub, and/ or inland dunes which do not occur on or near the Project site. Accordingly, species occurring in these specialized habitats that do not occur on or near the Project site were summarily dismissed from consideration in Table 3 in Appendix C.

**Figure 4.4-2
 Known Special-Status Species within Three Miles of the Project Site**



Special-Status Plants

In the spring and summer of 2005 and 2006, M&A completed focused surveys for special-status (that is, rare, threatened, or endangered) plants on the Project site. M&A recognizes that these surveys are out of date, therefore, new surveys would be conducted the year prior to the commencement of development to verify the presence or absence of special-status plants, and appropriate mitigation measures are prescribed herein should new surveys discover rare plants on the Project site.

Big tarplant (*Blepharizonia plumosa*), a CNPS list 1B.1 species, brittlescale (*Atriplex depressa*), a CNPS list 1B.2 species, and San Joaquin spearscale (*Extriplex joaquinana*), a CNPS list 1B.2 species, were identified on the Project site in 2005 and 2006. In addition, there are several other rare plant species that were not found during the previous rare plant surveys, but that nonetheless could occur in the remnant non-native grassland on the Project site. While M&A believes it unlikely they occur on the Project site today, they cannot be totally discounted without updated surveys. These plants include Diablo helianthella (*Helianthella castanea*), a CNPS list 1B.2 species; showy golden madia (*Madia radiata*), a CNPS list 1B.1 species; Brewer's western flax (*Hesperolinon breweri*), a CNPS list 1B.2 species, and Adobe navarretia otherwise known as shining navarretia (*Navarretia nigelliformis* ssp. *radians*), a CNPS list 1B.2 species (Table 3 in Appendix C). Updated special-status plant surveys would be conducted the year prior to development of the Project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published survey guidelines. Rare plants found on the Project site or that cannot be discounted until current surveys are conducted are discussed in detail below.

Big Tarplant

Big tarplant (*Blepharizonia plumosa*) is a CNPS Rank 1B.1 species. The species does not have a State or Federal status. Big tarplant is an annual member of the sunflower family and is found in grassland habitats, typically with clay to clay-loam soils. The species is most frequently encountered on slopes, and often in burned areas. Big tarplant flowers from July through October.

Big tarplant was found onsite during surveys conducted in the spring and summer of 2005 and 2006 by M&A (CNDDDB Occurrence No. 33). Updated surveys would be conducted the year prior to the commencement of the Project's construction to determine if this species currently occurs on the Project site.

Diablo Helianthella

Diablo helianthella (*Helianthella castanea*) is a CNPS Rank 1B.2 species. The species does not have a State or Federal status. Diablo helianthella is a member of the sunflower family and is found in a variety of habitat types including broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. The species is a perennial herb that blooms from March through June. Diablo helianthella is threatened by urbanization, grazing, and fire suppression.

The closest record for Diablo helianthella is 1.3 miles southwest of the Project site (CNDDDB Occurrence No. 71). M&A did not find this species on the Project site during rare plant surveys conducted in 2005 and 2006. Marginal grassland habitat for this species occurs on the Project site. Surveys would be conducted the year prior to the commencement of the Project's construction to determine if this species occurs on the Project site.

Showy Golden Madia

Showy golden madia (*Madia radiata*) is a CNPS List 1B.1 species. The species does not have a State or Federal status. Showy golden madia is a member of the sunflower family and is found in woodland and grassland habitats, most often on adobe clay soils. The species can be found in open grassland habitat or among shrubs, where it flowers from March through May.

The closest record for showy golden madia is 0.8-mile north of the Project site (CNDDDB Occurrence No. 25). Marginal grassland habitat for this species occurs on the Project site. Surveys would be conducted the year prior to the commencement of the Project's construction to determine if this species occurs on the Project site.

Brittlescale

Brittlescale (*Atriplex depressa*) is a CNPS Rank 1B.2 species. The species does not have a State or Federal status. Brittlescale is an annual saltbush that is found in chenopod scrub, meadows, seeps, playas, valley and foothill grasslands, and vernal pools with alkaline or clay soils. The species flowers from April through October.

Brittlescale was found onsite during surveys conducted in the spring and summer of 2005 and 2006 by M&A (CNDDDB Occurrence No. 68 and 74). Updated surveys would be conducted the year prior to the commencement of the Project's construction to determine if this species currently occurs on the Project site.

San Joaquin Spearscale

San Joaquin spearscale (*Extriplex joaquiniana*) is a CNPS Rank 1B.2 species. The species does not have a State or Federal status. San Joaquin spearscale is found in chenopod scrub, meadows, seeps, playas, and alkaline valley and foothill grasslands. The species is an annual herb that blooms from April through October. This species is threatened by grazing, agriculture, and development.

San Joaquin spearscale was found onsite during surveys conducted in the spring and summer of 2005 and 2006 by M&A (CNDDDB Occurrence No. 15, 16, and 104). Updated surveys would be conducted the year prior to the commencement of the Project's construction to determine if this species currently occurs on the Project site.

Brewer's Western Flax

Brewer's western flax (*Hesperolinon breweri*) is a CNPS Rank 1B.2 species. The species does not have a State or Federal status. Brewer's western flax is found at elevations up to 900 meters in chaparral, cismontane woodland, and valley and foothill grassland, usually in serpentine soils. The species is an annual herb that blooms from May through July.

The closest record for Brewer's western flax is 0.5-mile northwest of the Project site (CNDDDB Occurrence No. 32). Marginal grassland habitat for this species occurs on the Project site. Surveys would be conducted the year prior to the commencement of the Project's construction to determine if this species occurs on the Project site.

Adobe Navarretia

Adobe navarretia (*Navarretia nigelliformis* ssp. *radians*) otherwise known as shining navarretia (*Navarretia nigelliformis* ssp. *radians*) is a CNPS Rank 1B.2 species. The species does not have a State or Federal status. Adobe navarretia is found at elevations up to 1,000 meters in cismontane woodland, valley and foothill grassland, and vernal pools, sometimes in clay soils. The species is an annual herb that blooms from April through July.

The closest record for adobe navarretia is 1.5 miles northwest of the Project site (CNDDDB Occurrence No. 81). Marginal grassland and vernal pool habitat for this species occurs on the Project site. Surveys would be conducted the year prior to the commencement of the Project's construction to determine if this species occurs on the Project site.

Special-Status Wildlife Species

Figure 4.4-2 provides a graphical illustration of the known CNDDDB records for special-status wildlife species within three miles of the Project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the Project site. According to the CDFW's CNDDDB records (Table 4, Special-Status Wildlife Species Known to Occur Within 3 Miles of the Vineyards at Deer Creek Project site, in Appendix C), a total of 13 special-status animal species are known to occur in the vicinity of the Project site. Three of these species are summarily dismissed in Table 4 in Appendix C as there are no suitable habitats anywhere near the Project site that could be used by these species. Ten of the species are further discussed in detail below.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp (*Branchinecta lynchi*) was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was designated on August 6, 2003 (Federal Register 68: 46683-46867). The Project site is not located within this species' designated critical habitat.

The vernal pool fairy shrimp is a small aquatic crustacean that ranges in size from ½ to one inch long. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus. The vernal

pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It tends to occur in smaller pools (less than 0.05-acre) that are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. It has also been collected in large vernal pools (e.g. 25 acres). Vernal pool fairy shrimp have been collected from early December to early May (USFWS 1994).

The female drops eggs to the pool bottom or the eggs remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs (known as cysts when dry). They remain in the dry pool bed until rains and other environmental stimuli hatch them. Cysts can withstand heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is only forty-one days. In warmer pools, it can be as little as eighteen (Eriksen & Belk 1999).

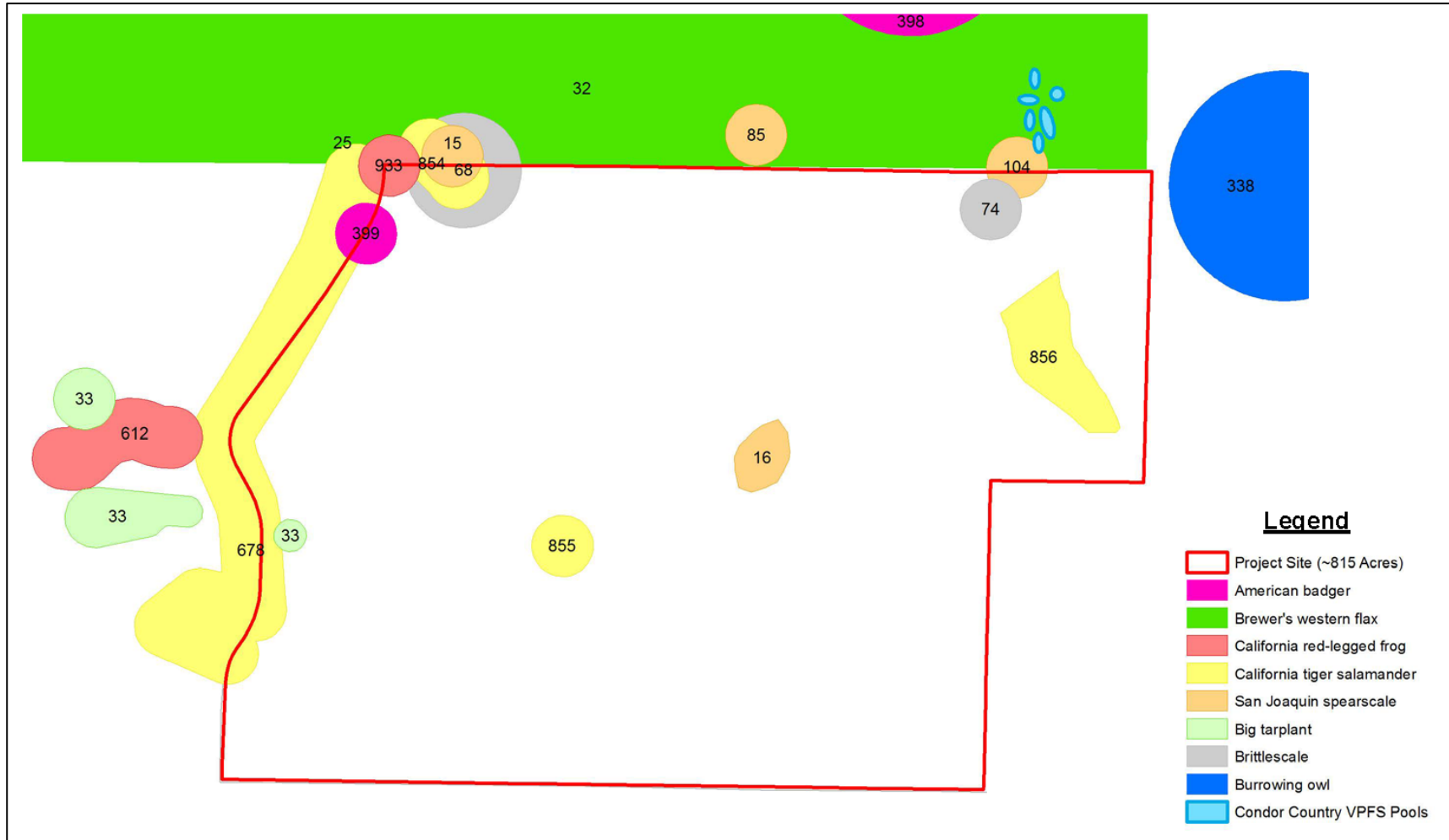
The vernal pool fairy shrimp is widespread but not abundant. Known populations extend from Shasta County through most of the length of the Central Valley to Tulare County. Along the central coast, they range from northern Solano County to Pinnacles National Monument in San Benito County. Four additional, disjunct populations exist in Southern California. The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, which has been converted to primarily agricultural and urban uses.

The closest CNDDDB record for vernal pool fairy shrimp occurs 0.3-mile northwest of the Project site (CNDDDB Occurrence No. 354) (Figure 4.4-2). Vernal pool fairy shrimp were also identified in 2002 in pools immediately north of the Project site (Condor Country Consulting 2002) (see Figure 4.4-3). Discussions with a family member that has owned the Project site dating to the 1930s indicate that the Project site has been subjected to annual farming practices dating to the 1930s. This can be confirmed looking at available Google Earth images. While there are seasonally saturated and even flooded areas that likely constitute “farmed wetlands”, these areas have been so impacted and modified by annual disking, that they are unlikely to support fairy shrimp. Regardless, due to the previously recorded presence of this species in the vicinity of the Project site, and the presence of seasonally inundated areas within the farmed fields of the Project site, unless protocol-level vernal pool fairy shrimp surveys are conducted proving absence, the USFWS will regard the seasonally inundated areas on the Project site as “suitable habitat” for vernal pool fairy shrimp.

California Red-Legged Frog

The California red-legged frog (*Rana draytonii*) was Federally-listed as threatened on May 23, 1996 (Federal Register 61: 25813-25833) and as such is protected pursuant to the FESA. On March 16, 2010 the USFWS issued the final designation for California red-legged frog Critical Habitat (USFWS 2010). The Project site does not fall within mapped critical habitat.

Figure 4.4-3
CNDDDB Occurrences on the Project Site



The California red-legged frog is typically found in ponds, and slow-flowing portions of perennial and intermittent streams that maintain water in the summer months. This frog is also found in hillside seeps that maintain pool environments or saturated soils throughout the summer months.

Populations probably cannot be maintained if all surface water disappears (i.e., no available surface water for egg laying and larval development habitat). Larval California red-legged frogs require 11-20 weeks of permanent water to reach metamorphosis (i.e., to change from a tadpole into a frog), in water depths of 10 to 20 inches (USFWS 2002). Riparian vegetation such as willows and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for this species to be present.

Populations of California red-legged frog will be reduced in size or eliminated from ponds supporting non-native species such as bullfrog, Centrarchid fish species (such as sunfish, bluegill, or large-mouth bass), and signal and red swamp crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*, respectively), all of which are known California red-legged frog predators. However, the presence of these non-native species does not preclude the presence of the California red-legged frog.

California red-legged frogs also use upland habitats for migration and dispersal. The USFWS' *Recovery Plan for the California Red-Legged Frog* states that frog's overland excursions via uplands can vary between 0.25-mile up to 3 miles during the course of a wet season, and that frogs "have been observed to make long-distance movements that are straight-line, point to point migrations rather than using corridors for moving in between habitats" (USFWS 2002). The information presented in the USFWS' Recovery Plan was taken from a publication by Bulger et al. (2003) that recounts a study in coastal redwoods in the Santa Cruz area. M&A's direct observation are that such overland straight-line migrations are primarily limited to periods of heavy rainfall or during periods when ambient conditions exhibit high moisture levels such as in fog belts along the coast. Working in Point Reyes National Seashore on the coast of California, Fellers and Kleeman (2007) found approximately 31 percent of California red-legged frogs moved more than 30 meters (m) from their breeding sites and about 69 percent moved less than 30 meters from their breeding site during seasonal movement periods. Similarly, Bulger et al. (2003) found that 60 percent of their radio tagged frogs stayed within 30 meters of their breeding sites.

In locations that are characterized by hot and seasonally dry climates, the California red-legged frog is inclined to stay closer to its aquatic environments or will not migrate. Tatarian (2005), who studied an inland population of California red-legged frogs in eastern Contra Costa County where the climate is far drier than the coastal environment, found that all movements started after the first 0.5 cm of rain in the fall, with more terrestrial movements being made in the fall pre-breeding season (57 percent) than in the winter breeding season (32 percent) or spring post-breeding season (11 percent). Tatarian (op. cit.) also found that California red-legged frogs moved greater average distances aquatically (84.6 m) than terrestrially (27.7 m). Greater terrestrial distances were moved in the pre-breeding season (35.2 m) than in the breeding season (15.5 m) or post-breeding season (16.3 m), with the majority of movements occurring

for only one of the 3 to 4 day survey periods. The majority of frogs (57 percent) were position faithful within a pool, indicating they did not migrate at all. These data suggest that long forays across the landscape found in coastal populations are less likely in dry inland locations.

The USFWS' *Recovery Plan for the California Red-Legged Frog* states that populations are "most likely to persist where multiple breeding areas are embedded within a matrix of habitats used for dispersal." "The primary constituent elements for California red-legged frogs are aquatic and upland areas where suitable breeding and non-breeding habitat is interspersed throughout the landscape and is interconnected by unfragmented dispersal habitat" (USFWS 2002).

California red-legged frog adults have been recorded on the Project site within an ephemeral tributary to Sand Creek between 2001 and 2005 (CNDDDB Occurrence No. 933) (Figure 4.4-1 and Figure 4.4-3). As such, the USFWS will consider the Project site to provide suitable breeding and upland dispersal habitat.

California Tiger Salamander

The California tiger salamander (*Ambystoma californiense*) is a Federally-listed threatened species. The Project site falls into the range of the Central California Distinct Population Segment (DPS) of the California tiger salamander. This DPS of the California tiger salamander was Federally-listed as threatened on August 4, 2004. The USFWS designated critical habitat for the California tiger salamander Central California DPS in 2005. The Project site is located outside of the closest mapped critical habitat for the Central California DPS.

California tiger salamanders occur in grasslands and open oak woodlands that provide suitable over summering and/or breeding habitats. California tiger salamanders spend the majority of their lives underground. They typically only emerge from their subterranean refugia for a few nights each year during the rainy season to migrate to breeding ponds. Adult California tiger salamanders have been observed up to 2,092 meters (1.3 miles) from breeding ponds (USFWS 2004). As such, unobstructed migration corridors are an important component of California tiger salamander habitat.

California tiger salamanders emerge during the first heavy, warm rains of the year, typically in late November and early December. In most instances, larger movements of California tiger salamander do not occur unless it has been raining hard and continuously for several hours. Typically, for larger movements of California tiger salamander to occur nighttime temperatures also must be above 48° F. California tiger salamander are able to move over, through or around almost all obstacles. Significant obstructions that block California tiger salamander movements include freeways and other major (heavy traffic) roads, rivers, and deep, vertical or near vertical sided, concrete irrigation/flood control ditches.

During the spring, summer, and fall months, most known populations of the California tiger salamander predominately use California ground squirrel burrows as over-summering habitat (Jennings and Hayes 1994; G. Monk personal observation from 25 plus years working with the California tiger salamander). Other secondary subterranean refugia, or primary refugia where

California ground squirrels are absent, likely include Botta's pocket gopher burrows, deep fissures in desiccated clay soils, and debris piles (e.g. downed wood, rock piles).

Stock ponds, seasonal wetlands, and deep vernal pools typically provide most of the breeding habitat used by California tiger salamander. In such locations, California tiger salamander attach their eggs to rooted, emergent vegetation, and other stable filamentous objects in the water column. Eggs are gelatinous and are laid singly or occasionally in small clusters. Eggs range in size from about $\frac{3}{4}$ the diameter of a dime to the full diameter of a dime. Occasionally California tiger salamanders are found breeding in slow-moving streams or ditches. Ditches and/or streams that are subject to rapid flows, even if only on occasion, typically will not support or sustain California tiger salamander egg attachment through hatching, and thus, are not usually used successfully by California tiger salamander for breeding (Mr. Geoff Monk and Ms. Sarah Lynch, personal observations). Similarly, streams and/or ditches that support predators of California tiger salamander or their eggs and larvae such as fish, bullfrogs, red swamp crayfish, or signal crayfish, almost never constitute suitable breeding habitat.

Typically, seasonal wetlands that are used for breeding must hold water into the month of May to allow enough time for larvae to fully metamorphose. In dry years, seasonal wetlands may dry too early to allow enough time for California tiger salamander larvae to successfully metamorphose. Under such circumstances, desiccated California tiger salamander larvae can be found in dried pools. In addition, as pools dry down to very small areas of inundation, California tiger salamander larvae become concentrated and are very susceptible to predation. However, in years exhibiting wet springs, these same pools can remain inundated long enough through continual rewetting to allow California tiger salamander larvae ample time to successfully metamorphose.

California tiger salamander eggs, larvae, and adults have been recorded on the Project site within a stockpond and several seasonal wetlands between 1996 and 2006 (CNDDDB Occurrence Numbers 678, 854, 855, and 856) (Figure 4.4-2 and Figure 4.4-3). As such, the USFWS will consider the Project site to provide suitable breeding and over-summering habitat.

Western Pond Turtle

The western pond turtle (*Emys marmorata*) is a California "species of special concern." In April of 2015, the USFWS issued a 90-day finding on a petition to list this species under FESA. In September 2016, M&A spoke with USFWS' Sacramento Field Office and was told that they "hope to finish a 12-month finding in the fiscal year of 2021" (G. Tarr, USFWS, Sacramento Field Office, pers. comm. with S. Lynch of M&A, September 21, 2016). Until the western pond turtle is formally listed, it is not afforded the protections of FESA.

The western pond turtle is a habitat generalist, inhabiting a wide range of fresh and brackish, permanent and intermittent water bodies from sea level to about 4,500 feet above sea level (USFWS 1992). Typically, this species is found in ponds, marshes, ditches, streams, and rivers that have rocky or muddy bottoms. This turtle is most often found in aquatic environments with plant communities dominated by watercress, cattail, and other aquatic vegetation. It is a

truly aquatic turtle that usually only leaves the aquatic site to reproduce and to overwinter. Recent field work has demonstrated that western pond turtles may overwinter on land or in water, or may remain active in water during the winter season; this pattern may vary considerably with latitude, water temperature, and habitat type (Jennings and Hayes 1994).

The pond turtle also requires upland areas for burrowing habitat where it digs nests and buries its eggs. These nests can extend from 52 feet to 1,219 feet from watercourses (Jennings and Hayes 1992); however, most pond turtles nest in uplands within 250 meters of water (Bury, unpublished). Upland nest sites are usually found in areas with sparse vegetation. Sunny, barren, and undisturbed (not disked) land provides optimal habitat, while shady riparian habitat and planted agricultural fields do not provide suitable habitat (op. cit.). Eggs are typically laid from March to August (Zeiner et. al. 1988), with most eggs being laid in May and June. Hatchlings will stay in the nest until the following April (Bury, unpublished). Predators of juvenile pond turtles include the non-native American bullfrog (*Lithobates catesbeiana*) and Centrarchid fish (sunfish). This turtle is most visible between April and July when it can be observed basking in the sun. In areas where the water is very warm during these months, however, it will bask in the warm water and will be more difficult to observe. It eats plants, insects, worms, fish, and carrion (Stebbins 2003).

The closest record for western pond turtle occurs 2.4 miles southwest of the Project site (CNDDDB Occurrence No. 109). This 2016 record is from a small, relatively deep perennial pool in Marsh Creek. Deer Creek does not provide perennial pools that would support western pond turtles. None have ever been reported in this creek on the Project site. Seasonal pools that form in this creek on the Project site are small and relatively shallow. Accordingly, western pond turtle is unlikely to be found on the Project site.

Northern California Legless Lizard

The Northern California legless lizard (*Anniella pulchra*) is a State “species of special concern.” It has no Federal status. This small, slender limbless lizard has a shovel-shaped snout, smooth, shiny scales, and a blunt tail (Stebbins 1985). Dorsal coloration is highly variable, ranging from metallic silver, to beige, to dark brown, to jet black. Legless lizards are fossorial animals that construct burrows in loose soil with a high sand content (Miller 1944). Soil moisture is essential for this species.

The species occurs in moist warm loose soil with plant cover, and moisture is essential for the species. Plant communities preferred by the species include sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Suitable habitat is often indicated by leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather. Additionally, Northern California legless lizards can often be found under surface objects such as rocks, boards, driftwood, and logs. The range of the species extends from the southern edge of the San Joaquin River in northern Contra Costa County south to Ventura County, from sea level to approximately 6,000 feet in elevation.

The closest record for Northern California legless lizard occurs 1.4 miles west of the Project site (CNDDDB Occurrence No. 6) and dates from 2004. No other records for this lizard have been recorded for many miles from the Project site. The hillslopes on the western portion of the Project site are characterized by Briones Loamy Sand (NRCS 2019), which perhaps in its historical condition, prior to farming, may have included loose, even blowing sands, which are the typically habitat used of the Northern California legless lizard. Typically, these lizards live in the top 2-3 inches of the soil profile. The Project site has been disked for nearly 80 years and dryland farmed. Disking disrupts/demolishes soils within the upper 12 inches of the soil profile and so while there are loamy sands mapped by Natural Resources Conservation Service, the soil mapping does not account for the farmed condition of the Project site. Accordingly, Northern California legless lizard is unlikely to occur on the Project site.

White-Tailed Kite

The white-tailed kite (*Elanus caeruleus*) is a “Fully Protected” species under the California Fish and Game Code (§ 3511). Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time. It is also protected under the Federal Migratory Bird Treaty Act (MBTA) (50 CFR 10.13). The white-tailed kite is typically found foraging in grassland, marsh, or cultivated fields where there are dense-topped trees or shrubs for nesting and perching. They nest in a wide variety of trees of moderate height and sometimes in tall bushes, such as coyote bush (*Baccharis pilularis*). Native trees used are live and deciduous oaks (*Quercus* spp.), willows (*Salix* spp.), cottonwoods (*Populus* spp.), sycamores (*Platanus* spp.), maples (*Acer* spp.), toyon (*Heteromeles arbutifolia*), and Monterey cypress (*Cupressus macrocarpa*). Although the surrounding terrain may be semiarid, kites often reside near water sources, where prey is more abundant. The particular characteristics of the nesting site do not appear to be as important as its proximity to a suitable food source (Shuford 1993). White-tailed kites primarily hunt small mammals, with California meadow voles accounting from between 50-100% of their diet (Shuford 1993).

The nearest CNDDDB record for this species is located 2.5 miles north of the Project site (Occurrence No. 87). The trees on the Project site provide suitable nesting habitat. White-tailed kites construct flimsy nests that often fall out of trees during winter storms and thus are not reused. Thus, white-tailed kites typically change nesting sites from year to year. To determine if a nesting site could be impacted, a nesting survey would have to be conducted the year that construction commences and every year thereafter if there are major disruptions to construction in between nesting seasons.

Swainson’s Hawk

The Swainson's hawk (*Buteo swainsonii*) is a State-listed threatened species afforded protection pursuant to the CESA. While it has no special Federal status, it is protected from direct take under the Federal MBTA of 1918 (16 U.S.C. 703-711). Swainson’s hawks, their nests, eggs, and young are also protected under California Fish and Game Code (§ 3503, § 3503.5, § 3513, and § 3800). Finally, pursuant to CEQA, this hawk would be considered “rare” and impacts to its nest sites would be regarded as significant. Impacts to foraging habitat can be regarded as

significant pursuant to the CEQA based upon guidelines provided by the CDFW for this raptor species.

The Swainson's hawk is generally a summer visitor to California. In the fall months, most Swainson's hawks migrate to South America before returning to the U.S. to breed once again in the late spring. There is a small population of Swainson's hawks that remain residents in California year-round. The nesting population of Swainson's hawks in California was reduced considerably over historical nesting populations when the species was afforded protections pursuant to the CESA in 1984. Since that time, the nesting population of Swainson's hawk has significantly recovered in California, as have other raptor species that were previously protected both as State and Federally-listed species. Both the peregrine falcon (*Falco peregrinus ssp. anatum*) and the bald eagle (*Haliaeetus leucocephalus*) were similarly listed species under both the CESA and FESA but have both been delisted owing to population recovery. The Swainson's hawk nesting population also likely has greatly recovered but owing to the absence of a thorough population census in California since the species was listed by the CDFW, it remains protected pursuant to the CESA.

The Swainson's hawk inhabits open to semi-open areas at low to middle elevations in valleys, dry meadows, foothills, and level uplands (Kochert 1986). It nests almost exclusively in trees and will nest in almost any tree species that is at least 10 feet tall (Schmutz et. al. 1984). Nests are constructed in isolated trees that are dead or alive along drainages and in wetlands, or in windbreaks in fields and around farmsteads (Palmer 1988). Swainson's hawks occasionally nest in shrubs, on telephone poles, and on the ground. In the Central Valley of California, the majority of Swainson's hawk nests and territories are associated with riparian systems and nests are commonly found in cottonwoods and oaks (Schlorff et. al. 1984). They have also been documented nesting in eucalyptus (*Eucalyptus spp.*), black walnut (*Juglans hindsii*), black locust (*Robinia pseudoacacia*), almond (*Prunus dulcis*), Osage orange (*Maclura pomifera*), Arizona cypress (*Cupressus arizonica*), and pine (*Pinus spp.*) (CNDDDB records).

Foraging habitats include alfalfa fields, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded (CDFG 1994). The Swainson's hawk generally forages in open habitats with short vegetation containing small mammals, reptiles, birds, and insects. Its primary prey in the Central Valley is California meadow vole. Agricultural areas are often preferred over more natural grassland habitats due to larger prey populations. In addition, agricultural practices (planting, maintenance, harvesting, disking) allow for access to prey, and very likely increases foraging success of Swainson's hawks when farm equipment flushes prey during harvesting (observed many times by G. Monk). During the nesting season, Swainson's hawks usually forage within two miles of their nests. Swainson's hawk does not require habitats that contain many perches because it most often searches for prey aerially; therefore, it can occupy habitats with few or no perches except the nest tree (James 1992).

The closest CNDDDB record for the species is 0.10-mile east of the Project site (CNDDDB Occurrence No. 1681) in a large valley oak tree along Sand Creek. That nesting record dates from 2007. No Swainson's hawks have been detected nesting on or adjacent to the Project site

during multiple surveys by M&A in the vicinity of the Project site over the past few years. However, trees on the Project site provide suitable nesting trees, and as the Swainson's hawk has been dramatically increasing its nesting range in east Contra Costa County over the last 10 years, it must be evaluated on Project sites on an annual basis. Hence, prior to construction, nesting surveys must be conducted that confirm or negate this species' presence as a nesting bird on or adjacent to the Project site. In addition, the Project site provides suitable foraging habitat for this species.

Western Burrowing Owl

The western burrowing owl is a California "species of special concern." Its nest, eggs, and young are also protected under California Fish and Game Code (§ 3503, § 3503.5, and § 3800). The burrowing owl is also protected from direct take under the MBTA (50 CFR 10.13). Finally, based upon this species' rarity status, any unmitigated impacts to rare species would be considered a "significant effect on the environment" pursuant to § 21068 of the CEQA Statutes and § 15382 of the CEQA Guidelines. Thus, this owl species must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency. When these owls occur on Project sites, typically, mitigation requirements are mandated in the conditions of project approval from the CEQA lead agency.

Burrowing owl habitat is usually found in annual and perennial grasslands, characterized by low-growing vegetation. Often, the burrowing owl utilizes rodent burrows, typically California ground squirrel burrows, for nesting and cover. They may also on occasion dig their own burrows or use man-made objects such as concrete culverts or rip-rap piles for cover. They exhibit high site fidelity, reusing burrows year after year. Occupancy of suitable burrowing owl habitat can be verified at a site by observation of these owls during the spring and summer months or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement (white wash) at or near a burrow. Burrowing owls typically are not observed in grasslands with tall vegetation or wooded areas because the vegetation obscures their ability to detect avian and terrestrial predators. Because burrowing owls spend the majority of their time sitting at the entrances of their burrows, grazed grasslands seem to be their preferred habitat because it allows them to view the world at 360 degrees without obstructions.

Western burrowing owls were identified directly adjacent to the Project site in 2003 (CNDDDB Occurrence No. 631), and a presumed wintering western burrowing owl was observed onsite during M&A's January 2019 survey. The majority of the Project site consists of disked farmed fields and while California ground squirrel burrows are scarce, they do occur throughout the site and could be used by western burrowing owls as both refugia and for nesting.

San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a Federally-listed endangered species protected pursuant to the FESA and is a State-listed threatened species protected pursuant to the CESA. The San Joaquin kit fox live primarily in the lowlands of the San Joaquin Valley of California but are also known to occur in several counties in the coast mountain ranges

including Santa Barbara, San Luis Obispo, Monterey, San Benito, Santa Clara, Contra Costa, and Alameda. This fox species is usually found in open grassland and shrub land communities but has also been observed in ruderal plant communities.

The San Joaquin kit fox relies on dens for breeding, and to provide escape cover from potential predators. Dens are excavated in loose-textured soils, generally in areas with low to moderate relief. Kit fox will also utilize existing burrows dug by rabbits, ground squirrels, and on occasion, badgers (*Taxidea taxus*), and on occasion will use man-made structures for denning such as well-casings, culverts, and abandoned pipes. Typically, dens are small enough to discourage easy predation by coyotes.

The San Joaquin kit fox is carnivorous, usually feeding on small rodents such as San Joaquin pocket mice (*Perognathus inornatus*), deer mice (*Peromyscus maniculatus*), western harvest mice (*Reithrodontomys megalotis*), kangaroo rats (*Dipodomys* spp.), and larger rodents such as California ground squirrel. Kit fox also prey upon lagomorphs such as black-tailed hare (*Lepus californicus*) and Audubon's cottontail (*Sylvilagus audubonii*). Both adults care for pups until they are about four to five months old at which time family bonds begin to dissolve.

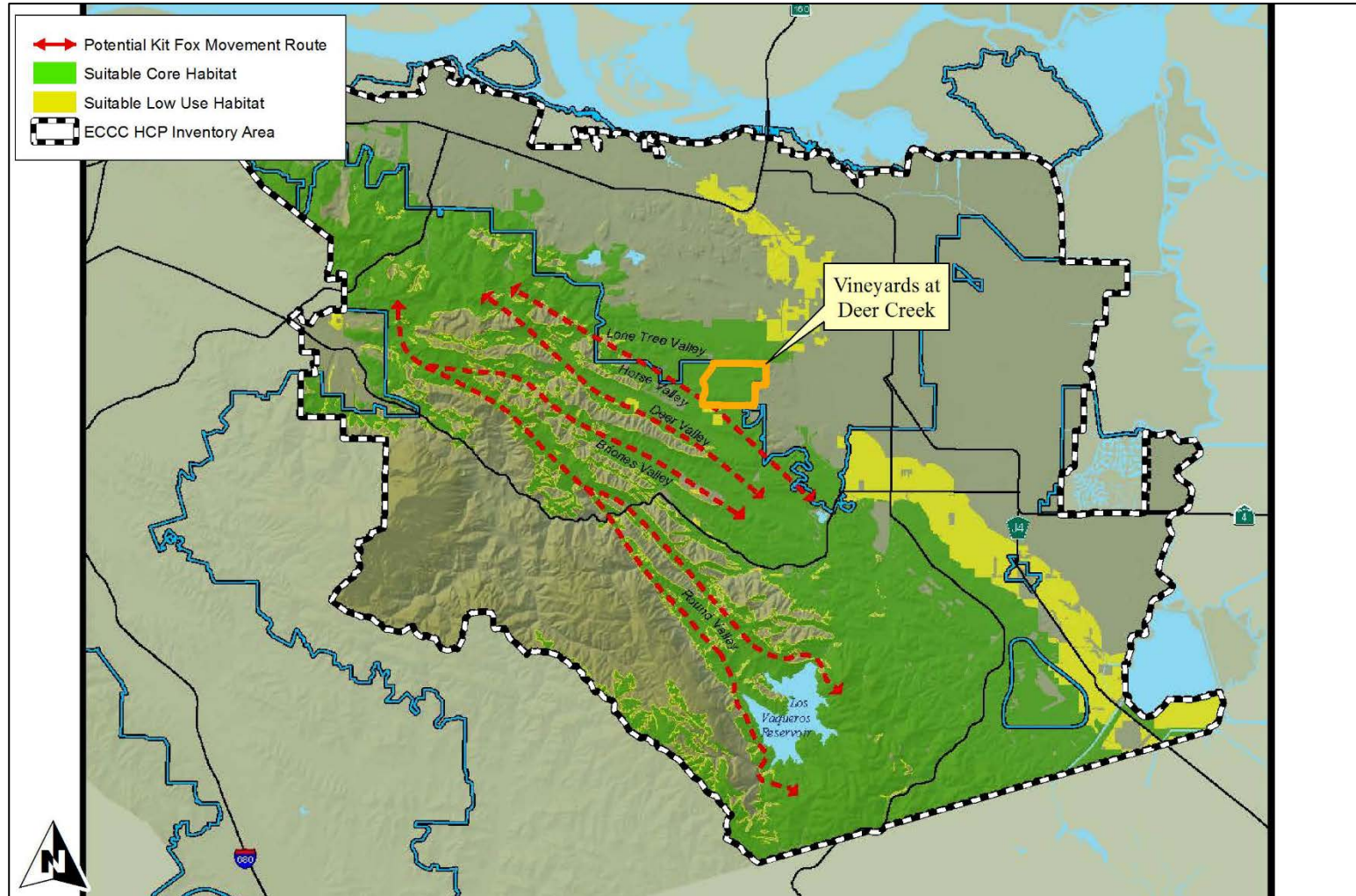
The closest CNDDDB record for this species was recorded in 1975 approximately 2.2 miles south of the Project site (Occurrence No. 936). It is important to note that independently conducted surveys cited in: *Relative Abundance of Endangered San Joaquin Kit Fox (Vulpes macrotis mutica) Based on Scat-Detection Dog Surveys* (Smith et. al. 2006), were unable to document presence of San Joaquin kit fox in Contra Costa County. This report suggests that it is likely that San Joaquin kit fox is extirpated from Contra Costa County. Therefore, the State and Federally-listed San Joaquin kit fox is not expected to occur on the Project site.

Based on Figure 5-5 in the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (hereinafter HCP/NCCP), the Project site is within the "Suitable Core Habitat" of the San Joaquin kit fox (see Figure 4.4-4). Suitability does not infer the presence of this fox species, only that it could occur. The HCP/NCCP also shows potential movement corridors based upon the presence of contiguous open space lands stretching from central Contra Costa County to the Vasco Road open space lands. As shown in Figure 5-5 of the HCP/NCCP, the southwest corner of the Project site is within a San Joaquin kit fox "potential movement route" (see Figure 4.4-4). The USFWS and CDFW will likely regard the Project site as a potential migration corridor for this fox species that could be disrupted by development of the Project site. Preconstruction surveys will be conducted for the San Joaquin kit fox prior to initiation of development of the Project site.

American Badger

The American badger is a California "species of special concern." It has no Federal status. This species is found in a variety of habitats, especially in open habitats such as oak-savannah and grasslands where its presence is typically identified by its distinctive, large underground dens (burrows) excavated in friable (loose) soils. This nocturnal mammal is rarely observed.

Figure 4.4-4
San Joaquin Kit Fox Movement Routes and Suitable Habitat



In the region, this animal is uncommon. When present, this animal would be expected to prey upon Botta's pocket gopher, California ground squirrel, and several species of mice common in the area. Except during breeding, badgers are typically highly solitary and have vast home ranges.

American badger was identified on the Project site in 2006 (CNDDDB Occurrence No. 399) and tracks were identified onsite during surveys in January of 2019. The Project site provides suitable habitat for this species.

4.4.2 Regulatory Setting

Federal

Federal Endangered Species Act

The FESA forms the basis for the Federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:

- Section 4 (16 USCA § 1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.
- Section 7 (§ 1536): Federal Consultation Requirement: imposes limits on the actions of Federal agencies that might impact listed species.
- Section 9 (§ 1538): Prohibition on Take: prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies.
- Section 10: Exceptions to the Take Prohibition: non-Federal agencies can obtain an incidental take permit through approval of a Habitat Conservation Plan.

In the case of salt water fish and other marine organisms, the requirements of FESA are enforced by the NMFS. The USFWS enforces all other cases. Below, Sections 9, 7, and 10 of FESA are discussed since they are the sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined 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). A December 2001 decision by the 9th Circuit Court of Appeals (*Arizona Cattle Growers' Association, Jeff Menges, vs. the U.S. Fish and Wildlife Service and Bureau of Land Management, and the Southwest*

Center for Biological Diversity) ruled that the USFWS must show that a threatened or endangered species is present on a Project site and that it would be taken by the project activities. According to this ruling, the USFWS can no longer require mitigation based on the probability that the species could use the site. Rather they must show that it is “reasonably certain to occur.”

Section 9 applies to any person, corporation, Federal agency, or any local or State agency. If "take" of a listed species (other than a plant species) is necessary to complete an otherwise lawful activity, this triggers the need to obtain an “incidental take permit” either through a Section 7 Consultation as discussed further below (for Federal actions or private actions that are permitted or funded by a Federal agency such as the Corps), or through Section 10 of FESA which requires preparation of a HCP (for State and local agencies, or individuals, and projects without a Federal “nexus”; for example, projects that do not need a Corps permit).

Section 7(a)(2) of the Act requires that each Federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. Critical habitat designations mean: (1) specific areas within a geographic region currently occupied by a listed species, on which are found those physical or biological features that are essential to the conservation of a listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species that are determined essential for the conservation of the species.

The Section 7 consultation process only applies to actions taken by Federal agencies that are considering authorizing discretionary projects. Section 7 is by and between the NMFS and/or the USFWS and the Federal agency contemplating a discretionary approval (that is, the “Federal “action agency,” for example, the Corps or the Federal Highway Administration). Private parties, cities, counties, etc. (i.e., proponents) may participate in the Section 7 consultation at the discretion of the Federal agencies conducting the Section 7 consultation. The Section 7 consultation process is triggered by a determination of the “action agency” – that is, the Federal agency that is carrying out, funding, or approving a project - that the project “may affect” a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation between the nexus agency and the USFWS/NMFS is required. As part of the formal consultation, the USFWS/NMFS may resolve any issues informally with the nexus agency or may prepare a formal Biological Opinion assessing whether the proposed action would be likely to result in “jeopardy” to a listed species or if it could adversely modify designated critical habitat. If the USFWS/NMFS prepares a Biological Opinion it will contain either a “jeopardy” or “non-jeopardy” decision. If the USFWS/NMFS concludes that a proposed project would result in adverse modification of critical habitat or would jeopardize the continued existence of a Federally-listed species (that is, it will issue a jeopardy decision), the nexus Federal agency would be most unlikely to authorize its discretionary permit. If the USFWS/NMFS prepares a “non-jeopardy” Biological Opinion, the nexus Federal agency may authorize the discretionary permit making all conditions of the

Biological Opinion conditions of its discretionary permit. A non-jeopardy Biological Opinion constitutes an “incidental take” permit that allows proponents to “take” Federally-listed species while otherwise carrying out legally sanctioned projects.

For non-Federal entities, for example private parties, cities and counties, that are proposing a project that might result in incidental take, Section 10 provides the mechanism for obtaining that take authorization. Under Section 10 of FESA, for the proponent to obtain an "incidental take permit," the proponent is required to submit a "conservation plan" to the USFWS or NMFS that specifies the impacts that are likely to result to Federally-listed species, and the measures the proponent will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under FESA have come to be known as "habitat conservation plans" or "HCPs" for short. The terms incidental take permit, Section 10 permit, and Section 10(a)(1)(B) permit are used interchangeably by the USFWS. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an incidental take permit can be issued.

FESA gives regulatory authority to the USFWS for Federally-listed terrestrial species and non-anadromous fish. The NMFS has regulatory authority over Federally-listed marine mammals and anadromous fish.

The Project site provides habitat that would be regarded by the USFWS as providing “suitable” habitat for vernal pool fairy shrimp, California tiger salamander, and California red-legged frog, and potential migration habitat for the San Joaquin kit fox. If occupied or assumed to be occupied, incidental take coverage for potential impacts to Federally- or State-listed species resulting from the proposed project would be required prior to Project commencement.

The Project site is located within the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) covered area, as further discussed below. Because the USFWS is a signatory of the HCP/NCCP, pursuant to Section 10 of the FESA, the Project may use the HCP/NCCP to obtain FESA incidental take coverage for potential impacts to the Federally-listed species covered in the HCP/NCCP. Mitigation would take the form of a fee payment to the East Contra Costa County Habitat Conservancy (ECCCHC), and would cover take of California tiger salamander, California red-legged frog, Federal protected fairy shrimp, and other species, and loss of potential migration habitat for the San Joaquin kit fox.

The USFWS issued a *Programmatic Biological Opinion for a Regional General Permit for the East Contra Costa Habitat Conservation Plan/Natural Community Conservation Plan*, in 2011. The Biological Opinion was prepared by the USFWS in response to a request from the Corps for consultation related to the authorization of a Regional General Permit for the HCP/NCCP. The Biological Opinion prepared by the USFWS placed conditions on actions covered by the Corps’ Regional General Permit related to listed species that could potentially be affected by actions taken under the Corps’ Regional General Permit.

The extent of use of the HCP/NCCP, and cost of using the HCP/NCCP will be balanced against the Project proponent’s proposal to satisfy most of its mitigation requirements via the

permanent preservation of approximately 1,360 acres of property in eastern Contra Costa County (Sections 5 and 9) (see Figure 4.4-5), as discussed below. This land or any other mitigation land that has been determined to be acceptable compensation for impacts to identified Federal and State-listed species or their habitats by the resource agencies, could be conserved via recordation of a perpetual conservation easement as approved by the CDFW and USFWS and would provide a credit against HCP fees for covered species.

Federal Migratory Bird Treaty Act

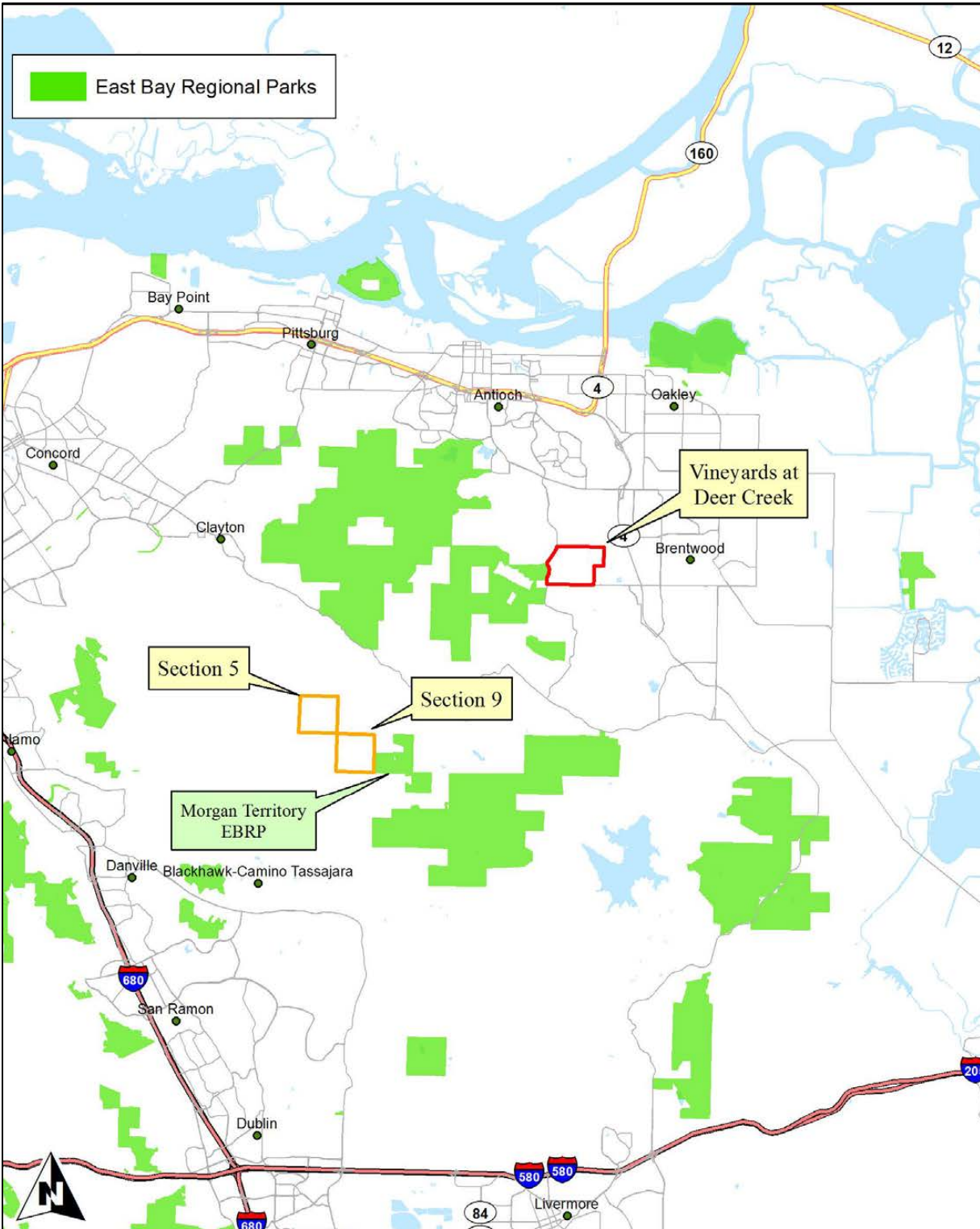
The MBTA of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to “take” (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

Executive Order 13186 for conservation of migratory birds (January 11, 2001) requires that any project with Federal involvement address impacts of Federal actions on migratory birds. The order is designed to assist Federal agencies in their efforts to comply with the MBTA and does not constitute any legal authorization to take migratory birds. The order also requires Federal agencies to work with the USFWS to develop a memorandum of understanding (MOU). Protocols developed under the MOU must promote the conservation of migratory bird populations through the following means:

- avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions; and
- restore and enhance habitat of migratory birds, as practicable; and prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

Birds of prey such as the Swainson’s hawk, golden eagle, white-tailed kite, red-tailed hawk, red shouldered hawk, and western burrowing owl are all known to nest in the region of the Project site. The Project site provides suitable nesting habitat for these species. Similarly, many common passerine bird species could nest on the Project site. All raptors (birds of prey) are subject to the MBTA. Also, common songbirds and wading birds are also protected pursuant to this Act. As long as there is no direct mortality to species protected pursuant to this Act caused by development of the site, there should be no constraints to development of the site. While adult birds can typically fly out of harm’s way, nesting birds, their eggs, and young are much more prone to being impacted by construction projects. To comply with the MBTA, all active nest sites would have to be avoided while birds were nesting.

Figure 4.4-5
Project Site and Sections 5 and 9 Mitigation Property Regional Map



In late 2017, the Solicitor for the USFWS opined that the MBTA only prohibits intentional take of MBTA-listed species and does not prohibit unintentional take incidental to otherwise lawful activities. As of March 2019, however, the California Legislature was considering a bill (AB 454) that would make illegal, in California, the incidental take of MBTA-listed birds. The State's protections for avian species are more fully described below.

Section 404 of the Clean Water Act

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C. § 1251(a)). Pursuant to Section 404 of the CWA (33 U.S.C. 1344), the Corps regulates the disposal of dredged or fill material into "Waters of the U.S." (33 CFR Parts 328 through 330). This requires project proponents to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the U.S.

In the Federal Register "Waters of the U.S." are defined as, "...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..." (33 CFR Section 328.3).

Limits of Corps' jurisdiction:

- (a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)
- (b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:
 - (1) Extends to the high tide line, or
 - (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.
- (c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:
 - (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
 - (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
 - (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the OHWM or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is the "line on shore established by the fluctuations of water and indicated by

physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

Wetlands are defined as "[...] those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8[b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the CWA.

Clean Water Rule 2015

In 2015, the USEPA and the Corps published the Clean Water Rule: Definition of "Waters of the U.S."; Final Rule which defines the scope of waters protected under the CWA. This Final Rule was published in light of the statute, science, Supreme Court decisions in *U.S. v. Riverside Bayview Homes*, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)*, and *Rapanos v. United States (Rapanos)*, and the agencies' experience and technical expertise. The Clean Water Rule reflects consideration of the extensive public comments received on the proposed rule. The Clean Water Rule was stayed in Federal court shortly after it was adopted in 2015. In August 2018, the stay was lifted and the Clean Water Rule (Rule) became effective once again and remains in effect today. The Rule ensures protection for the nation's public health and aquatic resources and increases CWA program predictability and consistency by clarifying the scope of "Waters of the U.S." protected under the Act.

The Rule only protects waters that have been historically covered by the CWA. A tributary, or upstream water, must show physical features of flowing water – a bed, bank, and OHWM – to warrant protection. The Rule provides protection for headwaters that have these features and have a significant connection to downstream waters. Adjacent waters are defined by three qualifying circumstances established by the Rule. These can include wetlands, ponds, impoundments, and lakes which can impact the chemical, biological or physical integrity of neighboring waters. All existing exclusions from longstanding agency practices are officially established for the first time. Waters used in normal agricultural, ranching, or silvicultural activities, as well as certain defined ditches, prior converted cropland, and waste treatment systems continue to be excluded from CWA protection.

The status of the Rule is currently in doubt, as the USFWS has proposed to repeal the rule and replace it with a new definition of waters of the U.S. that generally would restrict Federal jurisdiction to truly navigable waters, their tributaries and abutting wetlands that contribute flow to the navigable waters. The new rule was undergoing public comment in April of 2019, and the rulemaking is not expected to be completed, if at all, until later in 2019. In the meantime, the 2015 rule remains in effect in California.

Permitting Corps Jurisdictional Impacts

To remain in compliance with Section 404 of the CWA, project proponents and property owners (proponents) are required to be permitted by the Corps prior to discharging or otherwise impacting waters of the U.S. In many cases, the Corps must visit a proposed project area (to conduct a “jurisdictional determination”) to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project area. Typically, at the time the jurisdictional determination is conducted, proponents (or their representative) will discuss the appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to “Waters of the U.S.”

Pursuant to Section 404, the Corps normally provides two alternatives for permitting impacts to the type of waters of the U.S. found in the project area. The first alternative would be to use Nationwide Permit(s) (NWP). NWPs are available for use for specific activities and generally (with exceptions) do not cover activities that exceed 0.50 acre of impacts to waters of the U.S. The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)), which is for projects that do not qualify to use NWPs. A third option is to apply for authorization under a Regional General Permit (RGP). RGPs authorize recurring activities at a regional level (within a certain geographical area) that do not have more than minimal impacts either individually or cumulatively on the aquatic environment.

The East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) operates under a Regional General Permit (RGP 1) that authorizes impacts up to 1.5 acres of jurisdictional waters regulated pursuant to Section 404 of the CWA, or no more than 300 linear feet of perennial, intermittent or 3rd or higher order ephemeral streams. On June 6, 2017, the Sacramento District of the Corps of Engineers issued RGP 1 that authorizes “Minimal Impact Activities” within the area covered by the HCP/NCCP (SPK-2001-00147). This RGP authorizes specific categories of activities on the aquatic environment that meet the terms and conditions of that permit, including residential development projects inside the city limits of the City of Brentwood.

Prior to commencing a proposed activity, applicants seeking authorization under this RGP shall notify the Corps in accordance with RGP General Condition Number 18 (Notification). If the Corps determines that a proposed activity is eligible for coverage under the RGP, it will notify the applicant within 45 calendar days of receipt of a complete application. If the Corps does not provide a written response to the applicant within 45 calendar days following receipt of a complete application, the applicant may presume the proposed activity is an eligible activity that may be covered under the RGP, provided the activity complies with all other terms and conditions of the RGP. If the Project would exceed the maximum fill permitted under RGP 1, the applicant may choose instead to pursue an individual permit from the Corps.

Prior to finalizing design plans, the Project proponent needs to be aware that the Corps maintains a policy of “no net loss” of wetlands (waters of the U.S.) from project area development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that impacted regulated areas

would be recreated (*i.e.*, impacts would be mitigated). Typically, the Corps requires mitigation to be “in-kind” (*i.e.*, seasonal wetlands would be filled, mitigation would include seasonal wetland), and at a minimum of a 1:1 replacement ratio (*i.e.*, one acre or fraction thereof recreated for each acre or fraction thereof lost). Often a 2:1 replacement ratio is required if the Permittee is responsible for the mitigation. In some cases, the Corps allows “out-of-kind” mitigation if the compensation site has greater value than the impacted site.

In addition to the foregoing mitigation requirements, for projects that do not qualify to use NWPs, the Corps requires an applicant to demonstrate that the proposed wetland fills represent the “least environmentally damaging practicable alternative” or “LEDPA.” The purpose of this requirement is to ensure that applicants take steps to avoid and minimize impacts on wetlands and other waters of the State. The application of this test during the Federal permit process may result in modifications to development footprints, and the establishment of on-site avoidance areas, as a condition to permit issuance.

State

California Endangered Species Act

In 1984, the State enacted the CESA (Fish and Game Code § 2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would impact threatened or endangered species if reasonable and prudent alternatives are available. Because CESA does not have a provision for “harm” (see discussion of FESA, above), CDFW considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If CDFW determines that a proposed project could impact a State-listed threatened or endangered species, CDFW will provide recommendations for “reasonable and prudent” project alternatives. The CEQA lead agency can only approve a project if these alternatives are implemented, unless it finds that the project's benefits clearly outweigh the costs, reasonable mitigation measures are adopted, there has been no “irreversible or irretrievable” commitment of resources made in the interim, and the resulting project would not result in the extinction of the species. In addition, if there would be impacts to threatened or endangered species, the lead agency typically requires project applicants to demonstrate that they have acquired “incidental take” permits from CDFW and/or USFWS (if it is a Federally-listed species) prior to allowing/permitting impacts to such species.

If proposed projects would result in impacts to a State-listed species, an “incidental take” permit pursuant to § 2081 of the Fish and Game Code would be necessary (versus a Federal incidental take permit for Federally-listed species). CDFW will issue an incidental take permit only if:

- 1) The authorized take is incidental to an otherwise lawful activity;
- 2) the impacts of the authorized take are minimized and fully mitigated;

- 3) measures required to minimize and fully mitigate the impacts of the authorized take:
 - a) are roughly proportional in extent to the impact of the taking on the species;
 - b) maintain the applicant's objectives to the greatest extent possible; and,
 - c) capable of successful implementation; and,
- 4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

If an applicant is preparing an HCP as part of the Federal 10(a) permit process, the HCP might be incorporated into the § 2081 permit if it meets the substantive criteria of § 2081(b). To ensure that an HCP meets the mitigation and monitoring standards in Section 2081(b), an applicant should involve CDFW staff in development of the HCP. If a final Biological Opinion (Federal action) has been issued for the project pursuant to Section 7 of the FESA, it might also be incorporated into the § 2081 permit if it meets the standards of § 2081(b).

The State-listed California tiger salamanders are known to occur on the Project site (CNDDDB Occurrence Numbers 678, 854, 855, and 856). In addition, the State-listed Swainson's hawk has potential to nest in the trees found on the Project site. Because the CDFW is one of the resource agency signatories of the HCP/NCCP, use of the HCP/NCCP as proposed could provide incidental take coverage for potential impacts to State listed species. To mitigate for impacts to State listed species and their associated habitats resulting from the Project, the Project proponent would pay a fee to the ECCCHC as described above, which would cover both State- and Federally-listed species.

The extent of use of the HCP/NCCP and cost of using the HCP/NCCP will be balanced against the Project proponent's proposal to satisfy most of its mitigation requirements via the permanent preservation of approximately 1,360 acres of property in eastern Contra Costa County (Sections 5 and 9) as discussed under MM BIO-1 or any other mitigation land that has been determined to be acceptable compensation for impacts to identified Federal or State-listed species or their habitats by the resource agencies. If the Project proponent were to pursue this option, the land would be donated to the ECCCHC, or another land preservation entity as approved by the CDFW, USFWS, and the ECCCHC, and the Project proponent would receive a negotiated credit against HCP fees.

No § 2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of "take." These species are listed in several statutes that identify "fully protected" species and "specified birds." See Fish and Game Code §§ 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a "fully protected" species or a "specified bird" occurs, an applicant must design the project to avoid all take.

Fish and Game Code § 2080.1 allows an applicant who has obtained a "non-jeopardy" Federal Biological Opinion pursuant to Section 7 of the FESA, or who has received a Federal 10(a) permit (Federal incidental take permit) pursuant to the FESA, to submit the Federal opinion or

permit to CDFW for a determination as to whether the Federal document is “consistent” with CESA. If after 30 days CDFW determines that the Federal incidental take permit is consistent with State law, and that all State-listed species under consideration have been considered in the Federal Biological Opinion, then no further permit or consultation is required under CESA for the project. However, if CDFW determines that the Federal opinion or permit is not consistent with CESA, or that there are State-listed species that were not considered in the Federal Biological Opinion, then the applicant must apply for a State CESA permit under Section 2081(b). Section 2081(b) is of no use if an affected species is State-listed, but not Federally-listed.

State and Federal incidental take permits are issued on a discretionary basis and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review. Typically, if there would be impacts to a listed species, mitigation that includes habitat avoidance, preservation, and creation of endangered species habitat is necessary to demonstrate that projects would not threaten the continued existence of a species. In addition, management endowment fees are usually collected as part of the agreement for the incidental take permit(s). The endowment is used to manage any lands set-aside to protect listed species, and for biological mitigation monitoring of these lands over (typically) a five-year period.

California Fish and Game Code §§ 3503, 3503.5, 3511, and 3513

California Fish and Game Code § 3503 makes it unlawful to take, possess or “needlessly” destroy the nest or eggs of any bird, although it does not protect the fledged birds themselves. Section 3503.5 (birds of prey), 3511 (fully protected birds), and 3513 (MBTA-listed birds) prohibit the take, possession, and/or destruction of different categories birds, their nests or eggs. Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered “take.”

Section 401 of the Clean Water Act

The State Water Resources Control Board (SWRCB) and RWQCB regulate activities in "Waters of the State" (which includes wetlands) through Section 401 of the CWA. While the Corps administers a permitting program that authorizes impacts to waters of the U.S., including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the Federal CWA, CEQA, the CESA, and the SWRCB’s mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality. Where a project will result in dredge or fill of non-

Federal waters of the State, the RWQCB will authorize those fills through waste discharge requirements issued under the Porter-Cologne Water Quality Control Act.

On April 2, 2019, the SWRCB adopted a State-level definition of “wetlands,” which definition is broader than the Federal definition in that unvegetated areas may be considered a wetland water of the State. As a part of the same policy, the SWRCB adopted permit procedures and standards governing the discharge of dredged or fill material into wetlands and other Waters of the State. The policy includes, among other things, requirements for analyses to identify the LEDPA and compensatory mitigation standards including a minimum 1:1 ratio for wetlands and streams, and full functional replacement of all waters on top of this minimum where applicable. The policy, which will govern both Section 401 certifications and Waste Discharge Requirements (WDRs), is scheduled to become effective nine months following the completion of review by the California Office of Administrative Law.

Porter-Cologne Water Quality Control Act

The uncontrolled discharge of pollutants into impaired water bodies is considered particularly detrimental. According to the USEPA, sediment is one of the most widespread pollutants contaminating U.S. rivers and streams. Sediment runoff from construction sites is 10 to 20 times greater than from agricultural lands and 1,000 to 2,000 times greater than from forest lands (EPA 2005). Consequently, the discharge of stormwater from large construction sites is regulated by the RWQCB under the Federal CWA and California’s Porter-Cologne Water Quality Control Act.

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that “any person discharging waste, or proposing to discharge waste, that could affect the Waters of the State to file a report of discharge” with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1)). The term “Waters of the State” is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates “isolated wetlands,” or those wetlands considered to be outside of the Corps’ jurisdiction pursuant to the Solid Waste Agency of Northern Cook County (SWANCC) decision.

The RWQCB generally considers filling in waters of the State to constitute “pollution.” Pollution is defined as an alteration of the quality of the waters of the State by waste that unreasonably affects its beneficial uses (Water Code § 13050(1)). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any “threat” to water quality.

The RWQCB requires complete pre- and post-development Best Management Practices Plan (BMPs) of any portion of the Project site that is developed. This means that a water quality treatment plan for the pre- and post-developed Project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a Stormwater Pollution

Prevention Plan (SWPPP) must be developed prior to the time that a site is graded. In addition, a post construction BMP plan, or a Stormwater Management Plan (SWMP) must be developed and incorporated into any site development plan.

Section 1602 of California Fish and Game Code

Pursuant to Section 1602 of the California Fish and Game Code, “an entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur:

- (1) CDFW receives written notification regarding the activity in the manner prescribed by CDFW. The notification shall include, but is not limited to, all of the following:
 - (A) A detailed description of the project’s location and a map.
 - (B) The name, if any, of the river, stream, or lake affected.
 - (C) A detailed project description, including, but not limited to, construction plans and drawings, if applicable.
 - (D) A copy of any document prepared pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.
 - (E) A copy of any other applicable local, State, or Federal permit or agreement already issued.
 - (F) Any other information required by CDFW.”

While not stated in the regulations above, CDFW typically considers its jurisdiction to include riparian vegetation (that is, the trees and bushes growing along the stream), and may regulate the discharge of waste materials in upland areas that “may pass into” a jurisdictional stream. Thus, any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, including its riparian vegetation, would require entering into a Streambed Alteration Agreement (SBAA) with CDFW prior to commencing with work in the stream. However, prior to authorizing such permits, CDFW typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

Local

East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan

On January 25, 2000, the Contra Costa County Board of Supervisors made a declaration of intent to participate in the development of the East Contra Costa County HCP/NCCP. On June

30, 2000, the East Contra Costa County Habitat Conservation Plan Association Agreement went into effect. This agreement established the East Contra Costa Habitat Conservation Plan Association (HCPA) as the lead agency in drafting the Habitat Conservation Plan for submittal to the governing boards and councils of member agencies, oversee compliance with CEQA and the National Environmental Policy Act (NEPA), and would serve as the lead agency under CEQA for developing the HCP/NCCP. Today, the ECCCHC administers use of the HCP/NCCP.

The City of Brentwood elected to participate in the development of the HCP/NCCP and is a member of the HCPA. The City of Brentwood approved the HCP/NCCP and authorized execution of the Implementation Agreement and Joint Exercise of Powers Agreement on January 22, 2007 (Resolution No. 12-07). The USFWS signed the Federal permit for the HCP/NCCP on July 25, 2007, and the CDFW signed the State permit for the HCP/NCCP on August 6, 2007. The City of Brentwood approved the Ordinance (codified in Brentwood Municipal Code Chapter 16.168) to implement the East Contra Costa HCP/NCCP on October 9, 2007.

The HCP/NCCP provides a framework to protect natural resources in eastern Contra Costa County, while improving and streamlining the environmental permitting process for impacts on endangered species. The Plan allows Contra Costa County, the Contra Costa County Flood Control and Water Conservation District, the East Bay Regional Park District, and the cities of Brentwood, Clayton, Oakley, and Pittsburg (collectively, the Permittees) to control endangered species permitting for activities and projects in the region that they perform or approve. The Plan also provides for comprehensive species, wetlands, and ecosystem conservation and contributes to the recovery of endangered species in northern California. The Plan avoids project-by-project permitting that is generally costly and time consuming for applicants and often results in uncoordinated and biologically ineffective mitigation.

The HCP/NCCP provides both CESA and FESA incidental take coverage for approved covered activities associated with urban development in the cities of Clayton, Pittsburg, Brentwood, and Oakley and specific areas of unincorporated Contra Costa County in accordance with approved land use plans. This Plan provides take authorization for 28 listed and non-listed species (i.e., covered species), including vernal pool fairy shrimp, longhorn fairy shrimp, midvalley fairy shrimp, vernal pool tadpole shrimp, tricolored blackbird, golden eagle, western burrowing owl, Swainson's hawk, silvery legless lizard, Alameda whipsnake, giant garter snake, western pond turtle, California tiger salamander, California red-legged frog, foothill yellow-legged frog, Townsend's western big-eared bat, and San Joaquin kit fox. Plants covered by the HCP/NCCP include Mount Diablo manzanita, brittlescale, San Joaquin spearscale, big tarplant, Mount Diablo fairy lantern, recurved larkspur, round-leaved filaree, Diablo helianthella, Brewer's dwarf flax, showy madia, and Adobe navarretia.

Chapter 1 of the HCP/NCCP states that the HCP/NCCP coverage area will expand or contract as a result of local land use decisions made independently of the HCP/NCCP. It also states that the permit area for urban development will correspond to the County ULL or the city limits of participating cities, whichever is largest. Accordingly, if a participating city expands or shrinks its city limit or if the County ULL shrinks or expands, the permit area for the HCP/NCCP

automatically expands or shrinks to reflect the land use policy change, as long as the conditions presented in the three bullets below are met by the project.

- *The revised urban development area, together with projected impacts from covered activities outside the urban development area, does not exceed the maximum land cover or total impact projections (i.e., take limits) in Chapter 4.*

Table 4-3 of the HCP/NCCP titled: *Direct impact on Land Cover Types and Conserved Natural Communities under Maximum Urban Development Area Scenario (acres)* shows that the HCP/NCCP allows for impacts to a total of 14,502 acres for all cover types. The Project site is mapped in the HCP/NCCP as a “grassland cover type.” The HCP/NCCP allowed take to grassland outside of the Parks and Open Space is 4,363 acres. To date, the extent of take allowed under the HCP/NCCP has been to a total of 801 acres (pers. comm. between G. Monk and J. Kopchik. April 4, 2019). The subtotal amount of take extended to grassland has been for 102 acres. Accordingly, there is ample acreage remaining within the Maximum Urban Development Area projected by the HCP/NCCP to cover the impacts of the proposed project.

- *The revised urban development area excludes areas designated as high priorities for acquisition under the HCP/NCCP conservation strategy, as designated in Figure 5-3, Acquisition Priorities Under the Maximum Urban Development Area Scenario 5 (see Chapter 5 [of the HCP/NCCP]).*

The proposed project meets this criterion because the Project site is located in an area designated as a “Low” level of priority for acquisition under the HCP/NCCP conservation strategy, as designated in Figure 5-3, Acquisition Priorities Under the Maximum Urban Development Area scenario. Therefore, the Project site area is not excluded from any future expansion of the City of Brentwood’s ULL or a revised urban development area.

- *The revised urban development area is consistent with successful implementation of the HCP/NCCP conservation strategy (see Chapter 5 and Figures 5-2 and 5-3 [of the HCP/NCCP]).*

The Project site is outside the HCP/NCCP mapped high and medium acquisition priority areas, and the “take” associated with the project would be within the take limits allowed per chapter 4 of the HCP/NCCP. The proposed project is therefore eligible to be included in the proposed modified Urban Development Area. The Conservation Strategy in the HCP/NCCP was designated to achieve the biological goals and objective for both the Urban Development Area and the Maximum Urban Development Area by scaling the amount of projected conversion to be proportional to the amount of “take” and by prohibiting take coverage in areas that are a high or medium priority for conservation. Accordingly, it is expected that if the Project site is added to the City of Brentwood’s ULL, that the HCP/NCCP will be used by the Project to cover impacts to sensitive biological resources.

City of Brentwood General Plan

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.

Conservation and Open Space Goal 1: Ensure the provision and preservation of diverse and accessible open spaces throughout the Brentwood Planning Area.

- **Policy COS 1-1:** General Plan land use designations that include agriculture, permanent open space, parks, and similar uses, as well as waterways (i.e., Marsh Creek, Dry Creek, Deer Creek, and Sand Creek), shall be considered open space.
- **Policy COS 1-2:** Preserve open space for conservation, recreation, and agricultural uses.
- **Policy COS 1-3:** Conversion of open space, as defined under Policy COS 1-1, to developed residential, commercial, industrial, or other similar types of uses, shall be strongly discouraged. Undeveloped land that is designated for urban uses may be developed if needed to support economic development, and if the proposed development is consistent with the General Plan Land Use Map.
- **Policy COS 1-4:** Where possible, integrate open space and stream corridors with trails and other recreational open space in an environmentally sustainable manner.
- **Policy COS 1-5:** Recognize urban open space as essential to maintaining a high quality of life within the city limits of Brentwood.
- **Policy COS 1-6:** Support regional and local natural resource preservation plans of public agencies that retain and protect open space within the city limits, the Sphere of Influence, and the Planning Area.
- **Policy COS 1-7:** Encourage public and private efforts to preserve open space.
- **Policy COS 1-8:** Common or private open space that is not City property shall be privately maintained.
- **Policy COS 1-9:** Encourage the protection and incorporation of existing, native, mature, non-orchard trees and areas of natural vegetation as part of new development.

Conservation and Open Space Goal 2: Preserve designated agricultural lands in Brentwood's Planning Area.

- **Policy COS 2-1:** Support and encourage the preservation of agricultural lands throughout Brentwood's Planning Area, particularly in areas to the south and east of the city limits.
- **Policy COS 2-2:** Maintain permanent agricultural lands surrounding the city limits to serve as community separators and continue the agricultural heritage of Brentwood.

- Policy COS 2-3: Encourage and support programs that create or establish permanent agricultural areas in Brentwood's Planning Area.
- Policy COS 2-4: Participate in regional planning efforts with agencies and organizations such as Contra Costa County, land trusts, and other regional partners to establish and maintain permanent agricultural areas to the south and east of Brentwood.
- Policy COS 2-5: Work with the Local Agency Formation Commission (LAFCO) on issues of mutual concern including the conservation of agricultural land through consistent use of LAFCO policies, particularly those related to conversion of agricultural lands and establishment of adequate buffers between agricultural and non-agricultural uses, and the designation of a reasonable and logical Sphere of Influence (SOI) boundary for the City.
- Policy COS 2-6: Minimize conflicts between agricultural and urban land uses.
- Policy COS 2-7: Require the use of buffers such as greenbelts, drainage features, parks, or other improved and maintained features in order to separate residential and other sensitive land uses, such as schools and hospitals, from agricultural lands and agricultural operations.
- Policy COS 2-8: Require new development to have structural setbacks that respect agricultural operations.
- Policy COS 2-9: Developers shall be responsible for mitigating impacts upon nearby agriculture. Setbacks and buffers shall be provided by the developer and not encroach upon productive agricultural areas.
- Policy COS 2-10: Limit incompatible uses (i.e., schools, hospitals, and high density residential) near agriculture.
- Policy COS 2-11: Work with agricultural landowners to improve practices that have resulted in adverse impacts to adjacent properties. Such practices include site drainage and flood control measures.
- Policy COS 2-12: Promote best management practices in agricultural operations to reduce emissions, conserve energy and water, and utilize alternative energy sources.
- Policy COS 2-13: Assist agricultural landowners and farmers with a variety of programs aimed at preserving agricultural lands, increasing opportunities for local sales of agricultural products, and increasing access to local commodities markets.
- Policy COS 2-14: Encourage agricultural landowners in Brentwood's Planning Area to participate in Williamson Act contracts and other programs that provide long-term protection of agricultural lands.

- Policy COS 2-15: Support the procurement of expanded and additional water rights which provide for contractual supply reliability for agricultural use.
- Policy COS 2-16: Encourage small-scale food production, such as community gardens and cooperative neighborhood growing efforts, on parcels within the city limits, provided that the operations do not conflict with existing adjacent urban uses.
- Policy COS 2-17: Encourage and support the development of new agricultural related industries featuring alternative energy, utilization of agricultural waste, biofuels, and solar or wind farms.

Conservation/Open Space Goal 3: Protect and enhance Brentwood’s ecosystem and natural habitats.

- Policy COS 3-1: Sensitive habitats include creek corridors, wetlands, vernal pools, riparian areas, wildlife and fish migration corridors, native plant nursery sites, waters of the United States, sensitive natural communities, and other habitats designated by State and Federal agencies.
- Policy COS 3-2: Preserve and enhance those biological communities that contribute to Brentwood’s and the region’s biodiversity including, but not limited to, wetlands, riparian areas, aquatic habitat, and agricultural lands.
- Policy COS 3-4: Conserve existing native vegetation where possible and integrate regionally native plant species into development and infrastructure projects where appropriate.
- Policy COS 3-5: Avoid removal of large, mature trees that provide wildlife habitat or contribute to the visual quality of the environment to the greatest extent feasible through appropriate project design and building siting. If full avoidance is not possible, prioritize planting of replacement trees on-site over off-site locations.

Conservation/Open Space Goal 4: Protect and enhance water resources in local creeks, riparian habitat, wetlands, the Marsh Creek Watershed, and aquatic habitat.

- Policy COS 4-1: Where feasible, protect and enhance surface water quality in creeks, streams, channels, seasonal and permanent marshland, wetlands, sloughs, riparian habitat, and vernal pools through sound land use planning, community design, and site planning.
- Policy COS 4-4: Require discretionary projects, as well as new flood control and storm water conveyance projects, to integrate best management practices and natural features to the greatest extent feasible, while ensuring that these features adequately convey and control storm water to protect human health, safety, and welfare.

- Policy COS 4-5: Encourage the use of natural features such as bio swales, vegetation, retention ponds, and other measures to remove storm water pollutants prior to discharge, subject to State regulations.
- Policy COS 4-6: Where feasible, new development adjacent to creeks and streams should include opportunities for beneficial uses, such as flood control, ecological restoration, public access trails, and walkways.
- Policy COS 4-7: Consult with State and Federal agencies during the development review process to help identify wetland and riparian habitat that has candidacy for restoration, conservation, and/or mitigation. Focus restoration and/or conservation efforts on areas that would maximize multiple beneficial uses for such habitat.
- Policy COS 4-9: Consider the effects of development on ground and surface water quality, and implement measures to reduce water contamination.
- Policy COS 4-10: Where feasible, encourage and support multipurpose detention basins that provide water quality protection, storm water detention, open space amenities, and recreational amenities.

4.4.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for biological resources were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as amended effective December 2018, as well as the previously certified General Plan EIR. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on 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.

Method of Analysis

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 from previous studies provided by the Project proponent, USFWS, CDFW, and other agencies. Biological resource data sources included, but were not limited to, the following:

- CDFW CNDDDB to determine special-status plants and wildlife records that have been documented within the vicinity of the Project site.
- Aerial photographs, Geographic Information Systems (GIS) data, USFWS National Wetland Inventory (NWI) maps, and United States Geological Survey (USGS) topographic maps.
- Previously prepared reports and regional planning documents (General Plan policies, HCPs, and EIRS), and published scientific literature).
- Previous technical reports and survey data (including wetland and hydrology mapping and special-status species locations and survey data).

General Site Surveys

M&A biologists conducted surveys of the Project site on December 6, 2018, January 10, January 28, and February 20, 2019, to record biological resources and to assess the likelihood of agency regulated areas on the Project site. M&A's site evaluations included a thorough examination of the site to document the presence of potential Waters of the U.S. and State and streambed resources regulated by CDFW. As the Project site has a long history of farming, M&A mapped areas of saturation and inundation in these months to facilitate preparation of a formal jurisdictional determination package that will be submitted to the Corps to formally define the boundaries of CWA regulated waters of the U.S./State (which include wetlands and other waters).

The surveys also involved searching all habitats on the Project site and recording all plant and wildlife species observed. M&A cross-referenced the habitats found on the Project site against

the habitat requirements of local or regionally known special-status species to determine if the Project could directly or indirectly impact such species.

Special-Status Plant Surveys

M&A biologists have a history of involvement with this Project site that dates to 2005. In the spring and summer of 2005 and 2006, M&A completed focused surveys for special-status (that is, rare, threatened, or endangered) plants on the Project site. The surveys followed CDFG (2000) and CNPS (2001) published survey guidelines. These guidelines state that special-status surveys should be conducted at the proper time of year when special-status and locally significant plants are both evident and identifiable. These guidelines also state that the surveys be floristic in nature with every plant observed identified to species, subspecies, or variety as necessary to determine their rarity status. Finally, these surveys must be conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques. Following these guidelines, surveys were conducted during the months when special-status plant species from the region are known to be evident and flowering.

During surveys, all areas of the Project site were examined by walking systematic transects through potential habitat, and by closely examining any existing microhabitats that could potentially support special-status plants. All plants were identified to the level needed to determine their rarity status. Nearly all plant species found on the Project site were identified to species. A list of all vascular plant taxa encountered within the Project site was recorded in the field. Plants that needed further evaluation were collected and keyed in the lab. Final determinations for collected plants were made by keying specimens using standard references such as The Jepson Manual (Hickman 1993).

Off-Site Improvements

Impacts related to off-site infrastructure improvements associated with implementation of the Project are primarily addressed in Section 4.16, Utilities and Service Systems, of this EIR and in the discussion of Impact BIO-7 below. In addition, the technical sections of the EIR include a focused discussion of the impacts of off-site infrastructure improvements as they relate to each section.

Impacts of the Proposed Project

Impact BIO-1: Would the project 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 with application of site-specific mitigation measures*)

Special-Status Plants

In the spring and summer of 2005 and 2006, M&A completed focused surveys for special-status (that is, rare, threatened, or endangered) plants on the Project site. Big tarplant, a CNPS list 1B.1 species, brittlescale, a CNPS list 1B.2 species, and San Joaquin spearscale, a CNPS list 1B.2 species, were identified on the Project site. In addition, there are several rare plant species that have a low potential to occur within the pockets of remnant non-native grassland on the Project site. These include Diablo helianthella, a CNPS list 1B.2 species; showy golden madia, a CNPS list 1B.1 species; Brewer's western flax, a CNPS list 1B.2 species, and Adobe navarretia (shining navarretia), a CNPS list 1B.2 species. Impacts to special-status plants are regarded as significant pursuant to CEQA and therefore, mitigation would be required.

In lieu of conserving mitigation land or in combination with conserving mitigation land, the Project proponent may pay a fee to use the ECCCHC's administered HCP/NCCP. The Project proponent has acquired an option to purchase approximately 1,360 acres of high resource value mitigation land in Eastern Contra Costa County (called the Sections 5 and 9 Mitigation Property), which provides suitable habitat for special-status species. This Mitigation Property may be used to meet special-status species mitigation requirements in part or whole.

Consistent with the standards noted above, MM BIO-1 requires that updated special-status plant surveys be conducted the year prior to each phase of development of the Project site. In the event that special-status plants are found, the Project proponent would be required to either conserve mitigation land, pay an in-lieu fee to use the ECCCHC's administered HCP/NCCP, or pursue a combination thereof. If the Mitigation Property or any mitigation land is used to compensate for impacts to special-status plant species, recordation of a perpetual conservation easement over the mitigation land would be required within eighteen months of breaking ground on the Project site, and the Mitigation Property/mitigation land must provide habitat for special-status plant species. If the proponent chooses to pay the HCP/NCCP fee, the administered HCP/NCCP would cover all of the special-status plant species that could be impacted by the Project. Therefore, with implementation of MM BIO-1, the above impact would be reduced to a less-than-significant level.

California Red-legged Frog

California red-legged frog adults have been recorded on the Project site within the ephemeral tributary to Sand Creek between 2001 and 2005 (CNDDDB Occurrence No. 933). As such, the

USFWS will consider the Project site to provide suitable breeding and upland dispersal habitat. The proposed project will impact potential California red-legged frog dispersal habitat, and installation of outfall structures in the drainages onsite for stormwater discharge will result in impacts to potential breeding habitats. Impacts to California red-legged frog habitat are regarded as significant and therefore, mitigation would be required.

There are 11 reported occurrences of California red-legged frogs within two miles of the proposed Sections 5 and 9 Mitigation Property (see Figure 4.4-6), and three of these records are located in the hills immediately adjacent to the Mitigation Property (CNDDDB Occurrence No. 635, 919, and 105) (see Figure 4.4-7). Hence, the Sections 5 and 9 Mitigation Property supports habitat that provides superior upland dispersal habitat and suitable aquatic habitat for California red-legged frogs relative to the agricultural land that will be impacted by the proposed project. MM BIO-2 below would require a survey of the site by a USFWS-approved biologist and identification of potential red-legged frog breeding habitat. If potential breeding habitat is identified, the Project proponent would be required to avoid and minimize impacts to the maximum extent practicable. Any potential impacts to breeding habitat would necessitate written notification of USFWS prior to commencement of development. In addition, an education program would be conducted by a qualified biologist to explain the endangered species concerns to contractors/operators working at the Project site. In addition, MM BIO-2 would require pre-construction surveys of creek/drainage work areas and specific avoidance measures. If any California red-legged frogs are identified in the work area, the USFWS would be notified and, if permitted, the California red-legged frogs would be relocated outside of the work area. Based on the above, implementation of MM BIO-2 would mitigate impacts to California red-legged frogs to a less-than-significant level.

California Tiger Salamander

California tiger salamander eggs, larvae, and adults have been recorded within a stockpond and several seasonal wetlands on the Project site between 1996 and 2006 (CNDDDB Occurrence No. 678, 854, 855, and 856) (Figure 4.4-2 and Figure 4.4-3). As such, the USFWS will consider the Project site to provide suitable breeding and over-summering habitat. Therefore, the proposed project will impact potential California tiger salamander upland over-summering habitat and mitigation would be required.

In April of 2010, M&A conducted California tiger salamander larval survey on the proposed Sections 5 and 9 Mitigation Property and found California tiger salamander larvae in the ponds on both parcels (see Figure 4.4-8) (CNDDDB Occurrence No. 1179 and 1186). In addition, there are six reported occurrences of California tiger salamanders within two miles of the Sections 5 and 9 Mitigation Property. Owing to the abundance of known California tiger salamander records on and adjacent to the Sections 5 and 9 Mitigation Property, this Mitigation Property would be regarded by the USFWS and the CDFW as supporting valuable breeding and upland over-summering habitat for this salamander. MM BIO-3 would require identification of potential breeding habitat for California tiger salamander by a USFWS/CDFW-approved biologist. If potential breeding habitat is identified, the Project proponent would be required to avoid and minimize impacts to the maximum extent practicable.

**Figure 4.4-6
Known CNDDDB Species Records within Two Miles of Section 5 and 9 Mitigation Property**

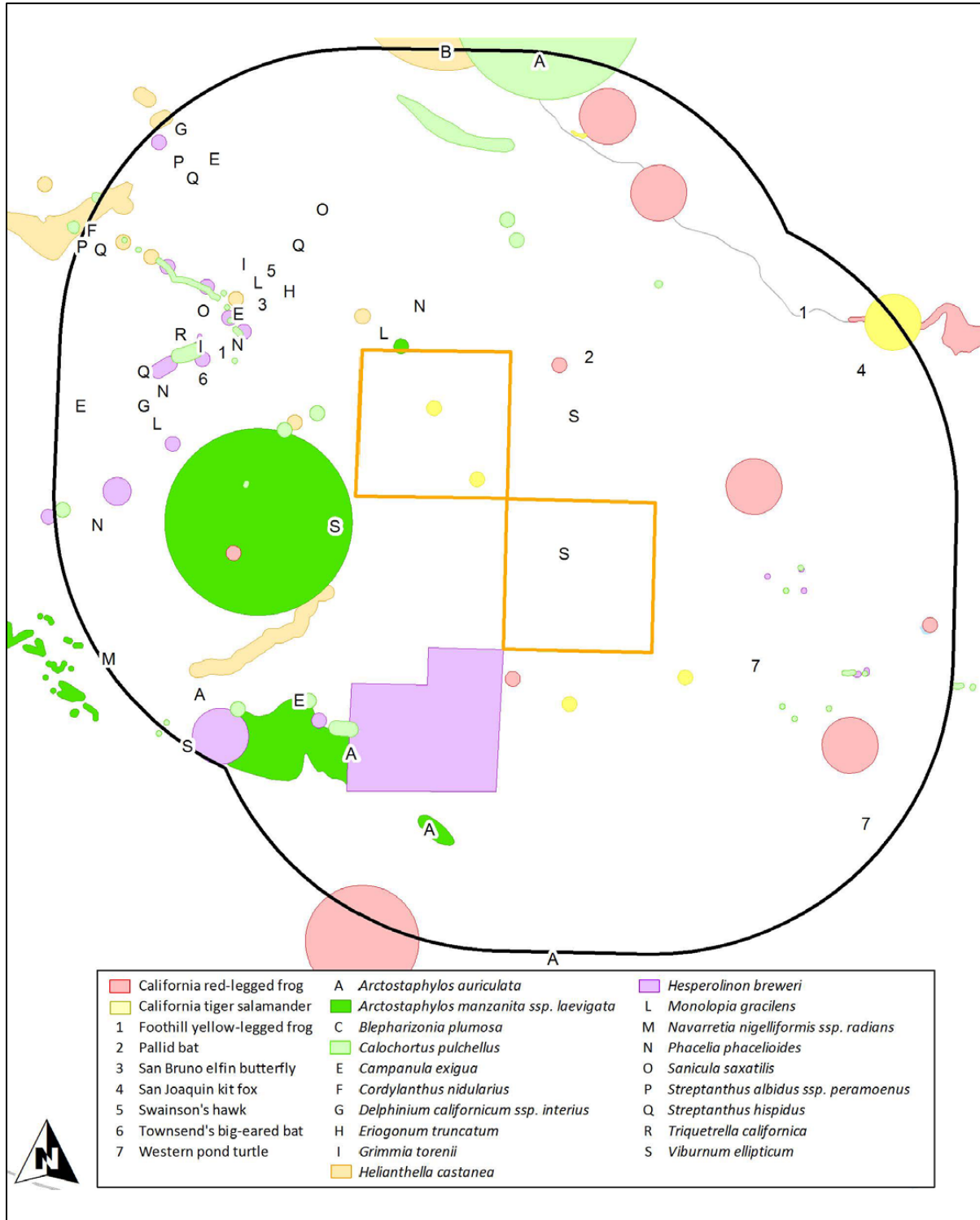


Figure 4.4-7
Known CRLF Records in the vicinity of Sections 5 and 9

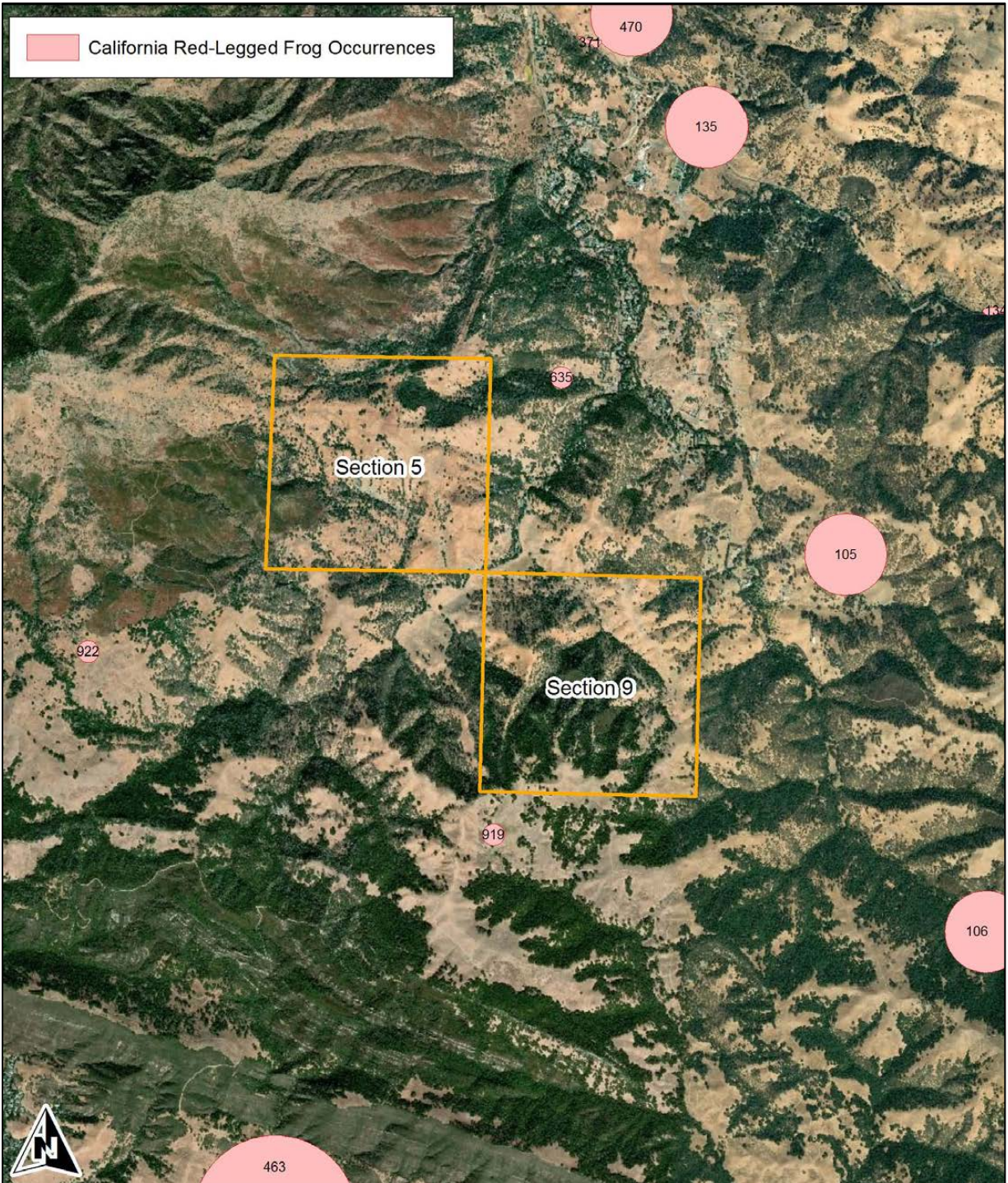
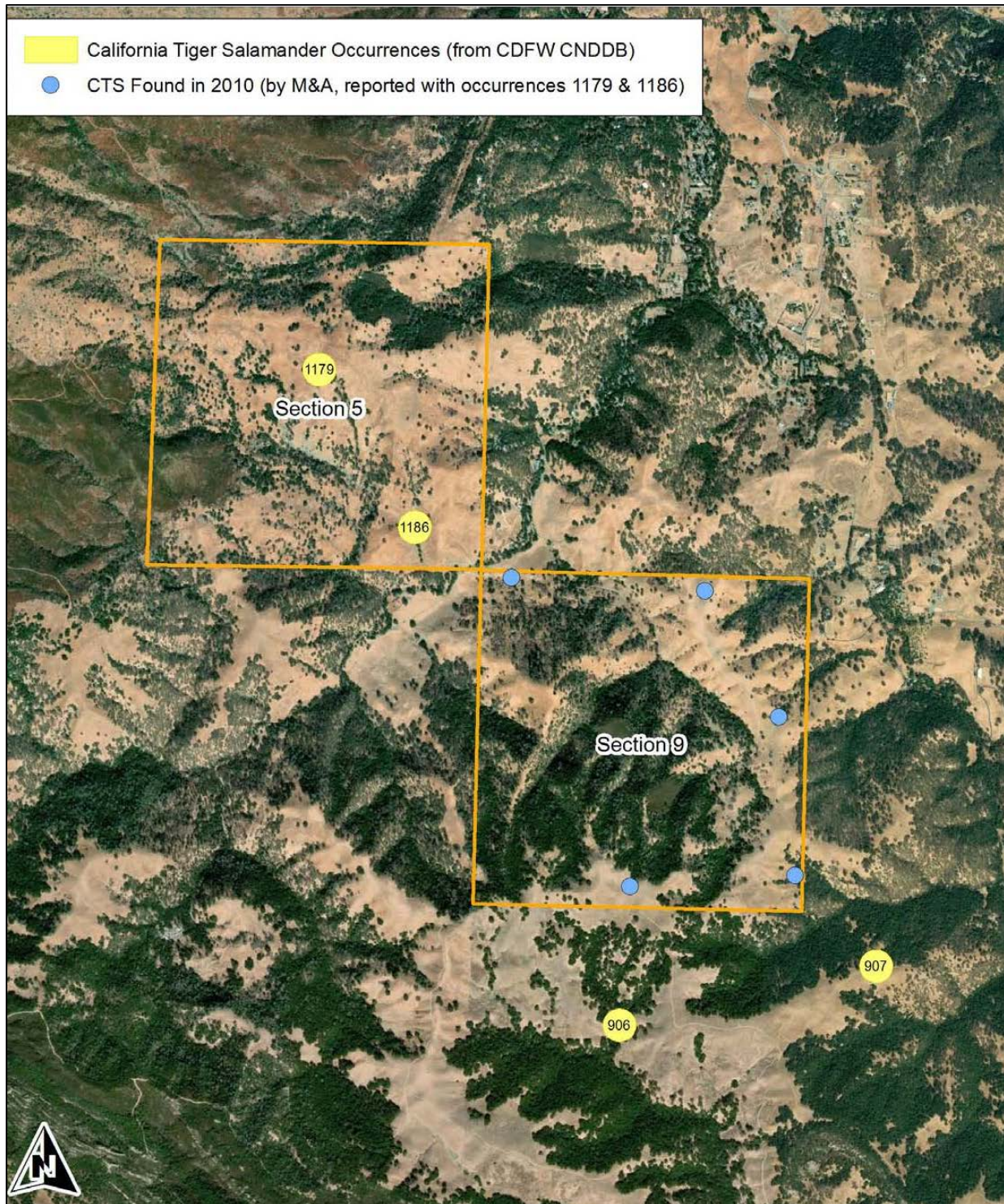


Figure 4.4-8
Known CTS Records in the vicinity of Sections 5 and 9



With implementation of MM BIO-3, the impact would be reduced to a less-than-significant level.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp were identified in 2002 in pools immediately north of the Project site (Condor Country Consulting 2002) (Figure 4.4-3). A record for this species is also located 1.6 miles west of the Project site (Occurrence No. 353) (Figure 4.4-2). Accordingly, the USFWS may assume presence of this species onsite and require mitigation for impacts to approximately 0.61 acre of potential fairy shrimp habitat that will occur during development of the Project site. Impacts to vernal pool fairy shrimp are regarded as potentially significant. MM BIO-4 requires payment of an HCP/NCCP fee. Given that the HCP/NCCP fee would be an amount sufficient to provide incidental take coverage for impacts to approximately 0.61-acre of potential vernal pool fairy shrimp habitat, implementation of MM BIO-4 would reduce this impact to a less-than-significant level.

Western Burrowing Owls

The western burrowing owl is a California Species of Special Concern. This raptor (that is, bird of prey) is also protected under the MBTA (50 CFR 10.13) and its nest, eggs, and young are protected under California Fish and Game Code Sections 3503, 3503.5. Western burrowing owls were identified on the Project site in 2007 (CNDDDB Occurrence No. 857), and a wintering western burrowing owl was observed onsite during the January 2019 survey. The majority of the Project site consists of disked farmed fields; however, there are a limited number of burrows that provide habitat for western burrowing owl. Accordingly, impacts to western burrowing owl from the proposed project would be regarded as potentially significant. MM BIO-5, which requires pre-construction surveys for western burrowing owl, would be implemented to reduce this impact to a less-than-significant level. In the event that burrowing owls are detected on-site, MM BIO-5 requires restrictions on when disturbance activity may occur and provides specific setback distances. In addition, MM BIO-5 requires conservation of mitigation land that has been determined to be acceptable compensation for impacts to western burrowing owl habitat by the CDFW.

Swainson's Hawks

The Swainson's hawk is a State listed threatened species. It is also protected from direct take pursuant to the Federal MBTA. Active Swainson's hawk nests are also protected pursuant to California Fish and Game Code § 3503.5 and 3513. Swainson's hawks are not known to currently nest on the Project site. However, in the absence of nesting season surveys, impacts to the Swainson's hawk are considered potentially significant. Potential impacts to this species from the proposed project include disturbance to nesting birds and the loss of foraging habitat.

The closest CNDDDB record for the species is 0.10-mile east of the Project site (CNDDDB Occurrence No. 1681) in a large valley oak tree along Sand Creek. This nesting record dates from 2007. No Swainson's hawks have been detected actively nesting on or anywhere near the

Project site during multiple surveys conducted by M&A in the vicinity of the Project site in the past few years; however, trees on the Project site provide suitable nesting trees. MM BIO-6 requires nesting surveys for Swainson's hawk, and provides specific avoidance measures and buffers in the event that an active nest is identified on or near the project site during the surveys. In addition, the Project proponent would be required to offset loss of Swainson's hawk foraging habitat on the Project site. Thus, with implementation of MM BIO-6, this impact would be reduced to a less-than-significant level.

Nesting Raptors

Golden eagles, white-tailed kite, red-tailed hawk, and red-shouldered hawk all are known to nest in the Project area. All of these raptors (that is, birds of prey) are also protected under the MBTA (50 CFR 10.13) and their eggs and young are protected under California Fish and Game Codes Sections 3503, and 3503.5. Any project-related impacts to these species would be considered a significant impact. Potential impacts to these species from the proposed project include disturbance to nesting birds, and possibly death of adults and/or young. Accordingly, impacts to nesting raptors from the proposed project would be regarded as potentially significant. MM BIO-7 requires a pre-construction raptor nesting survey and, in the event that nesting raptors are identified during the survey, establishment of buffers around nest trees and restriction of construction activities within such buffers. Thus, implementation of MM BIO-7 would reduce this impact to a less-than-significant level.

Nesting Special-Status Bird Species and Nesting Common Bird Species

Special-status birds, such as loggerhead shrike, and other common birds could be impacted by the proposed project. Passerine birds and their nests are protected under the California Fish and Game Code (Sections 3503, 3503.5), and the Federal MBTA. Impacts to nesting birds, their eggs, and/or young caused by implementation of the proposed project would be regarded as potentially significant. MM BIO-8 requires a pre-construction survey for nesting birds if site disturbance is planned to commence between March 1st and September 1st, and requires establishment of non-disturbance buffers in the event that nesting birds are found during the survey. Thus, with implementation of MM BIO-8, this impact would be reduced to a less-than-significant level.

San Joaquin Kit Fox Migration Habitat

Based on Figure 5-5 in the HCP/NCCP, the Project site is within "Suitable Core Habitat" of the San Joaquin kit fox (see Figure 4.4-4). Suitability does not infer the presence of this fox species, only that the species could occur. The HCP/NCCP also shows potential movement corridors based upon the presence of contiguous open space lands stretching from central Contra Costa County to the Vasco Road open space lands. As shown in Figure 4.4-4, the southwest corner of the Project site is within a San Joaquin kit fox "potential movement route" (see Figure 4.4-4). Accordingly, the USFWS and CDFW will likely regard the Project site as a potential migration corridor for this fox species that could be disrupted by development of the Project site. Preconstruction surveys will be conducted for the San Joaquin kit fox prior to initiation of

development of the Project site. Consequently, impacts to San Joaquin kit fox migration habitat are regarded as potentially significant. MM BIO-9, which requires implementation of standard avoidance measures for San Joaquin Kit Fox, would be implemented to reduce this impact to a less-than-significant level.

American Badger

American badger was identified on the Project site in 2006 (CNDDDB Occurrence No. 399) and tracks were identified onsite during surveys in January of 2019. There are a few burrows that provide suitable denning habitat for this species. Therefore, development of the project could result in impacts to American badger. Accordingly, impacts to American badger is regarded as potentially significant. MM BIO-10 requires a preconstruction den survey for American badger. In the event that a potential den is located, additional den monitoring activities would be required. MM BIO-10 requires notification of, and consultation with, CDFW if American badger is found during the survey or monitoring activities. Thus, with implementation of MM BIO-10, this impact would be reduced to a less-than-significant level.

Conclusion

As discussed above, implementation of the Project would have the potential to result in significant impacts to special-status species. However, implementation of MM BIO-1 through MM BIO-12 would be sufficient to ensure that impacts related to the creation of substantial adverse effects on special-status species would be ***less than significant***.

Mitigation Measures

MM BIO-1 *Special-Status Plants. Updated special-status plant surveys shall be conducted the year prior to each phase of development of the Project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published survey guidelines. If special-status plants are found, the Project proponent shall conserve mitigation land that has been determined to be acceptable compensation for impacts to special-status plants by the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. The acreage of the mitigation land shall be as determined in consultation with these resource agencies, but shall be no less than a 1:1 impact to mitigation ratio.*

In lieu of conserving mitigation land or in combination with conserving mitigation land, the Project proponent may pay a fee to use the ECCCHC's administered HCP/NCCP, which covers all of the sensitive plant species that may occur on the Property. The Project proponent has acquired approximately 1,360 acres of high resource value mitigation land in Eastern Contra Costa County (called the Sections 5 and 9 Mitigation Property), which provides suitable habitat for special-status plants. This Mitigation Property may be used to meet special-status species mitigation requirements,

including HCP fee requirements, in part or whole. If this land is used to mitigate project impacts to special-status species, either by itself, in combination with other mitigation land, or in combination with use of the HCP/NCCP, as described below, a conservation easement covering the mitigation land shall be deeded to the ECCCHC, or other CDFW- and USFWS-approved conservation organization. If mitigation land is used in combination with use of the HCP/NCCP, standard fees for use of the HCP/NCCP may be modified to account for the permanently preserved lands. That is, the Project proponent would receive a negotiated credit against HCP fees.

If the Mitigation Property or any mitigation land is used to compensate for impacts to special-status plant species, a perpetual conservation easement shall be recorded over the mitigation land within eighteen months of breaking ground on the Project site. The Grantee (conservator) of the conservation easement will be a USFWS and CDFW-approved, conservation organization. The Project proponent will establish an operational, non-wasting endowment fund that will be provided to the Grantee (conservator) of the Conservation Easement or other approved entity to provide for the long-term management, maintenance, and monitoring of the Mitigation Property. The selected Grantee, approved by the USFWS and CDFW, shall agree that the management endowment is sufficient for their organization to implement identified services set forth in a Long-Term Resource Management Plan that is developed for the Mitigation Property.

MM BIO-2

California Red-legged Frog. To ensure that implementation of Project site grading, installation of outfall structures in any drainage onsite, and any impacts associated with off-site roadway improvements to Balfour Road associated with the Project, will not injure, kill, or harass an individual California red-legged frog, the following mitigation measures shall be implemented:

- 1) A USFWS-approved biologist will identify potential red-legged frog breeding habitat. If potential breeding habitat is identified, Project proponents will avoid and minimize impacts to the maximum extent practicable. If the project is unable to fully avoid impacts on suitable breeding habitat, the project proponent will notify USFWS of the presence and condition of potential breeding habitat. Written notification will be provided to USFWS at least 30 days prior to project commencement for each phase of development regarding timing of grading and likelihood of breeding habitat occurrence on site.*
- 2) An education program shall be conducted by a qualified biologist to explain the endangered species concerns to contractors/operators working at the Project site. This education/training program will include a description of the frog and its habitat, a review of the Endangered Species*

Act and the Federal listing of the frog, the general protection measures to be implemented to protect the frog and minimize take, and a delineation of the limits of the work area.

- 3) A qualified 10(a)(1)(A) California red-legged frog biologist shall conduct preconstruction surveys of the creek/drainage work areas prior to dewatering and other work activities for each phase of development. If any California red-legged frogs are identified in the work area, the USFWS will be notified and if permitted, the California red-legged frogs will be relocated outside of the work area.*
- 4) The work areas adjacent to Deer Creek and other drainage features onsite shall be isolated with suitable wildlife exclusion fencing (see below) that would block the movement of California red-legged frogs from entering the work areas. The wildlife exclusion fence will also prevent wildlife migrating along Deer Creek and other drainage features onsite from entering the Project site. This fence will be installed prior to the time any site grading or other construction-related activities are implemented. The fence will remain in place during site grading or other construction-related activities and will prevent frogs and wildlife from entering.*

While normally California red-legged frog exclusion fencing often consists of silt fencing, owing to the duration of the proposed project, a more weather resilient fence is required. The wildlife exclusion fence should consist of a 4-foot wall of ¼-inch mesh, galvanized wire (i.e., welded wire hardware cloth- no woven wire will be allowed) or other commercially available exclusion fencing (e.g. ERTEC Fence). Initially, staking would be installed along the route of the wildlife exclusion fencing in a 4-inch deep trench. Then, the bottom of the fence would be firmly seated in the trench. The fencing above the ground would be anchored to metal staking with wire. Finally, the top 10-inches or less would be bent over in a semi-circle towards the outside of the fence to ensure that the fence cannot be climbed. This fence could be expected to last the duration of the proposed project.

- 5) A qualified biologist shall be onsite when grading activities occur to conduct daily inspections of the fencing and to otherwise ensure that stranded animals are salvaged and relocated back to the stream channel or away from active work areas. The biological monitor will be responsible for ensuring that the wildlife exclusion fencing is not compromised and shall notify the onsite contractor representative when fencing needs to be repaired.*
- 6) All construction work in any tributary associated with the outfall structures will be scheduled for the dry season (May 15 through October*

15) and when there are reduced or no flows. While it is preferred that no work will occur when water is flowing within the work area, any necessary in-drainage work when there are flows will be isolated from flows via the installation of temporary coffer dams that have flow-through bypass pipes. Flows will be diverted around isolated work areas either by gravity flow or, if necessary, by pumping water around the work area. No silty water would be allowed to reenter the tributary below any in-drainage work area. Methods and materials will be adapted in the field to match the size, shape, and anticipated flow volume of the drainage, and will be pre-approved by the biological monitor. All diversions will conform to the following provisions:

- Drainage diversion will be practiced only where deemed unavoidable by the biological monitor onsite.
- Diversion shall be limited to the minimum time period necessary to complete the work and restore the channel.
- Construction equipment will work from above the top-of-bank. There will be no vehicle passage, vehicle parking, or materials storage below the top of bank.
- All in-drainage and diversion work plans will reflect and incorporate standard erosion control measures and BMP's as prescribed in the project's SWPPP.
- In certain cases where water seeps into the dewatered area, sump pits may be excavated in the work area and seepage water would then be pumped back upstream behind the coffer dam. All discharged water will be silt free. If silt is a problem, water will be pumped through a silt sock into baker tank(s) prior to discharge back into the channel.
- All downstream flows will be maintained throughout the period that coffer dams are installed.
- The entire work area below the top of bank, including the coffer dam location, will be restored to the approximate pre-construction contours and will be stabilized as necessary to withstand the expected high water flows. All dam materials will be completely removed from the channel when work is complete and will not be disposed of in or near the channel.

- *The project biological monitor will be present during all in-drainage work. Dewatered work areas shall not result in stranded aquatic wildlife.*
- *All trash that might attract predators to the Project site will be properly contained and removed from the site and disposed of regularly. All construction debris and trash will be removed from the site when construction activities are complete.*
- *All fueling and maintenance of equipment and vehicles, and staging areas will be at least 20 meters from Deer Creek and other drainage features onsite. The construction personnel will ensure that contamination of California red-legged frog habitat does not occur and will have a plan to promptly address any accidental spills.*

To mitigate for impacts to California red-legged frog habitat, the Project proponent shall conserve the Mitigation Property or any other mitigation land that has been determined to be acceptable compensation for impacts to California red-legged frog habitat by the USFWS. In lieu of conserving mitigation land or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC's administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts California red-legged frog habitat.

As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides suitable habitat for the California red-legged frog to satisfy in part or whole to meet California red-legged frog mitigation requirements of the project. The geographic location of the Sections 5 and 9 Mitigation Property is immediately adjacent to EBRPD Morgan Territory Regional Park, which makes it a valuable preservation property that will add permanently preserved acreage to existing regionally significant preserved lands. An alternative mitigation property approved by the USFWS that possesses comparable biological resources for the California red legged frog may also be used for mitigation in lieu of Sections 5 and 9 Mitigation Property in eastern Contra Costa County.

MM BIO-3

California Tiger Salamander. A USFWS/CDFW-approved biologist will identify potential breeding habitat for California tiger salamander. If potential breeding habitat is identified, the project proponent will avoid and minimize impacts to the maximum extent practicable. If project is unable to fully avoid impacts on suitable breeding habitat, the project proponent will notify USFWS and CDFW of the presence and condition of potential breeding habitat. Written notification will be provided to USFWS and CDFW at least 30 days prior to project commencement for each phase of development

regarding the timing of construction and likelihood of occurrence on site. Per the HCP/NCCP, no preconstruction surveys are required.

To mitigate for impacts to California tiger salamander, the Project proponent shall conserve mitigation land that has been determined to be acceptable compensation for impacts to California tiger salamander by the CDFW and the USFWS. The acreage of the mitigation land shall be as determined in consultation with these resource agencies but shall be no less than a 1:1 impact to mitigation ratio.

As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides known breeding and over-summering habitat for the California tiger salamander to satisfy in part or whole California tiger salamander mitigation requirements of the project. In lieu of conserving mitigation land, or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC's administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts to California tiger salamander habitat.

MM BIO-4

Vernal Pool Fairy Shrimp. To mitigate for potentially significant impacts to vernal pool fairy shrimp, the Project proponent shall pay a fee to use the HCP/NCCP. The HCP/NCCP fee would be in an amount sufficient to provide incidental take coverage for impacts to approximately 0.61-acre of potential vernal pool fairy shrimp habitat. This species is addressed in the USFWS's "Programmatic Biological Opinion for a Regional General Permit for the East Contra Costa Habitat Conservation Plan/Natural Community Conservation Plan, Contra Costa County, California" (USFWS #81420-2011-F-0655, dated April 30, 2012).

MM BIO-5

Western Burrowing Owl. A preconstruction survey for burrowing owls shall be conducted for each phase of development. The CDFG's 2012 Staff Report states that take avoidance (preconstruction) surveys should be conducted 14 days prior to ground disturbance. As burrowing owls may recolonize a site after only a few days, time lapses of greater than 14 days between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance to ensure absence of the species.

Burrowing owl surveys should be conducted by walking the entire Project site and (where possible, and within the Project Proponent's control) in areas within 150 meters (approx. 500 feet) of the proposed Project impact zone. The 150-meter buffer zone is surveyed to identify burrows and owls outside of the proposed project area, which may be impacted by factors such as noise and vibration (heavy equipment) during project construction.

Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be 7 meters to 20 meters and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. Poor weather may affect the surveyor's ability to detect burrowing owls; thus, the biologist should avoid conducting surveys when wind speed is greater than 20 kilometers per hour and there is precipitation or dense fog. To avoid impacts to owls from surveyors, owls and/or occupied burrows should be avoided by a minimum of 50 meters (approx. 160 ft.) wherever practical to avoid flushing occupied burrows. Disturbance to occupied burrows should be avoided during all seasons.

If burrowing owls are detected on the site, the following restricted activity dates and setback distances are recommended per the CDFG's Staff Report (2012).

- *From April 1 through October 15, low disturbance and medium disturbance activities should have a 200-meter buffer, while high disturbance activities should have a 500-meter buffer from occupied nests.*
- *From October 16 through March 31, low disturbance activities should have a 50-meter buffer, medium disturbance activities should have a 100-meter buffer, and high disturbance activities should have a 500-meter buffer from occupied nests.*
- *No earth-moving activities or other disturbance should occur within the aforementioned buffer zones of occupied burrows. These buffer zones should be fenced as well. If burrowing owls were found in the proposed project area, a qualified biologist would also need to delineate the extent of burrowing owl habitat on the site.*
- *If western burrowing owls are found occupying the Project site, they may be passively relocated from the Project site between October 1 and February 1. Passive removal shall be conducted by a qualified biologist with demonstrated experience with passive relocation.*

To mitigate for impacts to western burrowing owl habitat, the proponent shall conserve mitigation land that has been determined to be acceptable compensation for impacts to western burrowing owl habitat by the CDFW. As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides suitable habitat for the western burrowing owl to satisfy in part or whole western burrowing owl mitigation requirements of the project. In lieu of conserving mitigation land or in combination with conserving mitigation land, the proponent may pay a fee to

use the ECCCHC's administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts western burrowing owl habitat.

MM BIO-6

Swainson's Hawk. In accordance with Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (CDFG 2000), surveys shall be conducted by a qualified raptor biologist for a 0.25-mile radius, where possible, around all project activities and should be completed for at least two survey periods. The guidelines provide specific recommendations regarding the number of surveys based on when the proposed project is scheduled to begin and the time of year the surveys are conducted. A copy of this survey report should be provided to the City of Brentwood prior to starting construction.

If an active nest is identified, the avoidance measures identified in the HCP/NCCP will be implemented. As required per the HCP/NCCP, during the nesting season (March 15-September 15), covered activities within 1,000 feet of occupied nests will be prohibited to prevent nest abandonment. While the nest is occupied, activities outside the 1,000-foot buffer can take place. During the nesting season, a 1,000-foot buffer will be established around active nest sites in which no construction activities may occur. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Project Raptor Biologist will coordinate with CDFW/USFWS to determine the appropriate buffer size. If young fledge prior to September 15, covered activities can proceed normally. If a potential nest tree must be removed for the project to proceed, tree removal will only occur between September 15 and February 1.

As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides suitable foraging habitat for the Swainson's hawk to satisfy in part or whole to meet Swainson's hawk mitigation requirements of the project. In lieu of conserving mitigation land or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC's administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts Swainson's hawk habitat.

MM BIO-7

Nesting Raptors. A raptor nesting survey shall be conducted prior to commencing with construction for each phase of development if this work would commence between February 1st and August 31st. The raptor nesting surveys shall include examination of all trees within 300 feet of the portion of the site proposed for grading and construction activities, or where possible, not just trees slated for removal.

If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on

the Project site), and a 300- to 500-foot radius around the nest tree must be staked with bright orange lath or other suitable staking. A 500-foot buffer is recommended to protect nesting golden eagles, while buffers that are established for other common nesting hawks should be 300 feet. The size of the buffer may be altered if a qualified raptor biologist determines that a modified buffer will protect the nesting raptors from harm/take. To render recommendations for the appropriate buffers, the qualified raptor biologist will examine a number of parameters including geographic barriers between the nest site and project disturbance, construction noise levels, elevation of the nest relative to proposed construction activities, and based upon actual nesting behavioral observations that indicate how well the nesting raptors are acclimated to disturbance. The raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. Buffers shall be demarcated per above where the buffer intersects the Project site via orange construction fencing or red lath that clearly demarcates a no entry area for any construction workers or equipment.

No construction or earth-moving activity shall occur within the established nesting buffer until it is determined by a qualified raptor biologist that the nesting cycle is complete, including that any young are fully fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1st. This date may be significantly earlier and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors, then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1st. If buffers are removed prior to September 1st, the qualified raptor biologist conducting the nesting surveys should prepare and submit a report to the City of Brentwood that provides details about the nesting outcome and the removal of buffers. For each phase of development, this report should be submitted prior to the time that nest protection buffers are removed if the date is before September 1st.

MM BIO-8

Nesting Migratory Birds. If Project site disturbance associated with the proposed project would commence between March 1st and September 1st, a preconstruction nesting survey for each phase of development should be completed in the 15-day period prior to commencing disturbance on the Project site. The nesting survey should be conducted on all or a portion of the Project site that is the subject of the approved grading plans proposed to be initiated, and within a zone of influence around the Project site. The zone of influence includes those areas off the Project site where birds could be disturbed by earth-moving vibrations or construction noise. Accordingly, the nesting survey(s) must cover the Project site and an area around the Project site boundary, where possible and within the Project proponent's control.

If special-status birds are identified nesting on or adjacent to the Project site, a non-disturbance buffer of 100 feet should be established or as otherwise prescribed by a qualified ornithologist. If common (that is, not special-status) birds for example, California towhee, California scrub jay, or acorn woodpeckers are identified nesting on or adjacent to the Project site, a non-disturbance buffer of 75 feet should be established or as otherwise prescribed by a qualified ornithologist. The buffer should be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer should be postponed until it is determined by a qualified ornithologist that the young have fledged and have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed.

Typically, most passerine birds in the region of the Project site are expected to complete nesting by August 1st. However, many species can complete nesting by the end of May or June. Nesting swallows may not complete nesting until late July or through the month of August. Regardless, nesting buffers should be maintained until September 1st unless a qualified ornithologist determines that the nest cycle is completed, and that any young have fledged and are independent of their nests at an earlier date. If buffers are removed prior to September 1st, the qualified biologist conducting the nesting surveys should prepare and submit a report to the City of Brentwood that provides details about the nesting outcome and the removal of buffers. This report should be submitted prior to the time that nest protection buffers are removed if the date is before September 1st.

MM BIO-9

San Joaquin Kit Fox. The Project proponent shall implement standard avoidance measures to reduce the possibility of impacts to the San Joaquin kit fox that include:

- *An education program will be conducted by a qualified biologist prior to the start of construction for each phase of development to explain the endangered species concerns to contractors working at the Project site. The program will include an explanation of the FESA and CESA and any endangered species concerns in the area.*
- *Qualified biologists would conduct preconstruction den surveys within 30 days of ground disturbance for each phase of development to ensure that potential kit fox dens are not disrupted. The surveys will establish the presence or absence of San Joaquin kit foxes and/or habitat features and evaluate use by kit foxes in accordance with USFWS survey guidelines (U.S. Fish and Wildlife Service 1999). The status of all dens will be determined and mapped. Written results of preconstruction surveys will be submitted to USFWS and CDFW within 5 working days after survey completion and before the start of ground disturbance.*

- *If “potential dens” are located, infrared camera stations will be set up and maintained for 3 consecutive nights at den openings prior to initiation of grading activities to determine the status of the potential dens. If no kit fox is found to be using the den, site grading can proceed unhindered. Unoccupied dens shall be destroyed immediately to prevent subsequent use.*
- *Per the HCP/NCCP, if kit fox activity is observed at the den during the initial monitoring period, the den will be monitored for an additional 5 consecutive days from the time of the observation to allow any resident animal to move to another den. If a natal or pupping den is found, USFWS and CDFW will be notified immediately. The den will not be destroyed until the pups and adults have vacated and then only after further consultation with USFWS and CDFW. For dens other than natal or pupping dens, use of the den can be discouraged by partially plugging the entrance with soil such that any resident animal can easily escape. Once the den is determined to be unoccupied it may be excavated under the direction of the biologist. Alternatively, if the animal is still present after 5 or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant (i.e., during the animal's normal foraging activities).*
- *If dens are identified in the survey area outside the proposed disturbance footprint, exclusion zones around each den entrance or cluster of entrances will be demarcated. No covered activities will occur within the exclusion zones. Exclusion zones will be established and monitored during construction surveys.*
- *To prevent harm to San Joaquin kit fox, any steep-walled holes and/or trenches excavated on the Project site will be completely covered at the end of each workday or escape ramps will be provided to allow any entrapped animals to escape unharmed. All pipe sections stored at the Project site overnight that are four inches in diameter or greater will be inspected for San Joaquin kit fox before the pipes are moved or buried. If San Joaquin kit fox are identified in the work area at any time, the USFWS and the CDFW will be notified and consulted before work activities resume. All trash items will be removed from the site to reduce the potential for attracting predators of San Joaquin kit fox. Contractors will be prohibited from bringing firearms and pets to the job site.*

As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides potential San Joaquin kit fox migration habitat to satisfy in part or whole to meet San Joaquin kit fox mitigation

requirements of the project. In lieu of conserving mitigation land or in combination with conserving mitigation land, the proponent may pay a fee to use the ECCCHC's administered HCP/NCCP. The HCP/NCCP provides coverage for potential impacts San Joaquin kit fox habitat.

MM BIO-10

American Badger. To ensure there is no direct impact to American badger, a qualified biologist would conduct a preconstruction den survey for each phase of development no more than 14 days prior to site grading. If a potential den is located, infrared camera stations will be set up and maintained for 3 consecutive nights at den openings prior to initiation of grading activities to determine the status of the potential dens. If American badger is not found to be using the den, site grading can proceed unhindered. However, if American badger is found using a den site within the Project site, the CDFW will be notified and consulted before work activities resume.

As described in MM BIO-1, the Project proponent may use Sections 5 and 9 Mitigation Property, which provides suitable American badger habitat to satisfy in part or whole to meet American badger mitigation requirements of the Project.

Compliance with the measures noted below shall be required as a Condition of Approval on future subdivision maps and/or design reviews.

MM BIO-11

The Project shall encourage conservation of existing native vegetation and integration of regionally native plant species into development and infrastructure projects.

MM BIO-12

The Project shall discourage removal of large, mature trees that provide wildlife habitat or contribute to the visual quality of the environment and prioritization of replacement tree plantings on-site rather than off-site locations.

Impact BIO-2:

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (*no impact*)

No riparian habitat or other sensitive natural communities occur on the Project site. Therefore, the Project would have **no impact** on sensitive communities.

Mitigation Measures

None required.

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 with application of site-specific mitigation measures*)

Waters of the U.S.

A wetland delineation of the entire Project site will be conducted using criteria prescribed in the Corps' 1987 Wetland Delineation Manual (Corps 1987) and the Corps' Regional Supplement for the Arid West Region (Corps 2008). A Draft Aquatic Resources Delineation Map will be submitted to the Corps along with a request for a jurisdictional determination. The delineation will cover both waters of the State and Waters of the U.S. The proponent may secure either Corps-verified PJD or Administrative Jurisdictional Determination (AJD), or may rely on the agencies to approve the aquatic resources study as a part of permit approval.

Based on M&A's preliminary hydrology mapping in 2019, there are approximately 15 to 20 acres of waters of the U.S. on the Project site. This is a conservative estimate that has not been verified by the Corps. Under Federal law, and the State's new wetland and dredge and fill regulations, waters of the U.S. and the State must be avoided and minimized to the maximum extent practicable. Thus, the Project site likely will include wetland avoidance areas that would be established as part of the permitting process with the Corps and the RWQCB. Because this Project has not undergone agency review and will be subject to a Section 404(b)(1) alternatives (or, as described above, "LEDPA") analysis to demonstrate compliance with avoidance and minimization requirements, the final acreage of impact is unknown at this time. Nonetheless, these State and Federal policies will limit fill activities to those which are necessary to accomplish the overall Project purpose in a practicable manner.

The loss of waters of the U.S. (including wetlands) resulting from individual projects authorized under RGP 1 issued for use with the HCP/NCCP may not exceed a total of 1.5 acres or more than 300 linear feet of perennial, intermittent or 3rd or higher order ephemeral streams, unless the linear foot limit is waived in writing by the Corps. The proposed project would remain within the impact thresholds specified for this RGP. Alternately, the Project proponent has the option to pursue an Individual Permit through the Corps if these thresholds would be exceeded because avoidance to this level is not practicable. In addition, Section 401 Water Quality Certification is required for activities to be authorized under the RGP. Accordingly, a Section 401 Certification of Water Quality (or waste discharge requirements for non-Federal waters) shall be obtained from the RWQCB for the proposed project.

Nonetheless, given that a formal wetland delineation has not yet been prepared for the Project site, the actual acreage of on-site waters of the U.S. is unknown at this time. Therefore, the potential exists for the Project to result in impacts to areas that are within the Corps' and RWQCB's jurisdiction pursuant to Sections 404 and 401 of the CWA, respectively. However, implementation of MM BIO-13, which requires compliance with applicable Corps/RWQCB standard procedures related to jurisdictional waters, would reduce these impacts to a less-than-significant level.

Other State-Protected Waters

Any project modifications to Deer Creek or other drainage features with a defined bed and bank on the Project site would be considered to affect Waters of the State, which are subject to the jurisdiction of the RWQCB. In addition, modification of such features would be subject to CDFW's jurisdiction pursuant to Section 1602 of the California Fish and Game Code. Any proposed stormwater outfall structures that affect the bed, bank, or channel of any tributary would require obtaining a 1602 SBAA from the CDFW. Given that buildout of the Project could require modification of drainage features that are subject to the RWQCB's and CDFW's jurisdiction, a potentially significant impact could occur.

However, MM BIO-13 would require the Project proponent to demonstrate to the Corps and the RWQCB, as applicable, that any proposed fill of wetlands or other waters represents the LEDPA and satisfies the State and Federal no net loss policies and applicable fill procedures. Alternately, MM BIO-14 allows for the Project proponent to satisfy its mitigation obligation through the payment of HCP/NCCP wetland fees, the completion of a permittee-responsible project at an appropriate location, or some combination of the two. MM BIO-14 requires implementation of construction BMPs that would ensure that unintended fill impacts during construction would not occur. In addition, MM BIO-15 requires the proponent to obtain a fully-executed CDFW 1602 SBAA if the Project involves improvements within any drainage or tributary that supports a bed, bank, and channel. Any conditions in the SBAA would become City of Brentwood Conditions of Approval. Overall, the mitigation measures would require Project compliance with applicable Federal, State, and local standards for jurisdictional drainages. As such, implementation of MM BIO-13 through MM BIO-15 would reduce impacts to a less-than-significant level.

Conclusion

As discussed above, implementation of the Project would have the potential to result in impacts to waters of the U.S. and waters of the State. However, implementation of MM BIO-13 through MM BIO-15 would reduce potential impacts to State or Federally protected wetlands to a ***less-than-significant*** level.

Mitigation Measures

MM BIO-13 *Determination of Jurisdictional Waters and Permitting. Prior to commencing a proposed activity, the Project proponent shall prepare and obtain concurrence from the Corps via confirmation of a Preliminary Jurisdictional Determination (PJD) or Administrative Jurisdictional Determination (AJD). Otherwise an aquatic resource assessment shall be prepared to quantify the total extent of Corps/RWQCB jurisdictional features on the Project site. Additionally, the Project proponent shall obtain appropriate permits from the Corps and RWQCB for project impacts to seasonal wetlands and other waters (Waters of the U.S. and State respectively). The Project proponent may choose to apply for and receive authorization to use an Individual permit from*

the Corps pursuant to Section 404 of the Clean Water Act. In lieu of a Corps' Individual Permit, the Project proponent may seek authorization to use the ECCCHC's Regional General Permit (RGP 1) if proposed fill meets conditions for use of RGP 1. In either case, Section 401 certification will be required from the RWQCB under then-current regulations. In either case, the Project proponent will demonstrate to the Corps and the RWQCB, as applicable, that any proposed fill of wetlands or other waters represents the least environmentally damaging practicable alternative. As a part of this permit process, the Project proponent will secure approval of, and shall comply with, a compensatory mitigation plan that will satisfy State and Federal no net loss policies as reflected in the Corps' 2008 mitigation rule and the dredge and fill procedures adopted by the State Water Resources Control Board.

The Project proponent may satisfy its mitigation obligation through the payment of HCP/NCCP wetland fees or the completion of a permittee-responsible project at an appropriate location, or some combination of the two. The Project proponent may also choose to preserve, restore or enhance some on-site wetland features in connection with the Project's mitigation needs. Any preserved, created, restored or enhanced waters and adjacent buffers on the Project site shall be preserved and permanently protected through a deed restriction, or other appropriate site protection instrument, consistent with the requirements of the Corps and/or RWQCB. A recorded copy of the site protection instrument must be provided to the Corps, RWQCB, and City of Brentwood prior to proceeding with any activity on the Project site that would impact wetlands or other waters.

MM BIO-14

Construction BMPs. The Project proponent shall implement appropriate BMPs to prevent construction related impacts that could introduce fill or other pollutants into Deer Creek or other drainage features that support a bed, bank, and channel on the Project site. These measures include the installation of wildlife friendly hay wattles and/or silt fence that will prevent unintended fill impacts while construction is ongoing adjacent to any tributary with a bed, bank, and channel.

MM BIO-15

SBAA. The Project proponent shall obtain a fully executed CDFW 1602 SBAA if the project impacts any drainage or tributary that supports a bed, bank, and channel. Any SBAA obtained for the Project, a copy thereof, shall be provided to the City of Brentwood and any conditions in the SBAA shall become City of Brentwood Conditions of Approval.

Impact BIO-4: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (*less than significant*)

The Project site is located in an area of the City of Brentwood that is rapidly transitioning from agricultural uses to residential and commercial development. In the early 2000s, a residential development was built along the eastern boundary of the Project site. Two future developments are currently under construction north of the Project site, including The Vineyards at Sand Creek Project (also known as the Cielo Project) and the Aviano Development Project. Lands to the south of the Project site, south of Balfour Road, are presently utilized for low-density residential and agricultural uses. Consequently, wildlife movement north – south would be truncated by the proposed project; however, important local wildlife corridors will remain along Deer Creek, the unnamed drainages onsite, and in Sand Creek to the north.

Deer Creek on the south side of the Project site provides a local wildlife corridor for common mammals that hunt up and down tributaries, obtain drinking water from such tributaries and that move from one area of their home range to another. This tributary, for the most part runs parallel with Balfour Road, a currently heavily trafficked thoroughfare. The proposed project would impact a small portion of Deer Creek when Balfour Road improvements are completed as part of the proposed project. Also, a stormwater outfall structure would be constructed in this creek as part of the Project. Most of Deer Creek would remain preserved by the Project and will continue to be used as a local wildlife corridor after the Project site is developed. Impacts to the common wildlife species that use this corridor would be temporary and minor.

The unnamed ephemeral drainage channels in the northwest and northeast corners of the Project site similarly provide local wildlife corridors that are used by common animals. These ephemeral drainages may be largely avoided and preserved within the wetland avoidance areas that would be established as part of the Project permitting process with the resource agencies to minimize the Project's impact on waters of the U.S. and State. Therefore, local wildlife would still use these tributary corridors after the site is developed. In addition, prior to the commencement of construction, a wildlife exclusion fence would be installed between the portion of the Project site and any avoided wetland areas to prevent wildlife migrating along these potential corridors from entering the work area on the Project site where they might be harmed.

San Joaquin Kit Fox

As discussed in Section 4.4.1, the Project site is within "Suitable Core Habitat" of the species in the HCP/NCCP. Suitability does not infer the presence of this fox species, only that the species could occur. Nevertheless, as shown in Figure 5-5 of the HCP/NCCP, the southwest corner of the Project site is within the Horse Valley and Lone Tree Valley San Joaquin kit fox "potential movement route" (see Figure 4.4-4). Accordingly, the USFWS and CDFW will likely regard the Project site as a potential migration corridor for this fox species that could be disrupted by development of the Project site.

Conservation of the San Joaquin kit fox movement corridor within and near the Project site has been prioritized by the HCP/NCCP and is discussed in Chapter 5 of the HCP/NCCP. As discussed in the HCP/NCCP, the movement corridor within and near the Project site is one of the largest movement corridors currently available for the species within the County. The movement corridor includes lands to the west and southwest of the Project site, and extends through both Horse Valley and Lone Tree Valley. The HCP/NCCP acknowledges that recent adjustments to the City of Antioch's ULL will reduce the viability of portions of this movement corridor in the future. Given the foregoing factors, the HCP/NCCP has assigned conservation priorities for land acquisition in areas within the existing movement corridor. The Project site is included in acquisition sub-zone 2g, which, as shown in Figure 4.4-9 below, is identified for a lower level of acquisition effort under the HCP/NCCP. Nevertheless, the HCP/NCCP identifies portions of the Horse Valley movement corridor outside of the Project site, in subzones 2h, 2f, and 2e, for higher level acquisition effort.

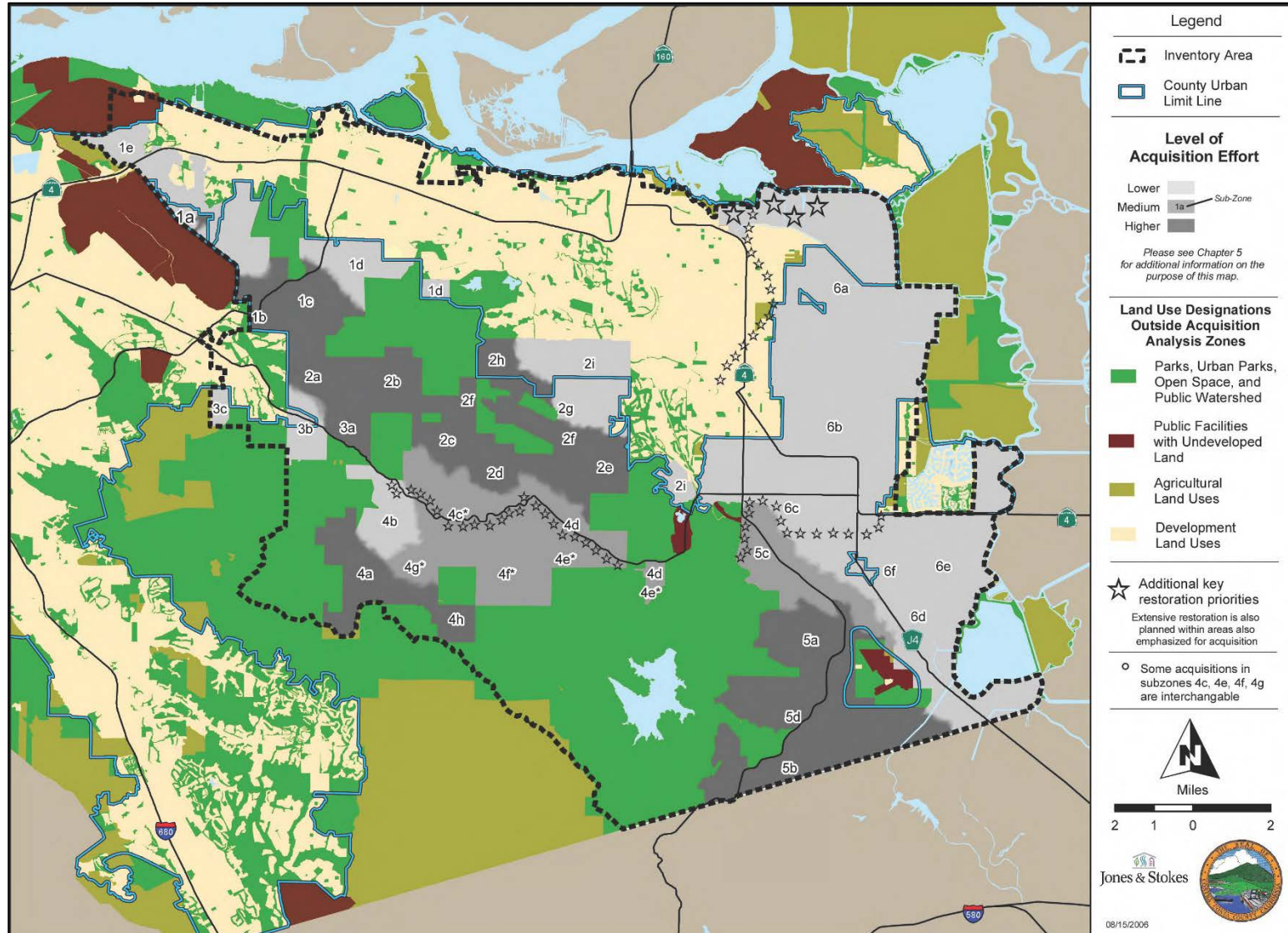
In particular, due to the anticipated development within the Horse Valley and Lone Tree Valley movement corridor, the HCP/NCCP indicates that the focus of protection efforts for the Horse Valley and Lone Tree Valley movement corridor should be on subzone 2h, west of and through the Roddy Ranch Golf Course.

The Project would include development of the Project site with urban uses, which would inhibit use of the Project site as a movement corridor. However, the Project site represents a small portion of the larger movement corridor, and the Project would not include development features that would span the entire movement corridor and substantially interfere with movement of species within the overall corridor. Furthermore, the Project would not have any effect on the use of the other identified movement corridors in Deer Valley, Briones Valley and Round Valley. Development of the Project site would not preclude acquisition and conservation of the remaining portions of the Horse Valley and Lone Tree Valley movement corridor, including the high acquisition sub-zones of 2f, 2h and 2e. Considering that the Project site represents a small portion of the larger movement corridor, that the Project site has been identified as having a low acquisition priority, and that development of the Project would not preclude continued use of the remaining portions of the Horse Valley movement corridor, including sub-zone 2h, or any other nearby movement corridors, the Project would not be considered to result in a substantial interference with the movement of San Joaquin kit fox. In addition, MM BIO-9 requires implementation of avoidance measures for San Joaquin kit fox.

Native Wildlife Nursery Sites

Development of sites where wildlife species congregate to breed, such as tricolored blackbird breeding sites, cliff swallow nesting colonies, or special-status bat colonies, can result in the impediment of native wildlife from using nursery sites. Although native wildlife may breed within the Project site, such breeding activity is isolated and the total number of individuals is limited. Therefore, the site is not considered a native wildlife nursery site where a substantial number of species breed. Because the Project site is not considered a native wildlife nursery site development of the Project would not have the potential to result in the impediment of a native wildlife nursery site.

Figure 4.4-9
 HCP/NCCP Acquisition Effort



Conclusion

The few local wildlife corridors that occur now on the Project site would largely be preserved or unaffected by the proposed project. Although the Project site is within a portion of the existing Horse Valley and Lone Tree Valley movement corridor for the San Joaquin kit fox, the HCP/NCCP has identified that the conservation priority for this movement corridor is further to the west of the Project site, in sub-zones 2f, 2h, and 2e. Furthermore, development of the Project would be predominantly limited to the Project site and would not include any features that would preclude the use of the remaining areas of the Horse Valley and Lone Tree Valley movement corridors or any other movement corridors for the species. Consequently, implementation of the Project would result in a **less-than-significant** impact related to the substantial interference with wildlife movement or the impediment of use of nursery sites for native wildlife and mitigation is not required.

Mitigation Measures

None required.

Impact BIO-5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (*less than significant*)

The City of Brentwood has not adopted a tree preservation ordinance that would govern the Project site. Rather, local policies protecting biological resources more broadly are found in the 2014 General Plan. A number of the applicable policies are analyzed in Table 4.4-1 below.

Table 4.4-1: Land Use Summary	
General Plan Policy	Conflict?
"Encourage the protection and incorporation of existing, native, mature, non-orchard trees and areas of natural vegetation as part of new development." (Policy COS 1-9)	No conflict. The VDCSP includes policy language to "ensure that neighborhood lot design, grading, construction, and landscaping give priority to the preservation of healthy native oak trees where feasible." Based on the results of the tree survey for the Project site, the site contains a total of 108 trees. Of the 108 trees on-site, 106 are native oaks, one is a willow, and one is non-native tamarisk. The 106 native oaks are primarily Blue Oaks (<i>Quercus Douglasii</i>), which are joined by two native Valley Oaks (<i>Quercus lobata</i>). Of the 107 native trees, approximately 86 were noted as having a "good" or "fair" health rating. The majority of trees are located in the western portion of the Project site, near the bend in Deer Valley Road. While a significant amount of this area will be preserved in perpetuity as open space, as part of the Project, it is anticipated that numerous mature trees could be

(Continued on next page)

Table 4.4-1: Land Use Summary	
General Plan Policy	Conflict?
	removed. The loss in biological value associated with this tree removal will be offset by the Project’s habitat mitigation, which, as discussed elsewhere in this section, would consist of either fee contribution to the ECCCHCP/NCCP for acquisition of preserve properties, or utilization of the 1,360 acre mitigation property in Eastern Contra Costa County (called the Sections 5 and 9 Mitigation Property).
“Common or private open space that is not City property shall be privately maintained.” (Policy COS 1-8)	No conflict. The VDCSP requires that the 225 acres (at a minimum) of open space to be preserved shall be privately owned and managed.
“Where possible, integrate open space and stream corridors with trails and other recreational open space in an environmentally sustainable manner.” (Policy COS 1-4)	No conflict. The VDCSP’s Design Guidelines provides: “integrate the natural environment and circulation design to minimize the disruption of natural features, and to the extent practicable, blend with the site’s existing landforms, trees, and drainage courses.”
“Encourage public and private efforts to preserve open space.” (Policy COS 1-7)	No conflict. The Project would designate at least 225 acres as open space to be planted with permanent agricultural crops, as well as used for formal or informal parkland, permeable and semi-permeable trails, and waterways. Other open space uses may include those that support the maintenance and preservation of the open space uses (e.g., barns, maintenance buildings, irrigation facilities, etc.).
“Conserve existing native vegetation where possible and integrate regionally native plant species into development and infrastructure projects where appropriate.” (Policy COS Policy 3-4)	No conflict. The VDCSP’s resource management measures state that: “It is the intent of the [VDC] Specific Plan to ensure that all design, grading, construction and landscaping give priority to the preservation of healthy native oak trees where feasible. The location and preservation of the healthy native trees should be a factor in site design. Existing species which are of poor health, as determined by an arborist, may be removed due to associated hazards. Trees to be preserved must be protected during construction. No grade cuts can occur within the drip line of the tree to be preserved.”
“Maintain permanent agricultural lands surrounding the city limits to serve as community separators and continue the agricultural heritage of Brentwood.” (Policy COS 2-2)	No conflict. The General Plan planned for the development of the Project Site (identified as SPA 2 in the General Plan) with residential and, potentially, limited commercial uses, and thus does not recognize the Project site as “permanent agricultural lands” required to be preserved as a community separator.

(Continued on next page)

Table 4.4-1: Land Use Summary	
General Plan Policy	Conflict?
<p>“Encourage the use of natural features such as bio swales, vegetation, retention ponds, and other measures to remove storm water pollutants prior to discharge, subject to State regulations.” (Policy COS 4-5)</p>	<p>No conflict. Though not required by this General Plan policy, the VDCSP provides that “future development of the Specific Plan Area will integrate various technologies and techniques to remove pollutants from site runoff prior to entering drainage courses. Such techniques may include (but would not be limited to): reduced slope grading, drainage through vegetative zones (e.g., bioswales that use natural processes, vegetation, and associated beneficial bacteria and microorganisms to break down pollutants) and other options to intercept pollutants being conveyed toward drainage paths. Technological solutions such as gravelly filter blankets or particulate filters (e.g., fossil filters) may also be installed as pollutant-removal solutions.”</p>
<p>“Consult with State and Federal agencies during the development review process to help identify wetland and riparian habitat that has candidacy for restoration, conservation, and/or mitigation. Focus restoration and/or conservation efforts on areas that would maximize multiple beneficial uses for such habitat.” (Policy COS 4-7)</p>	<p>No conflict. MM BIO-13, MM BIO-14, and MM BIO-15 of this EIR require the Proponent to consult with the Corps, the RWQCB, and the CDFW prior to commencing on-site construction, to determine which on-site aquatic features and associated habitat are subject to their respective jurisdiction. Those areas determined by the respective agencies to be jurisdictional will require mitigation to offset impacts, as set forth in the above-referenced mitigation measures.</p>

Given the compliance of the proposed Project with the City’s adopted General Plan policies protecting biological resources, the Project would have a ***less-than-significant*** impact.

Mitigation Measures

None required.

Impact BIO-6: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan? (*less than significant with application of site-specific mitigation measures*)

The Project site provides habitat that would be regarded by the USFWS as providing “suitable” habitat for vernal pool fairy shrimp, California tiger salamander, and California red-legged frog, and potential migration habitat for the San Joaquin kit fox. The State-listed California tiger salamanders are known to occur on the Project site (CNDDDB Occurrence Numbers 678, 854, 855, and 856). In addition, the State-listed Swainson’s hawk has potential to nest in the trees found on the Project site. If occupied or assumed to be occupied, incidental take coverage for

potential impacts to Federally- or State-listed species resulting from the Project would be required prior to project commencement.

As previously discussed, the Project site is located within the HCP/NCCP covered area, and the Project site is characterized under the grassland landcover type within the HCP/NCCP. Since the USFWS is a signatory of the HCP/NCCP, pursuant to Section 10 of the FESA, the Project may use the HCP/NCCP to obtain FESA incidental take coverage for potential impacts to the Federally-listed species covered in the HCP/NCCP. Mitigation would take the form of a fee payment to the ECCCHC, and would cover take of California tiger salamander, California red-legged frog, Federal protected fairy shrimp, and other species. Similarly, CDFW is one of the resource agency signatories of the HCP/NCCP, and use of the HCP/NCCP as proposed would provide incidental take coverage for potential impacts to State listed species. To mitigate for impacts to State listed species and their associated habitats resulting from the proposed project, the proponent would pay a fee to the ECCCHC as described above, which fee would cover both State- and Federally-listed species.

The extent of use of the HCP/NCCP, and cost of using the HCP/NCCP, would be balanced against the Project proponent's proposal to satisfy most of its mitigation requirements via the permanent preservation of approximately 1,360 acres of property in eastern Contra Costa County (Sections 5 and 9) (Figure 4.4-5), as discussed under MM BIO-1. An alternative mitigation property approved by the USFWS and CDFW that possesses comparable biological resources for the affected Federal and State listed species may also be used for mitigation in lieu of the 1,360 acres of property in eastern Contra Costa County (Sections 5 and 9). If the Project proponent were to pursue this option, the land would be donated to the ECCCHC, or another land preservation entity as approved by the CDFW, USFWS, and the ECCCHC, and the Project proponent would receive a negotiated credit against HCP fees.

As previously discussed, the proposed project is covered under the HCP/NCCP and would comply with all requirements of the HCP/NCCP, either through conserving mitigation land, payment of HCP/NCCP fees, or a combination thereof. Per the HCP/NCCP, projects which demonstrate compliance with applicable terms and conditions, including compliance with relevant avoidance, minimization, surveys, monitoring, and conservation measures and payment of fees or dedication of land in lieu of fees, may be considered consistent with the ECCCHC HCP/NCCP, provided that the HCP/NCCP application package is deemed complete. As a result, with implementation of MM BIO-16 below, impacts associated with HCP conflicts would be ***less than significant***.

Mitigation Measures

MM BIO-16 *Implement MM BIO-1 through MM BIO-15.*

**Impact BIO-7: Would the off-site improvements result in impacts to biological resources?
(less than significant with application of site-specific mitigation measures)**

Off-site Sewer Pipe Improvements

Installation of off-site sewer pipeline infrastructure as part of the proposed project is anticipated to occur under Alternative 2 or 3, which are discussed in Chapter 3, Project Description, of this EIR. Although the final alignment of the off-site sewer pipeline has not yet been determined, only one of the two alternatives would eventually be implemented. Both Alternative 2 and 3 leave the northeastern corner of the Project site. Alternative 2 would involve routing the sewer line through undeveloped annual grasslands before directing the line into Copperfield Court where the line would connect to existing sewer line infrastructure. Alternative 3 would involve routing the sewer line through a previously disturbed landscaped hill area before connecting the proposed line to existing infrastructure in St. Regis Avenue. Neither of the proposed sewer alignments would pass through any wildlife movement corridors, wetlands, riparian areas, or other sensitive habitats. Following implementation of either of the proposed alignments, the disturbed areas would be revegetated and further disturbance would not occur.

Considering the previously disturbed nature of the alignment for Alternative 3, implementation of Alternative 3 would not be anticipated to have the potential to result in impacts to biological resources. Although the alignment of Alternative 2 does not include any sensitive habitats, the annual grasslands within the alignment could provide habitat for certain species discussed previously as occurring within the Project site. Therefore, implementation of Alternative 2 would have the potential to result in impacts to special-status species or other biological resources found in annual grasslands. Nevertheless, implementation of MM BIO-1 through BIO-15 previously included in this section would be sufficient to reduce such impacts to a less-than-significant level. Such mitigation measures include specific requirements to avoid impacts to special-status plant and wildlife species, should such species occur within disturbance areas associated with the Project.

Off-site Irrigation Pipe Improvements

The preferred alignment of the off-site irrigation pipeline is Alternative 1. Alternative 1, which is described in greater depth in Chapter 3, Project Description, of this EIR, would involve routing an irrigation water supply line within the existing alignment of Balfour Road. Because ground-disturbance related to implementation of irrigation pipe Alternative 1 would occur within the existing alignment of Balfour Road, irrigation pipe Alternative 1, no impact would occur related to implementation of irrigation pipe Alternative 1.

Off-site Roadway Improvements

American Avenue Extension

The area planned for the extension of American Avenue is currently used for agricultural purposes, specifically, farming of dryland hay and safflower. Several oak trees exist in proximity to or within the proposed alignment of American Avenue. Therefore, the extension of American Avenue could result in impacts to special-status species using the existing habitat within the proposed alignment. Furthermore, the American Avenue Extension is within the northeastern corner of acquisition sub-zone 2f of the HCP/NCCP for San Joaquin kit fox migration corridors. Acquisition sub-zone 2f is identified as an area of high acquisition importance. The proposed alignment of the American Avenue Extension would preclude the use of a small portion of sub-zone 2f, but would not preclude the use of the larger Deer Creek migration corridor or the Horse Valley and Lone Tree Valley migration corridor. Furthermore, the extension of American Avenue as proposed has been previously anticipated by the City and analyzed in the city's General Plan EIR.

Considering the available habitat features and biological resources within the potential alignment of the American Avenue Extension, implementation of the proposed off-site improvement would have the potential to result in significant impacts to biological resources. Therefore, implementation of MM BIO-1 through MM BIO-12 would be required to minimize potential impacts. As noted previously, such mitigation measures include specific survey requirements for special-status species, avoidance and minimization measures to be implemented if such species are found, and requirements to ensure compliance with applicable State and federal standards related to sensitive biological resources. Thus, impacts would be reduced to less-than-significant levels.

Balfour Road Widening

A portion of Deer Creek exists in proximity to Balfour Road within the Project site. Implementation of the proposed widening of Balfour Road from two to four lanes could result in impacts to the adjacent drainage features. Consequently, the widening of Balfour Road may require permits from regulatory agencies related to work within the existing drainages. Potential impacts to jurisdictional areas would be regarded as significant pursuant to the CEQA. Implementation of MM BIO-13 through MM BIO-15 would reduce these impacts to a less-than-significant level through requiring compliance with applicable Federal State, and local standards for jurisdictional drainages, as discussed under Impact BIO-3 above.

Conclusion

As discussed above, implementation of sewer alignment Alternative 3 and the off-site irrigation pipeline under Alternative 1 would not have the potential to result in impacts. However, implementation of sewer alignment Alternative 2, the Balfour Road widening, and the American Avenue Extension would have the potential to result in significant impacts to biological resources. Consequently, implementation of site-specific mitigation measures would

be required, and implementation of MM BIO-1 through MM BIO-15 would be sufficient to reduce impacts to a ***less-than-significant*** level.

Mitigation Measures

MM BIO-17: *Implement MM BIO-1 through MM BIO-15.*

Cumulative Impact Analysis

Impact BIO-8: **Would the project result in the cumulative loss of biological resources in the City of Brentwood? (*less than significant with application of site-specific mitigation measures*)**

Implementation of the Project would result in cumulative impacts to wetlands, other waters, and to special-status plant and animal species. Mitigation would be implemented as detailed above that would reduce the cumulative impacts to waters of the U.S. and State, and to special-status plant and animal species to levels regarded as less than significant pursuant to CEQA. In addition, the Project would result in development within a portion of an identified movement corridor for San Joaquin kit fox in the County. However, as discussed previously, such development would not result in a significant impact to wildlife movement in the County, and the HCP/NCCP has previously planned for the conservation of movement corridors within the county to ensure that cumulative development within the city and surrounding areas does not result in significant impacts to wildlife movement or habitat in the HCP/NCCP area. While the Project-related impacts would be considered cumulative with other projects in the city, the mitigation measures prescribed above would offset cumulative impacts to wetlands and other waters, and to special-status species and plant communities/wildlife habitats to levels regarded as less than significant pursuant to CEQA. Therefore, consistent with the conclusions of the city's 2014 General Plan EIR and following implementation of all mitigation measures, the proposed project, in combination with other projects in the city would result in a ***less-than-significant*** cumulative impact.

Mitigation Measures

MM BIO-18: *Implement MM BIO-1 through MM BIO-15.*

4.5 Cultural Resources

4.5.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to cultural resources that could result from implementation of the proposed project. The current condition and quality of cultural resources was used as the baseline against which to compare potential impacts of the Project. This section of the EIR is closely related to Section 4.15, Tribal Cultural Resources, of this EIR. Where appropriate, and to minimize redundancy, cross references to the applicable analysis contained within the Tribal Cultural Resources section of this EIR is provided. Technical on-site information used to prepare this section came from the following resource:

- ECORP Consulting, Inc. 2019. *Cultural Resources Technical Memo Vineyards at Deer Creek, Contra Costa County, California*, February 15, 2019.

Ethnographic Setting

The Native Americans who inhabited the Mt. Diablo and Delta region at Spanish contact in the 1770s are most commonly known as Bay Miwok, with Plains Miwok to the northeast, Ohlones to the south and west, and Northern Valley Yokuts to the east.

The prehistoric Bay Miwok were hunters and gatherers who exploited resources in the Delta area, one of the most densely lived-in areas of prehistoric California. The Miwok had perfected living in and managing myriad environments, some rich enough to support large permanent villages. Littoral (shoreline) and riparian environments, including the Delta marshlands, were obviously more productive and were therefore most sought out, and most intensively utilized and occupied (Levy 1978).

As throughout Central California, the acorn was the dietary staple of the Bay Miwok, but a large number of floral and faunal resources were utilized, particularly grass seeds. Like other native Californians, the Miwok managed their environment to improve it for their use; for example, by burning grass and brush lands annually to improve forage for deer and rabbits, keeping the land open and safer from predators and their neighbors, and improving productivity of many resources they depended upon (Levy 1978).

The basic unit of Bay Miwok society was most likely the "tribelet," a small independent group of usually related intermarried families occupying a specific territory and speaking the same language or dialect. The triblet might consist of 200 to 400 people in favorable areas, but perhaps 100 to 200 in less productive zones. Inter-tribelet relationships were socially and economically necessary to supply both marriage partners and goods and services not locally available. Trade and marriage patterns were usually, but not always, dictated by proximity. Traditional enemies were usually also defined by proximity (Levy 1978).

Regional festivals and religious dances would bring groups together during periods of suspended hostilities. There was usually a strict distinction between women's work harvesting plant foods,

processing and cooking them, weaving baskets, raising small children, and men's work, which included hunting and fishing, trade, warfare, and training older sons. Textiles and basketry were very important throughout Central California, used for everything from baby beds and carriers to burial shrouds, food storage, and cooking vessels. Even the common woven brush hut was a kind of large basket; fine basket making skills conferred prestige on women (Levy 1978).

The Spanish reported (relatively) large permanent villages in the Mt. Diablo/Delta region in the 1770s indicating that multiple resources were abundant enough to support a sedentary hunting and gathering economy (Levy 1978).

Prehistoric Setting

Archaeological research in Central California began in the late nineteenth century at the University of California in Berkeley. Later, guided by Kroeber, scientific investigation and excavation of San Francisco Bay Area shell mounds began. N.C. Nelson described and mapped over 400 major Bay Area mounds, some of which had already been leveled or destroyed, but many of which were still large and obvious when the survey was complete in 1908 (Nelson 1909). Uhle had excavated the Emeryville Shellmound (ALA-309) in 1902, where he noted that deeper earlier deposits contained different artifact assemblages, different burial modes, and differing percentages of faunal remains than did shallower later deposits, thus indicating cultural change through time (Uhle 1907). Nelson later reported on excavations at CCO-295 and Loud (1924) reported on CCO-298 and CCO-300, all located along the eastern bayshore. Kroeber (1925) summarized their data as did Schenck (1926), adding new data from additional excavations at Emeryville. Both rejected Uhle's hypothesis, concluding that the mounds showed great homogeneity internally and between sites and demonstrated very little cultural change through time, and were therefore of scant research value.

In 1939, following several years of work by Sacramento Junior College, Lillard, Heizer, and Fenenga (Lillard et al. 1939) presented a cultural sequence based on sites in the Lower Sacramento Valley (LSV) and Delta; this came to be known as the Central California Taxonomic System (CCTS) after Beardsley (1954). Formulated before the advent of radiocarbon (and later, obsidian hydration) dating, depositional stratigraphy, cultural patterns, and regular changes in artifact assemblages at LSV sites were used as the key time markers. A tripartite chronological system was proposed, with Early, Middle, and Late Horizon.

Fredrickson presented another formulation of the CCTS, with a different explanatory model, based largely on North Coast data but also applicable to East Bay shellmounds, Delta sites, and some interior Contra Costa County sites (Fredrickson 1973, 1974). He proposed a different organizational scheme, with 12,000 years of California prehistory divided into five patterns based on similar technology, economic practices, mortuary patterns, concepts of wealth, and changes in type, amount, and direction of trade. Relative chronology was emphasized over assigning patterns to specific time periods: Paleo-Indian (12,000 to 8000 Before Present [BP]); Lower, Middle, and Upper Archaic (8,000 BP to After Death (AD) 500); and Upper and Lower Emergent (AD 500 to 1,800). These chronological sequences generally correspond to three cultural

patterns: Windmill (Lower to Middle Archaic), Berkeley (middle to Upper Archaic) and Augustine (Emergent).

Windmill tradition (as defined by Beardsley 1948) is generally defined by large, heavy-stemmed, and leaf-shaped projectile points commonly made of a variety of materials (other than obsidian), *Haliotis* and *Olivella* shell beads and ornaments, trident fish spears, baked clay balls (presumably for cooking in baskets), flat slab milling stones, small numbers of mortars, and ventrally extended burials oriented toward the west. The subsistence pattern of Windmill groups probably emphasized hunting and fishing, with supplemental seed collecting (possibly including acorns) (Heizer 1949; Moratto 1984; Ragir 1972).

The Berkeley Pattern (Fredrickson 1974) is generally characterized by tightly flexed burials with variable orientation, red ochre stains in burials, distinctive *Olivella* and *Haliotis* beads and ornaments, distinctive charmstones, cobble mortars and evidence of wooden mortar, numerous bone tools and ornaments, large, heavy foliate and lanceolate concave base projectile points made of materials other than obsidian, and objects of baked clay.

The Augustine Pattern (Frederickson 1974) era primarily represents both local innovation and the blending of new cultural traits introduced into the Central Valley, the emergence of which appears to have been associated with the expansion of Wintun populations from the north, leading to an increase in settlements in the area after 550 BP (Bennyhoff 1994; Moratto 1984). This pattern is distinguished in the archaeological record by intensive fishing, extensive use of acorns, elaborate ceremonialism, social stratification, and cremation of the dead. Artifacts include bow and arrow technology (evidenced by small projectile points), mortars and pestles, and fish harpoons with unilaterally or bilaterally placed barbs in opposed or staggered positions (Bennyhoff 1950). Mortuary patterns include flexed burials and cremations, with elaborate material goods found in association with prestigious individuals.

Historic Setting

Contra Costa County is one of the original 27 California counties created upon statehood in 1850. The county's economy was based on grazing, agriculture, and coal mining, which began at the same time as the Gold Rush. In 1848, coal was discovered on the northern slopes of Mt. Diablo, attracting immigrants from all over the world who settled in boomtowns around the mines. By 1880, the coal industry had collapsed, leaving many boomtowns abandoned. However, the population centers of Pittsburg, Antioch, and Brentwood, as well as the railroads and road networks that were built to transport coal and passengers, remained and were utilized by subsequent industries such as sand mining and fruit and nut production (Estes et al. 2006; Kyle 2002).

Although the coal industry was largely replaced with agriculture by 1880, grazing and crop raising had always been an important part of the county's economy. In 1852, S. Hastings, the Contra Costa County Assessor, reported an "estimate of the aggregate quantity of tillable land in this county is 132,500 acres. Grazing land, 53,000 acres. The amount of Government land is probably

4,000 acres.” Agriculture in the county consisted mostly of raising cattle and growing barley, along with broom corn (Eddy 1852:2).

In 1857, nearly 80 percent of the land within Contra Costa County was cultivated, primarily with wheat and barley. Cattle and chickens were the primary livestock raised and the county was one of the leading egg producers in the State (Higley 1858).

In 1910, Balfour, Guthrie & Company, agricultural experts and investors, purchased Rancho Los Meganos, a former Mexican land grant, and contributed to the economic development of the area around Brentwood. They revolutionized agriculture and fresh fruit production by installing the first irrigation system, and subdivided land and offered it for sale for farms and orchards (East Contra Costa Historical Society 2016). When Balfour, Guthrie & Company first acquired the Rancho, wheat, oats, and barley covered the area. In 1910, the company created a demonstration orchard farm on a 10-acre parcel near Brentwood to show how nut orchards could thrive in the area (Munro-Fraser 1926). In 1914, the company installed an irrigation system, which included a concrete ditch that carried water from the Indian River through laterals and distributed water to the 13,000 acres of the Rancho (Munro-Fraser 1926). Once the land was irrigated, English walnuts and alfalfa were planted and soon became profitable (Munro-Fraser 1926). Beginning in 1922, Balfour, Guthrie & Company began planting orchards in Brentwood to add to the agricultural growth of the city and had established California’s largest dry-yard and packing shed by the end of the 1920s. By 1926, the firm had become the East Contra Costa Irrigation District, and by 1928, the landscape had been transformed from fields of grain to orchards.

Until circa 1960, Contra Costa County had the greatest population along the shorelines of eastern San Francisco Bay and Suisun Bay. The valleys of Central Contra Costa County remained dominated by farming and ranching. Prior to the Bay Bridge opening in 1936 and the Caldecott Tunnel opening in 1937, residential commuter suburbs around the Bay Area did not exist. After World War II, residential commuter suburbs began to expand around communities that originally were established in the late nineteenth century (Cerny 2007). From these late nineteenth century communities came the towns and cities that make up Contra Costa County today. Dramatic growth in population for central and eastern Contra Costa County has continued to increase since the 1970s.

Brentwood began to develop after the San Pablo and Tulare Railroad reached the town in 1878. From this time until the 1980s, Brentwood and surrounding towns reflected the rich agricultural history of east Contra Costa County with fruit orchards and fields of crops. Brentwood’s downtown was laid out in a grid of four corners with a main street, hotel, and commercial buildings surrounded by residential neighborhoods. Beyond the downtown area were rural ranch complexes and agricultural fields (Cerny 2007). With the population of Brentwood increasing, residents created the Brentwood Improvement Association in 1947 and campaigned for incorporation. In 1948, Brentwood officially incorporated as a city in Contra Costa County. At the time Brentwood had a population of 1,729 residents. In 1990, Brentwood had a population of 7,500 (Cerny 2007) and by 2000, the city’s population had increased to 23,300 (East Contra Costa County 2016). The city is surrounded by the Contra Costa County Agricultural Core, which is active

productive farmland. However, many of the large agricultural fields that were once farmed by Balfour, Guthrie & Company are now filled with residential subdivisions and retail centers.

Records Searches

Previous Cultural Resource Studies

A records search for the property was completed at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University, on January 22, 2019 (NWIC search #W18-1367). The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the proposed project location (including the off-site improvement area associated with the proposed extension of American Avenue), and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. A search radius of 0.5-mile is a standard search radius in order to provide sufficient review of cultural resource types in the vicinity. Studying the surrounding radius helps formulate a cohesive historic background and determine what types of resources may be present within the Project site.

According to the records on file at the NWIC, 26 previous cultural resources investigations have been conducted in and within 0.5-mile of the Project site, covering approximately 70 percent of the total area surrounding the Project site within the record search radius. The previous studies were conducted between 1984 and 2013. Seven previous investigations (surveys) included portions of the Project site and cover approximately 15 percent of the total Project site. Three of the seven surveys were of small areas, two were very small areas, and two were linear.

Ten previously recorded historic-period cultural resources are located within 0.5-mile of the Project site as shown in Table 4.5-1, Previously Recorded Cultural Resources In or Within 0.5 Mile of the Project Site. There are no pre-contact period cultural resources within 0.5-mile of the Project site. The ten previously recorded historic-period cultural resources consist of ranch complexes, a rural residence, a structure foundation, a cistern, domestic refuse deposits, and an electrical transmission line and towers. Two of these historic-period resources are located within the Project site: the structure foundation, P-07-2941, and the electrical transmission line segment P-07-2951.

Summary of Previous Investigations

The records search results indicate that approximately 15 percent of the Project site has been previously surveyed for cultural resources. The map and aerial photo review indicate that there were ranch complexes and rural residences in the vicinity of the Project site. Historic period maps show two structures from the period 1898 to at least 1916 in the Project site.

Previously Identified Cultural Resources

The records search results indicate that there are two previously recorded cultural resources in the Project site: P-07-2941, a historic period archaeological site, and P-07-2951, a historic period transmission line segment in the Project site.

Site Number CA-CCO-	Primary Number P-07-	Recorder and Year	Age/ Period	Site Description	Within Project site?
681H	000004	C. Rice and A. Samuelson 1994; William Self Associates, Inc. 2008; William Self Associates, Inc. 2010	Historic	Sullenger Ranch complex	No
496H	000268	S. Baker, S. Salzman 2004; William Self Associates, Inc. 2008	Historic	Ranch/farm complex	No
532H	000303	J. L. Pape 1986	Historic	Shannon Ranch/Williamson Ranch complex	No
N/A	000763	L. Martin, J. Claiborne, and C. Wills 1998; William Self Associates, Inc. 2008	Historic	Brick cistern	No
N/A	000772	L. Martin, J. Claiborne, and C. Wills 1998	Historic	Domestic refuse along creek banks	No
N/A	000854	L. Martin and K. Popetz 2001	Historic	1940s built single family residence located at 100 Balfour Road	No
803H	002940	A. Cook 2008	Historic	Domestic refuse and building material	No
804H	002941	A. Cook 2008	Historic	Structure foundation and building material	Yes
N/A	002951	J. Lang 2008	Historic	Contra Costa Las Positas Transmission Line	Yes
N/A	003004	K. A. Crawford 2010	Historic	Transmission tower	No

Source: ECORP, 2019.

Field Survey Results

A field survey was conducted on two portions of the Project site where resources and structures have been previously recorded. Both of the previously recorded resources were located, and archaeological site P-07-2941 was confirmed to correspond with the location of the

northwesternmost structure location depicted on historic maps. Additionally, a historic-period archaeological deposit, VDC-001, was discovered at the location corresponding to the southeastern most structure depicted on historic-period maps.

P-07-2941/CA-CCO-804H – Historic-Period Structural Remains

This historic-period resource was originally recorded in 2008 by Angela Cook from William Self Associates, Inc., as a “site consisting of a scatter of wood planks, and worked and unworked sandstone.” (William Self Associates, Inc. 2008). Material observed in 2008 consisted of a possible foundation, sandstone blocks, red bricks, metal pipe under a tree, and light scatter of fragmented historic material (amethyst and aqua glass, white glazed earthenware ceramic, and square nails). The area surrounding the historic material has been subjected to plowing resulting in a defined area of unplowed land where the structural remnants were found.

During the site revisit, ECORP located the site and observed the piles of wood planks, brick, and sandstone blocks, and the plowed and unplowed areas. Two metal pipes were also observed: one partially buried and the other one was upright in the ground. A handmade red brick was also observed. Dense grasses limited ground visibility which may account for not identifying the entire sparse historic artifact scatter denoted on the original site sketch map.

The California Office of Historic Preservation requires the use of a research design that “should present important research questions recognized for the region and relevant to the study, based on previous research”. Research questions serve to guide research methods and to assess the potential for the recovery of scientifically valid data that are likely to satisfy California Register of Historical Resources (CRHR) Criterion 4, the ability of the resource to produce information important in prehistory or history, as discussed further below. Because this site has a potential for buried archaeological deposits that could be used to address research questions posed in the research design described in the Cultural Resources Technical Memo, ECORP archaeologists undertook a subsurface archaeological testing program on February 6 and 7, 2019.

All material was screened using ¼-inch mesh and the material remaining in the screen was inspected for artifacts. Subsurface material consisted of five white glazed ceramic fragments, one ceramic figurine fragment (in the shape of an animal head), three square nails, and nine window pane fragments, 11 brick fragments, 3 bottle glass fragments (colorless, light olive green, and brown), one milk glass fragment, one large metal fragment, and 5 burnt faunal bone fragments from rodent sized mammals, and 4 non-burnt faunal fragments from small to medium sized mammals (no evidence of butchering) between 0 and 40 centimeters below surface (“cmbs”).

As further discussed in the Regulatory Setting, ECORP evaluated the resource for historical significance based on eligibility criteria defined by the CRHR. Eligibility criteria for the CRHR requires that a resource meet one of the following:

- Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

- Criterion 2: It is associated with the lives of persons important to local, California, or national history;
- Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
- Criterion 4: It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Although the resource is related to agriculture and farming in Contra Costa County, the site constituents, both structural remains and artifact scatter, do not hold any significance within that context. Archival research conducted by ECORP failed to identify a clear association between this resource and events important in history (CRHR Criterion 1). The farmstead is not significantly associated with the early agricultural development of the area.

Similarly, these structural remains are not associated with any person or group of people important to history. Because they date to the early to mid-twentieth century, they are not likely originally associated with the Harding Family, who owned a total of 620 acres of land that corresponds with the site location in 1908. The Harding Family was living in New Jersey in 1905 according to U.S. Census records. Also, Stanley Raymond Harding, the son of Frank and Elizabeth Harding, was born in 1894 in New Jersey. The Harding Family did not build the structural remains of P-07-2941 as they were residing in New Jersey when the structure was likely built between 1862 and 1898. The other individual that may be associated with the site is Colonel John R. Coats or Coates. Coats was born on March 26, 1826 in Maine and by 1868 he was residing in Antioch and later purchased 803 acres of land south of Antioch (Hulaniski 1917). No other information was found on John Coats. Also, no information was found on Alonson Bates, who received a GLO land patent for part of the property in 1869. Further, these individuals were not important historical figures, and any notoriety that may have been gained by these individuals is not conveyed by the structural remains on the property. Therefore, this resource does not meet the criteria to be considered eligible under CRHR Criterion 2.

These structural remains are a typical early small structure within a dry agricultural property. It was common for a vernacular structure of this size and type to be constructed with wood walls, stone foundation, and roof. Therefore, the structural remains do not embody the distinctive characteristics of a type, period, or method of construction. It is unknown who built this structure and it cannot be said to represent the work of a master builder; on the contrary, it is comprised of inexpensive, ubiquitous, utilitarian materials that do not possess any artistic value. Therefore, the structural remains do not meet the criteria to be considered eligible under CRHR Criterion 3.

Forty-five artifacts (mostly building material) were discovered during subsurface testing, none of which had depositional integrity or identifiable associations. None had narrow temporally diagnostic markers that could be dated to before 1920. There were no hollow refuse-filled features encountered, and no temporally discrete refuse dumps or sheet deposits. Only nine fragments of domestic refuse were recovered. These provide insufficient data to address research questions about Economic Strategies and Ethnicity and Cultural Adaptation under the Ranching and Agriculture research or other research topics. Therefore, the site lacks the potential

to yield important information about the early history of agricultural settlement in the area. The site does not meet the criteria to be considered eligible under CRHR Criterion 4.

This site retains integrity of setting and location as the environment within and surrounding the site has not changed and remains open grassland. The only structural remains of the site are the sandstone and lumber piles. The lumber observed at the site appears to date from the twentieth century due to the wire nails within the wood. The construction material that is present cannot be used to help identify its function; therefore, the overall site does not retain integrity of workmanship, design, or materials. If the site contained more of the standing structure or original machinery, it could provide information about materials or workmanship and identify them with a particular activity, such as farming or other agricultural activities. In its current condition, the site fails to convey its function and purpose. It does not retain integrity of feeling or association, because the remains cannot physically link it to a specific use, whether it was an auxiliary building associated with ranching, or some other function. In addition, the site does not provide any information associating it to an event or person important in history.

Regardless of integrity, this resource was found not eligible for the CRHR as an individual property nor as a contributor to any known or possible historic district.

P-07-2951 – Contra Costa Las Positas Transmission Line

P-07-2951 is an historic-period 230kV electric transmission line that first appears on the 1954 Antioch South, California topographic map as traveling in a southeast-northwest direction through the eastern portion of the Project site. The entire length of the transmission line, 24 miles, was previously recorded and evaluated by Garcia and Associates (GANDA) in 2008 (GANDA 2008). Three transmission towers along the 24-mile-long electric transmission line were revisited. The towers within the Project site are identified by Pacific Gas & Electric Company (PG&E) as towers 6/38, 6/39, and 6/40.

The portion of the transmission line within the current Project site is in the same condition as the previously evaluated segment, with no significant changes in integrity.

Based on information gathered from GANDA and historic topographic maps, the line was constructed in the 1940s. The line is now named Contra Costa-Las Positas 230 kV transmission line. The line travels 24 miles from the Contra Costa Substation in Antioch to the Las Positas Substation located in Livermore. The transmission towers through the Project site are visible on the aerial photographs taken in 1949.

Resource P-07-002951 was constructed in the 1940s, well after electric transmission systems became established in California. It was associated with the expansion of the Contra Costa Substation to provide electric power to Livermore in 1970, which post-dates the earliest and most significant transmission systems in Northern California. The Contra Costa Substation was built to accommodate the rapid growth of the Pittsburgh and Antioch areas. The Contra Costa Substation dates to the mid-1920s and towers exist from the Contra Costa Substation to the Contra Costa Power Plant. The Plant was built by PG&E from 1951 to 1953 and is located along the bank of the

San Joaquin River in East Antioch. The transmission towers are composed of steel lattice and have been modified since construction, so there is no evidence to suggest that the lines were originally architecturally distinctive. In addition, the towers are currently in operation, being maintained by PG&E. There is no potential for information to be gained from these towers that is not better represented in the archival record.

Therefore, the transmission towers have no potential to yield important information (CRHR Criterion 4), are not associated with the early development of electrical power transmission systems in the region (CRHR Criterion 1), are not associated with important events or persons in the development of electrical power (CRHR Criterion 2) and are not architecturally distinctive (CRHR Criterion 3). Although the line maintains its original alignment, and accordingly, retains integrity of location, the modifications to the line over the years resulted in a loss of integrity of design, materials, workmanship, and feeling.

The towers and segment of the transmission line on the Project site (P-07-2951) were found not to be eligible for the CRHR as an individual property nor as a contributor to any known or possible historic district.

VDC-001 – Historic-period Refuse

This historic-period resource consists of a sparse surface artifact scatter of domestic refuse (bottle glass fragments and ceramics fragments) and building material (brick fragments) found spread out in an area with an approximate 100-foot radius within a plowed agricultural field. This area of surface artifacts corresponds to the location of a structure first depicted on the 1898 Mount Diablo, California topographic map (1: 62,500 scale). The structure is no longer depicted on maps after 1916. On the early maps, a road is depicted as west and south of the structure. This area was examined to see if any remnants of the structure exist within the Project site. No structures or features were observed at this site as the entire area has been subjected to plowing over time. A review of historic aerial photographs showed that remnants of this site can be seen in the 1940 aerials since the property was not actively being plowed at that time. A concrete feature can be seen on later aerials, but by 2014 it has been removed from the property. Aerial photographs taken in 2002 show that the site was avoided by the plow, however by 2014, the area of this site was completely plowed. During the onsite investigation, ECORP archaeologists observed approximately twenty items of domestic refuse and building material within the field. As discussed below, historic plowing activities limit the likelihood of CRHC listing eligibility for this resource; however, the potential for VDC-001 to be eligible in the CRHR listing cannot be eliminated. Accordingly, VDC-001 is considered a potential Historical Resource under CEQA for purposes of this analysis.

Resource VDC-001 is located directly north of Balfour Road within the southeast portion of the Project site. A north-south telephone line is located west of the resource. Also, an access point cut into the northern shoulder of Balfour Road is visible near the previously discussed structure and existing telephone line which could have served as the driveway to the structure or access to the telephone line.

Historic Evaluation

ECORP employed a mixed strategy of subsurface testing and archival research for site P-07-2941 to assist in evaluations. The results of the evaluation indicate that site P-07-2941 is not eligible for listing in the CRHR and is not a Historical resource as defined by the CEQA.

ECORP's limited integrity assessment of P-07-2951 included a site revisit to the transmission line segment located within the Project site. Based on their assessment that the transmission towers have no potential to yield important information (CRHR Criterion 4), are not associated with the early development of electrical power transmission systems in the region (CRHR Criterion 1), are not associated with important events or persons in the development of electrical power (CRHR Criterion 2), and are not architecturally distinctive (CRHR Criterion 3), ECORP agrees with the previous evaluation that the resource is not eligible for listing in the CRHR and would not be classified as an historical resource under CEQA.

As noted above, newly recorded historic-period resource, VDC-001, a historic artifact refuse scatter at the location of a structure previously shown on an 1898 historic period map, has not been evaluated using CRHR eligibility criteria. While the likelihood of VDC-001 being eligible in the CRHR listing is limited due to historic plowing activities and the conclusion that the similar P-07-2941 is ineligible, the potential for VDC-001 to be eligible in the CRHR listing cannot be negated, and therefore, for purposes of this analysis is considered a potential Historical Resource under CEQA.

4.5.2 Regulatory Setting

Federal

National Historic Preservation Act

The Federal law that deals with cultural resources that could be affected by Federal undertakings is the National Historic Preservation Act (NHPA) of 1966, as amended. Section 106 of the Act requires that Federal agencies consider the effects of a Federal undertaking on properties listed in or eligible for the National Register of Historic Places (NRHP). The agencies must afford the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on the undertaking. A Federal undertaking means "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval" (36 CFR 800.16(y)).

The regulations that stipulate the procedures for complying with Section 106 are in 36 CFR 800. The Section 106 regulations require:

- Definition of the Area of Potential Effects (APE);
- Identification of cultural resources within the APE;

- Evaluation of the identified resources in the APE using NRHP eligibility criteria;
- Determination of whether the effects of the undertaking or project on NRHP-eligible resources (historic properties) will be adverse by applying the criteria of adverse effect; and
- Agreement on and implementation of measures to resolve adverse effects, if necessary.

The Federal agency must seek comment from the SHPO and, in some cases, the ACHP, for its determinations of eligibility, effects of the undertaking on historic properties, and proposed treatment (mitigation measures) to resolve adverse effects to historic properties. Section 106 procedures for a specific project can be modified by negotiation of a Memorandum of Agreement (MOA) or Programmatic Agreement (PA) between the Federal agency and the SHPO.

Historic properties are cultural resources that are eligible for the NRHP. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess aspects of integrity (the ability of a property to convey its significance) including location, design, setting, materials, workmanship, feeling, association, and that meet at least one of the following four criteria (36 CFR 60.4):

- **A:** Are associated with important historical events (Criterion A).
- **B:** Are associated with the lives of significant persons in our past (Criterion B).
- **C:** Embody the distinct characteristics of a type, period, or method of construction (Criterion C).
- **D:** May yield information important in prehistory or history (Criterion D).

In addition, the resource must be at least 50 years old, except in exceptional circumstances.

Executive Order 11593, 36 Code of Federal Regulations, Section 8921 (May 13, 1971)

Executive Order 11593, Protection of the Cultural Environment, orders the protection and enhancement of the cultural environment through providing leadership, establishing State offices of historic preservation, and developing criteria for assessing resource values. The provisions of Executive Order 11593 are codified in Section 8921 of Title 36 of the CFR.

American Indian Religious Freedom Act and Native American Graves and Repatriation Act

The American Indian Religious Freedom Act establishes that it is the nation's policy to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise their traditional religions, including access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. Additionally, Native American remains are protected by the Native American Graves and Repatriation Act of 1990.

State

California Environmental Quality Act (CEQA)

CEQA is a State law that applies to a project's impacts on cultural resources. A project is an activity that may cause a direct or indirect physical change in the environment and that is undertaken or funded by a State or local agency, or requires a permit, license, or lease from a State or local agency. CEQA requires that impacts to Historical Resources be identified and, if the impacts will be significant, that mitigation measures to reduce the impacts be applied.

Section 15064.5 of the CEQA Guidelines defines four ways that a property can qualify as a "historical resource" for purposes of CEQA compliance:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4850 et seq.).
2. A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4852) including the following:
 - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
 - Is associated with the lives of persons important in our past;
 - 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
 - Has yielded, or may be likely to yield, information important in prehistory or history.

4. 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 sections 5020.1(j) or 5024.1.

The eligibility criteria for the CRHR require that [CCR Title 14, Section 4852(b)]:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition, the resource must retain integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association [CCR Title 14, Section 4852(c)]. Resources that have been determined eligible for the NRHP are automatically eligible for the CRHR.

Archaeological sites are usually evaluated under Criterion 4, the potential to yield information important in prehistory. An archaeological test program may be necessary to determine whether the site has the potential to yield important data. The CEQA lead agency makes the determination of eligibility based on the results of the test program.

Impacts to Historical Resources are considered significant if a project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource that contributes to its significance; and/or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

The Lead Agency must concurrently determine whether a project will cause damage to a unique archaeological resource (as defined in Pub. Res. Code Section 21083.2[b]) and, if so, must make reasonable efforts to permit the resources to be preserved in place or left undisturbed. An archaeological resource must be determined to be “unique” or “historic” for an impact to the resource to be considered significant. Section 21083.2(g) of CEQA defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be demonstrated that without merely adding to the existing body of archaeological knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In practice, if an archaeological site is eligible for the CRHR, it is not necessary to determine if it is unique [CCR Title 14, Section 15064.5(c)(2)].

Title 14, Penal Code, Section 622.5

According to Penal Code Section 622.5, anyone (except the owner of the item at issue) who willfully damages or destroys an item of archaeological or historic interest or value is guilty of a misdemeanor.

Public Resources Code 5097.98 (b) and (e)

PRC 5097.98 (b) and (e) require a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission (NAHC)-identified Most Likely Descendants (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reenter the remains elsewhere on the property in a location not subject to further disturbance.

California Health and Safety Code, Section 7050.5

This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.

Paleontological Resources

Paleontological resources are nonrenewable scientific and educational resources. The CEQA regulatory framework for impacts on paleontological resources is contained in revised Appendix G (Environmental Checklist Form) of the State CEQA Guidelines and includes paleontological resources under the general heading "Geology." Projects subject to CEQA must determine whether a project would "directly or indirectly destroy a unique paleontological resource."

An impact to paleontological resources would be considered a significant impact if a project results in the direct or indirect destruction of a unique or important paleontological resource or site. The Society of Vertebrate Paleontology (SVP), a national organization, has established a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources.

Senate Bill 18

Senate Bill (SB) 18 (California Government Code Section 65352.3) requires local governments to consult with Native American tribes prior to making certain planning decision regarding open space and to provide notice to tribes at certain key points in the planning process. These consultation and notice requirements apply to the adoption and amendment of general plans and specific plans. The consultation process requires (1) that local governments send the California NAHC information on a proposed project and request contact information for local Native American tribes; (2) that local governments then send information on the Project to the tribes that the NAHC has identified and notify them of the opportunity to consult; (3) that the tribes have 90 days to respond on whether they want to consult or not; and (4) that consultation begins if requested by a tribe and there is no statutory limit on the duration of the consultation. If issues arise and consensus on mitigation consisting of dedication of open space to protect Native American resources cannot be reached, SB 18 allows a finding to be made that the suggested mitigation is infeasible.

Native American Heritage Commission, Public Resources Code Sections 5097.9–5097.991

California Public Resources Code Section 5097.5 prohibits excavation or removal of any “vertebrate paleontological site...or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands.” Public lands are defined to include lands owned by or under the jurisdiction of the State or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

Local

City of Brentwood General Plan

The City of Brentwood’s General Plan includes Goals and Policies that outline conservation goals and actions for cultural resources in the city. Project-relevant General Plan policies for cultural resources are addressed in this section. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below.

Conservation Goal 6: Preserve and enhance prehistoric, historic, and cultural resources in and around the Brentwood community.

- **Policy COS 6-1:** Protect important historic resources and use these resources to promote a sense of place and history in Brentwood.
- **Policy COS 6-2:** Encourage the voluntary identification, conservation, and reuse of historical structures, properties, and site with special and recognized historic, architectural, or aesthetic value.

- Policy COS 6-3: Encourage historic resources to remain in their original use whenever possible. The adaptive use of historic resources is preferred, particularly as museums, educational facilities, or visitor-serving uses, when the original use can no longer be sustained. Older residences may be converted to office/retail use in commercial areas and to tourist or business use, so long as their historical authenticity is maintained or enhanced.
- Policy COS 6-4: Leverage the City's strong cultural and historic heritage to support and encourage historically-oriented visitor programs and heritage tourism through cooperation with local, regional, and State marketing efforts.
- Policy COS 6-6: Encourage and support community art projects, including murals, sculptures, educational programs, and events that highlight Brentwood's cultural and historic heritage.
- Policy COS 6-7: Review new development projects and work in conjunction with the California Historical Resources Information System to determine whether project areas contain known archaeological resources, either prehistoric and/or historic-era, or have the potential for such resources.
- Policy COS 6-8: Ensure that human remains are treated with sensitivity and dignity, and ensure compliance with the provisions of California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.98.
- Policy COS 6-9: Consistent with State, local, and tribal intergovernmental consultation requirements such as SB 18, the City shall consult as necessary with Native American tribes that may be interested in proposed new development and land use policy changes.

4.5.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for cultural resources were derived from the Environmental Checklist in the State CEQA Guidelines Appendix G, as well as the previously certified 2014 General Plan EIR. These significance criteria have been amended or supplemented, as appropriate, to address lead agency requirements and the full range of potential impacts related to this Project. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria.

- Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guideline 15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guideline 15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.

To the extent any cultural resource is identified as relevant to the analysis, its significance as a cultural resource deposit and subsequently the significance of any impact is determined, in part,

by whether or not that deposit can increase our knowledge of the past. Key determining factors, among others, are site content and degree of preservation. A finding of archaeological significance follows the criteria established in the CEQA Guidelines.

Section 15064.5 of the CEQA Guidelines defines four ways that a property can qualify as a significant historical resource for purposes of CEQA compliance:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4850 et seq.).
- A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4852) including the following:
 - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
 - Is associated with the lives of persons important in our past;
 - 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
 - Has yielded, or may be likely to yield, information important in prehistory or history.
- 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 sections 5020.1(j) or 5024.1.

Historical resources are “significantly” affected if there is demolition, destruction, relocation, or alteration of the resource or its surroundings. Preservation in place is typically viewed as the preferred form of mitigation for a “historical resource of an archaeological nature” as it retains the relationship between artifact and context, and may avoid conflicts with groups associated with the site [Pub. Res. Code Section 15126.4 (b)(3)(A)]. In general, historical resources of an archaeological nature and “unique archaeological resources” typically can be mitigated to below a level of significance by:

- Relocating construction areas such that the site is avoided;
- Incorporation of sites within parks, greenspace, or other open space;
- “Capping” or covering the site with a layer of chemically stable soil before building; or
- Deeding the site into a permanent conservation easement. [Pub. Res. Code Section 15126.4 (b)(3)(B)]

If an archaeological resource does not meet either the historical resource or the more specific “unique archaeological resource” definition, impacts to such a resource would not be considered significant for purposes of CEQA and therefore would not require mitigation under CEQA [13 Pub. Res. Code Section 15064.5 (e)]. Where the significance of a site is unknown, it may be presumed to be significant for the purpose of the EIR with appropriate mitigation identified.

Method of Analysis

The identified cultural resources within sites P-07-2941 and P-07-2951 were evaluated to determine if they are eligible for the CRHR. The newly recorded historic-period resource, VDC-001, has not been evaluated using CRHR eligibility criteria. If considered eligible for the CRHR, the resource would also be considered a Historical Resource as defined by CEQA. Construction activities were analyzed to determine whether they would demolish or destroy the Historical Resource or if they would materially impair the characteristics that made the resource eligible for the CRHR. If the construction activities would demolish or destroy the Historical Resource or if they would materially impair the characteristics that make it eligible, the impact is determined to be significant. If a cultural resource is not a Historical Resource as defined by CEQA, there is no potential for impacts and impacts are not analyzed.

Off-Site Improvements

Impacts related to off-site infrastructure improvements associated with implementation of the Project are primarily addressed in Section 4.16, Utilities and Service Systems, of this EIR. In addition, the technical sections of the EIR include a focused discussion of the impacts of off-site infrastructure improvements as they relate to each environmental issue area.

Impacts of the Proposed Project

Impact CR-1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to the State CEQA Guidelines Section 15064.5? (*less than significant with application of site-specific mitigation measures*)

Section 15064.5(c) of the State CEQA Guidelines provides criteria for the determination of significance of impacts to both archaeological and historical resources. The following analysis addresses potential significant impacts to built-environment (man-made) historical resources. Potential impacts to archaeological resources, including archeological resources that meet the CEQA definition of an historical resource, are addressed under Impact CR-2.

In February 2019, ECORP conducted a literature review at the NWIC Historical Resources Information System. The literature review identified 26 cultural resources that were previously identified within or immediately adjacent to the Project site.

As shown in Table 4.5-1, ten previously recorded historic-period cultural resources are located within 0.5-mile of the Project site. One historic-period archaeological site, P-07-2941, and one historic-period transmission line segment, P-07-2951, were previously recorded within the small portion of the Project site that has been previously surveyed. Both of these resources were located by ECORP during their February 2019 field survey. The limited field survey identified an additional historic-period archaeological deposit, VDC-001, which corresponds to the location of a structure depicted on historic-period maps from 1898 to at least 1916.

A mixed strategy of subsurface testing and archival research was employed for site P-07-2941 to assist in evaluation for the CRHR; the results of which indicate P-07-2941 is not eligible for listing in the CRHR and is not considered a Historical Resource. An integrity assessment of P-07-2951 included a site revisit to the transmission line segment located within the Project site; the results of which concur with the previous evaluation that the resource is not eligible for listing in the CRHR and is not a Historical Resource. VDC-001, a newly recorded historic period resource is comprised of a historic artifact scatter at the location of a structure shown on an 1898 historic period map. It has not been evaluated using CRHR eligibility criteria, and therefore, for purposes of this analysis or until such time as a subsurface evaluation confirms that the resource is not eligible for CRHR listing, is considered a potential Historical Resource under CEQA.

There are no structures located on the Project site, thus, no existing buildings would be directly or indirectly affected in the context of historic resources.

Conclusion

Based on the presence of VDC-001 and in the unlikely event that a previously unidentified archaeological resource, which may qualify as a historical resource, is encountered during ground-disturbing activities associated with the construction of the Project, the resource could be damaged by grading, excavation, trenching, or other construction activities, resulting in a potentially significant impact.

However, implementation of MM CR-1 through MM CR-4 included below require additional site-specific measures and sensitivity training for future projects within the VDCSP area. These additional measures are consistent with CEQA Guidelines Section 15064.5 and, upon implementation, would reduce impacts to cultural resources to **less-than-significant** levels.

Mitigation Measures

- MM CR-1** *Cultural Resources Worker Environmental Awareness Program (WEAP). A qualified archaeologist should conduct a WEAP training for all personnel involved in ground-disturbing, site preparation construction activities on the Project site prior to construction and ground-disturbing activities. The training should include basic information about the types of artifacts that might be encountered during construction activities, and procedures to follow in the event of a discovery. This training should be provided for any additional personnel added to the Project even after the initiation of construction and ground disturbing activities.*
- MM CR-2** *Cultural Resources Monitoring During Ground-Disturbing Activities. A qualified archaeologist shall monitor all ground-disturbing activities within native sediment areas within the Project. This monitoring will continue for the duration of the Project or until culturally sterile sediments are reached (e.g., bedrock). A qualified archaeologist may determine to decrease or increase monitoring efforts based on sediments observed, findings, or number of large ground disturbing machines in operation. The qualified archaeologist shall meet the Secretary of the Interior’s Standards for professional archaeology.*
- MM CR-3** *Halt Construction Activity, Evaluate Find, and Implement Mitigation. In the event that previously unidentified paleontological, archaeological, historical, or tribal resources are uncovered during site preparation, excavation, or other construction activity, all such activity within 100 feet of the discovery shall cease until the resources have been evaluated by a qualified professional, and specific measures can be implemented to protect these resources in accordance with sections 21083.2 and 21084.1 of the California Public Resources Code. If the find is significant, the archaeologist will excavate the find in compliance with State law, keeping Project delays to a minimum. If the qualified archaeologist determines the find is not significant then proper recordation and identification will ensure and the Project will continue without delay.*
- MM CR-4** *Conduct Cultural Resources Assessment within VDC-001 Site. Prior to approval of site improvement plans for development within the location of VDC-001 (as shown in Figure 1 of the “Cultural Resources Technical Memo, Vineyards at Deer Creek”, prepared by ECORP), the applicant shall retain a qualified cultural resources consultant to design and implement a cultural assessment for submittal to the city, the intent of which shall be to identify and investigate any*

subsurface historic remains within the location, and define their physical extent and the nature of any built features or artifact-bearing deposits. A small backhoe shall be used to carefully remove the overlying sediment, a few inches at a time, to reveal any subsurface features that may survive. The archaeologists shall carefully monitor the backhoe exposure and spot-screen some of the spoils to check for artifacts. If no subsurface features are uncovered, no additional cultural investigations shall be necessary. If, on the other hand, structural remains or artifact-bearing features are found, the investigation should proceed immediately into formal evaluation to determine their eligibility for the California Register of Historical Resources. This shall include, at a minimum, additional exposure of the feature(s), photo-documentation and recordation, and analysis of the artifact assemblage(s). If the evaluation determines that the features and artifacts do not have sufficient data potential to be eligible for the California Register, no additional work shall be required. However, if data potential exists – e.g., there is an intact feature with a large and varied artifact assemblage – it will be necessary to mitigate any project impacts.

Mitigation of impacts might include avoidance of further disturbance to the resources through project redesign. If avoidance is determined to be infeasible, additional data recovery excavations shall be conducted for the resources, to collect enough information to exhaust the data potential of those resources.

Impact CR-2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to the State CEQA Guidelines Section 15064.5? (less than significant with application of site-specific mitigation measures)

Section 21083.2(g) of CEQA defines “unique archaeological resource” for purposes of determination as to whether a project may have a significant effect on archaeological resources. As used in this section “unique archaeological resource” means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that 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 of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey website (NRCS 2019), eight soil types are located within the Project area: Altamont clay (AbD), 9 to 15 percent slopes, MLRA 15; Altamont clay (AbE), 15 to 30 percent slopes, MLRA 15; Altamont-Fontana

Complex (AbF), 30 to 50 percent slopes; Briones loamy sand, (BdE), 5 to 30 percent slopes; Capay clay, (CaA), 0 to 3 percent slopes, MLRA 17; Pescadero clay loam, (Pb), 0 to 3 percent slopes, MLRA 14; Rincon clay loam, (Pb), 0 to 2 percent slopes, MLRA 14; and Solano loam (Sh).

Due to the presence of alluvium along Sand Creek and Deer Creek, meandering perennial waterways located north and south of the Project site, and given the likelihood of pre-contact archaeological sites to be located along perennial waterways, there exists the potential for buried pre-contact archaeological sites in the Project site.

Therefore, the Project would be required to comply with MM CR-1, MM CR-2, and MM CR-3, which require that a qualified archaeologist train workers in the protocols for the identification and treatment of cultural resources should they be discovered during construction. The archaeologist would have the ability to temporarily halt or redirect work to permit the sampling, identification, and evaluation of the artifacts and resources, as appropriate. If resources are found to be significant, the archaeologist would determine appropriate actions, in cooperation with the city and Project applicant. It should be noted that General Plan Policy COS 6-7 requires that new development projects be reviewed to determine the presence of archaeological resources, and the eligibility of such resources for listing through collaboration with the California Historical Resources Information System. MM CR-4 fulfills the requirements of General Plan Policy COS 6-7. Implementation of the aforementioned measures would reduce impacts associated with archaeological resources to a *less-than-significant* level.

Mitigation Measures

MM CR-5 *Implement MM CR-1 through MM CR-4.*

Impact CR-3: ***Would the project disturb human remains, including those interred outside of formal cemeteries? (less than significant with application of site-specific mitigation measures)***

Although the Project site is undeveloped, it is currently used for agricultural purposes including dryland grass farming and limited seasonal cattle grazing. Two structures were present on the Project site from the 1890s through 1916. However, there is no indication that there are burials present at the Project site and it is unlikely that human remains would be discovered during Project development. In the event that human remains are discovered during grading activities, the contractor shall follow the procedures and protocols set forth in Section 15064.5(e)(1) of the CEQA Guidelines.

General Plan Policy COS 6-8 requires that human remains are treated in compliance with the California Health and Safety Code 7050.5 and California Public Resources Code Section 5097.98. To reduce potential impacts on human remains, including those interred outside of formal cemeteries, MM CR-6 shall be implemented. Implementation of MM CR-6 would serve to implement General Plan Policy COS 6-8, and would, thereby, ensure that any potential impacts related to disturbance of human remains are reduced to a *less-than-significant* level.

Mitigation Measures

MM CR-6 *Halt work upon discovery of human remains, evaluate, and mitigate. Prior to ground disturbance, the applicant shall ensure that protocols related to the discovery of human remains are in place and followed during construction of the proposed project.*

If human remains are encountered during grading, excavation, or other construction activity, all such work within 100 feet of that area must cease until the remains have been evaluated by the Contra Costa County Coroner. If the remains are determined to be Native American, then the Native American Heritage Commission (NAHC) is to be notified within 24 hours as required by section 7050.5 of the California Health and Safety Code or, if the remains are Native American, section 5097.98 of the California Public Resources Code.

Impact CR-4: **Would the off-site infrastructure improvements result in any impacts to cultural resources? (less than significant with application site-specific mitigation measures)**

As noted in Chapter 3, Project Description, of this EIR, off-site improvements associated with the project would include the extension of a new off-site sewer line connecting between the northeastern portion of the project site and an existing sewer line located in St. Regis Avenue, extension of a new irrigation line within Balfour Road, extension of American Avenue west and north to Balfour Road, and the widening and improvement of certain portions of Balfour Road from two to four lanes, as well as the improvement of an additional portion of Balfour Road.

Off-site Sewer Pipe Improvements

Alternatives 2 and 3 for the proposed off-site sewer improvements would both involve off-site ground-disturbing activity (trenching) to the east of the project site boundary. The off-site sewer improvement area consists primarily of ruderal grasses, as well as portions of paved roadway. Off-site sewer pipe infrastructure would result in temporary disturbance of the area overlying the proposed alignment. Thus, cultural resources could be discovered during construction activities. Additionally, the off-site improvement area is outside of the cultural resource boundary analyzed in the Cultural Resources Technical Memo. Therefore, the potential exists that cultural resources are present within the improvement area and could be discovered during ground-disturbing activities.

Off-site Irrigation Pipe Improvements

The proposed off-site irrigation line improvement (Alternative 1) would occur entirely within the Balfour Road right-of-way. Generally, cultural resources have not been identified within the improvement area. However, given that the Cultural Resources Technical Memo prepared for the project did not include analysis of the off-site irrigation line improvement area, the potential

exists for cultural resources to be encountered during pavement removal and/or trenching associated with installation of the irrigation line.

Off-site Roadway Improvements

American Avenue Extension

The American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. Extension of American Avenue to Balfour Road would involve grading and development activity that would create ground disturbance. The extension area was included and analyzed in the Cultural Resources Technical Memo and did not result in any cultural resource findings. However, ground disturbance throughout an undeveloped area could result in the discovery of unknown cultural resources. Thus, the potential exists that cultural resources could be discovered during ground disturbing activities associated with the proposed widening.

Balfour Road Widening

As part of the project, consistent with the General Plan Circulation Diagram, Balfour Road would be improved and/or widened from the existing American Avenue intersection west to Deer Valley Road. As noted previously, the proposed widening would be primarily limited to the existing paved Balfour Road right-of-way and the graveled shoulders of the roadway, which contain scattered shrubs and ruderal grasses. Given that the Cultural Resources Technical Memo prepared for the project did not include analysis of the off-site Balfour Road widening improvement area, the potential exists for cultural resources to be encountered during pavement removal, vegetation clearing, and grading associated with the proposed widening.

Conclusion

Based on the above, given that the Project includes off-site improvements in areas that were not studied as part of the 2019 Cultural Resources Technical Memo, ground disturbance associated with such off-site improvements could result in a significant impact related to adverse impacts on cultural resources. However, implementation of MM CR-7 would ensure that proper precautions are taken if cultural resources are encountered during off-site improvements, thereby avoiding potential damage or destruction of such resources. Therefore, with implementation of mitigation, the impact would be reduced to a ***less-than-significant*** level.

Mitigation Measures

MM CR-7 *Implement MM CR-1 through MM CR-4, and MM CR-6.*

Cumulative Impact Analysis

Impact CR-5: **Would the project result in a cumulative loss of cultural resources? (*less than significant with application of site-specific mitigation measures*)**

With respect to historic resources, the proposed project would impact a potential historic resource under CEQA, however any impacts to historic resources would be mitigated to a less-than-significant level with the implementation of MM CR-1 through MM CR-6.

Although the Project — in conjunction with the effects of past projects, other current projects, and probable future projects — may result in the disturbance of prehistoric archaeological resources throughout the study area, standard conditions of approval and mitigation measures required for each project would reduce the impacts to less-than-significant levels. While some cultural resources may have regional significance, the resources themselves are site-specific, and impacts to them are project-specific. For example, impacts to a subsurface archeological find at one project site are generally not made worse by impacts from another project to a cultural resource at another site. Rather the resources and the effects upon them are generally independent. A possible exception to this would be a cultural resource that represents the last known example of its kind or is part of larger cultural resources such as a single building along an intact historic Main Street. For such a resource, cumulative impacts, and the contribution of the proposed project to them, may be cumulatively significant. Such is not the case for the proposed project. The site-specific cultural resources analysis identified only one historic-era resource within the area of potential effect for the project. Implementation of the project-specific mitigation measures set forth in this section (MM CR-1 through MM CR-6) would ensure that any impacts to the historic resource and previously unknown, subsurface cultural resources that are discovered on the project site during construction activities are reduced to less than significant.

Similar to the proposed project, future development projects would be required to implement project-specific mitigation to ensure any potential impacts to identified cultural resources are reduced to a less-than-significant level. Therefore, given that cultural resource impacts are generally site-specific and each future project within the City of Brentwood would be required to mitigate such impacts, any potential impacts associated with cumulative buildout would not combine to result in a significant cumulative impact.

Based on the above, the potential for cumulative impacts related to cultural resources, to which the project might contribute, would be ***less than significant*** with implementation of site-specific mitigation.

Mitigation Measures

MM CR-8 *Implement MM CR-1 through MM CR-4, and MM CR-6.*

4.6 Energy Conservation

The Energy Conservation section of the EIR identifies and evaluates potential energy impacts of the Project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy to ensure that energy implications are considered in project-related decision-making processes. The analysis of energy impacts is required pursuant to the recently updated checklist questions included in CEQA Guidelines Appendix G. This analysis considers the electricity, natural gas, and transportation fuel (petroleum) demands of the Project, as well as potential service delivery impacts. This chapter of the EIR is closely related to Section 4.8, Greenhouse Gas Emissions. Where appropriate, and to minimize redundancy, cross references to the applicable analysis contained within the Greenhouse Gas Emissions section of this EIR is provided.

4.6.1 Environmental Setting

The Environmental Setting section describes the existing setting of the Project site as it relates to energy conservation, including the State's energy use and supply, the current energy providers in the project vicinity, existing infrastructure, and transportation fuels.

California's Energy Use and Supply

Californians consumed 290,567 gigawatt-hours (GWh)¹ of electricity in 2016, which is the most recent year for which data is available. Of this total, Contra Costa County consumed 2,797 GWh. In 2016, the California electricity mix included natural gas (33.67 percent), coal (4.13 percent), large hydroelectric plants (14.72 percent), nuclear (9.08 percent), oil (0.01 percent), petroleum coke/waste heat (0.14 percent) and unspecified sources of power (9.25 percent). The remaining 29 percent was supplied from renewable resources, such as wind, solar, geothermal, biomass, and small hydroelectric facilities². In 2017, the State consumed 2,110,829 million cubic feet³ of natural gas.⁴

Energy usage is typically quantified using the British Thermal Unit (BTU). Total energy usage in California was 7,830 trillion BTU in 2016 (the most recent year for which this specific data is available), which equates to an average of 199 million BTU per capita. Of California's total energy usage, the breakdown by sector 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,

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). 2018. *Energy Almanac, California's Electricity Data*, 2018.

³ 100 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.

⁴ U.S. Energy Information Administration, *California Natural Gas Total Consumption*, 2018.

whereas petroleum consumption is generally accounted for by transportation-related energy use.⁵ In 2017, taxable gasoline sales (including aviation gasoline) in California accounted for 15,540,154,774 gallons of gasoline.⁶

Current Energy Providers

Pacific Gas and Electric Company

Electricity in Contra Costa County is primarily provided by the Pacific Gas and Electric Company (PG&E). The PG&E 2017 power mix was as follows: 20 percent natural gas; 27 percent nuclear; 33 percent renewables; 18 percent large hydroelectric; and 2 percent unspecified power.

The electricity consumption attributable to Contra Costa County from 2007 to 2017 is shown in Table 4.6-1. As indicated in Table 4.6-1, electrical energy consumption in Contra Costa County remained relatively constant between 2007 and 2017, with no substantial increase.

Year	Electricity Consumption (in millions of kilowatt hours)
2007	8,593
2008	9,352
2009	9,093
2010	9,115
2011	9,102
2012	9,094
2013	9,173
2014	9,605
2015	9,518
2016	9,644
2017	9,778

Source: California Energy Commission, *Electricity Consumption by County*, 2018.

PG&E operates one of the largest natural gas distribution networks in the country, including approximately 42,142 miles of natural gas transmission and distribution pipelines. In all, PG&E delivers gas to approximately 4.3 million customer accounts and approximately 5.4 million electric customer accounts in Northern and Central California, including in Contra Costa County.

The natural gas consumption in Contra Costa County from 2007 to 2017 is shown in Table 4.6-2. Similar to electrical energy consumption, natural gas consumption in Contra Costa County remained relatively constant between 2007 and 2017, with no substantial increase.

⁵ U.S. Energy Information Administration, *California State Profile and Energy Estimates*, Available at: <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.

⁶ California Board of Equalization, 2016. *Net Taxable Gasoline Sales, 2016*, Available at: https://www.boe.ca.gov/sptaxprog/reports/mvf_10_year_report.pdf.

The California Public Utilities Commission (CPUC) regulates California natural gas rates and natural gas services, including in-State transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. California gas utilities may soon also begin receiving biogas into their pipeline systems.

California's regulated utilities do not own any natural gas production facilities. All natural gas sold by these utilities must be purchased from suppliers or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the Federal Energy Regulatory Commission in the mid-1980s and is determined by market forces. However, the CPUC decides whether California's utilities have taken reasonable steps to minimize the cost of natural gas purchased on behalf of its core customers.

As indicated in the preceding discussion, natural gas is available from a variety of in-state and out-of-state sources, and is provided throughout the State in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available through existing delivery systems, thereby increasing the availability and reliability of resources.

Year	Natural Gas Consumption (in millions of therms)
2007	914
2008	954
2009	965
2010	1,015
2011	1,080
2012	1,112
2013	1,098
2014	1,099
2015	1,088
2016	1,136
2017	1,118

Source: California Energy Commission, Natural Gas Consumption by County, 2018.

Existing Infrastructure

The Project site is within the PG&E service area. PG&E provides electrical and natural gas energy services to existing nearby residential neighborhoods and schools. Electrical infrastructure in the Project area is located above ground on utility poles, as well as below ground in adjacent subdivisions. An abandoned PG&E gas pipeline traverses the property from the southeast at Balfour Road to the northwestern portion of the Project site along Deer Valley Road. Local natural gas pipelines are located below ground typically in the roadway rights of way.

Transportation Fuel Consumption

California's transportation sector uses roughly half of the energy consumed in the State. In 2016, Californians consumed approximately 15.1 billion gallons of gasoline and 3 billion gallons of diesel fuel, which has increased from 15 billion gallons of gasoline and 2.8 billion gallons of diesel in 2008.

Automotive fuel consumption in Contra Costa County from 2007 to 2018, as well as projections for the year 2019 is shown in Table 4.6-3. As shown in the table, on-road automotive fuel consumption and heavy-duty vehicle fuel consumption in Contra Costa County has generally declined from 2007.

Table 4.6-3: Automotive Fuel Consumption in Contra Costa County 2007-2019

Year	On-Road Automotive Fuel Consumption (Gallons)	Heavy-Duty Vehicle/Diesel Fuel Consumption (Gallons)
2007	400,095,480	61,997,440
2008	383,760,508	58,919,788
2009	379,110,687	53,551,960
2010	382,876,342	51,831,645
2011	375,089,343	54,270,379
2012	374,055,089	54,440,169
2013	375,229,980	56,398,907
2014	380,214,606	56,294,615
2015	390,240,309	56,477,864
2016	400,484,439	59,942,709
2017	390,757,893	59,784,664
2018	383,571,659	59,853,465
2019 (projected)	376,120,739	59,803,573

Source: California Air Resources Board, EMFAC2017.

4.6.2 Regulatory Setting

The Regulatory Setting section identifies associated regulatory conditions and requirements related to energy. Specifically, this section presents legislation and regulations related to energy conservation. See also Section 4.3, Air Quality, Section 4.8, Greenhouse Gas Emissions, and Section 4.14, Transportation and Circulation, of this EIR for other policies related to energy use. See Section 4.16, Utilities and Service Systems, of this EIR for policies related to water consumption. Federal, State, and local agencies regulate energy use and consumption through various means and programs. On the Federal level, the U.S. Department of Transportation, the U.S. Department of Energy, and the U.S. Environmental Protection Agency are three Federal agencies with substantial influence over energy policies and programs. On the State level, the CPUC and California Energy Commission (CEC) are two agencies with authority over different aspects of energy. Relevant Federal, State, and local energy-related regulations are summarized below.

Federal

National Energy Policy and Conservation Act

The National Energy Conservation Policy Act serves as the underlying authority for Federal energy management goals and requirements. Signed into law in 1975, it has been regularly updated and amended by subsequent laws and regulations. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

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 and 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 and Conservation Act. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the Energy and Independence Security Act includes the following other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202);
- Appliance and Lighting Efficiency Standards (Sections 301–325); and
- Building Energy Efficiency (Sections 411–441).

State

The discussion below focuses primarily on those policies, regulations, and laws that directly pertain to energy-related resources. Refer to Section 4.8, Greenhouse Gas Emissions, of this EIR, which addresses various policies, regulations, and laws targeted towards the reduction of greenhouse gas (GHG) emissions that are expected to achieve co-benefits in the form of reduced demand for energy-related resources and enhanced efficiencies in the consumption of energy-related resources.

Assembly Bill 32 and Senate Bill 32

California's major initiative for reducing GHG emissions is outlined in Assembly Bill (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 and requires the California Air Resources Board (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 included in such regulations to reduce emissions.

In September 2016, the Governor signed into legislation Senate Bill (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. 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.⁷

See Section 4.8 of this EIR for a further discussion of AB 32 and SB 32.

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'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.

⁷ California Energy Commission (CEC). 2016. *Final Integrated Energy Policy Report Update*, 2016.

California Building 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 2016 and went into effect January 1, 2017.

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 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.

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 (CCR), 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 2016 Title 24 standards are the current applicable Building Energy Efficiency Standards, and became effective on January 1, 2017. The 2019 Building Energy Efficiency Standards will continue to improve upon the 2016 Standards for new construction of, and additions and alterations to, residential and non-residential buildings. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and take effect on January 1, 2020. Under the 2019 standards, single-family homes will use about 53 percent less energy, and non-residential buildings will use about 30 percent less energy, compared to buildings constructed under the 2016 standards.

2006 Appliance Efficiency Regulations

The CEC adopted Appliance Efficiency Regulations (Title 20, CCR Sections 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) accelerated the due date of the 20 percent mandate to 2010 instead of 2017. These mandates apply directly to investor-owned utilities. In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the State’s Renewable Portfolio Standard (RPS) to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California’s commitment to the RPS 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 RPS goal of 33 percent renewable energy by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SBX1-2 (2011) codified the 33 percent by 2020 goal.

Executive Order B-30-15; Senate Bill 100 and 350

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 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.

State Vehicle Standards (AB 1493)

AB 1493 (Pavley Regulations and Fuel Efficiency Standards), 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. Environmental Protection Agency (USEPA) denial of an implementation waiver. The USEPA 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 through 2016 and a second set of emissions standards for model years 2017 to 2025. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer GHG emissions and 75 percent fewer smog-forming emissions.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates. As codified in California Government Code Section 65080, SB 375 requires metropolitan planning organizations (e.g., ABAG) to include a Sustainable Communities Strategy in their regional transportation plan. The main focus of the Sustainable Communities Strategy is to plan for growth in a fashion that will ultimately reduce GHG emissions, but the strategy is also part of a bigger effort to address other development issues, including transit and vehicle miles traveled (VMT), which influence the consumption of petroleum-based fuels.

Local

City of Brentwood General Plan

The City of Brentwood General Plan includes goals, policies, and actions that encourage the conservation of energy in the Conservation and Open Space Element. Below are the policies specifically related to energy that would be applicable to the Project.

Goal COS 8: Reduce air pollutants and greenhouse gas (GHG) emissions.

- **Policy COS 8-6:** Support the development and implementation of a GHG reduction plan, or Climate Action Plan, that addresses and reduces GHG emissions associated with community operations, including but not limited to, mobile sources (vehicle traffic), energy consumption, and solid waste.
- **Policy COS 8-8:** Encourage local businesses and industries to engage in voluntary efforts to reduce GHG emissions and energy consumption.
- **Policy COS 8-10:** Encourage public transit, ridesharing and van pooling, shortened and combined motor vehicle trips to work and services, use of bicycles, and walking. Minimize single passenger motor vehicle use.
- **Policy COS 8-11:** Encourage new construction to incorporate passive solar features.

Goal COS 9: Promote conservation of energy and other natural resources.

- **Policy COS 9-1:** Require all new public and privately constructed buildings to meet and comply with the most current “green” development standards in the California Code of Regulations (CCR), Title 24.
- **Policy COS 9-2:** Support innovative and green building best management practices including, but not limited to, LEED certification for all new development, and encourage project applicants to exceed the most current “green” development standards in the California Code of Regulations (CCR), Title 24, if feasible.
- **Policy COS 9-3:** Promote the use of alternative energy sources in new development.
- **Policy COS 9-4:** Incorporate innovative green building techniques and best management practices in the site design, construction, and renovation of all public projects.

- Policy COS 9-5: Promote water conservation among water users.
- Policy COS 9-6: Continue to require new development to incorporate water efficient fixtures into design and construction.
- Policy COS 9-7: Promote the use of reclaimed water and other non-potable water sources.
- Policy COS 9-8: Encourage large-scale developments and golf course developments to incorporate dual water systems.
- Policy COS 9-9: Encourage and support the use of drought-tolerant and regionally native plants in landscaping.
- Policy COS 9-10: Ensure that the layout and design of new development and significant remodels encourages the use of transportation modes other than automobiles and trucks.
- Policy COS 9-11: Continue the citywide recycling program and actively encourage recycling.
- Policy COS 9-12: Continue efforts to reduce solid waste generation throughout the life of the General Plan.
- Policy COS 9-13: Continue to encourage and support the use of bicycles as an alternative means of transportation.

Goal CIR 1: Provide a transportation system that facilitates the efficient movement of people and goods within and through the City of Brentwood and promotes the use of alternatives to the single occupant vehicle.

- Policy CIR 1-3: When analyzing impacts to the circulation network created by new development or roadway improvements, consider the needs of all users, including those with disabilities, ensuring that pedestrians, bicyclists, and transit riders are considered at an equal level to automobile drivers.

Goal CIR 2: Proactively support and encourage travel by non-automobile modes by maintaining and expanding safe and efficient pedestrian, bicycle, equestrian, and transit networks.

- Policy CIR 2-1: Establish and maintain a system of interconnected bicycle, pedestrian, and equestrian facilities that facilitate commuter and recreational travel, and that are consistent with the City's parks, trails and recreation goals and policies in this General Plan and the Contra Costa Countywide Bicycle and Pedestrian Plan.
- Policy CIR 2-2: Routinely incorporate sidewalks and enhanced pedestrian crossing facilities as part of new street construction, and incorporate bicycle facilities on new collector and arterial streets (including bicycle lanes where appropriate, bicycle route and destination signs, and bicycle detection at signals).
- Policy CIR 2-3: Require development projects to construct on-site sidewalks, paths, and trails in a manner that is consistent with the City's parks, trails, and recreation goals and

policies in this General Plan and the Contra Costa Countywide Bicycle and Pedestrian Plan, and as dictated by the location of transit stops and common pedestrian destinations.

- Policy CIR 2-8: Provide secure bicycle racks in places such as the Downtown, at commercial areas, park and ride transit facilities, schools, multiple unit residential developments, and other locations where there is a concentration of residents, visitors, students, or employees.
- Policy CIR 2-9: Where possible, integrate multi-use path facilities into utility corridor rights-of-way.
- Policy CIR 2-10: Work with utility providers to reduce or eliminate barriers to pedestrian and bicyclist mobility created by utility infrastructure (such as utility poles that obstruct accessibility).
- Policy CIR 2-12: Seek opportunities to fund and construct improvements that improve multimodal access to any future mass transit facility (i.e., eBART).
- Policy CIR 2-13: Coordinate with Tri Delta Transit to increase the coverage areas and frequencies of bus service in Brentwood.
- Policy CIR 2-14: Ensure that effective linkages are in place between any future mass transit facility (i.e., eBART) and the city's primary activity and employment centers.
- Policy CIR 2-15: Coordinate with Tri Delta Transit to maintain existing and, where feasible, build new lighted and sheltered seating facilities at bus stops.
- Policy CIR 2-17: Encourage the use of park-and-ride lots and other transit incentives for Brentwood commuters.
- Policy CIR 2-18: Work with Tri Delta Transit to identify the need for and locations of additional park-and-ride lots in Brentwood in order to increase the number and length of trips made by transit and carpooling.
- Policy CIR 2-19: Provide safe and continuous pedestrian, vehicular, and bicycle access at all transit park-and-ride facilities.

Goal CIR 3: Coordinate circulation facilities with land use and development patterns to create an environment that encourages walking, bicycling, and transit use.

- Policy CIR 3-3: Design developments to include features that encourage walking, bicycling, and transit use. Design features shall include bus turnouts, transit shelters and benches, and pedestrian access points between subdivisions and between adjacent related land uses.
- Policy CIR 3-4: Provide an interconnected street network that provides multiple points of access, discouraging cut-through traffic while maintaining neighborhood connectivity.
- Policy CIR 3-9: Design intersections to provide adequate and safe access for all users including pedestrians, bicyclists, and motorists of all ages and abilities.
- Policy CIR 3-10: Require new development to include effective linkages to the surrounding circulation system for all modes of travel, to the extent feasible.

Goal CIR 4: Ensure that a combination of managed growth and adequate funding mechanisms are in place to complete future improvements on the local and regional circulation networks.

- **Policy CIR 4-2:** Require new development to contribute its proportional cost of circulation improvements necessary to address cumulative transportation impacts on roadways throughout the City, as well as the bicycle and pedestrian network.

4.6.3 Environmental Impacts and Mitigation Measures

The Environmental Impacts and Mitigation Measures section presents the criteria used to evaluate potential impacts related to use of fuel and energy upon implementation of the Project and, where applicable, identifies site-specific mitigation measures, including those that may be required per the 2014 General Plan EIR.

Significance Criteria

The following significance criteria for energy conservation were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as amended effective December 2018. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria:

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

Method of Analysis

CEQA Guidelines Appendix F ('Energy Conservation') provides a list of energy impact possibilities and potential conservation measures designated to assist in the preparation of environmental impact reports. It does not prescribe a threshold for the determination of significance. Rather, Appendix F focuses on reducing and minimizing inefficient, wasteful, and unnecessary consumption of energy. The analysis below generally follows Appendix F of the State CEQA Guidelines, which states that the goal of conserving energy includes decreasing overall per capita energy consumption; decreasing reliance on fossil fuels such as coal, natural gas, and oil; and increasing reliance on renewable energy.

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, which states that environmental impact analyses of energy conservation may include:

- 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.

- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

The analysis within this chapter of the EIR addresses 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 as Appendix B to the EIR.
- Modeling related to transportation fuel consumption was based primarily on the default settings in CalEEMod for Contra Costa County. The amount of operational fuel use was estimated using CalEEMod outputs for the Project and the CARB's Emissions Factor 2017 (EMFAC2017) computer program for typical daily fuel usage in Contra Costa County. Construction fuel consumption was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. The CalEEMod emissions are specific to construction year and include fleet adjustments based on current regulations and equipment turnover. The results of EMFAC2017 modeling and construction fuel estimates are included as Appendix B to the EIR.

The exact timing and duration of construction phases are currently unknown and would depend on various market factors. Although the Project could be built out over an approximately 20-year period, for analysis purposes construction of the Project is assumed to occur in early 2021 and last approximately 12 years. As the exact timing and duration of construction phases are currently unknown and would depend on various market factors, a conservative construction phase scenario was utilized. The modeled construction timing and phasing is conservative, but represents a realistic worst-case scenario. As such, the analysis accounts for minor modifications as Project plans evolve from conceptual planning to final mapping. If construction phases start at a later time, or phases have a longer duration, construction fuel consumption would be lower on an annual basis because the intensity of construction activities would be lower and spread out over a longer period of time. Construction equipment in future years would also be required to comply with more stringent fuel efficiency standards. Project construction fuel demand would have a lower effect on regional energy supplies.

This analysis relies on the construction equipment list assumptions, as stated in Sections 4.3 and 4.8 of this EIR and included in Appendix B to this EIR. Construction water use was estimated based on acres disturbed per day per construction sequencing and estimated water use per acre.

Construction-related on-road mobile source fuel use was based on VMT from CalEEMod and fleet-average fuel consumption in gallons per mile from EMFAC2017 in Contra Costa County. Construction-related electricity demand was based on VMT and calculated average electric vehicle fuel economy for 2015 models (in kWh per mile) from the Department of Energy Fuel Economy Guide. Off-road mobile source fuel usage for construction equipment was based on a fuel usage rate of 0.05 gallons of diesel per horsepower (hp)-hour from USEPA.

In addition, this analysis relies on the operational characteristics assumptions, as stated in Sections 4.3 and 4.8 of this EIR and included in Appendix B to this EIR. The electricity usage associated with operation of the Project is based on CalEEMod defaults for the proposed uses, including residential, community recreation center, and commercial/civic uses. The electricity usage associated with operational water consumption is estimated based on the default annual water consumption and the energy intensity factor in CalEEMod for Contra Costa County. Project area water use is based on water demand per square foot factors in CalEEMod. It should be noted that the CalEEMod water consumption estimates are more conservative than the Project water consumption calculated in the Water Supply Assessment. Thus, energy usage based on CalEEMod water consumption estimates were used to provide a conservative analysis. The methodology used to calculate the natural gas usage associated with the building envelopes constructed pursuant to the proposed project is based on CalEEMod default usage rates. The gasoline and diesel fuel usage associated with on-road vehicular trips is calculated based on total Project-specific VMT, as well as the average fuel efficiency from the EMFAC2017 model. The EMFAC2017 fuel efficiency data incorporates the Pavley Clean Car Standards and the Advanced Clean Cars Program.

Impacts of the Proposed Project

Impact EC-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 with application of site-specific mitigation measures*)

Construction (Short-Term)

The energy consumption associated with buildout of the Project, including the off-site improvements, 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. Temporary electric power for as-necessary lighting and electronic equipment (such as computers inside temporary construction trailers, and heating, ventilation, and air conditioning) would be powered by a generator. The amount of electricity used during construction would be minimal; typical demand would stem from the use of electrically powered hand tools and several construction trailers by managerial staff during the hours of construction activities. The majority of the energy used during construction would be from petroleum. The electricity used for construction activities would be temporary and minimal. Quantifications of construction energy consumption, including electricity, diesel fuel, and

gasoline use, are provided below in Table 4.6-4 for the proposed project, followed by an analysis of impacts based on those quantifications.

Source	Project Construction Usage	Contra Costa County Annual Energy Consumption	Project Percentage of Countywide Consumption
Electricity Use	10,049 MWh	9,777,852 MWh	0.009%
Diesel Use	1,479,586 gallons	59,853,465 gallons	0.21%
Gasoline Use	1,321,321 gallons	383,571,659 gallons	0.03%

Sources: AWMA, 1992; DOE 2016; USEPA 1996.

Electricity Usage

Water Consumption for Construction Dust Control

Electricity use associated with water use for construction dust control is calculated based on total water use 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 Section 4.2 of Appendix A of the CalEEMod User's Guide. The water application rate of 3,020 gallons per acre per day is from Air and 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 Contra Costa County. The total electricity consumption associated with water consumption for construction dust control would be approximately 10,045,728 kWh (10,046 MWh) over the duration of buildout of the Project.

On-Road Electric Vehicle Trips

The EMFAC2017 model includes the fraction of electric vehicles projected to be in the on-road fleet during construction. Using this data, electricity consumption related to electric vehicle traffic was estimated. The electric vehicles included in the EMFAC2017 model are all in the light-duty auto and light-duty truck category, and, as such, would only exist in the construction worker fleet, not the vendor and haul truck fleets. The energy use applied to the model for electric vehicles, calculated in units of kWh per vehicle mile travelled (kWh/mile), was based on the average energy efficiency for model year 2015 vehicles (USDOE, 2016). Total electricity usage from the on-road worker fleet during construction would be approximately 2,901 kWh (2.9 MWh) over the duration of buildout of the proposed project.

Petroleum Fuel Usage

On-Road Diesel Construction Trips

The diesel usage associated with on-road construction mobile trips is calculated based on VMT from vehicle trips (i.e., worker, vendor, and hauling), the CalEEMod default diesel fleet percentage, and vehicle fuel efficiency in miles per gallon. Fuel consumption is based on VMT for the entire construction period. The total diesel consumption associated with on-road construction trips was estimated to be approximately 852,906 gallons over the duration of buildout of the Project.

Off-Road Diesel Construction Equipment

The construction diesel usage associated with the off-road construction equipment is calculated based on CalEEMod outputs and conversion ratios from the Climate Registry. In addition, implementation of MM AQ-1, BAAQMD Additional Construction Mitigation Measures, would require limiting idling time to two minutes, which is lower than the State standard of 5 minutes, and would result in less fuel wasted. As summarized in Table 4.6-4, the total diesel consumption associated with off-road construction equipment is estimated to be approximately 626,680 gallons for the duration of buildout of the Project. It should be noted that the diesel consumption in Table 4.6-4 conservatively does not include additional reductions from the idling limitations required by MM AQ-1.

Gasoline Usage

On-Road Gasoline Construction Trips

The gasoline usage 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. As summarized in Table 4.6-4, the total gasoline consumption associated with on-road construction trips would be approximately 1,321,321 gallons over the duration of buildout the Project.

Analysis

In total, construction of the Project would consume approximately 10,049 MWh of electricity, 1,479,586 gallons of diesel, and 1,321,321 gallons of gasoline. Construction would occur over several distinct phases through a 12-year period (the approximate construction period used for analysis purposes and representing the most conservative construction phasing). Therefore, on an annual basis, the Project would consume an average of approximately 837 MWh of electricity, 110,110 gallons of gasoline, and 123,299 gallons of diesel.

As indicated in the environmental setting above, Contra Costa County consumed 9,777,852 MWh of electricity in 2017. Therefore, annual construction electricity consumption would represent approximately 0.009 percent of the electricity consumption in Contra Costa County. Contra Costa

County's annual gasoline fuel consumption in 2018 was 383,571,659 gallons and diesel consumption was 59,853,465 gallons. Based on such, the Project construction gasoline consumption would represent 0.03 percent of the overall gasoline consumption in the County, and construction diesel consumption would represent 0.21 percent of the overall diesel fuel consumption in the County. 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 0.03 percent and 0.21 percent increase in construction gasoline and diesel fuel demand, respectively, is not anticipated to affect existing energy fuel supplies or resources or trigger the need for additional capacity.

As noted above, fuel consumption is based on a conservative construction phasing and conservative estimates for annual construction fuel consumption. Longer phases would result in lower construction intensity and a lower annual fuel consumption, resulting in lower annual demand on energy supplies. Additionally, use of construction fuel would cease once the Project is fully developed. As such, Project construction would have a nominal effect on the local and regional energy supplies. 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. Project construction equipment would also be required to comply with the latest USEPA and CARB engine emissions standards. These engines use highly efficient combustion engines to minimize unnecessary fuel consumption. Contractors would be required to minimize air quality emissions of construction activities pursuant to applicable regulatory guidance such as from BAAQMD CEQA Guidelines, as required by MM AQ-1. This requirement indirectly relates to construction energy conservation, because when air pollutant emissions are reduced from the efficient use of equipment and materials, energy use is subsequently reduced. In addition, MM AQ-1 would be implemented which requires the Project to limit idling to two minutes (beyond the State standard of five minutes), which would reduce fuel consumption. MM GHG-6 requires construction waste to be reused and/or recycled, which would also conserve energy. There are no aspects of the Project that would foreseeably result in the inefficient, wasteful, or unnecessary use 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 available and reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Based on the above, it is expected that construction associated with the Project, including the off-site improvements, would not result in an environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction. Therefore, impacts during construction would be less than significant in this regard.

Operations (Long-Term)

The energy consumption associated with operation of the proposed Project would include building electricity, including water consumption, natural gas usage, as well as petroleum fuel usage from on-road vehicles. Each of the aforementioned sources of operational energy consumption are discussed in further detail below.

Building Electricity Usage

As shown in Table 4.6-5, operation of the proposed project would involve energy demand. However, the anticipated energy demand does not represent a substantive increase in energy demand within the County. Nevertheless, MM GHG-1 and MM GHG-2 require that all development within the Project site achieve net zero energy through a Zero Net Energy (ZNE) Confirmation Report prepared by a qualified building energy efficiency and design consultant. Through the incorporation of zero net energy technology into new residential and non-residential development, fossil fuel-related sources of GHGs associated with energy use would be reduced. Furthermore, achievement of ZNE would ensure that operation of the Project would not result in any inefficient or wasteful uses of energy, as energy efficiency within all development at the Project site would be maximized.

Source	Project Operational Usage	Contra Costa County Annual Energy Consumption	Project Percentage Of Countywide Consumption
Electricity Use	1,552 MWh/yr	9,777,852 MWh/yr	0.02%
Natural Gas Use	152,676 therms/yr	1,117,912,243 therms/yr	0.01%
Diesel Fuel Use	190,297 gallons/yr	59,853,465 gallons/yr	0.03%
Gasoline Use	1,312,636 gallons/yr	383,571,659 gallons/yr	0.29%

The Project would use approximately 310 million gallons of water annually (131 million gallons for indoor uses and 179 million gallons for outdoor uses), which would require 1.3 GWh per year for conveyance and treatment. However, as noted above, this energy consumption would be offset with implementation of MM GHG-1 and GHG-2, which requires the Project to achieve net zero energy. This requires energy to be generated on-site and any shortfalls would require GHG offsets. Despite the potential for ZNE shortfalls, implementation of MM GHG-1 and GHG-2 would result in reducing a majority of the Project's energy consumption. Moreover, MM GHG-6 requires that the Project incorporate water efficient irrigation systems and recycled water systems. The requirements of GHG-6 would ensure that water is used efficiently within the Project site, and the energy demand related to water consumption is minimized to the extent feasible.

The EMFAC2017 model includes the fraction of electric vehicles projected to be in the on-road fleet during the assumed first year of operation (conservatively assumed to be 2023 for the first phase); however, the fraction of the fleet that is electric is assumed to continue to increase,⁸ allowing a decrease in gasoline and diesel consumption. The electricity consumption related to electric vehicle traffic during operation was estimated based on the EMFAC2017 fleet mix and the model year 2015 average kWh/mile for current model electric vehicles (USDOE 2016). Total electricity usage from the on-road transportation during operations is approximately 256 MWh per year.

Natural Gas Usage

As shown in Table 4.6-5, the building area would use 15,267,612 thousand BTU (kBtu) (152,676 therms) of natural gas per year.

Petroleum Fuel Usage

As summarized in Table 4.6-5, the total gasoline and diesel consumption associated with on-road trips would be approximately 1,312,636 gallons per year and 190,297 gallons per year, respectively. It should be noted that MM GHG-6 prohibits the use of gas-powered landscape equipment, which is reflected in the estimates presented in the table.

Analysis

Operation of the proposed Project would not have a net increase in electricity with implementation of MM GHG-1 and GHG-2, which require the Project to achieve net zero energy. Contra Costa County consumed 9,778 GWh of electricity in 2017. The proposed Project's operational electricity consumption would represent 0.02 percent of the energy consumption in Contra Costa County. Thus, the Project's total energy demand would not be substantive in comparison to existing energy demand within Contra Costa County, and MM GHG-1 and MM GHG-2 would ensure that implementation of the Project would not result in a net increase in energy demand in the County.

Regarding natural gas, Contra Costa County consumed 1,118 million therms (or 111,791 million kBtu) of natural gas in 2017. Therefore, the proposed project's estimated operational natural gas consumption would represent 0.01 percent of the natural gas consumption in the County, which is not considered a substantive increase in natural gas consumption. Furthermore, as a component of attaining the ZNE goal required by MM GHG-1 and MM GHG-2, the use of natural gas within the Project site would likely be restricted. Consequently, the actual consumption of natural gas at the project site may be lower than the levels presented in Table 4.6-5.

Project operations would consume approximately 1,312,636 gallons of gasoline and 190,297 gallons of diesel annually. In 2018, Californians consumed approximately 15,589,042,965 gallons of gasoline and approximately 3,107,823,655 gallons of diesel fuel. Contra Costa County annual

⁸ California Air Resources Board. 2019. *Zero-Emission Vehicle Program*. Available at: <https://ww2.arb.ca.gov/our-work/programs/zero-emission-vehicle-program/about>. Accessed May 2019.

gasoline fuel use in 2018 was 383,571,659 gallons and diesel fuel use was 59,853,465 gallons. Expected Project operational use of gasoline and diesel would represent 0.29 percent of current gasoline use and 0.03 percent of current diesel use in the County. Project operational consumption of gasoline and diesel would represent 0.0072 percent of gasoline and 0.0016 percent of diesel consumption annually statewide, which would not be considered a substantive increase in consumption. Due to the level of energy consumption associated with the proposed project in comparison with regional and statewide annual energy consumption, the Project operations would not be expected to substantially affect existing energy or fuel supplies or resources. The Project would comply with applicable energy standards and new capacity would not be required.

In addition, the Project includes Design Guidelines to promote and encourage green building practices to improve the overall quality of life for residents and to encourage innovative and sustainable design and construction techniques that reduce energy consumption. Specifically, the VDCSP regulations and policies require the development to include various design features that would improve energy efficiency and reduce GHG emissions. These features from the VDCSP are summarized below (refer to Section 6.6, Green Building Guidelines, in the VDCSP); however, the level of implementation is not currently known. Therefore, benefits associated with these have not been quantified, which provides a conservative (or “worst case”) estimate of impacts. It should be noted that in addition to compliance with the VDCSP specific Green Building Guidelines, in compliance with General Plan Policy COS 9-1, development within the Project site would be required to comply with the California Green Building Code standards for new construction.

- Passive solar design. In passive solar building design, windows, walls, and floors are made to collect, store, reflect, and distribute solar energy in the form of heat in the winter and reject solar heat in the summer. Building design and siting would take advantage of natural ventilation, heating, and cooling, sun and wind exposure, and solar energy opportunities.
- Exterior horizontal surfaces must be a light color or painted with reflective paint (or if a roof, be covered with solar panels).
- Use radiant barrier roof sheathing.
- Locate cooling equipment in shaded areas.
- Heat Gain Reductions. Parking lots and other potential heat islands would incorporate trees, vegetation, and other landscape screening/shading devices. Roof-top solar panels are required and parking lot solar panels are encouraged.
- Easy-Access Recreation. Proposed community and/or neighborhood recreation centers would minimize vehicle trips. A minimum of 225 acres of open space will be preserved and used for passive recreational uses serving the proposed project.
- Local Use Vehicles (LUVs) (e.g., golf carts, neighborhood electric vehicles).

- Complete Streets. The VDCSP requires street designs to accommodate multiple modes of transportation, including walking, bicycling, or driving a local use vehicle or automobile. Pedestrians and cyclist paths must connect the residential, commercial, and open space.
 - Bicycle circulation is integrated throughout the VDCSP area through on-street bike lanes and separated off-street bike or multi-use paths. Multi-use paths are designed to support multiple recreation and mobility opportunities.
 - Multi-use (or shared) paths would be located adjacent to arterial and collector roads. A separated multi-use path is also envisioned along the east side of Deer Valley Road.
- Water Efficiency. The Project would utilize recycled water supply for irrigation. Community landscaping would consist of native and drought-tolerant species of trees, shrubs, and ground cover.
- Lawn and turf area reductions – use of turf areas should be minimized to reduce water use.
- Energy efficient Light Emitting Diode (LED) street lighting is required.
- Low VOC construction materials are proposed.
- Construction and operational waste would be recycled to the maximum extent feasible.
- Buildings will be oriented to the south when possible.
- High efficiency/ LED lighting will be incorporated into the proposed project.
- The city has a non-potable water system that the Project would extend.
- Low Impact Development and C.3 requirements would be incorporated into the Project.
- Construction and demolition waste will be reused and recycled as required by the City of Brentwood.
- Preserve more than 225 acres as open space/ parks, existing oak trees to be saved where possible.
- Bike lanes and bike paths (off-street) would be included with the Project. Pedestrian trails would be constructed throughout the Project site (in compliance with General Plan Policy COS 9-10).
- Extension of American Avenue would include bicycle lanes and sidewalks to the nearby schools (in compliance with General Plan Policy COS 9-10).

Furthermore, the Project would comply with the State Energy Efficiency Standards for Residential and Non-residential Buildings, which provide energy efficiency standards for residential and non-residential buildings. These standards are expected to substantially reduce 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. Compliance with Title 24 measures would minimize overall energy consumption. Renewable energy generation would be required and shortfalls in renewable energy generation can be offset

with excess renewable energy generation from other buildings. Regarding water energy conservation, the Project would incorporate water-conserving landscaping on the site and reduce lawn and turf areas. Water-efficient irrigation controls would also be used in landscape areas as well as recycled water for irrigation. Buildings would incorporate water-efficient fixtures and appliances, to comply with Title 24 and General Plan Policy COS 9-6.

The electricity provider for the Project site, PG&E, is subject to California's 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. Therefore, all electricity consumed within the Project site would be increasingly sourced from renewable sources, and implementation of the Project would not have the potential to inhibit the provision of renewable energy.

Additionally, MM GHG-1 and MM GHG-2 require the Project to achieve ZNE which would require compliance with Title 24, Part 6 building standards as well as additional measures (to be identified in a ZNE report required by MM GHG-1 and MM GHG-2 prior to the issuance of building permits) that would achieve the ZNE standard. As required in the mitigation, the Project would rely upon aggregated or community-based strategies. To the extent not already required by State law, the ZNE report would require the green building features throughout the Project from Title 24 to achieve ZNE for residential and commercial areas, such as:

- Install high efficiency appliances (clothes washer, dishwasher, fans, refrigerators);
- Utilize high-efficiency HVAC filters;
- Install tankless water heaters for all residential units;
- High efficiency toilets (HET) with a maximum of 1.28 gallons per flush, as well as kitchen faucets, bath faucets, and shower heads that are 20 percent more efficient than typical low-flow plumbing fixtures; and
- Dimmer switches to reduce electricity use in residential and commercial/civic.

A summary of the mitigation measures required throughout this EIR that would also contribute to a decrease in energy consumption are discussed in further detail below.

Mitigation Measures Applicable to Energy Use Reduction and Efficiency

MM GHG-1 and MM GHG-2 require the Project to achieve ZNE, and provide proof of such achievement through a ZNE Confirmation Report prepared by a qualified building energy efficiency and design consultant. MM GHG-3 and GHG-4 require the proposed project to include electric vehicle charging stations for residential, commercial, and recreational developments areas. The use of EVs in combination with the aforementioned ZNE requirements would result in

a reduction of energy consumed by fossil fuel-combusting engines. Fossil-fuel energy consumption would be further reduced by implementation of MM GHG-5, which requires development of a Commute Trip Reduction/Transportation Demand Management Program to reduce vehicle trips at the site, which would reduce fossil-fuel consumption related to transportation as well as mobile GHG emissions for residential and commercial/civil uses. MM GHG-6 requires all landscaping equipment to be electric, thereby avoiding gasoline consumption for landscaping. Use of efficient landscape irrigation is also required, which would reduce water energy consumption.

Conclusion

The Project would be required to adhere to all Federal, State, and local requirements for energy efficiency, including the latest Title 24 standards. Moreover, implementation of MM GHG-1 through MM GHG-6 would expand upon existing Federal, State, and local requirements related to energy use reduction and efficiency by reducing the amount of energy consumed on-site and through project-related mobile sources off-site. Considering these requirements in addition to the Project design features described above, the Project would not result in the inefficient, wasteful, or unnecessary use of energy. Therefore, following implementation of site-specific mitigation, potential impacts are ***less than significant***.

Mitigation Measures

MM EC-1 *Implement MM AQ-1 and MM GHG-1 through MM GHG-6.*

Impact EC-2: ***Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (less than significant with application of site-specific mitigation measures)***

The City of Brentwood does not have a stand-alone climate action plan or energy plan but includes policies and actions to reduce the generation of GHG emissions within the City's General Plan, which includes a number of policies aimed at reducing energy consumption. The Project's consistency with these policies is discussed in detail in Section 4.8 of this EIR under Impact GHG-2. The Project would include design features such as incorporating passive solar design, heat island mitigation, energy-efficient, low-voltage lighting, and low-VOC construction materials, to name a few. The Project would also include design features and mitigation measures that encourage alternative modes of transportation and reduce VMT, such as bike lanes, bike paths, and pedestrian trails. The Project proposes a majority of the residential development to be age-restricted active adult communities, which generate less vehicle trips and VMT. MM GHG-4 requires residential electric vehicle chargers and the Project design would accommodate LUVs (e.g., golf carts, neighborhood electric vehicles). MM GHG-5 requires a Transportation Demand Management (TDM) plan for residential and non-residential uses to further reduce VMT. MM GHG-1 and GHG-2 require residential and non-residential buildings to be ZNE. Increased energy efficiency is anticipated to be a critical component of meeting the ZNE requirements of MM GHG-1 and MM GHG-2. MM GHG-7 requires the purchase of GHG emissions offsets to ensure the Project is carbon neutral. These measures and features would help to reduce energy

consumption to the extent feasible, and promote on-site renewable energy systems to achieve ZNE.

In addition, the Project is located in an area that is planned for residential development in the 2014 General Plan. Consequently, the Project site is not identified as a site intended for development of large-scale renewable energy generation systems, and the Project would not conflict with renewable energy generation within the area. The Project's rate of VMT growth would not exceed the rate of population growth (refer to Section 4.3, Air Quality, of this EIR). This means the Project would be more efficient, as more people are driving fewer miles. Overall, the Project would generally be consistent with the City's General Plan policies, particularly those related to reduction energy consumption and GHG emissions. For instance, as discussed in Impact EC-1 above, the project would be designed in compliance with the California Green Building Code, which would ensure that structures within the Project site are designed to meet the State's energy efficiency standards. Furthermore, development within the Project site would be required to comply with General Plan Policy COS 9-6, which promotes water use efficiency. Because consumption of water requires energy for treatment and conveyance, increased water use efficiency increases energy efficiency.

Furthermore, as discussed in detail in Section 4.8 of this EIR, the Project would also be consistent with the overall goals of the applicable sustainable community strategy in the Bay Area, the Plan Bay Area 2040, which include the provision of housing, healthy and safe communities, and climate protection, with an overall goal to reduce VMT. Plan Bay Area 2040 establishes GHG emissions goals for automobiles and light-duty trucks, as well as an overall GHG target for the Project region consistent with GHG reduction goals of the State. The Project design and operation would be required to comply with State Building Energy Efficiency Standards, appliance efficiency regulations, CALGreen, and all applicable mandated regulations.

Based on the above, as well as the conclusions made above in Impact EC-1 that the Project development would not result in impacts related to an inefficient, wasteful, or unnecessary use of energy during construction or operations, following implementation of site-specific mitigation measures, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Therefore, impacts are considered ***less than significant***.

Mitigation Measures

MM EC-2 *Implement MM AQ-1 and MM GHG-1 through MM GHG-6.*

Cumulative Impact Analysis

Impact EC-3: ***Would the project result in any cumulative impacts related to energy efficiency? (less than significant with application of site-specific mitigation measures)***

Construction and operation 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, as discussed above. The consumption of fuel and energy would not be substantial in comparison to statewide

electricity, natural gas, gasoline, and diesel demand. 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 site vicinity, would increase urbanization and result in increased energy consumption. Potential land use impacts are site-specific and require evaluation on a case-by-case basis. Each cumulative Project would require separate discretionary approval and CEQA assessment, which would address potential energy consumption impacts and identify necessary mitigation measures, where appropriate.

As noted above, the Project would not result in significant energy consumption impacts. Specifically, MM GHG-1 and MM GHG-2 require that development within the Project site achieve ZNE. Achievement of ZNE would ensure that implementation of the Project would not result in cumulatively considerable increases in energy consumption at the project site. Therefore, the Project would not be considered inefficient, wasteful, or unnecessary with regard to energy and the Project's incremental contribution to any cumulative increase in energy consumption would be considered *less than significant*.

Mitigation Measures

MM EC-3 *Implement MM AQ-1 and MM GHG-1 through MM GHG-6.*

4.7 Geology, Soils, and Minerals

4.7.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to geology, soils, seismic conditions, minerals, and paleontological resources that could result from implementation of the Project. The Regional Setting provides information on the baseline conditions in the Project region. The Project Setting describes baseline conditions for geology, soils, minerals, seismicity, and paleontological resources on the Project site. Technical on-site information used to prepare this section came from the following resources:

- ENGEO Incorporated. 2019. *Preliminary Geotechnical Summary: Ginochio Property, Balfour Road and Deer Valley Road, Contra Costa County, California*. January 23, 2019.
- ENGEO Incorporated. 2019. *Ginochio Property, Contra Costa County, California Phase I Environmental Site Assessment*. January 24, 2019, Revised February 7, 2019.

The existing setting discussion is followed by a discussion of the regulatory framework, including Federal, State, and local policies and regulations that pertain to geologic hazards, seismic hazards, and the protection of soil and paleontological resources. The impact analysis determines impacts based on the significance criteria as outlined by CEQA Guidelines Appendix G, and appropriate mitigation measures are identified where necessary.

CEQA requires analysis of a project's effects on the environment. Generally, consideration of the potential effects of a site's environment on a project are outside the scope of required CEQA review (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369). The impacts discussed in this section related to increased exposure of people or structures to risks associated with seismic occurrences and location of people or structures on unstable geologic units are effects on users of the Project and structures in the Project of preexisting environmental hazards, and therefore “do not relate to environmental impacts under CEQA and cannot support an argument that the effects of the environment on the project must be analyzed in an EIR.” (Id. at p. 474.) Nonetheless, this section analyzes potential effects of geology, seismicity, and soils on the Project’s implementation as set forth in CEQA Guidelines, Appendix G, Significance Criteria, in order to provide information to the public and decision-makers.

Regional Setting

The geology of the region is largely controlled by major active faults in the Coast Range to the west and the alluvial deposits and sediments from the Sacramento-San Joaquin River Delta to the north and east. Plate boundary fault movements are largely concentrated along the San Andreas Fault zone, with eastward distribution of stress along the Hayward, Calaveras, and other relatively short, active faults. Later eastward expansion of strike-slip movement has resulted in movement along the shorter fault segments such as the Concord and Greenville faults.

Project Setting

The roughly 815-acre Project site consists of various hills and valleys and ranges in elevation from approximately 191 feet above sea level to 385 above sea level. Deer Creek enters the Project site in the south-central area, and exits south into the existing flood control facility, south of Balfour Road. Natural drainage crosses the site from west to east. The area south of Balfour Road, where the extension of American Avenue is proposed to be located, is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. The Project site is located west of the City of Brentwood, in unincorporated Contra Costa County; north of Balfour Road, east of Deer Valley Road, and west of the Shadow Lakes and Brentwood Hills neighborhoods.

Geology

The Project site is located in the Coast Ranges geomorphic province on the eastern side of the Diablo Range. The geology of the low-lying areas in the region consist of alluvial deposits from the Quaternary Period. The upland areas are underlain by sandstone and shale of Tertiary age. The Project site is underlain by surficial sediments, the Kreyenhagen formation, Domengine sandstone, and the Meganos formation; specifically:

- Qa – alluvial pebble gravel, sand and clay of valley areas
- Tkm – Markley Sandstone Member, light gray to tan, semi friable, bedded, fine to medium grained, arkosic
- Tkn – Nortonville Shale Member, clay shale or claystone, gray micaceous, bedded, argillaceous
- Tds – sandstone, light gray to tan, medium grained, semi friable, arkosic
- Tmge – greenish-gray to light gray, biotite-rich siltstone and silty mudstone

Faults and Seismicity

Fault rupture is the surface displacement that occurs when movement on a fault deep within the earth breaks through to the surface. Fault rupture and displacement almost always follows preexisting faults, which are zones of weakness; however, not all earthquakes result in surface rupture, i.e., earthquakes that occur on blind thrusts do not result in surface fault rupture. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. In addition to damage caused by ground shaking from an earthquake, fault rupture is damaging to buildings and other structures due to the differential displacement and deformation of the ground surface that occurs from the fault offset. This leads to damage or collapse of structures across this zone. Fault rupture displacements in large earthquakes can range from several feet to greater than 15 feet.

Fault definitions include:

- Faults that have generated earthquakes accompanied by surface rupture during historic time (approximately the last 200 years) and faults that exhibit a seismic fault

creep are defined as Historically Active.

- Faults that show geologic evidence of movement within Holocene time (approximately the last 11,000 years) are defined as Active.
- Faults that show geologic evidence of movement during the Quaternary time (approximately the last 1.6 million years) are defined as Potentially Active.
- Faults that show direct geologic evidence of inactivity during all of Quaternary time or longer are classified as Inactive.

Although it is difficult to quantify the probability that an earthquake will occur on a specific fault, this classification is based on the assumption that if a fault has moved during the Holocene epoch, it is likely to produce earthquakes in the future. Blind thrust faults are fault areas that do not intersect the ground surface, and thus are not classified as active or potentially active in the same manner as faults that are present at the earth's surface. Blind thrust faults are "buried" under the uppermost layers of rock in the crust. The Mount Diablo Thrust Fault is located approximately 12 miles west of the city.

There are no active faults mapped across the Project site by the California Division of Mines and Geology (CDMG). The Antioch Fault is mapped across the central portion of the site as shown on Figure 4.7-1; however, the CDMG has determined that this fault is not Holocene active and recommended that the fault not be zoned for special studies. Seismic sources near the Brentwood area include the Greenville fault, approximately 5 miles west; the Concord fault, approximately 10 miles west; the Calaveras fault, approximately 15 miles southwest; and the Great Valley fault, a blind thrust fault with no known surface expression but assumed to be located approximately 7 miles northwest based on regional seismic activity and isolated subsurface information.

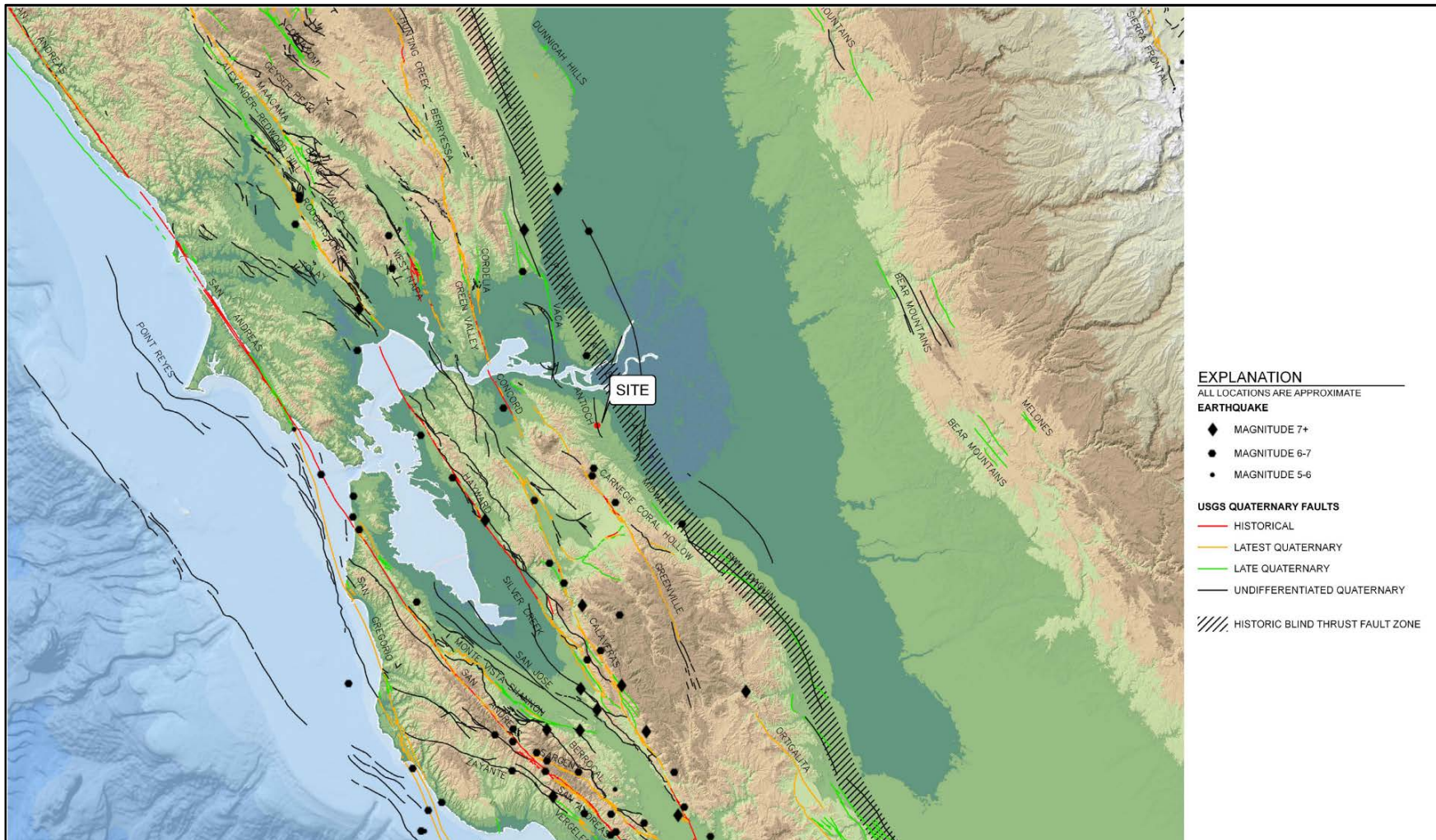
Known Active or Potentially Active faults located in the Brentwood area, including Alquist-Priolo Earthquake Fault Zones do not exist; however, numerous Active faults are located in the regional vicinity of Brentwood. Active and Potentially Active faults in proximity to the Project site are presented in Table 4.7-1. Four additional major faults, delineated as Alquist-Priolo Fault Zones, are located between 30 and 50 miles from Brentwood (Hayward fault, West Napa fault, Rodgers Creek fault, and the San Andreas fault).

Table 4.7-1: Regional Faults and Seismicity

Fault Segment	Approximate Distance from Project Site (miles)	Direction from Site	Maximum Characteristic Magnitude
Calaveras Fault	15.0	Southwest	7.0
Concord-Green Valley Fault	10.0	West	6.9
Greenville-Marsh Creek Fault	5.0	West	6.9

Source: City of Brentwood, 2014; ENGEO, 2019.

Figure 4.7-1
Regional Fault Zones



Calaveras Fault

The 75-mile-long Calaveras fault is located approximately 15 miles southwest from the Project site. This fault extends from an intersection with the Paicines fault south of Hollister, through the Diablo Range east of San Jose, and along the Pleasanton-Dublin-San Ramon urban corridor. The fault consists of three major sections: the southern Calaveras fault (from the Paicines fault to San Felipe Lake), the central Calaveras fault (from San Felipe Lake to Calaveras Reservoir), and the northern Calaveras fault (from Calaveras Reservoir to Danville). The timing of the most recent rupture on the northern Calaveras fault is unknown but is estimated to have occurred several hundred years ago. Seismologic evidence suggests that the southern and central sections may produce earthquakes as large as Magnitude 6.2. Geologic and seismologic data suggest that the northern section may produce earthquakes as large as Magnitude 7.0.

Concord-Green Valley Fault

The Concord-Green Valley fault is located approximately 10 miles west from the Project site. This fault is a northwest-striking, right lateral strike-slip fault zone that extends from the Walnut Creek area across Suisun Bay and continues to the north. The Concord fault extends approximately 12 miles, from the northern slopes of Mt. Diablo to Suisun Bay. North of Suisun Bay, the Green Valley fault continues to the north about 28 miles. The Concord fault is an actively creeping structure that has a long-term creep rate of approximately 5 millimeters per year (mm/yr). It is estimated that rupture of both faults would produce a maximum earthquake of about Magnitude 6.9 with a recurrence interval of approximately 180 years.

Greenville-Marsh Creek

The Greenville-Marsh Creek fault is located approximately five miles west from the Project site. This fault is a northwest-striking strike-slip fault of the San Andreas system in the northern Diablo Range, extending from Bear Valley to the east side of Mt. Diablo. This fault has a lower slip rate than other structures within the San Andreas system with a long-term rate of approximately 1 to 3 mm/yr. This fault produced a moderate magnitude earthquake in 1980. Research is currently being conducted on the fault zone to better constrain its slip rate and its history of past earthquakes. A maximum earthquake of Magnitude 6.9 has been estimated to the Greenville-Marsh Creek fault; the recurrence interval is estimated to be approximately 550 years.

Surface Fault Rupture

Fault rupture is the surface displacement that occurs when movement on a fault deep within the earth breaks through to the surface. The Alquist-Priolo Earthquake Fault Zoning Act delineates fault rupture zones approximately 1,000 feet wide, or 500 feet on either side of an active fault trace. Fault rupture and displacement almost always follows preexisting faults, which are zones of weakness; however, not all earthquakes result in surface rupture (i.e., earthquakes that occur on blind thrusts do not result in surface fault rupture. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep).

In addition to damage caused by ground shaking from an earthquake, fault rupture is also damaging to buildings and other structures due to the differential displacement and deformation

of the ground surface that occurs from the fault offset. This leads to damage or collapse of structures across this zone. Fault rupture displacements in large earthquakes can range from several feet to greater than 15 feet.

Groundshaking

An earthquake is classified by the amount of energy released, which traditionally has been quantified using the Richter scale (M_L). However, seismologists most commonly use the Moment Magnitude (M_w) scale because it provides a more accurate measurement of the size of major and great earthquakes. For earthquakes of less than $M 7.0$, the Moment and Richter Magnitude scales are nearly identical. For earthquake magnitudes greater than $M 7.0$, readings on the Moment Magnitude scale are slightly greater than a corresponding Richter Magnitude.

The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the Project site and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the Project site. Earthquakes occurring on faults closest to the Project site would most likely generate the largest ground motion. According to the 1999 ENGEO Geotechnical Exploration Report, an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the Project site.

Liquefaction

Liquefaction tends to occur in loose, saturated fine-grained sands, coarse silts, or clays with low plasticity. The liquefaction process typically occurs at depths less than 50 feet below the ground surface, although liquefaction can occur at deeper intervals, given the right conditions. The most susceptible zone occurs at depths shallower than 30 feet below the ground surface.

For liquefaction to occur, there must be proper soil type, soil saturation, and cyclic accelerations of sufficient magnitude to progressively increase the water pressures within the soil mass. Non-cohesive soil shear strength is developed by the point-to-point contact of the soil grains. As the water pressures increase in the void spaces surrounding the soil grains, soil particles become supported more by water than point-to-point contact. When water pressures increase sufficiently, soil grains lose the strength to hold to each other and the soils begin to liquefy.

Liquefaction can lead to several types of ground failure, depending on slope conditions and the geological and hydrological settings. The four most common types of ground failure are: 1) lateral spreads, 2) flow failures, 3) ground oscillation, and 4) loss of bearing strength. According to Figure 3.6-2 of the 2014 General Plan EIR, the Project site is located in an area mapped predominantly as an area with very low potential for liquefaction; however, portions of the Project site are considered to have a moderate potential for liquefaction. The Preliminary Geotechnical Summary found that a thin layer in Boring B-1 could be susceptible to liquefaction during strong ground shaking.

Landslides

Landslides are gravity-driven movements of earth materials that may include rock, soil, unconsolidated sediment, or combinations of such materials. The primary factors influencing the stability of a slope are the nature of the underlying soil or bedrock, the geometry of the slope (height and steepness), and rainfall. The presence of historic landslide deposits is a good indicator of future landslides. Landslides are commonly triggered by unusually high rainfall and the resulting soil saturation, by earthquakes, or a combination of these conditions. Within Contra Costa County, the hillsides have some susceptibility for landslides, while the valleys have a low susceptibility. Potential landslide areas identified in the Preliminary Geotechnical Summary are shown in Figure 4.7-2.

Lateral Spreading

Lateral spreading generally is a phenomenon where blocks of intact, non-liquefied soil moves down slope on a liquefied substrate of large areal extent. The potential for lateral spreading is present where open banks and unsupported cut slopes provide a free face (unsupported vertical slope face). Ground shaking, especially when inducing liquefaction, may cause lateral spreading toward unsupported slopes. The greatest potential for lateral spreading in the Brentwood Planning Area, which includes the Project site, is in the hilly terrain to the south and west, in the vicinity of the Project site.

Soils

The expansive nature of the native soil and claystone bedrock is of significant geotechnical concern in this region. The clayey soil and claystone materials at the subject area are considered moderately to highly expansive. Expansive soils shrink and swell as a result of moisture changes, which can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to moisture changes in expansive soils can be reduced by appropriate grading practices and using post-tensioned concrete mat foundations or similarly stiffened foundation systems that are designed to resist the deflections associated with soil expansion.

Subsidence

Subsidence in Contra Costa County occurs in the Delta plain and is generally caused by the natural process of oxidation of island peat soils, which result in the gradual sinking of the ground. Most reclaimed portions of the Delta in Contra Costa County have subsided at least 10 feet. According to the Preliminary Geotechnical Summary prepared by ENGEO, excessive total and differential settlement at the site may result from consolidation of the compressible colluvial deposits in swale areas where fills would be placed and where settlement of foundation elements are supported directly over these compressible colluvial deposits.

Past Mining Activities

The Project site contains two active and eight abandoned oil/gas wells associated with past mining activities. The potential environmental impacts associated with the on-site wells are addressed in Section 4.9, Hazards, Hazardous Materials, and Wildfire of this EIR.

Figure 4.7-2
Potential Landslides Area



The Project site is located within the Brentwood oil and gas field, California's northernmost commercial oil-producing area. The field was discovered in June 1962 by Shell, Occidental, and Brazos' joint well and was developed as a gas field until the discovery of oil in the field in 1962. By December 1965, there were 50 producing wells in the Brentwood field. Of these, 15 produced predominantly gas with small quantities of associated oil. The other 35 wells produced oil and gas at different ratios.

Paleontological Setting

Paleontological resources are nonrenewable scientific and educational resources. Projects subject to CEQA must determine whether a project would “directly or indirectly destroy a unique paleontological resource.”

An impact to paleontological resources would be considered a significant impact if a project results in the direct or indirect destruction of a unique or important paleontological resource or site. The Society of Vertebrate Paleontology (SVP), a national organization, has established a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources.

There are no known paleontological resources on the Project site. Therefore, a separate paleontological resources evaluation was not prepared. A Paleontological Evaluation Report was prepared for the City of Brentwood General Plan Area by Bruce Hansen, PhD, Paleontologist. The report concluded that no known significant fossil deposits are located in the city's Planning Area, but the geologic conditions within the Brentwood Planning Area provide suitable conditions for the possibility of fossils to exist at depths of five to ten feet below ground surface.

4.7.2 Regulatory Setting

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act, Public Resources Code (PRC), section 2621-2630 (formerly the Special Studies Zoning Act), regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. This Act categorizes faults as Active, Potentially Active, and Inactive. Historic and Holocene age faults are considered active, Late Quaternary and Quaternary age faults are considered Potentially Active, and pre-Quaternary age faults are considered Inactive. These classifications are qualified by the conditions that a fault must be shown to be “sufficiently active” and “well defined” by detailed site-specific geologic explorations to determine whether building setbacks should be established.

The Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act, PRC, Sections 2690–2699, of 1990 directs the California Department of Conservation, Division of Mines and Geology [now called California Geological Survey (CGS)] to delineate Seismic Hazard Zones. 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.

Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.

California Building Standards Code

The California Building Code (CBC) is another name for the body of regulations known as the California Code of Regulations (CCR), Title 24, Part 2, which is a portion of the California Building Standards Code and establishes minimum requirements for a building's structural strength and stability to safeguard the public health, safety, and general welfare. Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable.

California Health and Safety Code

Sections 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.

Local

City of Brentwood General Plan

Project relevant General Plan Goals, Policies, and Actions for geology, soils, and minerals are addressed in this section. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below. Relevant General Plan Goals, Policies, and Actions that directly address reducing and avoiding geology, soil, and mineral impacts include the following:

Safety Goal 1: Protect the Brentwood community from geologic and seismic hazards.

- **Policy SA 1-1:** Regulate development in areas of seismic and geologic hazards to reduce risks to life and property associated with earthquakes, liquefaction, erosion, landslides, and expansive soils.
- **Policy SA 1-2:** Where feasible, require new development to avoid unreasonable exposure to geologic hazards, including earthquake damage, subsidence, liquefaction, and expansive soils.
- **Policy SA 1-3:** Ensure that all new development and construction is reviewed by the City to ensure conformance with applicable building standards related to geologic and seismic safety.

- Policy SA 1-6: Development in areas subject to liquefaction shall be reviewed by qualified soils engineers and geologists prior to development in order to ensure the safety and stability of all construction.
- Policy SA 1-7: Prevent land subsidence and maintain adequate groundwater supplies.
- Policy SA 1-8: Where alterations such as grading and tree or vegetation removal are made to hillside sites, rendering slopes unstable, planting of vegetation or other engineering means shall be encouraged to protect structures at lower elevations.
- Policy SA 1-10: An erosion and sediment control plan prepared by a civil engineer, or other professional who is qualified to prepare such a plan, shall be submitted as part of any grading permit application for new development. The erosion and sediment control plan shall delineate measures to appropriately and effectively minimize soil erosion and sedimentation, and shall comply with the design standards and construction site control measures contained in Chapter 15.52 (Grading, Erosion and Sediment Control) of the Brentwood Municipal Code.
- Policy SA 1-11: All structures and building foundations located within areas containing expansive soils shall be designed and engineered to comply with the most current version of the California Code of Regulations (CCR), Title 24.
- Action SA 1a: Require the submission of geologic and soils reports for all new developments. The geologic risk areas that are determined from these studies shall have standards established and recommendations shall be incorporated into development.
- Action SA 1b: All building code requirements shall be adhered to so as to provide for maximum safety requirements. Inspections for compliance shall be made by the Community Development Department prior to approval for occupancy.
- Action SA 1c: Require strict adherence to the requirements of the California Code of Regulations (CCR), Title 24 in all areas of the city and, during the development review process, ensure that public and critical use buildings shall not be located in areas susceptible to potential natural hazards.
- Action SA 1d: Any critical use building shall meet earthquake codes and standards.
- Action SA 1e: Regularly review the structural integrity of all existing City facilities and, if any facilities are found unsatisfactory, take steps to ensure structural integrity and safety.
- Action SA 1f: As part of the development review process, ensure development applications incorporate drainage and erosion standards identified in the Brentwood Municipal Code. Inspections by the Community Development Department and the Public Works Department will ensure compliance.
- Action SA 1g: When a change in natural grade or removal of existing vegetation is necessary, appropriate vegetative cover to stabilize slopes and reduce erosion shall

be encouraged. This shall be accomplished through the development and design review process.

- Action SA 1h: Annually review revisions to the California Code of Regulations (CCR), Title 24 and consider adoption of updates that include new or revised measures to avoid or reduce the potential for damage to structures and facilities caused by seismic and other geologic hazards.
- Action SA 1l: Regulate abandoned wells and the removal of abandoned underground irrigation and drainage systems.
- Action SA 1k: Monitor withdrawal of groundwater, oil, and gas, maintain land elevation records, and regulate overdraft to prevent subsidence.

Safety Goal 2: Reduce risks to human life, property, and public services associated with flooding.

- Policy SA 2-12: Ensure that adequate drainage and erosion control measures are provided during construction of all new development.

Conservation and Open Space Goal 5: Utilize Brentwood's mineral resources while preserving development and conservation options for the future.

- Policy COS 5-1: Ensure that areas of mineral resources can be mined while productive and are ultimately reused for urbanization or open space.
- Policy COS 5-2: Allow resource extraction of gas, oil, and mineral resources as an interim use.
- Action COS 5a: Work with property owners to develop reclamation plans for areas with mineral resources.

Conservation and Open Space Goal 6: Preserve and enhance prehistoric, historic, and cultural resources in and around the Brentwood community.

- Action COS 6e: Require all new development, infrastructure, and other ground-disturbing projects to comply with the following conditions in the event of an inadvertent discovery of cultural resources or human remains:
 1. If construction or grading activities result in the discovery of significant historic or prehistoric archaeological artifacts or unique paleontological resources, all work within 100 feet of the discovery shall cease, the Community Development Director shall be notified, the resources shall be examined by a qualified archaeologist, paleontologist, or historian for appropriate protection and preservation measures; and work may only resume when appropriate protections are in place and have been approved by the Community Development Director.
 2. If human remains are discovered during any ground disturbing activity, work shall stop until the Community Development Director and the Contra Costa County Coroner have been contacted; if the human remains are determined

to be of Native American origin, the Native American Heritage Commission (NAHC) and the most likely descendants have been consulted; and work may only resume when appropriate measures have been taken and approved by the Community Development Director.

Brentwood Municipal Code

Chapter 17.680 of the Municipal Code establishes uniform limitations, safeguards, and controls for the present operation of and future drilling for and production of oil, gas, and other hydrocarbon substances within the city, so that such activities may be conducted in harmony with other uses of land within the city, thus protecting the people of the city in the enjoyment and use of their property and providing for their comfort, health, safety, and general welfare. Chapter 15.52 of the Municipal Code identifies applicable erosion and sediment control measures.

4.7.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for geology, soils, and minerals were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as amended effective December 2018, as well as the previously certified General Plan EIR. An impact of the project would be considered significant and would require mitigation if it would meet one of the following criteria.

- 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.
 - Strong seismic ground shaking.
 - Seismic-related ground failure, including liquefaction.
 - 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.
- 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 waste water disposal systems where sewers are not available for the disposal of waste water.

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- 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.
- 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.

Method of Analysis

In order to determine the potential for the project to result in substantial adverse impacts associated with the geology, soils, and minerals, relevant public services planning documents were reviewed, including, but not limited to, the Brentwood General Plan, the Brentwood General Plan EIR, a Phase 1 Environmental Site Assessment (ESA) by ENGEO, a Preliminary Geotechnical Summary by ENGEO, a soils survey of Contra Costa County, and the USGS Earthquake Hazards Program, National Seismic Hazard Map.

In October and November 2001, ENGEO conducted a field exploration that included drilling three solid-flight auger borings and excavating 16 test pits throughout the site. The borings were drilled to depths ranging between 21.5 and 28 feet below the existing ground surface and the test pits were excavated at the site on October 31 and November 1, 2001, using a 4-wheel-drive rubber-tired backhoe with a 24-inch-wide bucket. An ENGEO Geologist logged the borings and test pits in the field during the exploration; the Preliminary Geotechnical Summary and associated logs are included as Appendix E to this EIR. It should be noted that ENGEO conducted a subsequent Phase I ESA for the Project site in 2019. Because sub-surface soil conditions are not likely to have changed since 2001, additional exploratory borings were not conducted.

Impacts of the Proposed Project

Impact GEO-1: Would the project directly or indirectly expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure including liquefaction; and landslides? (*less than significant with application of site-specific mitigation measures*)

Rupture of Known Earthquake Fault

There are no active or potentially active faults located within the Project site, including Alquist-Priolo Earthquake Fault Zones. The Antioch Fault is mapped across the central portion of the site, as shown on Figure 4.7-1; however, the CDMG has determined that this fault is not Holocene active and recommended that the fault not be zoned for special studies.

Because there are no known active 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 Project proponent 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. As a result, the 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.

Strong Seismic Ground Shaking

Moderate to severe earthquakes can cause strong ground shaking, especially for most locations within the San Francisco Bay Area. While there are no known active faults located within the City of Brentwood, the area could experience considerable ground shaking generated by faults outside Brentwood. As a result, development associated with the Project could expose people or structures to potential adverse effects associated with a seismic event, including strong ground shaking and seismic-related ground failure. As discussed in the 2014 General Plan EIR, to mitigate ground shaking effects, all structures would be designed using sound engineering practices and the requirements contained in the current adopted version of the CBC. Any buildings constructed within the Project site would be required to comply with CBC requirements, which require development projects to perform geotechnical investigations in accordance with State law, engineer improvements to address potential seismic and ground failure issues, and to use earthquake-resistant construction techniques to address potential earthquake loads when constructing buildings and improvements. As a result, impacts associated with strong seismic ground shaking are less than significant.

Seismic-Related Ground Failure, Including Liquefaction, Lateral Spreading, and Earth Cracking

As discussed previously, while there are no known active or potentially active faults or Alquist-Priolo Earthquake Fault Zones located within the Project site, there are numerous faults located in the region. Rupture of any of these faults, or of an unknown fault in the region, could cause seismic ground shaking, which could result in the risk, loss, or death of people or structures. As a result, future development within the Project site may expose people or structures to potential adverse effects associated with a seismic event, including strong ground shaking and seismic-related ground failure.

As stated previously, the risk of liquefaction is considered either very low or moderate, based on the material types and densities of granular materials encountered in the test borings. In addition, any buildings constructed within the Project site would also be required to comply with CBC requirements, which require development projects to perform geotechnical investigations in accordance with State law, engineer improvements to address potential seismic and ground failure issues, and to use earthquake-resistant construction techniques to address potential earthquake loads when constructing buildings and improvements. With application of the above requirements and recommendations from a geotechnical evaluation, a less-than-significant impact would occur.

Landslides

Within Contra Costa County, the hillsides have some susceptibility for landslides, while the valleys have a low susceptibility. As identified in Figure 4.7-2, portions of the Project site are identified as having a relatively high likelihood of experiencing future instability unless suitable mitigation measures are carried out. Appropriate measures to mitigate potential landslide hazards are dependent on factors such as the potential of the landslide to impact the proposed development and to environmental factors such as visibility. According to the Preliminary Geotechnical Summary prepared for the Project, landslides located outside the area of planned development that do not have the potential to adversely impact the proposed development may be left in place. Landslides located within the limits of grading or adversely affecting the proposed development may be mitigated during grading by removal and replacement, setbacks, debris benches, or other stabilizing methods. Application of the above mitigating methods would ensure a less-than-significant impact related to landslides would result.

Conclusion

Compliance with MM GEO-1 would require all new development and construction associated with the proposed project to be reviewed by the city to ensure conformance with applicable building standards related to geologic and seismic safety. Furthermore, MM GEO-1 requires that development in areas subject to liquefaction or containing mining openings be reviewed by qualified soils engineers and geologists prior to development in order to ensure the safety and stability of all construction. Thus, implementation of MM GEO-1, which is consistent with the requirements of the General Plan policies SA 1-3 and SA 1-6, would reduce exposure of people or structures to potential substantial adverse effects related to the rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, liquefaction and landslides to a ***less-than-significant*** level.

Mitigation Measures

Compliance with the measures noted below shall be required as a Condition of Approval on future subdivision maps and/or design reviews.

MM GEO-1 *New development and construction must be reviewed by the city to ensure conformance with applicable building standards related to geologic and seismic safety. The Project must comply with all applicable California Building Code requirements, including but not limited to performance of geotechnical evaluations. Development in areas subject to liquefaction or containing mining openings and/or underground workings shall be reviewed through preparation of a site-specific design-level geotechnical investigation by qualified soils engineers and geologists to obtain their recommendations prior to development in order to ensure the safety and stability of all construction.*

Impact GEO-2: Would the project result in substantial soil erosion or the loss of topsoil? (*less than significant with application of site-specific mitigation measures*)

According to the 2014 General Plan EIR, erosion potential of the soils within the Brentwood Planning Area, which includes the Project site, is considered low in most locations due to the generally flat topography and the cohesive nature of the soils. Buildout of the Project would involve construction-related activities and during the early stages of construction, topsoil would be exposed due to grading and leveling of the Project site. As a result, once grading and leveling is complete but prior to overlaying the ground surface with structures, the potential exists for wind and water erosion to occur.

Per Brentwood Municipal Code Chapter 15.52, 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 stormwater 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 implement a sediment monitoring plan.

Implementation of MM GEO-2 through MM GEO-4 would help to reduce the potential for erosion during Project construction and operation. Furthermore, grading activities would be required to be carried out in accordance with Chapter 15.52 of the Municipal Code, which identifies applicable erosion and sediment control measures. As a result, impacts associated with soil erosion and loss of topsoil would be ***less than significant***.

Mitigation Measures

Compliance with the measures noted below shall be required as a Condition of Approval on future subdivision maps and/or design reviews.

MM GEO-2 *All proposed development of the Project site shall comply with Brentwood Municipal Code Chapter 15.52, as applicable.*

MM GEO-3 *Implement MM GEO-1.*

MM GEO-4 *An erosion and sediment control plan prepared by a civil engineer, or other professional who is qualified to prepare such a plan, shall be submitted as part of any grading permit application for new development. The erosion and sediment control plan shall delineate measures to appropriately and effectively minimize soil erosion and sedimentation, and shall comply with the design standards and construction site control measures contained in Chapter 15.52 (Grading, Erosion and Sediment Control) of the Brentwood Municipal Code.*

Impact GEO-3: **Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (*less than significant with application of site-specific mitigation measures*)**

As described in the Preliminary Geotechnical Summary, ENGEO conducted a field exploration that included drilling three solid-flight auger borings and excavating 16 test pits throughout the Project site. Based on the ENGEO Preliminary Geotechnical Summary, the potential risk of landslide, lateral spreading, subsidence, liquefaction, and collapse as a result of the Project are summarized below.

Landslides

ENGEO found that the potential landslide areas, as shown on Figure 4.7-2, have a relatively high likelihood of experiencing future instability unless suitable mitigation measures are carried out.

Appropriate measures to mitigate potential landslide hazards are dependent on factors such as the potential of the landslide to impact the proposed development and to environmental factors such as visibility. Landslides located within the limits of grading or adversely affecting the proposed development may be mitigated during grading by removal and replacement, setbacks, debris benches, or other stabilizing methods. Application of such measures would ensure the potential for landslides would be less than significant.

Subsidence

According to the Preliminary Geotechnical Summary prepared by ENGEO, excessive total and differential settlement at the site may result from consolidation of the compressible colluvial deposits in swale areas where fills would be placed; and settlement of foundation elements supported directly over these compressible colluvial deposits. Compliance with MM GEO-1 would require all new development and construction be reviewed by the city to ensure conformance with applicable building standards related to geologic and seismic safety.

In addition, to reduce settlement resulting from these deposits, ENGEO recommends that these deposits be over-excavated to expose stiff in-place materials and grades be restored with properly compacted engineered fill material. ENGEO anticipates that these deposits may be reused as fill material. Thus, compliance with the Policies and Actions stated in the General Plan and the recommendations set forth in the Geotechnical Summary, the potential of collapse due to subsidence would be reduced to a less-than-significant level.

Liquefaction and Lateral Spreading

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. ENGEO found that blow counts for saturated sands were high. However, ENGEO also determined that a thin layer in Boring B-1 could be susceptible to liquefaction during

strong ground shaking. Mitigating this condition can typically be performed by founding the proposed residences on post-tensioned concrete mat foundations. Thus, ENGEO recommends a liquefaction analysis and mitigation recommendations be provided in a design-level geotechnical report. This recommendation would be met by compliance with MM GEO-1, which require 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 for all new developments. Application of the above recommendations and General Plan Policies would ensure that impacts related to liquefaction and lateral spreading would be less than significant.

Collapse

As discussed in the Preliminary Geotechnical Summary prepared by ENGEO, the Project is located in an area of historic coal mining. During ENGEO's 2001 field exploration and geologic mapping, one open and one mostly backfilled mine opening were observed at the site. At that time, the site owner stated that the mine openings were only test tunnels at the site. Upon review of readily available historic literature regarding the mining operations in the site vicinity, no information was located regarding the site mines. ENGEO recommends additional exploration in the known and suspected mine areas to confirm the depth and extent of the mine workings. The additional exploration may include test pits or geophysical surveys to determine the nature of the mine workings at the site. Per ENGEO's recommendations, mining openings and underground workings can be mitigated by removal and recompaction of the overlying materials or by filling the mine excavations with grout. This recommendation would also be met by compliance with MM GEO-2, which require areas subject to mining openings and underworkings to be reviewed by qualified soils engineers and geologists to obtain recommendations prior to construction for all new developments. Without compliance with ENGEO's recommendations or MM GEO-2, impacts associated with potential collapse could be potentially significant. However, implementation of site-specific mitigation would reduce the above potential impact to a less-than-significant level.

Conclusion

Compliance with MM GEO-5 below, would require all new development and construction be reviewed by the city to ensure conformance with applicable building standards related to geologic and seismic safety as well as require development in areas subject to liquefaction or mining openings be reviewed by qualified soils engineers and geologists prior to development in order to ensure the safety and stability of all construction. Thus, compliance with MM GEO-5, which would satisfy the recommendations contained in the ENGEO report, would reduce the potential for the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse to a **less-than-significant** level.

Mitigation Measures

Compliance with Mitigation Measures MM GEO-5 shall be required as a Condition of Approval on future subdivision maps and/or design reviews.

MM GEO-5 *Implement MM GEO-1 and MM GEO-2.*

Impact GEO-4: **Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? (*less than significant with application of site-specific mitigation measures*)**

The expansive nature of the native soil and claystone bedrock is of significant geotechnical concern in this region. The clayey soil and claystone materials at the subject area are considered moderately to highly expansive. Expansive soils shrink and swell as a result of moisture changes, which can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to moisture changes in expansive soils can be reduced by appropriate grading practices and using post-tensioned concrete mat foundations or similarly stiffened foundation systems that are designed to resist the deflections associated with soil expansion.

In accordance with General Plan Policies and Actions, and per ENGEO recommendations, a site-specific design-level geotechnical investigation would 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. Furthermore, future development on the Project site would be subject to existing CBC regulations and provisions, as adopted in Chapter 15.04 of the Municipal Code and enforced by the city during plan review prior to building permit issuance.

Design criteria and specifications set forth in the design-level geotechnical investigation would ensure impacts from problematic soils are minimized. As a result, compliance with city Ordinances and Policies would reduce potential impacts associated with expansive soils to a ***less-than-significant*** level.

Mitigation Measures

Compliance with the measures noted below shall be required as a Condition of Approval on future subdivision maps and/or design reviews.

MM GEO-6 *Implement MM GEO-1 and MM GEO-2.*

Impact GEO-5: Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? (*no impact*)

As discussed in Section 4.16, Utilities and Service Systems, the Project would involve disposal of wastewater through the city's existing sanitary sewer system, and there would be no septic systems constructed as part of the Project. Therefore, ***no impact*** would occur.

Mitigation Measures

None required.

Impact GEO-6: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (*less than significant with application of site-specific mitigation measures*)

As discussed in the EIR for the city's General Plan, there are no known paleontological resources located in Brentwood's Planning Area, including the Project site. However, development associated with implementation of the Project has the potential to result in the discovery and disturbance of previously unknown or undiscovered paleontological resources. Should evidence of paleontological resources be encountered during grading and construction, adherence to city, State, and Federal historic preservation laws, regulations, and codes related to archaeological and paleontological resources would ensure the adequate protection of historic and pre-historic resources.

While fossils are not expected to be discovered during construction, it is possible that unique paleontological resource or a unique geologic feature 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 or geologic resource is discovered, the impact to the resource could be substantial. Because the likelihood of encountering paleontological resources during construction of the Project is unknown, the possibility exists for paleontological resources to be discovered during excavation of the Project site. Implementation of MM GEO-7, which applies General Plan Action COS 6e, would ensure that potential impacts to paleontological resources would be reduced to a less-than-significant level. Specifically, MM GEO-7 would provide specific performance standards to be met in the event that ground-disturbing activity associated with the Project results in discovery of previously unknown cultural resources or human remains. Thus, with implementation of MM GEO-7, a ***less-than-significant*** impact would occur.

Mitigation Measures

Compliance with the measure noted below shall be required as a Condition of Approval on future subdivision maps and/or design reviews.

MM GEO-7

All new development, infrastructure, and other ground-disturbing projects must comply with the following conditions in the event of an inadvertent discovery of cultural resources or human remains:

- 1. If construction or grading activities result in the discovery of significant historic or prehistoric archaeological artifacts or unique paleontological resources, all work within 100 feet of the discovery shall cease, the Community Development Director shall be notified, the resources shall be examined by a qualified archaeologist, paleontologist, or historian for appropriate protection and preservation measures; and work may only resume when appropriate protections are in place and have been approved by the Community Development Director.*
- 2. If human remains are discovered during any ground disturbing activity, work shall stop until the Community Development Director and the Contra Costa County Coroner have been contacted; if the human remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) and the most likely descendants have been consulted; and work may only resume when appropriate measures have been taken and approved by the Community Development Director.*

Impact GEO-7: Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State? (*less than significant with application of site-specific mitigation measures*)

As discussed in the 2014 General Plan EIR, mineral resources within the Brentwood Planning Area, which includes the Project site, include sand, gravel, coal, oil, and gas. Specialty sand has also been mined in the vicinity of the Project area including Domengine sandstone deposits between Deer Valley Road in the northwest to the southeast corner of the Brentwood Planning Area.

According to the 2019 Phase I ESA prepared for the Project, seventeen oil/gas wells were located on the Project site and the adjacent parcels to the north and west. Eight of the wells were located on the Project site from 1962 through 1987 and have since been plugged and abandoned. Two active oil/gas wells remain within the Project boundaries. As discussed in Chapter 3, Project Description, the phasing of the Project would reach this production site in approximately 20 years. The wells would remain in production until ultimately reused for urbanization and open space in compliance with General Plan Policy COS 5-1 and MM GEO-8.

Based on the above, Project compliance with MM GEO-8 below, would reduce potential impacts associated with loss of availability of a known mineral resources to a ***less-than-significant*** level.

Mitigation Measures

MM GEO-8 *Oil and gas production (within the boundaries of the Project Site) shall be consistent with Chapter 17.680 of the Brentwood Municipal Code.*

Impact GEO-8: **Would the Project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? (*no impact*)**

As discussed above, the 2014 General Plan EIR identified the Project area as an area with the potential to contain mineral resources. However, the Project site is not designated as a locally-important mineral resource recovery site. Thus, the Project would result in ***no impact*** to 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.

Mitigation Measures

None required.

Impact GEO-9: **Would the off-site infrastructure improvements result in any impacts related to geology, soils, and minerals? (*less than significant with application of site-specific mitigation measures*)**

Off-site Sewer Pipe Improvements

Alternatives 2 and 3 for the proposed off-site sewer improvements would both involve ground disturbing activity to the east of the Project site boundary. The eastern border of the Project site consists primarily of ruderal grasses, as well as portions of paved roadway.

Off-site Irrigation Pipe Improvements

The preferred off-site irrigation pipe improvements (Alternative 1) would occur entirely within the Balfour Road right-of-way. Installation of the below ground irrigation line would result in temporary ground disturbance.

Off-site Roadway Improvements

American Avenue Extension

Consistent with the General Plan Circulation Diagram, the proposed project would include connection of the existing terminus of American Avenue to Balfour Road. To improve access onto the existing American Avenue from the east, the two existing westbound left-turn lanes would be extended along Balfour Road. The proposed American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops.

Balfour Road Widening

Consistent with the General Plan Circulation Diagram, Balfour Road would be improved and/or widened from the existing American Avenue intersection west to Deer Valley Road. The proposed improvements would be primarily limited to the existing Balfour Road right-of-way and the graveled shoulders of the roadway, which contain scattered shrubs and ruderal grasses.

Conclusion

Ground disturbing activities associated with off-site improvements would be subject to all the requirements imposed by MM GEO-1, MM GEO-2, MM GEO-4, and MM GEO-7. As discussed previously, such measures would ensure that the proposed off-site improvements would not result in substantial adverse effects related to seismic hazards, unstable soils, and other geology, soils, and mineral resources issues. Therefore, with application of mitigation measures, a **less-than-significant** impact would occur.

Mitigation Measures

MM GEO-9 *Implement MM GEO-1, MM GEO-2, MM GEO-4, and MM GEO-7.*

Cumulative Impact Analysis

Impact GEO-10: Would the project result in a cumulative impact to geology, soils, and minerals? (less than significant with application of site-specific mitigation measures)

Most geologic-related impacts from development are site-specific and, if properly designed, would not result in worsening of the environment or public health and safety. Cumulative development would be subject to site-specific geologic and/or soils constraints; pursuant to MM GEO-1, and consistent with the City of Brentwood General Plan Policies SA 1a and SA 1-6, a registered geotechnical engineer would investigate site-specific conditions and minimize exposure to hazards or constraints with implementation of their recommendations.

Cumulative development would also involve the exposure of an increased number of people and/or structures to the risk of earthquakes and their associated geologic hazards. However, new construction would be required to comply with the most current CBC, which establishes building standards to minimize risk based on the geologic and seismic conditions of the region in which a project is located.

With administration of these requirements, as well as the implementation of city Ordinances and Policies and adherence to CBC requirements, the Project would not have a cumulatively considerable contribution to cumulative geologic, soils and minerals impacts. Thus, a **less-than-significant** impact would occur.

Mitigation Measures

MM GEO-10 *Implement MM GEO-1, MM GEO-2, MM GEO-4, MM GEO-7, and MM GEO-8.*

4.8 Greenhouse Gas Emissions

4.8.1 Environmental Setting

The Environmental Setting provides information on the baseline conditions in the region. The Project setting defines the Project area and describes baseline conditions for Greenhouse Gas (GHG) emissions within it.

Greenhouse Gases and Climate Change

Certain gases in the earth's atmosphere classified as 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 back 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 (CO₂), methane (CH₄), and nitrous oxide (N₂O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Examples of fluorinated gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃); however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of GHGs exceeding 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 or global warming.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), 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 a GHG molecule is dependent on multiple variables and cannot be pinpointed, more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms of carbon sequestration. Of the total annual human-caused CO₂ 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 CO₂ emissions remains stored in the

atmosphere.¹ Table 4.8-1 describes the primary GHGs attributed to global climate change, including their physical properties.

GHG	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 ₂ O)	N ₂ O is largely attributable to agricultural practices and soil management. Primary human-related sources of N ₂ O include agricultural soil management, sewage treatment, combustion of fossil fuels, and adipic and nitric acid production. N ₂ O is produced from biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N ₂ O is approximately 120 years. The Global Warming Potential of N ₂ O 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-152a 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

(Continued on next page)

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.

GHG	Description
	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 nontoxic, nonflammable 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 U.S. is scheduled to achieve a 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 (NF ₃)	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. Environmental Protection Agency, Overview of Greenhouse Gases, 2018a; U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016, 2018b; IPCC Climate Change 2007: The Physical Science Basis, 2007; National Research Council, Advancing the Science of Climate Change, 2010; U.S. Environmental Protection Agency, Methane and Nitrous Oxide Emission from Natural Sources, April 2010.	

CO₂ 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 CO₂. For example, CH₄ and N₂O are substantially more potent GHGs than CO₂, with GWPs of 25 and 298 times that of CO₂, respectively.

In emissions inventories, GHG emissions are typically reported in terms of metric tons of CO₂ equivalents per year (MTCO₂e/yr)². MTCO₂e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH₄ and N₂O have much higher GWPs than CO₂, CO₂ is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO₂e, both from residential developments and human activity in general.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The Intergovernmental Panel on Climate Change's (IPCC) 2014 Synthesis Report indicated that warming of the climate system is unequivocal and, since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has

² Carbon Dioxide Equivalent (CO₂e) is a metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC, 2014).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (Climate Action Team (CAT), 2010). A brief summary of current and future climate change impacts to resource areas in California, as discussed in *Safeguarding California: Reducing Climate Risk* (California Natural Resources Agency (CNRA), 2014), is provided below.

Agriculture. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events; significant shifts in water availability and water quality; changes in pollinator lifecycles; temperature fluctuations; increased risks from invasive species and weeds, agricultural pests, and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production.

Biodiversity and Habitat. Specific climate change challenges to biodiversity and habitat include species migration, range shift, and novel combinations of species; pathogens, parasites, and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; and threshold effects (i.e., a change in the ecosystem that results in a “tipping point” beyond which irreversible damage or loss occurs).

Energy. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events.

Forestry. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat, and decreased carbon absorption.

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate long-standing challenges related to

ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the 21st century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat-related illness, as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies.

Transportation. The transportation industry is vulnerable to climate change risks, including sea level rise and erosion, which threaten many coastal California roadways, airports, seaports, transit systems, bridge supports, and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure, which can impair movement of people and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter time. Increased risk of flooding creates a variety of public health concerns including water quality, public safety, property damage, displacement and post-disaster mental health problems. Prolonged and intensified droughts can also negatively affect groundwater reserves and result in increased overdraft and subsidence.

In March 2016, CNRA released Safeguarding California: Implementation Action Plans, a document that shows how California is acting to convert the recommendations contained in the 2014 Safeguarding California plan into action (CNRA, 2016). Additionally, in May 2017, CNRA released the draft Safeguarding California Plan: 2017 Update, which is a survey of current programmatic responses for climate change and contains recommendations for further actions (CNRA, 2017).

The CNRA released Safeguarding California Plan: 2018 Update in January 2018, which provides a roadmap for State agencies to protect communities, infrastructure, services, and the natural environment from climate change impacts. The 2018 Safeguarding California Plan includes 69 recommendations across 11 sectors and more than 1,000 ongoing actions and next steps developed by scientific and policy experts across 38 State agencies (CNRA, 2018).

The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 ppm CO₂e concentration is required to keep global mean warming below 2 degrees Celsius (°C), which in turn is assumed to be necessary to avoid dangerous climate change.

Analysis of GHG Emissions and Climate Change

Analysis of global climate change presents the challenge of analyzing the relationship between local and global activities. GHGs are not generally thought of as traditional air pollutants because GHGs, and their impacts, are global in nature, while air pollutants affect the health of people and other living things at ground level, in the general region of their release to the atmosphere. Accordingly, the issue of global climate change is different from any other areas of air quality impact analysis. A global climate change analysis must be conducted on a global level, rather than the typical local or regional setting, and requires consideration of not only emissions from the project under consideration, but also the extent of the displacement, translocation, and redistribution of emissions.

In the usual context, where air quality is linked to a particular location or area, considering the creation of new emissions in that specific area to be an environmental impact whether or not the emissions are truly “new” emissions to the overall globe is appropriate. In fact, the approval of a new developmental plan or project does not necessarily create new automobile drivers – the primary source of a land use project’s emissions. Rather, a new land use project may simply be redistributing existing mobile emissions. For example, future residents at the Project site could already be residing within the county or region and would be moving from other parts of the region to the Project site, which could result in shorter or longer associated vehicle trips, but would not introduce new vehicle trips to the overall region. Accordingly, the use of models that measure overall emissions increases without accounting for existing emissions would substantially overstate the impact of the development project on global climate change. Nevertheless, presenting all GHG emissions from the Project, including those emissions that may simply be relocated from other areas of the region to the Project site, provides a worst-case analysis, and allows decision makers and the public to consider the full scope of GHG emissions that would result from the Project.

4.8.2 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

To date, national standards have not 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.

The Energy Policy and Conservation Act of 1975 (42 USC Section 6201)

The Energy Policy and Conservation Act of 1975 was developed to establish energy conservation programs to efficiently and effectively minimize any adverse economic or employment impacts of changing patterns of energy use and meet local economic, climatic, geographic, and other unique conditions and requirements of each State. The Act established the Strategic Petroleum Reserve, the Energy Conservation Program for Consumer Products, and Corporate Average Fuel Economy (CAFE) regulations.

National Climate Program Act of 1978 (95th Congress H.R.6669)

The National Climate Program Act requires the Secretary of Commerce to establish a National Climate Program Office to enable the United States and other nations to understand and respond to natural and man-induced climate processes and their implications. The Program includes: (1) procedures for assessing the effect of climate on agriculture, energy supply and demand, land and water resources, transportation, human health, and national security; (2) basic and applied research to improve understanding of climate processes; (3) methods of improving climate forecasts; (4) global data collection and climate monitoring and analysis activities to provide reliable, useful, and available information on a continuing basis; (5) systems for the management and active dissemination of climatological data and information; (6) measures for increasing international cooperation in climate research, monitoring, analysis, and data dissemination; (7) mechanisms for intergovernmental climate-related research and services, including participating by universities and the private sector; (8) experimental climate forecast centers; and (9) biennial revisions for the final five-year plan.

In 1979, the National Research Council released Strategy for the National Climate Program, the first of a number of reviews and advisory documents prepared by the National Research Council on the program. The Global Change Research Act of 1990 as amended is the currently mandated framework within which climate and global change research is implemented among U.S. Federal departments and agencies.

The Energy Policy Act of 1992 (102nd Congress H.R.776.ENR)

The Energy Policy Act of 1992 set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. The Act consists of twenty-seven titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title XVI (Global Climate Change) requires the Secretary of Energy to report to the Congress on specified implications of global climate change policies, including the generation of greenhouse gases and carbon dioxide, and U.S. compliance with its international obligations.

Energy Policy Act of 2005 (109th Congress H.R.6)

The Energy Policy Act of 2005 sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Independence and Security Act of 2007 (110th Congress H.R.6)

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 (mpg) 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.

Massachusetts v. Environmental Protection Agency (2007)

The FCAA authorizes the U.S. Environmental Protection Agency (USEPA) to regulate GHG emissions from new motor vehicles in the event that it forms a judgment that such emissions contribute to climate change. The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007), that CO₂ and other GHGs are air pollutants under the Federal Clean Air Act (FCAA), which the USEPA must regulate if it determines they pose an endangerment to public health or welfare. The Court's opinion also referenced a Council on Environmental Quality report issued in 1970 that concluded that "[m]an may be changing his weather"³ and a 1979 Climate Research Board investigation that determined "If carbon dioxide continues to increase, the study group finds no reason to doubt that climate changes will result and no reason to believe that these changes will be negligible. [...] A wait-and-see policy may mean waiting until it is too late."⁴

U.S. Environmental Protection Agency Endangerment Finding

The USEPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. USEPA* (2007). As noted above, the Supreme Court ruled that GHGs meet the definition of air pollutants. Responding to the Court's ruling, the USEPA finalized an

³ Council on Environmental Quality, 1970. *Environmental Quality: The First Annual Report*, August 1970.

⁴ Climate Research Board, 1979. *Carbon Dioxide and Climate: A Scientific Assessment*, 1979.

endangerment finding in December 2009. Based on scientific evidence, it found that six GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing FCAA and the USEPA's assessment of the scientific evidence that form the basis for the USEPA'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 USEPA, 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 USEPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 through 2016.

In 2010, an Executive Memorandum was issued directing the Department of Transportation, Department of Energy, USEPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated Federal GHG and fuel economy standards for model years 2017 through 2025 light-duty vehicles. The proposed standards are projected to achieve 163 grams per mile of CO₂ tail pipe emissions in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 mpg if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017 through 2021, and NHTSA intends to set standards for model years 2022 through 2025 in a future rulemaking. On January 12, 2017, the USEPA finalized its decision to maintain the current GHG emissions standards for model years 2022 through 2025 cars and light trucks. It should be noted that the USEPA 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 USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014 through 2018. The standards for CO₂ 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 USEPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines.

In August 2016, the USEPA 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 will apply to vehicles with model years 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 CO₂ 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.

In 2018, President Trump and the USEPA stated their intent to halt various Federal regulatory activities to reduce GHG emissions, including the phase two program. California and other states have stated their intent to challenge Federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. The timing and consequences of these types of Federal decisions and potential responses from California and other states are speculative at this time.

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, the USEPA published a final rule (effective December 22, 2015) establishing the carbon pollution emission guidelines for existing stationary sources: electric utility generating units (80 Federal Register [FR] 64510–64660), also known as the Clean Power Plan (CPP). These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO₂ emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: one fossil-fuel-fired electric utility steam-generating unit and two stationary combustion turbines. Concurrently, the USEPA 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 CO₂ 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 CPP pending resolution of several lawsuits. Additionally, in March 2017, the Federal government directed the USEPA Administrator to review the CPP 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 issued on March 28, 2017, orders all Federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of CO₂, N₂O, and CH₄.

State

California has adopted a variety of regulations aimed at reducing GHG emissions. The adoption and implementation of the key State legislation described in further detail below demonstrates California's leadership in addressing global climate change. Only the most prominent and applicable California GHG-related legislation are included below; however, an exhaustive list and extensive details of California air quality legislation can be found at the California Air Resources Board (CARB) website.⁵

⁵ California Air Resources Board. 2019. *Laws and Regulations*. Available at: <https://www.arb.ca.gov/html/lawsregs.htm>. Accessed April 2019.

California Air Resources Board

The 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 CO₂e in the world and produced 440 million gross MTCO₂e 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 Assembly Bill (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 discretionary 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.

SB 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 CNRA 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 CNRA was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the CNRA 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.

California Global Warming Solutions Act (AB 32)

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")⁶. 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.⁷ 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 then-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 CO₂e (MMTCO₂e) to 545 MMTCO₂e. The reduction in forecasted 2020 emissions means that the revised business-

⁶ CARB defines business-as-usual (BAU) in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

⁷ The Climate Action Team, led by the secretary of the California Environmental Protection Agency, is a group of State agency secretaries and heads of agencies, boards, and departments. Team members work to coordinate statewide efforts to implement global warming emissions reduction programs and the State's Climate Adaptation Strategy.

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.

In January 2017, CARB released the 2017 Climate Change Scoping Plan Update (Second Update) for public review and comment (CARB, 2017). The Second Update sets forth CARB's strategy for achieving the State's 2030 GHG target as established in SB 32 (discussed below). The Second Update was approved by CARB's Governing Board on December 14, 2017 (CARB, 2017).

Amendments to California Global Warming Solutions Act of 2006: Emission Limit (Senate Bill 32)

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 (CARB, 2017). The 2017 Scoping Plan details how the State will 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 CPP 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. The applicable sustainable community strategy in the Bay Area is Plan Bay Area 2040.

AB 1493 (Pavley Regulations and Fuel Efficiency Standards)

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 USEPA's denial of an implementation waiver. The USEPA subsequently granted the requested waiver in 2009, which was upheld by the 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 will be fully implemented, new automobiles will emit 34 percent fewer CO₂e 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 (CPUC) 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 5 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 CPUC 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, for 1,100 pounds of CO₂ per megawatt-hour.

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 (RPS) 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) 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 to develop more regional electricity transmission markets and

improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

AB 398 (Market-Based Compliance Mechanisms)

Signed on July 25, 2017, AB 398 extended the duration of the Cap-and-Trade program from 2020 to 2030. AB 398 required CARB to update the Scoping Plan and for all GHG rules and regulations adopted by the State. It also designated CARB as the statewide regulatory body responsible for ensuring that California meets its statewide carbon pollution reduction targets, while retaining local air districts' responsibility and authority to curb toxic air contaminants and criteria pollutants from local sources that severely impact public health. AB 398 also decreased free carbon allowances over 40 percent by 2030 and prioritized Cap-and-Trade spending to various programs including reducing diesel emissions in impacted communities.

SB 150 (Regional Transportation Plans)

Signed on October 10, 2017, SB 150 aligns local and regional GHG reduction targets with State targets (i.e., 40 percent below their 1990 levels by 2030). SB 150 creates a process to include communities in discussions on how to monitor their regions' progress on meeting these goals. The bill also requires the CARB to regularly report on that progress, as well as on the successes and the challenges regions experience associated with achieving their targets. SB 150 provides for accounting of climate change efforts and GHG reductions and identifies effective reduction strategies.

SB 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases)

Signed into law in September 2018, SB 100 increased California's renewable electricity portfolio from 50 to 60 percent by 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs using 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 will stabilize the climate. The 2020 goal was established to be a mid-term target.

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 LCFS 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 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 MMTCO_{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.

Executive Order B-55-18. Issued on September 10, 2018, Executive Order B-55-18 establishes a goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing GHG emissions. The executive order requires CARB to work with relevant State agencies to develop a framework for implementing this goal. It also requires CARB to update the Scoping Plan to identify and recommend measures to achieve carbon neutrality. The executive order also requires State agencies to develop sequestration targets in the Natural and Working Lands Climate Change Implementation Plan.

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 [CCR] Title 20, Sections 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 (CCR 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, single-family homes will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards. Once rooftop solar electricity generation is factored in, which is a requirement of the 2019 standards, single-family homes built under the 2019 standards will use approximately 53 percent less energy than those under the 2016 standards. Non-residential buildings will use about 30 percent less energy than buildings under the 2016 standards, due mainly to lighting upgrades.

Title 24 California Green Building Standards Code. The California Green Building Standards Code (CCR Title 24, Part 11) 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 tiers and measures 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 went into effect January 1, 2017. Updates to the 2016 CALGreen Code will take effect on January 1, 2020 (2019 CALGreen). The 2019 CALGreen standards will continue to improve upon the existing standards for new construction of, and additions and alterations to, residential and nonresidential buildings.

Regional and Local

The following sections describe the applicable regional and local regulations related to GHG emissions and climate change.

Bay Area Air Quality Management District

The 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 nongovernmental 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, the BAAQMD is a commenting responsible agency on air quality within its jurisdiction or impacting its jurisdiction. The 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.

The BAAQMD published CEQA Air Quality Guidelines as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality and greenhouse gas impacts under CEQA in May 2017. Local jurisdictions have discretion whether to rely on these guidelines and the thresholds of significance suggested by the BAAQMD.

City of Brentwood General Plan

Relevant General Plan policies for GHG from the Conservation and Open Space Element are presented below:

COS Goal 8: Reduce air pollutants and greenhouse gas (GHG) emissions.

- **Policy COS 8-1:** Improve air quality through continuing to require a development pattern that focuses growth in and around existing urbanized areas, locating new housing near places of employment, encouraging alternative modes of transportation, and requiring projects to mitigate significant air quality impacts.
- **Policy COS 8-2:** Minimize exposure of sensitive receptors to concentrations of air pollutant emissions and toxic air contaminants.
- **Policy COS 8-3:** Require discretionary projects involving sensitive receptors such as children, the elderly, or people with illnesses that are proposed within 500 feet of the State Route 4 corridor to include an analysis of mobile source toxic air contaminant health risks. The analysis, if necessary, shall identify feasible mitigation measures to reduce health risks to acceptable levels.

- Policy COS 8-4: Encourage new development or significant remodels to install fireplaces, wood stoves, and/or heaters which meet Bay Area Air Quality Management District (BAAQMD) standards.
- Policy COS 8-5: Continue to require all construction projects and ground disturbing activities to implement BAAQMD dust control and abatement measures.
- Policy COS 8-6: Support the development and implementation of a GHG reduction plan, or Climate Action Plan, that addresses and reduces GHG emissions associated with community operations, including but not limited to, mobile sources (vehicle traffic), energy consumption, and solid waste.
- Policy COS 8-7: Coordinate with Contra Costa County and nearby cities to implement regional GHG reduction plans and consolidate efforts to reduce GHGs throughout the county.
- Policy COS 8-8: Encourage local businesses and industries to engage in voluntary efforts to reduce GHG emissions and energy consumption.
- Policy COS 8-9: Preserve, protect, and enhance, as appropriate, the City's carbon sequestration resources, also referred to as "carbon sinks," to improve air quality and reduce net carbon emissions.
- Policy COS 8-10: Encourage public transit, ridesharing and van pooling, shortened and combined motor vehicle trips to work and services, use of bicycles, and walking. Minimize single passenger motor vehicle use.
- Policy COS 8-11: Encourage new construction to incorporate passive solar features.

COS Goal 9: Promote conservation of energy and other natural resources.

- Policy COS 9-1: Require all new public and privately constructed buildings to meet and comply with the most current "green" development standards in the California Code of Regulations (CCR), Title 24.
- Policy COS 9-2: Support innovative and green building best management practices including, but not limited to, LEED certification for all new development, and encourage project applicants to exceed the most current "green" development standards in the California Code of Regulations (CCR), Title 24, if feasible.
- Policy COS 9-3: Promote the use of alternative energy sources in new development.
- Policy COS 9-4: Incorporate innovative green building techniques and best management practices in the site design, construction, and renovation of all public projects.
- Policy COS 9-5: Promote water conservation among water users.
- Policy COS 9-6: Continue to require new development to incorporate water efficient fixtures into design and construction.
- Policy COS 9-7: Promote the use of reclaimed water and other non-potable water sources.

- Policy COS 9-8: Encourage large-scale developments and golf course developments to incorporate dual water systems.
- Policy COS 9-9: Encourage and support the use of drought-tolerant and regionally native plants in landscaping.
- Policy COS 9-10: Ensure that the layout and design of new development and significant remodels encourages the use of transportation modes other than automobiles and trucks.
- Policy COS 9-11: Continue the citywide recycling program and actively encourage recycling.
- Policy COS 9-12: Continue efforts to reduce solid waste generation throughout the life of the General Plan.
- Policy COS 9-13: Continue to encourage and support the use of bicycles as an alternative means of transportation.

Policies from other elements of the General Plan that are also applicable to GHG emissions and climate change are as follows:

- Policy CIR 1-3: When analyzing impacts to the circulation network created by new development or roadway improvements, consider the needs of all users, including those with disabilities, ensuring that pedestrians, bicyclists, and transit riders are considered at an equal level to automobile drivers.
- Policy CIR 2-1: Establish and maintain a system of interconnected bicycle, pedestrian, and equestrian facilities that facilitate commuter and recreational travel, and that are consistent with the City's parks, trails, and recreation goals and policies in this General Plan and the Contra Costa County Countywide Bicycle and Pedestrian Plan.
- Policy CIR 2-2: Routinely incorporate sidewalks and enhanced pedestrian crossing facilities as part of new street construction, and incorporate bicycle facilities on new collector and arterial streets (including bicycle lanes where appropriate, bicycle route and destination signs, and bicycle detection at signals).
- Policy CIR 2-3: Require development projects to construct on-site sidewalks, paths, and trails in a manner that is consistent with the City's parks, trails, and recreation goals and policies in this General Plan and the Contra Costa County Countywide Bicycle and Pedestrian Plan, and as dictated by the location of transit stops and common pedestrian destinations.
- Policy CIR 2-8: Provide secure bicycle racks in places such as the Downtown, at commercial areas, park and ride transit facilities, schools, multiple unit residential developments, and other locations where there is a concentration of residents, visitors, students, or employees.
- Policy CIR 2-9: Where possible, integrate multi-use path facilities into utility corridor rights-of-way.

- Policy CIR 2-10: Work with utility providers to reduce or eliminate barriers to pedestrian and bicyclist mobility created by utility infrastructure (such as utility poles that obstruct accessibility).
- Policy CIR 2-12: Seek opportunities to fund and construct improvements that improve multimodal access to any future mass transit facility (i.e., eBART).
- Policy CIR 2-13: Coordinate with Tri Delta Transit to increase the coverage areas and frequencies of bus service in Brentwood.
- Policy CIR 2-14: Ensure that effective linkages are in place between any future mass transit facility (i.e., eBART) and the city's primary activity and employment centers.
- Policy CIR 2-15: Coordinate with Tri Delta Transit to maintain existing and, where feasible, build new lighted and sheltered seating facilities at bus stops.
- Policy CIR 2-17: Encourage the use of park-and-ride lots and other transit incentives for Brentwood commuters.
- Policy CIR 2-18: Work with Tri Delta Transit to identify the need for and locations of additional park-and-ride lots in Brentwood in order to increase the number and length of trips made by transit and carpooling.
- Policy CIR 2-19: Provide safe and continuous pedestrian, vehicular, and bicycle access at all transit park-and-ride facilities.
- Policy CIR 3-2: Prioritize high-density and mixed land use patterns that promote transit and pedestrian travel along transit corridors.
- Policy CIR 3-3: Design developments to include features that encourage walking, bicycling, and transit use. Design features shall include bus turnouts, transit shelters and benches, and pedestrian access points between subdivisions and between adjacent related land uses.
- Policy CIR 3-9: Design intersections to provide adequate and safe access for all users including pedestrians, bicyclists, and motorists of all ages and abilities.
- Policy CIR 3-10: Require new development to include effective linkages to the surrounding circulation system for all modes of travel, to the extent feasible.
- Policy LU 1-4: Require new development to occur in a logical and orderly manner, focusing growth on infill locations and areas designated for urbanization on the Land Use Map (Figure LU-1), and be subject to the ability to provide urban services, including paying for any needed extension of services.
- Policy LU 1-5: Encourage new development to be contiguous to existing development, whenever possible.
- Policy LU 2-6: Encourage new development that is convenient to bus or future passenger rail transit lines (e.g. eBART service) in order to reduce automobile dependence.

- Policy LU 2-7: Strongly encourage residential development in the city in a balanced and efficient pattern that reduces sprawl, preserves open space, and creates convenient connections to other land uses.

As part of the General Plan Update (2014), the City of Brentwood adopted goals and actions for the future development of a Climate Action Plan (CAP). When adopted, the CAP will be a stand-alone document that could include a range of strategies, measures, and programs that the city and the community may implement to reduce the generation of GHG emissions within the city.

4.8.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for GHG emissions were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as amended effective December 2018, as well as the previously certified General Plan EIR. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria:

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

Bay Area Air Quality Management District Thresholds

The BAAQMD's approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move towards climate stabilization. If a project would generate GHG emissions above the threshold level, it would be considered to contribute considerably to a significant cumulative impact. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate. If annual emissions of operational-related GHGs exceed these levels, the proposed project would result in a cumulatively considerable contribution to a cumulatively significant impact to global climate change. BAAQMD's recommended 2020 thresholds are as follows:

- Compliance with a Qualified Climate Action Plan; or
- Meet one of the following thresholds:
 - 1,100 MTCO₂e/yr; or
 - 4.6 MTCO₂e/service population (sp)/yr, where sp includes residents and employees.

BAAQMD is currently working to provide updated threshold guidance to address updated GHG regulations such as SB 32 and case law that has found efficiency metric thresholds based on state-wide data must be supported by substantial evidence that the threshold is appropriate for a specific location and specific project type.

BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, the BAAQMD recommends quantification and disclosure of construction GHG emissions. The BAAQMD also recommends that the Lead Agency should make a determination on the significance of these construction generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals, as required by Public Resources Code Section 21082.2. The Lead Agency is encouraged to incorporate best management practices to reduce GHG emissions during construction, as feasible and applicable.

City of Brentwood Thresholds

To date, the City of Brentwood has not developed a quantitative threshold for project-level GHG emissions. Given the cumulative nature of GHG emissions impacts, establishment of a project-specific GHG significance threshold presents various challenges. A single land use development plan or project is not large enough to meaningfully affect climate change by itself (because climate change has resulted from decades of cumulative global GHG emissions), which is why impacts are assessed only on a cumulative level. However, courts have found that the most widely used cumulative thresholds lack sufficient substantial evidence to support them. In light of recent CEQA case law, the Project proponent has suggested a declining emissions threshold based on the state's goal to achieve carbon neutrality by 2045. This threshold is more conservative than CARB's statewide per capita target of no more than two metric tons CO₂e per capita by 2050 and is consistent with the Governor's statewide goal to reach carbon neutrality by 2045.

According to the UN IPCC, in order to limit warming to 2°C (the increase at which the most severe impacts of a changing climate will be felt) annual global emissions must peak by the year 2020, and be reduced steeply thereafter. To stay below the 2°C increase limit, humanity must become carbon-neutral by around 2060 or 2070. But new land use projects can do more by becoming carbon neutral more quickly than older development that requires expensive retrofitting. The facts support a declining emission threshold, with new projects reaching carbon neutrality no later than 2045, consistent with California's statewide goal. Such a threshold measures whether the Project is doing its fair share by not contributing to the most severe impacts of a changing climate. Therefore, for the proposed project, operational emissions would not make a cumulatively considerable contribution to significant cumulative climate change related impacts on the environment if the Project operational emissions are shown to be on a trajectory towards carbon neutrality by 2045.

As shown in the Significance Criteria section above, in addition to considering whether a proposed project would result in the generation of GHG emissions that may have a significant impact on the environment, a project could result in impacts if the project is determined to conflict with an applicable plan adopted for the purpose of reducing GHG emissions. Consequently, as a qualitative threshold for the purposes of this Project, and in consideration of the Appendix G thresholds, the city considers the Project's consistency with its General Plan policies designed to reduce GHG emissions and Plan Bay Area 2040 in determining whether an impact would occur related to a conflict with applicable plans.

Method of Analysis

The Project's construction and operational GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the ITE Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data was available, such data was input into the model. The modeling approach and assumptions used are described in further detail below. All modeling outputs are included as Appendix B to the EIR. The results of emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact.

Construction GHG Emissions Modeling

For analytical purposes the modeling conservatively assumed that construction would begin in 2021 and end in 2032. Although the Project could be built out over a 20- to 25-year period, for analysis purposes, it is assumed construction of the Project would commence in early 2021 and last approximately 12 years. All off-site improvements were anticipated to occur during the Phase 1 of Project development. As the exact timing and duration of construction phases are currently unknown and would depend on various market factors, a conservative construction phase approach was utilized, where each phase of construction was modeled separately. Construction of the off-site improvements have been incorporated into the model. The modeled construction timing and phasing is conservative, but represents a realistic worst-case scenario. 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.

Operational GHG Emissions Modeling

For operational GHG emissions, the first year of full occupancy (2033) was selected for modeling purposes. Emissions are anticipated to decrease in later years due to increasingly stringent regulatory requirements, particularly for energy suppliers and likely vehicle emission standards.

CalEEMod default emission factors incorporate 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 (CAPCOA, 2016). Compliance with the following regulations is inherently applied in the model:

- Pavley I motor vehicle emission standards;
- Low Carbon Fuel Standard (LCFS); and
- 2016 Title 24 Energy Efficiency Standards.

Compliance with the following regulations are not inherently incorporated in the CalEEMod; however, the model was adjusted to reflect the proposed Project's required compliance with each:

- RPS;
- Green Building Code Standards (indoor water use);
- California Model Water Efficient Landscape Ordinance (Outdoor Water); and
- 2019 Title 24 Energy Efficiency Standards (effective January 1, 2020).

Reductions from RPS are addressed by revising the CO₂ intensity factor in CalEEMod to account for PG&E requirement to achieve the 33 percent renewable energy goal for 2020 and the 60 percent renewable energy goal by 2030 established by SB 100.

The Water Conservation Act of 2009 mandates a 20 percent reduction in urban water use that is implemented with the Green Building Code Standards for indoor water use and California Model Water Efficient Landscape Ordinance for outdoor water use.

Adjustments made to reflect the Project's compliance with CALGreen, including application of high-efficiency water fixtures for indoor plumbing and water efficient irrigation systems. In addition, under the 2019 Building Energy Efficiency Standards, homes are anticipated to use approximately 53 percent less energy, primarily associated with the mandatory inclusion of rooftop solar electricity generation, and non-residential buildings are anticipated to use approximately 30 percent less energy in comparison to buildings under the 2016 standards.

As the Project would develop natural land with vegetation that is currently sequestering CO₂, loss of the existing vegetation was applied to the model to account for the amount of GHG emissions that would no longer be sequestered at the Project site. In accordance with the CalEEMod User's Guide, sequestration loss is annualized over a 20-year growing period.

Compliance with BAAQMD Regulation 6, Rule 3, Wood Burning Devices, was also applied to the model. A 50 percent diversion of the Project's solid waste stream was applied to the model as well to reflect the Project's required compliance with AB 939.

In addition to compliance with the above regulations, the Project would include a number of design features that would inherently contribute to a reduction of GHG emissions. For example, the Project would include amenities to serve future residents and reduce the need to travel off-site, such as the inclusion of a main clubhouse and a variety of indoor recreation amenities (e.g., a multi-purpose room for community events, a fitness center, an indoor pool, locker rooms, a restaurant, a health spa, space for various informal recreation activities), as well as, outdoor recreation amenities (e.g., a separate outdoor pool, tennis/pickleball courts, bocce ball courts, barbecues, informal gardens, walking/hiking trails, dog park, etc). The Project also includes approximately 20 acres of commercial/civic uses that would serve the future residents. A minimum of 225 acres of open space will be preserved and used for passive recreational uses

serving the Project. Community and neighborhood recreation centers and amenities would result in minimized vehicle trips. The modeling was adjusted to reflect the Project-specific VMT.

In addition, a majority of the proposed development would be designated as age-restricted active adult communities. Residents of active adult communities drive approximately one third less than those in conventional single-family residential neighborhoods. Residents of the age-restricted portion of the project are typically retired or nearing retirement and do not make daily commutes to work. Because no/few minors⁸ live in age-restricted communities, no/few daily trips to school or after-school activities would be required for the age-restricted portions of the proposed project. The daily trips made by active adult residents generally remain within the community and may be taken outside of an automobile by way of walking, bicycling, or using LUVs (e.g., golf carts, neighborhood electric vehicles). In addition to the project-specific VMT, the lower trip rate associated with age-restricted active adult communities was derived from the Project Traffic Impact Analysis and incorporated into CalEEMod. Although the majority of the Project site, 80 percent of the proposed residential units, would be age-restricted, it should be noted that a portion of the proposed residential units, not to exceed 20 percent of the total units, would not be age-restricted. Non-age-restricted units would involve a higher number of commute and school trips as compared to the age-restricted units within the Project. The VMT and trip rate related to non-age-restricted units has been considered throughout this analysis.

It should be noted that VDCSP Policies and Actions require the development to include various design features that would improve energy efficiency and reduce GHG emissions. However, considering the plan-level nature of this analysis and the lack of design-level detail for the Project, while all future development will be required to adhere to such requirements, the ultimate efficacy of the policies and actions included in the VDCSP is not currently known. Therefore, to provide a conservative analysis of impacts, benefits associated with the majority of the features have not been quantified.

Cumulative Impact Analysis

Global climate change is, by nature, a cumulative impact. Emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). A single project could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from a project in combination with other past, present, and future projects could contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. Although the geographical context for global climate change is the Earth, for analysis purposes under CEQA

⁸ At least one member of an age-restricted household must be 55-years of age or older. Other residents in that household must be 45 years of age or older unless that person is (1) a spouse or cohabitant of the qualifying senior; (2) a person who provides primary economic or physical support for the senior; or (3) a disabled child or grandchild who needs to live with the senior or the household resident who is at least 45 years old because of his or her disabling condition.

and due to the regulatory context pertaining to GHG emissions and global climate change applicable to the proposed project, the geographical context for global climate change in this EIR is limited to the State of California.

Impact GHG-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (*less than significant with application of site-specific mitigation measures*)

Global climate change is, by nature, a cumulative impact. Emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). A single project of the type proposed here could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from a project in combination with other past, present, and future projects contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. The standards of significance described above focus on a project's contribution to cumulative global climate change impacts.

The proposed project would result in direct and indirect GHG emissions during project construction and operations, as discussed in detail below. proposed project

Construction Emissions

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. Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Neither the city nor BAAQMD has an adopted threshold of significance for construction-related GHG emissions and does not require quantification. However, the 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. Because the BAAQMD's operational GHG thresholds of significance are based on compliance with statewide goals, including AB 32, the project's total estimated construction GHG emissions were amortized over the conservative construction period assumed for this analysis of 12 consecutive years, included in the annual operational GHG emissions, and compared to the operational thresholds applied to the Project. Amortizing the construction GHG emissions (a one-time release that would occur only during construction of the project) and including them in the annual operational emissions (which would occur every year over the lifetime of the entire project) would represent a conservative analysis for the annual operational emissions.

The Project's construction GHG emissions, including emissions associated with off-site improvements, have been estimated for each project phase and are presented in Table 4.8-2 below. As shown in the table, the amortized annual construction GHG emissions associated with buildout of the Project would be 2,221 MTCO₂e/yr.

Phase	Year	Project GHG Emissions (MTCO_{2e})¹
Phase 1	2021	1,216
	2022	3,313
	2023	3,244
Phase 2	2024	1,154
	2025	2,633
	2026 <i>(Continued on next page)</i>	2,605
Phase 3	2027	1,085
	2028	2,478
	2029	2,472
Phases 4 & 5	2030	1,464
	2031	2,491
	2032	2,501
Total GHG Emissions		26,656
Amortized Annual GHG Emissions		2,221
Notes:		
Due to rounding, total MTCO _{2e} may be marginally different from CalEEMod output.		
MTCO _{2e} = metric tons of carbon dioxide equivalent.		
Source: Refer to the CalEEMod outputs provided in Appendix B, <i>Air Quality and GHG Data</i> .		

Operational Emissions

Operational or long-term GHG emissions would result from direct emissions such as Project generated vehicular traffic, on-site combustion of natural gas, and operation of any landscaping equipment. 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 disposal of solid waste generated from the Project site, and any fugitive refrigerants from air conditioning or refrigerators.

Area source emissions occur from hearths (i.e. natural gas fireplaces)⁹, 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 compounds, which are relatively insignificant as direct GHG emissions. Energy consumption consists of emissions from Project consumption of electricity and natural gas. Solid waste releases GHG emissions in the form of methane when such materials decompose. In addition, because the Project would develop natural land with vegetation that is currently

⁹ Wood-burning fireplaces are not permitted under BAAQMD Regulation 6, Rule 3.

sequestering CO₂, loss of the existing vegetation would contribute to a reduction in the amount of GHG emissions currently being sequestered (i.e., the process of vegetation storing CO₂, resulting in a carbon sink and reducing CO₂ emissions) at the Project site.

The unmitigated annual estimated operational GHG emissions associated with the Project are presented in Table 4.8-3. As noted above, the amortized annual average construction GHG emissions associated with buildout of the Project are included in the total annual operational GHG emissions in order to present a worst-case analysis.

Table 4.8-3: Unmitigated Operational GHG Emissions	
Category	Project GHG Emissions Without Mitigation (MTCO₂e)
Construction GHG Emissions	2,221
Project Operational GHG Emissions	16,469
Area Sources	126
Energy Consumption	2,092
Mobile Sources	13,155
Solid Waste	631
Water Consumption/Wastewater Treatment	338
Vegetation Land Use Change (Loss of Sequestration)	127
Total Annual GHG Emissions	18,690
<i>Emissions Threshold for Year 2045</i>	<i>0</i>
Exceeds Threshold?	Yes
Note: Emissions may not total due to rounding.	
Source: Refer to the CalEEMod outputs provided in Appendix B, <i>Air Quality and GHG Data</i> .	

As shown in Table 4.8-3, the Project would generate approximately 18,690 MTCO₂e/yr without mitigation and the estimated emissions level would be anticipated to remain relatively stable through the year 2045. As noted above, the selected quantitative threshold for this analysis requires Project operational emissions to demonstrate a trajectory of diminishing total emissions reaching carbon neutrality by 2045. Therefore, impacts would be potentially significant without the incorporation of mitigation.

It should be noted that VDCSP Policies and Actions require the development to include various design features that would improve energy efficiency and reduce GHG emissions. These features from the VDCSP are summarized below; however, due to the current plan-level nature of the Project, and the lack of design-level details, the ultimate efficacy of such policies and actions is not currently known. Therefore, to provide a conservative analysis of impacts, benefits associated with the majority of these features have not been quantified.

- Passive solar design. In passive solar building design, windows, walls, and floors are made to collect, store, reflect, and distribute solar energy in the form of heat in the winter and reject solar heat in the summer. Building design and siting would take advantage of natural ventilation, heating, and cooling, sun and wind exposure, and solar energy opportunities.
- Exterior horizontal surfaces must be a light color or painted with reflective paint (or if a roof, be covered with solar panels).
- Use radiant barrier roof sheathing.
- Locate cooling equipment in shaded areas.
- Heat Gain Reductions. Parking lots and other potential heat islands would incorporate trees, vegetation, and other landscape screening/shading devices. Roof-top solar panels are required and parking lot solar panels are encouraged.
- Complete Streets. The VDCSP requires street designs to accommodate multiple modes of transportation, including walking, bicycling, or driving a local use vehicle or automobile. Pedestrians and cyclist paths must connect the residential, commercial, and open space.
 - Bicycle circulation is integrated throughout the VDCSP area through on-street bike lanes and separated off-street bike or multi-use paths. Multi-use paths are designed to support multiple recreation and mobility opportunities.
 - Multi-use (or shared) paths would be located adjacent to arterial and collector roads. A separated multi-use path is also envisioned along the east side of Deer Valley Road.
- Water Efficiency. The Project would utilize recycled water supply for irrigation. Community landscaping would consist of native and drought-tolerant species of trees, shrubs, and ground cover.
- Lawn and turf area reductions – use of turf areas should be minimized to reduce water use.
- Energy efficient LED street lighting is required.
- Low VOC construction materials are proposed.
- Construction and operational waste would be recycled to the maximum extent feasible.
- Civil site design would incorporate green building design elements, i.e. narrower roadways than City standards to reduce pavement, lower speeds.

- Buildings would be oriented to the south when possible.
- High efficiency/LED lighting would be incorporated into the proposed project.
- City has non-potable water system that the proposed project would extend.
- LID requirements would be incorporated into the proposed project.
- Construction and demolition waste would be reused and recycled as required by City of Brentwood.
- Project would preserve more than 225 acres as open space/parks, existing oak trees to be saved where possible.
- Bike lanes and bike paths (off-street) would be included with proposed project. Pedestrian trails would be constructed throughout the Project site.
- Extension of American Avenue would include bicycle lanes and sidewalks to the nearby schools.

It should be noted that while the majority of the above features cannot be quantified until further design-level specifications are available, sufficient information is available to quantify some of the foregoing design features. The following design features were included in emissions quantification for the Project: the use of water efficient fixtures; reduced lawn and turf area; the use of recycled water; energy efficient LEDs; and the use of low VOC construction materials.

Conclusion

Because the Project's unmitigated GHG emissions would exceed the significance threshold being applied to the Project, impacts are considered potentially significant. Table 4.8-4 shows the Project emissions after implementation of MM GHG-1 through MM GHG-6.

MM GHG-1 and MM GHG-2 require residential and non-residential development to achieve net zero energy through a Zero Net Energy Confirmation Report prepared by a qualified building energy efficiency and design consultant. Although MM GHG-1 and MM GHG-2 establish a ZNE requirement, considering the plan-level nature of the Project, the actual design-level features that will be used to meet the ZNE requirement cannot yet be determined. Although the ultimate design-level features are not yet known, the requirement that all development within the Project site achieve ZNE ensures that ZNE technologies will be incorporated into the Project design, sufficient to eliminate the net use of fossil fuel-related energy sources of GHGs. Although CalEEMod allows users to apply mitigation to reduce estimated electricity use, CalEEMod does not provide a method of reducing natural gas usage through mitigation. Thus, while the emissions presented in Table 4.8-4 do not include GHG emissions related to electricity consumption on-site, Table 4.8-4 does include estimated GHG emissions related to natural gas consumption during Project operations. Reductions in on-site natural gas use would likely be a

crucial method of achieving ZNE as required by MM GHG-1 and GHG-2. Therefore, following full implementation of MM GHG-1 and MM GHG-2, emissions related to energy consumption, particularly natural gas, would likely be lower than the emissions levels presented in Table 4.8-4 below.

Table 4.8-4: Mitigated Operational GHG Emissions	
Category	Project GHG Emissions With Mitigation (MTCO_{2e})
Construction GHG Emissions	2,221
Operational GHG Emissions	10,272
Area Sources	21
Energy Consumption ¹	820 ¹
Mobile Sources	8,878
Solid Waste	158
Water Consumption/Wastewater Treatment	268
Vegetation Land Use Change (Loss of Sequestration)	127
Total Annual GHG Emissions	12,493
<i>Emissions Threshold for Year 2045</i>	<i>0</i>
Exceeds Threshold?	Yes
Notes: Emissions may not total due to rounding.	
¹ In compliance with MM GHG-1 and MM GHG-2, emissions would not occur due to on-site electricity consumption. However, CalEEMod does not currently offer users methods of reducing a project's estimated natural gas usage; thus, the emissions presented under the Energy Consumption category are related to CalEEMod assumed natural gas consumption on-site. Full implementation of MM GHG-1 and MM GHG-2 would likely greatly reduce or eliminate emissions from natural gas use within the project site, below the level presented in this table.	
Source: Refer to the CalEEMod outputs provided in Appendix B, <i>Air Quality and GHG Data</i> .	

MM GHG-3 and MM GHG-4 require the Project to include electric vehicle (EV) charging stations for residential, commercial, and recreational development areas. Each residence within the Project area would be equipped with one single-port EV charging station while approximately 7.5 percent of required general parking spaces would include an EV charging station. The use of EVs results in a reduction of GHG emissions from fossil fuel-combusting engines. Further, the electricity supplied to EV charging stations may originate from renewable resources provided by public utilities, as specified through RPS, or on-site sources of renewable energy. As noted above, SB 100 increased the RPS goal to 60 percent by 2030 and also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

MM GHG-5 requires development of a Commute Trip Reduction/Transportation Demand Management (TDM) program to reduce mobile GHG emissions for residential and commercial/civil uses. The TDM program shall require employers to discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. Employees would be encouraged to work flexible work

schedules, receive transit subsidies, and have vanpool and rideshare options available. The TDM Program includes a new bus stop and shuttles for residents in the Project area.

MM GHG-6 would require all landscaping equipment to be electric. This would include lawnmowers, leaf blowers, and chainsaws. Outdoor electrical outlets would be required for all residential and non-residential buildings. Wood burning and natural gas fireplaces would also be prohibited to reduce area source emissions. Use of recycled water and efficient landscape irrigation is also required. MM GHG-6 also includes requirements for recycling and solid waste stream diversion to reduce emissions.

Based on current mobile source emission rates, which allow for some estimation of future mobile-related GHG emissions, it is anticipated that the mobile source emissions identified above in Table 4.8-4 would reduce over time. However, it is difficult to predict the impact of technology, legislation and policy in the future, and therefore MM GHG-7 requires a GHG Reduction Plan to offset the Project-related incremental increase of GHG emissions that exceed the threshold that provides sufficient flexibility to respond to changes in technology, legislation, and policy. MM GHG-7 provides the ability to mitigate GHG emissions through a number of options, including the construction of on-site carbon sequestration projects, funding of off-site carbon sequestration projects, or the purchase of carbon credits to offset Project annual emissions. One or more of these actions, or other equally effective actions, would be sufficient to offset the Project's GHG emissions. The sum of GHG mitigation reductions, credits, and/or carbon offsets is required to equal the total emissions generated by the Project. If GHG mitigation credits and/or carbon offsets are used, they are required to meet the standards of an Approved Registry. Carbon offsets shall be real, additional, quantifiable, enforceable, validated, and permanent. All GHG mitigation credits and carbon offsets must meet the performance standards identified in the GHG Reduction Plan.

As noted above, the VDCSP includes numerous Design Guidelines that maximize pedestrian access and amenities that would complement the mix of uses. These guidelines would minimize conflicts between pedestrians and vehicles, design an efficient circulation system appropriate for seniors, encourage pedestrian movement, create a community that is bicycle and pedestrian friendly, have a flexible network to accommodate future transit service, and design a circulation system to preserve the site's most sensitive natural resources as open space, among others (refer to Section 6.8: Streets, Pedestrians Paths & Trails in the VDCSP). However, as noted above, such features of the VDCSP Design Guidelines have not been quantified for purposes of determining the Project's impacts.

At the state and global level, improvements in technology, policy, and social behavior can also influence and reduce operational emissions generated by a project. The state is currently on a pathway to achieving the RPS goal of 33 percent renewables by 2020, 60 percent renewables by 2030, and 100 percent renewables by 2045 per SB 100. Despite these goals, the majority of the Project's emissions would still be from mobile sources, especially as electricity use would be offset by MM GHG-1 and MM GHG-2. Future mobile source emissions are greatly dependent on changes in vehicle technology, fuels, and social behavior, which can be influenced by policies to varying degrees. Taking known future policies into account, CARB estimates that over 90

percent of future vehicles in Contra Costa County would still run on gasoline even with increased electric vehicle mode share.¹⁰ This is assumed to also be applicable to the Brentwood vehicle fleet, absent data that may suggest otherwise. Due to these external factors, Project related transportation in 2045 would still generate GHG emissions, but the quantity is uncertain in light of potential changes in technology and policy over the next 25 years.

Although the future transportation emissions generated by the Project may be uncertain, MM GHG-1, MM GHG-2, and MM GHG-6 require the buildings to be operated as efficiently as feasible (i.e., ZNE and other area source reductions). Additionally, MM GHG-3 through MM GHG-5 require electric vehicle chargers and a TDM plan to minimize vehicle trips and mobile emissions. With the variety of factors involved and without further action on the Project to reduce mobile source emissions or purchase GHG emissions offsets, it is uncertain that the Project would be on a trajectory to achieving net zero carbon emissions by 2045. Implementation of MM GHG-7 sets GHG reduction targets and accountability for the Project.

Table 4.8-4 shows that following implementation of MM GHG-1 through MM GHG-6, and the reductions in GHG emissions from mobile sources, energy consumption, area sources, water consumption, and wastewater treatment that would result from the foregoing mitigation measures, the total annual GHG emissions from development of the proposed project would be 12,493 MTCO₂e/yr. Further reductions in emissions would be determined in the GHG Reduction Plan per MM GHG-7. With the implementation of MM GHG-1 through MM GHG-7, Project GHG emissions would be reduced and fully offset to carbon neutral by 2045. Project-related GHG emissions would not result in a cumulatively considerable contribution to the significant cumulative impact of climate change with the implementation of MM GHG-1 through MM GHG-7. Therefore, with application of site-specific mitigation measures, impacts would be ***less than significant***.

Mitigation Measures

MM GHG-1 *Residential Zero Net Energy. Prior to the issuance of any residential building permit for any development project within the Project site, the Project proponent or its designee shall submit one or more Zero Net Energy (ZNE) Confirmation Reports (ZNE Report). The ZNE Report(s) shall be prepared by a qualified building energy efficiency and design consultant. The Project proponent shall submit the prepared ZNE Report to the city for review and confirmation that the residential development covered by the ZNE Report achieves the ZNE standard specified in this mitigation measure. Although all development within the Project site must be covered within a ZNE Report, ZNE Reports can be prepared for single units, neighborhoods, phases, or the entire Project site, as needed. The purpose of the ZNE requirement is to avoid GHG emissions from building energy consumption.*

¹⁰ California Air Resources Board, 2017. *EMFAC 2017*.

Specifically, a ZNE Report shall demonstrate that the residential development within the Project site subject to application of Title 24, Part 6, of the California Code of Regulations, has been designed and shall be constructed to achieve ZNE, as defined by CEC in its 2015 Integrated Energy Policy Report, which requires the value of the net energy produced by Project's renewable energy resources is equal to the value of the energy consumed annually by the Project using the CEC's Time Dependent Valuation metric.

A ZNE Report shall provide, at a minimum, the following information:

- *Confirmation that the residential development shall comply with Title 24, Part 6 building standards that are operative at the time of building permit application.*
- *Identification of design-level building and neighborhood features sufficient to achieve the ZNE standard (as defined above), assuming ZNE is not already achieved by meeting the operative Title 24, Part 6 building standards. Design-level building and neighborhood features anticipated for use in meeting the ZNE standard are anticipated to include, but not necessarily be limited to, the following features:*
 - *Solar photovoltaic systems, either installed on individual structures or in neighborhood arrays;*
 - *Demand response systems such as battery storage and heat pump water heaters to reduce peak hour energy demand and maximize efficacy of on-site photovoltaic systems;*
 - *High-performance building envelopes to reduce energy demand related to heating and cooling;*
 - *Implement passive solar designs for neighborhoods and individual parcels;*
 - *Install only energy efficient appliances;*
 - *Incorporate natural ventilation features to reduce energy demand related to mechanical ventilation systems;*
 - *Targeted street tree and landscaping plantings to reduce energy demand related to summer cooling and winter heating; and*
 - *High efficiency lighting systems.*
- *In demonstrating that the residential development achieves the ZNE standard, the ZNE Report may:*
 - *Evaluate multiple buildings and/or land use types. For example, a ZNE Report may cover all of the residential buildings within a*

neighborhood/community, or a subset thereof, including an individual building.

- *Rely upon aggregated or community-based strategies to support its determination that the subject buildings are designed to achieve ZNE. For example, shortfalls in renewable energy generation for one or more buildings may be offset with excess renewable generation from one or more other buildings. As such, a ZNE Report could determine a building is designed to achieve ZNE based on aggregated or community-based strategies even if the building on its own may not be designed to achieve ZNE.*
- *Make reasonable assumptions about the estimated electricity and natural gas loads and energy efficiencies of the subject buildings.*

If use of on-site renewable energy systems and the aforementioned design features is not sufficient to meet the ZNE standard for the proposed development covered by the ZNE Report, the proposed development shall achieve equivalent energy and/or GHG emissions reductions by alternate means such as those enumerated in MM GHG-7.

MM GHG-2

Non-Residential Zero Net Energy. Prior to the issuance of any building permit for non-residential development within the Project site, the Project proponent or its designee shall submit one or more Zero Net Energy Confirmation Reports (ZNE Report). The ZNE Report(s) shall be prepared by a qualified building energy efficiency and design consultant. The Project proponent shall submit the prepared ZNE Report to the city for review and confirmation that the proposed non-residential development covered by the ZNE Report achieves the ZNE standard specified in this mitigation measure. Although all development within the Project site must be covered within a ZNE Report, ZNE Reports can be prepared for single buildings, non-residential areas, phases, or the entire Project site, as needed. The purpose of the ZNE requirement is to avoid GHG emissions from building energy consumption.

Specifically, a ZNE Report shall demonstrate that the commercial development, private recreation centers, and public facilities within the Project site subject to application of Title 24, Part 6, of the California Code of Regulations have been designed and shall be constructed to achieve ZNE, as defined by CEC in its 2015 Integrated Energy Policy Report, which requires the value of the net energy produced by Project renewable energy resources to equal the value of the energy consumed annually by the Project using the CEC's Time Dependent Valuation metric.

A ZNE Report shall provide, at a minimum, the following information:

- *Confirmation that the commercial development, private recreation centers, and/or public facilities shall comply with Title 24, Part 6*

building standards that are operative at the time of building permit application.

- *Identification of design-level building or development features sufficient to achieve the ZNE standard (as defined above), assuming ZNE is not already achieved by meeting the operative Title 24, Part 6 building standards. Design-level building and neighborhood features anticipated for use in meeting the ZNE standard are anticipated to include, but not necessarily be limited to, the following features:*
 - *Solar photovoltaic systems, either installed on individual structures or in neighborhood arrays;*
 - *Demand response systems such as battery storage and heat pump water heaters to reduce peak hour energy demand and maximize efficacy of on-site photovoltaic systems;*
 - *High-performance building envelopes to reduce energy demand related to heating and cooling;*
 - *Implement passive solar designs for neighborhoods and individual parcels;*
 - *Install only energy efficient appliances;*
 - *Incorporate natural ventilation features to reduce energy demand related to mechanical ventilation systems;*
 - *Targeted street tree and landscaping plantings to reduce energy demand related to summer cooling and winter heating; and*
 - *High efficiency lighting systems.*

In demonstrating that the commercial development, private recreation centers, and/or public facilities achieve the ZNE standard, the ZNE Report may:

- *Evaluate multiple buildings and/or land use types. For example, a ZNE Report may cover all of the non-residential buildings within a neighborhood/community, or a subset thereof, including an individual building.*
- *Rely upon aggregated or community-based strategies to support its determination that the subject buildings are designed to achieve ZNE. For example, short falls in renewable energy generation for one or more buildings may be offset with excess renewable generation from one or more other buildings, or offsite renewable energy generation. As such, a ZNE Report could determine a building is designed to achieve ZNE based on aggregated or community-based strategies even if the building on its own may not be designed to achieve ZNE.*

- *Make reasonable assumptions about the estimated electricity and natural gas loads and energy efficiencies of the subject buildings.*

If use of on-site renewable energy systems and the aforementioned design features is not sufficient to meet the ZNE standard for the proposed development covered by the ZNE report, the proposed development shall achieve equivalent energy and/or GHG emissions reductions by alternate means such as those enumerated in MM GHG-7.

MM GHG-3

Residential Electric Vehicle Chargers. Prior to the issuance of any residential building permit, the Project proponent or its designee shall submit building design plans to the city for review and approval, which demonstrate that each residence within the VDCSP area subject to application of Title 24, Part 6, of the California Code of Regulations shall be equipped with a minimum of one single-port electric vehicle (EV) charging station. Each charging station shall achieve a similar or better functionality as a Level 2 charging station (Level 2 charging stations are those that use a higher-output 240-volt power source).

MM GHG-4

Commercial and Recreational Development Area Electric Vehicle Chargers. Prior to the issuance of any commercial or recreational building permit, the Project proponent or its designee shall submit building design plans to the city that demonstrate that the parking areas for commercial and recreational buildings in the VDCSP area are equipped with EV charging stations that provide charging opportunities to at least 7.5 percent of the total number of required parking spaces.

The EV charging stations shall achieve a similar or better functionality as a Level 2 charging station. In the event that the installed charging stations use more superior functionality/technology other than Level 2 charging stations, the parameters of the mitigation obligation (i.e., number of parking spaces served by EV charging stations) shall reflect the comparative equivalency of Level 2 charging stations to the installed charging stations on the basis of average charge rate per hour. For purposes of this equivalency demonstration, Level 2 charging stations shall be assumed to provide charging capabilities of 25 range-miles per hour.

MM GHG-5

Transportation Demand Management Plan. Develop a qualifying Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) plan to reduce mobile GHG emissions for all uses. The TDM plan shall be approved by the City of Brentwood prior to the issuance of any building permit and incorporated into the Project's Conditions, Covenants and Restrictions (CC&Rs). In the absence of CC&Rs for any portion of the Project, disclosure of the TDM plan shall be provided at the time of escrow for development within the Project site. The TDM plan shall discourage single-occupancy vehicle trips

and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. Depending on the type of use proposed, the following measures shall be incorporated into the TDM plan. Any mixed-use project must incorporate both residential and non-residential measures.

Zero-Emission Transit TDM Requirements for All Uses:

- *Prior to the issuance of the 500th residential building permit within the Project site, the Project proponent or its designee shall provide the city with proof that the Project includes a zero-emission bus or shuttle service to the nearest BART station, local health care facilities, and other destinations within the city.*

TDM Requirements for Non-Residential (Commercial/Civic) Uses:

- *The Project proponent shall include in the tentative map or development plan application, all improvements that will provide access to public transit, ridesharing opportunities and nonmotorized forms of travel.*
- *The Project proponent shall consult with the local transit service provider on the need to provide infrastructure to connect the Project with transit services. Evidence of compliance with this requirement may include correspondence from the local transit provider(s) regarding the potential need for installing bus turnouts, shelters or bus stops at the site.*
- *At a minimum, the following components shall be incorporated into the TDM plan for non-residential uses: ride-matching assistance, preferential carpool parking, flexible work schedules for carpools, half-time transportation coordinators, providing a web site or message board for coordinating rides, designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles, and including bicycle end of trip facilities.*

TDM Requirements for Residential Units:

- *Owner-Occupied Units. Upon a residential dwelling being sold or offered for sale, the Project proponent shall notify and offer to the buyer or prospective buyer, as soon as it may be done, materials describing public transit, ridesharing, and nonmotorized commuting opportunities available in the vicinity of the Project. Such information shall be transmitted no later than the close of escrow. This information shall be submitted to the City of Brentwood Planning Department for review and approval, prior to the issuance of the first certificate of occupancy.*
- *Rental Units. Upon a residential dwelling being rented or offered for rent, the Project proponent shall notify and offer to the tenant or*

prospective tenant, materials describing public transit, ridesharing, and nonmotorized commuting opportunities in the vicinity of the development. The materials shall be approved by the City of Brentwood. The materials shall be provided no later than the time the rental agreement is executed. This information shall be submitted to the City of Brentwood Planning Department for review and approval, prior to the issuance of the first certificate of occupancy.

MM GHG-6

Additional GHG Emissions Reduction Measures. The Project proponent shall, at a minimum, be required to implement the following GHG emissions reduction measures into the design of the proposed project:

- *Gas powered landscape equipment shall be prohibited in any Conditions, Covenants, and Restrictions (CC&Rs) recorded in the VDCSP area. In the absence of CC&Rs for any portion of the Project, disclosure of this restriction shall be provided at the time of escrow for development within the Project site. Electrical outlets shall be installed on the front and back exteriors of all residential and non-residential structures to enable the use of electric lawn and garden equipment for landscaping maintenance. This measure shall be verified prior to building permit issuance.*
- *Woodburning and natural gas fireplaces of any kind shall be prohibited. This measure shall be verified prior to building permit issuance.*
- *Install water-efficient irrigation systems and landscape design including reduced turf. This measure shall be verified prior to building permit issuance.*
- *Use recycled water for landscape irrigation. This measure shall be verified prior to building permit issuance.*
- *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 proponent or its success 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.*

If, at the time of building permit issuance or establishment of CC&Rs, any of the above emission reduction features are considered infeasible, the Project proponent shall submit a report to the city for review and approval that substantiates why the specific feature(s) is infeasible and identifies alternate features that will be implemented sufficient to achieve equivalent GHG emissions reductions.

MM GHG-7

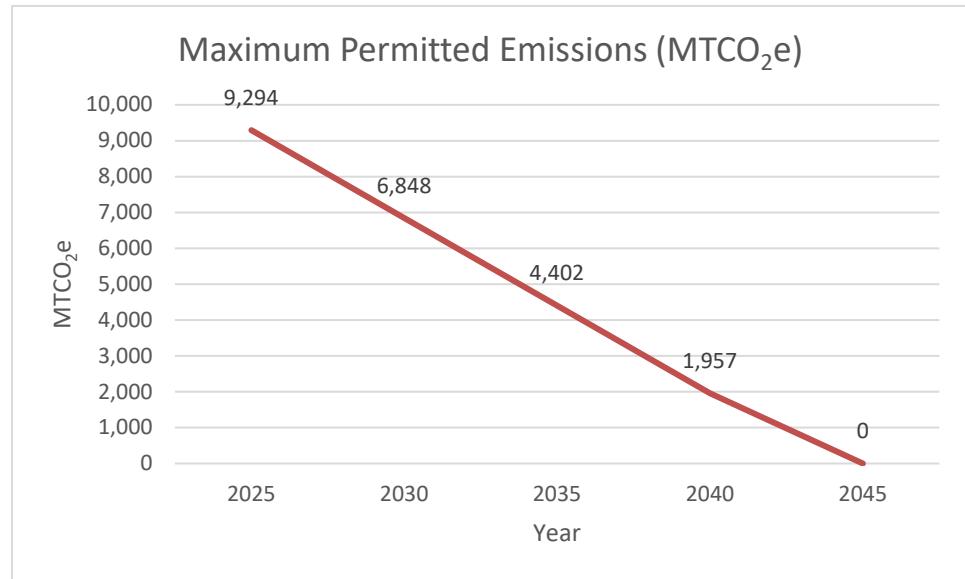
Offsetting GHG Emissions. The Project proponent shall prepare and implement a GHG Reduction Plan, to the satisfaction of the city, to demonstrate a downward trajectory in GHG emissions, towards the goal of zero net GHG emissions by the year 2045. The GHG Reduction Plan shall cover the entire Project. The Project must achieve the target in place for the first year in which the phase or subdivision becomes fully operational, consistent with Step 3 below. Refinement of the estimated Project GHG emissions shall be completed as part of the GHG Reduction Plan in order to reflect the most current and accurate data available regarding the Project’s estimated emissions (including emission rates).

Prior to issuance of the last certificate of occupancy of any phase or subdivision, the Project proponent shall implement the following steps for that phase or subdivision:

- 1. Using CalEEMod or another model accepted for this purpose by the city, calculate total expected GHG emissions (all sectors) for the proposed phase or subdivision with emission rates applicable at the anticipated time of the last certification of occupancy of that phase or subdivision, taking into account applicable building standards and other adopted regulatory requirements, as well as building design, use of renewable energy, etc.*
- 2. Compare the modeled emissions to the maximum permitted emissions for the applicable year, shown below:*

<i>Last Certificate of Occupancy Issued on or Before</i>	<i>Maximum Permitted Project GHG Emissions (MTCO₂e)</i>
<i>12/31/24</i>	<i>9,783</i>
<i>12/31/25</i>	<i>9,294</i>
<i>12/31/26</i>	<i>8,805</i>
<i>12/31/27</i>	<i>8,315</i>
<i>12/31/28</i>	<i>7,826</i>
<i>12/31/29</i>	<i>7,337</i>
<i>12/31/30</i>	<i>6,848</i>
<i>12/31/35*</i>	<i>4,402</i>
<i>12/31/40*</i>	<i>1,957</i>
<i>12/31/45*</i>	<i>0</i>

** (reduction increased by 4.8 percent per year)*



3. Provide a Technical Memorandum of Compliance (TMC) documenting that the Project will not exceed the maximum permitted emissions for the applicable year. Preparation and submittal of the TMC shall be the responsibility of the Home Owners Association (HOA) formed within the Project site. The HOA will be required to prepare the report for all development within the Project site. If the Project requires additional mitigation or reductions to meet the applicable GHG emission target, the proponent shall prepare a GHG Reduction Plan, which can include, but is not limited to, measures such as the following:
- a) Construct on-site or fund off-site carbon sequestration projects (such as a forestry or wetlands projects for which inventory and reporting protocols have been adopted). If the Project develops an off-site project, it must be registered with the Climate Action Reserve or otherwise approved by BAAQMD in order to be used to offset project emissions; and/or
 - b) Include additional technology or features in the Project that would reduce GHG emissions.
 - c) Purchase carbon credits to offset Project annual emissions. Carbon offset credits shall be verified and registered with The Climate Registry, the Climate Action Reserve, or another source approved by CARB or BAAQMD. The preference for offset carbon credit purchases include those that can be achieved as follows (in order of most to least preferred): 1) within the city; 2) within the San Francisco Bay Area Air Basin; 3) within the State of California; then 4) elsewhere in the United States. Provisions of evidence of

payments, and funding of an escrow-type account or endowment fund shall be overseen by the city.

4. *Implement the authorized actions and provide evidence of this to the City of Brentwood Community Development Department. The city upon review and acceptance of implementation, shall issue the last certificate of occupancy for the phase or subdivision.*
5. *Every five years, beginning one year after full operation of the first phase or subdivision until 5 years after the last certificate of occupancy of the last phase or subdivision is issued, then a GHG emissions Reduction Accounting and Program Effectiveness Report shall be submitted for the Project. The report shall be submitted to the city by December 31 of each reporting year. The report shall include annual GHG emissions for the developed and operational portion of the Project, whether the emissions meet the applicable GHG target, and if not, additional measures that shall be implemented in order to reach such target. Preparation and submittal of the report shall be the responsibility of the HOA formed within the Project site. The HOA will be required to prepare the report for all development within that area of the Project site governed by the HOA.*

Impact GHG-2: Would the project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? (less than significant with application of site-specific mitigation measures)

As discussed above, the City of Brentwood requires consideration of a project's consistency with its General Plan policies designed to reduce GHG emissions, as well as with the Plan Bay Area 2040. In addition, the CARB Scoping Plan is applicable statewide. The Project's compliance with the aforementioned plans are discussed in further detail below.

City of Brentwood General Plan

As discussed above, the City of Brentwood does not have a stand-alone CAP but includes in its General Plan policies and actions to reduce the generation of GHG emissions within the city. For example, COS Goal 8 is aimed at reducing air pollutants and GHG emissions through Policies COS 8-1 through COS 8-11. The policies include such measures as minimizing exposure of sensitive receptors to pollutant emissions, creating development patterns conducive to reducing regional VMT, compliance with BAAQMD rules and regulations, incorporation of passive solar features, and mitigation of significant air quality impacts. Policy COS 8-8 encourages local businesses and industries to engage in voluntary efforts to reduce GHG emissions and energy consumption. As noted throughout this section, as well as within the Air Quality section of this EIR, the Project would be required to comply with all applicable BAAQMD rules and regulations. As discussed in detail in the Air Quality section of this EIR, the Project would not expose sensitive receptors to substantial concentrations of pollutants and would include mitigation sufficient to reduce air quality impacts to less-than-significant levels. As

discussed above, the Project would incorporate a number of sustainability features that would help to minimize energy consumption, VMT, and GHG emissions, including passive solar features.

In addition, COS Goal 9 is aimed at promoting conservation of energy and other natural resources through implementation of Policies COS 9-1 through COS 9-13, which includes measures related to sustainable design, use of alternative energy sources, water conservation, solid waste reduction, and encouraging use of alternative modes of transportation. The Project would, at a minimum, 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. Additionally, the Project would be required to comply with the Green Building Ordinance (Chapter 15.04) of the Brentwood Municipal Code. The proposed project would 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 Project would comply with the city’s Construction and Demolition Debris Recycling Ordinance (Brentwood Municipal Code Chapter 8.40), which requires applicable construction projects to divert 50 percent of construction waste.

Furthermore, a number of policies related to transportation would help to minimize vehicle trips and VMT, thereby reducing GHG emissions associated with mobile sources. Similarly, a number of policies set forth in the Land Use Element of the General Plan would help to encourage smart growth and alternative transportation, which would also help to reduce VMT.

Table 4.8-5, shows the consistency between the proposed Project and the goals and actions of the General Plan GHG policies. As shown in Table 4.8-5, the proposed Project would generally be consistent with the applicable GHG reduction measures. Thus, the Project would help implement the GHG reduction strategies, and would not conflict with this applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. A less-than-significant impact would occur in this regard.

Table 4.8-5: City of Brentwood General Plan GHG Consistency Analysis		
Policy		Project Consistency
Conservation and Open Space Goal 8: Reduce air pollutants and GHG emissions.		
Policy COS 8-1:	Improve air quality through continuing to require a development pattern that focuses growth in and around existing urbanized areas, locating new housing near places of employment, encouraging alternative modes of transportation, and requiring projects to mitigate significant air quality impacts.	Consistent. The city is the responsible party for these measures. The Project is located in an area that is planned for residential development. The Project site was also contemplated for residential development in the General Plan. Although the proposed Project would result in an increase in population over

Table 4.8-5: City of Brentwood General Plan GHG Consistency Analysis

Policy		Project Consistency
		that estimated for SPA 2, the Project site is adjacent to existing development to the east, and areas planned for future development to the south. In addition, the Project would include residential development that is adjacent to existing and planned development. The Project includes community recreation centers for each neighborhood to minimize vehicle trips as well as local use vehicles. MM GHG-5 requires implementation of a TDM plan, which would encourage the use of alternative modes of transportation.
Policy COS 8-2:	Minimize exposure of sensitive receptors to concentrations of air pollutant emissions and toxic air contaminants.	Consistent. The Project would not expose onsite or offsite sensitive receptors to TACs.
Policy COS 8-3:	Require discretionary projects involving sensitive receptors such as children, the elderly, or people with illnesses that are proposed within 500 feet of the State Route 4 corridor to include an analysis of mobile source toxic air contaminant health risks. The analysis, if necessary, shall identify feasible mitigation measures to reduce health risks to acceptable levels.	Consistent. The Project area is located more than 500 feet from State Route 4 corridor.
Policy COS 8-4:	Encourage new development or significant remodels to install fireplaces, wood stoves, and/or heaters which meet Bay Area Air Quality Management District (BAAQMD) standards.	Consistent. The Project would not include woodstoves or wood-burning fireplaces per BAAQMD Regulation 6, Rule 3.
Policy COS 8-5:	Continue to require all construction projects and ground disturbing activities to implement BAAQMD dust control and abatement measures.	Consistent. The Project would include MM AQ-1 which incorporates BAAQMD dust control measures.
Policy COS 8-6:	Support the development and implementation of a GHG reduction plan, or Climate Action Plan, that addresses and reduces GHG emissions associated with community operations, including but not limited to, mobile sources (vehicle traffic), energy consumption, and solid waste.	Consistent. The city is the responsible party for the development of a GHG reduction plan or CAP. The project would not conflict with implementation.
Policy COS 8-8:	Encourage local businesses and industries to engage in voluntary efforts to reduce GHG emissions and energy consumption.	
Policy COS 8-9:	Preserve, protect, and enhance, as appropriate, the City’s carbon sequestration resources, also referred	

Table 4.8-5: City of Brentwood General Plan GHG Consistency Analysis

Policy		Project Consistency
	to as “carbon sinks,” to improve air quality and reduce net carbon emissions.	
Policy COS 8-10:	Encourage public transit, ridesharing and van pooling, shortened and combined motor vehicle trips to work and services, use of bicycles, and walking. Minimize single passenger motor vehicle use.	Consistent. The Project would encourage the commercial uses to provide ridesharing and vanpooling. The Project area includes pedestrian and bicycle paths and includes an NEV network for residents.
Policy COS 8-11:	Encourage new construction to incorporate passive solar features.	Consistent. The Project would encourage homeowners within the Project to take advantage of solar features with incentives that are in place at the time of construction.
Conservation and Open Space Goal 9: Promote conservation of energy and other natural resources.		
Policy COS 9-1:	Require all new public and privately constructed buildings to meet and comply with the most current “green” development standards in the California Code of Regulations (CCR), Title 24.	Consistent. The city is the responsible party for these measures. The Project would be required to comply with these standards. The Project would not conflict with implementation of these measures.
Policy COS 9-2:	Support innovative and green building best management practices including, but not limited to, LEED certification for all new development, and encourage project applicants to exceed the most current “green” development standards in the California Code of Regulations (CCR), Title 24, if feasible.	
Policy COS 9-3:	Promote the use of alternative energy sources in new development.	
Policy COS 9-5:	Promote water conservation among water users.	
Policy COS 9-6:	Continue to require new development to incorporate water efficient fixtures into design and construction.	Consistent. The city is the responsible party for these measures. The Project would be required to comply with these standards. To reduce water use, the Project would decrease turf landscaping in the Project area as compared to the turf area in a standard residential development. Additionally, the Project would use reclaimed water for the irrigation of the drought-tolerant landscaping. The Project does not include a golf course.
Policy COS 9-7:	Promote the use of reclaimed water and other non-potable water sources.	
Policy COS 9-8:	Encourage large-scale developments and golf course developments to incorporate dual water systems.	
Policy COS 9-9:	Encourage and support the use of drought-tolerant and regionally native plants in landscaping.	
Policy COS 9-10:	Ensure that the layout and design of new development and significant remodels encourages	Consistent. The Project would design narrower roadways as

Table 4.8-5: City of Brentwood General Plan GHG Consistency Analysis

Policy		Project Consistency
	the use of transportation modes other than automobiles and trucks.	traffic calming measures, provide bicycle and pedestrian paths and trails on- and off-site. The Project would also include an NEV network for residents to reduce vehicle use.
Policy COS 9-12:	Continue efforts to reduce solid waste generation throughout the life of the General Plan.	Consistent. The city is the responsible party for these measures. The Project would not conflict with implementation of this measure.
Policy COS 9-13:	Continue to encourage and support the use of bicycles as an alternative means of transportation.	Consistent. The Project would include bicycle trails and paths to encourage the use of alternative forms of transportation.

Source: City of Brentwood, 2014, City of Brentwood General Plan.

Plan Bay Area 2040

The Project would be consistent with the overall goals of Plan Bay Area 2040 to provide housing, healthy and safe communities, and climate protection with an overall goal to reduce VMT. As noted above, the Project would include development of the Project site with residential uses in excess of the site development anticipated in the General Plan. Nevertheless, in compliance with MM GHG-1 and MM GHG-2, the Project will be designed to achieve ZNE, which would reduce GHG emissions related to energy consumption within the site as compared to what was anticipated for the Project site under the General Plan. Additionally, the Project includes numerous design features and mitigation measures to reduce VMT. The majority of the residential development included in the Project is proposed to be age-restricted active adult communities, which generate less vehicle trips and VMT as compared to non-age restricted developments. The proposed communities would have a number of amenities and the design would include walking/bike paths to encourage alternative modes of transportation. Additionally, MM GHG-4 requires residential electric vehicle chargers and the Project design would accommodate LUVs (e.g., golf carts, neighborhood electric vehicles). MM GHG-5 requires a TDM plan for residential and non-residential uses to further reduce VMT. MM GHG-7 requires offsets in order for the Project to reach carbon neutrality by 2045. Therefore, the proposed project would be consistent with the Plan Bay Area 2040 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.

Thus, implementation of the Project would not conflict with Plan Bay Area 2040, which is an applicable plan adopted for the purpose of reducing the emissions of GHGs. proposed project

CARB Scoping Plan and Other Statewide Regulations

The original CARB Scoping Plan, adopted in 2008, provided 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 Scoping Plan, the Second Update (2017), outlines the State's strategy to reduce statewide GHG emissions to return 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 Second Update identifies additional GHG reduction measures necessary to achieve the 2030 target. These measures build upon those identified in the original and First Update (2013) Scoping Plan. 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.

A comparison of the proposed project to the strategies of the Scoping Plan is provided in Table 4.8-6. As shown in the table, the proposed project would be generally consistent with the majority of the strategies, while other strategies are not applicable to the proposed project.

Appendix B, *Local Action*, of the 2017 CARB Scoping Plan lists potential actions that support the State's climate goals. However, the Scoping Plan notes that the applicability and performance of the actions may vary across the regions. The document is organized into the following two categories: (A) examples of plan-level GHG reduction actions that could be implemented by local governments; and (B) examples of on-site project design features, mitigation measures, that could be required of individual projects under CEQA, if feasible, when the local jurisdiction is the lead agency.

The Project would include a number of the potential mitigation measures for construction and operation. For example, the Scoping Plan's construction measures include enforcing idling time restrictions on construction vehicles, requiring construction vehicles to operate highest tier engines commercially available, diverting and recycling construction waste, minimizing tree removal, and increase use of electric and renewable fuel powered construction equipment and require renewable diesel fuel where commercially available. These measures are consistent with the requirements in MM AQ-1, and MM GHG-6, which require the minimization of idling, the use of clean off-road engines, and the recycling of construction waste. The Project design also would balance earthwork between phases to minimize haul truck trips.

Table 4.8-6: 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.
	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 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 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 Project would not conflict with implementation of this measure. Motor vehicles associated with construction and operation of the Project would utilize low carbon transportation fuels as required under this measure.

Table 4.8-6: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
	Regional Transportation-Related Greenhouse Gas Targets	SB 375. Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, 21159.28	Consistent. As discussed above, the Project would generally be consistent with the intent of the Plan Bay Area 2040 to provide housing, healthy and safe communities, and climate protection, with an overall goal to reduce VMT.
	Goods Movement	Goods Movement Action Plan January 2007	Not applicable. The 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 Project would not conflict with implementation of this measure. Medium- and heavy-duty vehicles associated with construction and operation of the 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 proponent or Lead Agency.
Electricity and Natural Gas	Energy Efficiency	Title 20 Appliance Efficiency Regulation	Consistent. The Project would not conflict with implementation of this measure. The Project would comply with the latest energy efficiency standards.
		Title 24 Part 6 Energy Efficiency Standards for Residential and Non-Residential Building	
		Title 24 Part 11 California Green Building Code Standards	
	RPS/Renewable Electricity Standard.	2010 Regulation to Implement the Renewable Electricity Standard (33% 2020)	Consistent. The 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	Tax incentive program	Consistent. This measure is to increase solar throughout California,	

Table 4.8-6: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
	Program		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 Project would comply with the California Green Building Standards Code, which requires a 20 percent reduction in indoor water use. The Project would also comply with the city’s Water-Efficient Landscape Ordinance (Chapter 17.630 of the Brentwood Municipal Code), which adopts the Model Water Efficient Landscape Ordinance (CCR Title 23 Waters, Division 2 DWR, Ch. 2.7).
		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 Project would implement required green building strategies through existing regulation that requires the Project to comply with various CalGreen requirements. The Project includes sustainability design features that support the Green Building Strategy.
Industry	Industrial Emissions	2010 CARB Mandatory Reporting Regulation	Not applicable. The Project does not include industrial land uses.
Recycling and Waste Management	Recycling and Waste	Title 24 Part 11 California Green Building Code Standards	Consistent. The Project would not conflict with implementation of these measures. The Project is required to achieve the recycling mandates via compliance with the CALGreen code. The city has consistently achieved its State recycling mandates.
		AB 341 Statewide 75 Percent Diversion Goal	
Forests	Sustainable Forests	Cap and Trade Offset Projects	Not applicable. The Project site is in an area designated for agricultural uses/grazing. No forest 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 systems. The Project is not expected to use large systems subject to the refrigerant management regulations adopted by CARB.
Agriculture	Agriculture	Cap and Trade Offset Projects	Not applicable. The Project site is designated for urban

Table 4.8-6: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
		for Livestock and Rice Cultivation	development. Some grazing currently exists on-site that generates manure, but no feedlot or other large agricultural activities occur in the Project area. The Project would not implement any livestock or rice cultivation.
Source: California Air Resources Board, <i>California's 2017 Climate Change Scoping Plan</i> , 2017b and California Air Resources Board, <i>Climate Change Scoping Plan</i> , December 2008.			

The Project would include a majority of the feasible operational mitigation measures listed in Appendix B as design features or mitigation (refer to MM GHG-1 through MM GHG-7). Some of the required operational measures would include EV charging stations, providing bicycle parking, creating on- and off-site safety improvements for bike, pedestrian, and transit connections, prohibiting wood-burning fireplaces, requiring solar panels, low-water landscaping, gas or electric outlets in residential front- and backyards, energy conserving appliances, and low-flow toilets and faucets. Additionally, Appendix B recommends that the Project purchase carbon credits from the CAPCOA GHG Reduction Exchange Program, American Carbon Registry, Climate Action Reserve, or other similar carbon credit registry determined to be acceptable by the local air district to offset GHG emissions produced by the Project, resulting in a carbon neutral project. Through design features and implementation of MM GHG-1 through MM GHG-7, this recommendation would be met.

The 2017 CARB Scoping Plan recommends statewide targets of no more than two $\text{MTCOT}_2\text{e/yr/capita}$ by 2050. Although the statewide per capita emissions target is not appropriate for use in the analysis of emissions on an individual project basis, the 2017 CARB Scoping Plan notes that the per capita emissions target is appropriate for use in local planning. As discussed in Impact GHG-1 above, the Project will be required to meet net zero GHG emissions by the year 2045. Meeting the goal of net zero GHG emissions would surpass the CARB Scoping Plan's GHG per capita emissions target for the year 2050.

As demonstrated in Table 4.8-6 and discussed above, the Project would not conflict with the CARB Scoping Plan.

Other Applicable Regulations

As indicated above, 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 Project would be required to comply with existing regulations, including applicable measures from the city's General Plan, 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 RPS).

Regarding goals for 2050 under Executive Order S-3-05, at this time, it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; nevertheless, it can be anticipated that operation of the proposed project would comply with all applicable measures enacted that State lawmakers decide would lead to an 80 percent reduction below 1990 levels by 2050.

Overall, the Project would not conflict with any other State-level regulations pertaining to GHGs.

Conclusion

Compliance with MM AQ-1 and MM GHG-1 through MM GHG-7, would reduce impacts related to conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs to a less-than-significant level. Considering implementation of the foregoing mitigation measures, the proposed project would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Therefore, a ***less-than-significant*** impact would occur.

Mitigation Measures

MM GHG-8 *Implement MM AQ-1 and MM GHG-1 through MM GHG-7.*

4.9 Hazards, Hazardous Materials, and Wildfire

4.9.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to hazards and hazardous materials, and wildfires that could result from implementation of the proposed project. The current condition was used as the baseline against which to compare potential impacts associated with implementation of the Project. Information used to prepare this section came from the following resource:

- ENGEO Incorporated. 2019. *Ginocchio Property, Contra Costa County, California Phase I Environmental Site Assessment*. January 24, 2019, Revised February 7, 2019

Other references used in the preparation of this section are identified within Section 9, References, of this EIR. The 2019 Phase I Environmental Site Assessment (ESA) was conducted in accordance with (1) the USEPA 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.

As noted above, this section of the EIR incorporates the information contained within the 2019 Phase I ESA, included in its entirety as Appendix “E” of this EIR.

CEQA requires analysis of a project's effects on the environment. Generally, consideration of the potential effects of a site's environment on a project are outside the scope of required CEQA review (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369). However, when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. “ In those specific instances, it is the Project's impact on the environment – and not the environment's impact on the Project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions.” (*Id.* at pp. 377-378.). Thus, this section analyzes potential effects of hazards, hazardous materials, and wildfires due to the Project's implementation as set forth in CEQA Guidelines, Appendix G, Significance Criteria.

Present Use

The Project site is currently undeveloped except for two active oil/gas wells located in the northwest portion of the site. A pipeline easement traverses the Property from the southeast at Balfour Road to the northwestern portion of the Property along Deer Valley Road, and contains a 24-inch Chevron/Standard Pacific (now operated by Crimson Pipeline) pipeline, an 18-inch

Kinder Morgan pipeline, and a 26-inch abandoned Pacific Gas and Electric (PG&E) natural gas pipeline underground. An overhead electrical transmission line also trends through the eastern portion of the site in a north-south direction.

Off-Site Improvement Areas

Off-site improvements associated with the Project would include the extension of American Avenue west and north to Balfour Road, the widening and improvement of certain portions of Balfour Road from two to four lanes, the improvement of an additional portion of Balfour Road, extension of a new irrigation line within Balfour Road, and extension of a new off-site sewer line connecting between the northeastern portion of the Project site and an existing sewer line located in St. Regis Avenue.

The American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. The off-site improvement area associated with widening of Balfour Road and extension of the proposed irrigation line would be primarily limited to the existing paved right-of-way and the graveled shoulders of the roadway, which contain scattered shrubs and ruderal grasses. The off-site sewer improvement area consists primarily of ruderal grasses, as well as portions of paved roadway.

Past Uses

Based on review of historical aerial photographs and topographic maps, the Project site has been undeveloped since at least 1939. The Project site has been used for limited dry land farming and cattle grazing. In addition to the two active oil/gas wells, eight abandoned wells associated with past mining activities are located within the Project site. The pipeline easement and transmission lines were evident in the eastern portion of the site, extending southeast to northwest since at least 1939. Two ponds were visible on the site, east of Deer Valley Road, in the 1982 aerial photograph provided by Environmental Data Resources (EDR) (Source: USDA). The two ponds were dry in the 1993 aerial photograph provided by EDR (Source: USGS/DOQQ). The area surrounding the site was mostly undeveloped land. However, an orchard was visible to the south of the site and small residential structures were visible in surrounding parcels in the aerial photographs provided by EDR between 1939 and 1959 (Source: USDA). A residential development was constructed east of the site and Heritage High School was constructed south of the site, both of which are first visible in the 2006 aerial photograph provided by EDR (Source: USDA/NAIP). The area south of Balfour Road, where the extension of American Avenue is proposed to be located, was used for grazing from 1995 to 2010. It has been used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops, from 2010 to present day.

Previous Site Investigations

2000 ENGEO Phase I Environmental Site Assessment Update, Ginochio Property, Brentwood, California

In November 2000, ENGEO performed a Phase I ESA Update which included the Project site in addition to adjacent parcels north and west of the site (the “2000 Phase I ESA site”). The 2000 Phase I ESA site reconnaissance and records research did not find documentation or physical evidence of soil or groundwater impairments associated with the use of the properties. A review of regulatory databases maintained by county, State, and Federal agencies found no record of hazardous materials violations or discharge on the 2000 Phase I ESA site.

ENGEO documented three pipelines that share an easement that traverses the property from the southeast at Balfour Road to the northwestern portion of the Property along Deer Valley Road. The easement contained three pipelines maintained by Chevron (now operated by Crimson Pipeline) (crude oil), Kinder Morgan (multi-purpose/refined product), and PG&E (natural gas, now abandoned/unused). In addition, one Shell petroleum pipeline conveying crude oil is located 2,500 feet north of the property.

The California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), identifies eight wells on the Project site, and nine wells located on adjacent parcels to the north and west. DOGGR Records indicate that three of these eight wells were dry (never produced) and five were producing wells. The eight wells were located on the site (2000 Phase I ESA site) from 1962 through 1987 and have since been plugged and abandoned, in accordance with DOGGR requirements. ENGEO indicated there could be a potential for subsurface impacts associated with well improvements from condensate tanks, compressor units, and drilling sumps.

Based on the findings of the 2000 assessment, ENGEO provided the following recommendations for the study area.

- ENGEO recommended that a subsurface assessment be undertaken to address potential impacts from the two active pipelines.
- ENGEO recommended the exact location of the individual wells and their associated improvements be determined. A limited subsurface assessment can be undertaken to determine if the former gas well operations have impacted site soil and/or ground water.
- ENGEO also recommends the depth of grout seal for each well is determined.

2001 ENGEO Soil Gas Survey (Draft), Ginochio Property, Brentwood, California

In response to the first recommendation from the 2000 Phase I Report, ENGEO performed a soil gas survey of approximately 2,300 feet of the underground petroleum pipeline alignment extending across the property; the survey included the Crimson and Kinder Morgan pipeline alignments. The scope of ENGEO’s services included the following:

- The placement and retrieval of 30 passive soil-gas collectors along the pipeline alignment.
- Laboratory analysis of the soil-gas collectors for petroleum hydrocarbons.
- Preparation of a report with findings and conclusions.

For the purposes of the survey, Gore-Sorber Screening Modules were used to determine if potential subsurface impairments may have occurred in association with the Crimson and Kinder Morgan pipelines.

The sampling procedure consisted of the placement of 60 soil screening modules within ± 24 -inch-deep boreholes, 2 inches in diameter. The boreholes were placed at ± 75 -foot intervals along the two pipeline sections. Following an 18-day exposure period, 51 of the 60 modules were collected and returned to the Gore-Sorber laboratory for ion chromatogram analysis. The remaining modules were damaged and deemed unrecoverable.

Trace levels of petroleum hydrocarbons (TPH) were reported for the ion chromatogram analysis of the soil gas modules. The reported concentrations were considered background concentration levels. Based on the findings of the soil gas survey, ENGEO found no evidence of a significant release along the Crimson and Kinder Morgan petroleum pipeline alignments.

Current Conditions

Site Observations

During the December 2018 site visit conducted for the 2019 Phase I ESA, the Project site was undeveloped land except for two active natural gas wells in the northeast portion of the site. There was one small water well house with a power pole identified east of Deer Valley Road, in the northwest site area. Historically, the site has been used for dry land farming, cattle grazing, and gas production has more recently been established in the northeastern portion of the site. A pipeline easement traverses the Property from the southeast at Balfour Road to the northwestern portion of the Property along Deer Valley Road and contains a 24-inch Chevron/Standard Pacific pipeline (now operated by Crimson Pipeline), an 18-inch Kinder Morgan pipeline, and a 26-inch abandoned PG&E natural gas pipeline. An electrical transmission line also runs through the eastern portion of the site in a north-south direction. These are the same underground pipelines and overhead transmission lines identified in the 2000 Phase I Report.

Chemical Storage and Use

No significant quantities of hazardous materials were observed on the Project site during the 2019 Phase I ESA. An above-ground storage tank (for water separated from the oil production) was located near the producing wells in the northeast portion of the site.

Odors

No odors indicative of hazardous materials or petroleum material impacts were detected at the time of the 2018 site visit.

Pits, Pools, Lagoons

No pits, ponds or lagoons were observed within the Project site at the time of the 2018 site visit.

Polychlorinated Biphenyls

No polychlorinated biphenyls (PCB)-containing materials, including transformers, were observed within the Project site during the 2018 site visit, with the exception of a pole-mounted transformer servicing the water well structure.

Asbestos

An asbestos and lead-based paint survey was not conducted as part of the 2019 Phase I ESA. Given the age of the existing structure, it is conceivable that asbestos-containing materials and lead-based paint materials may exist within the structure.

Indoor Air Quality

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.

Other Potential Hazards

Other hazards that have the potential to impact the proposed project are wildland fire hazards and hazardous materials transported on nearby roadways. These potential hazards are further discussed below. Section 4.10, Hydrology and Water Quality, of this EIR discusses potential hazards related to dam failure and flooding.

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 a number of 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. These risk levels are determined based on vegetation density, adjacent wildland FHSZ scores and distance from wildland area. Each area of the map gets a score for flame length, embers

and the likelihood of the area burning. The City of Brentwood is categorized as a Local Responsibility Area (LRA) by CAL FIRE and is therefore not mapped as a Fire Hazard Severity Zone (FHSZ). However, areas immediately to the south and west of the present Brentwood city boundary line, which include this Project site, are categorized by CAL FIRE as a “Moderate” FHSZ (http://www.fire.ca.gov/fire_prevention/fhsz_maps_contracosta, accessed on January 31, 2019).

Airport Proximity

There are no private or public airport facilities within close proximity of the Project site. The nearest airport to the site is the Byron Airport, located approximately 9.5 miles to the southeast.

Underground Pipelines

According to the National Pipeline Mapping System (NPMS) on-line database, there are two active liquid pipelines onsite and one active natural gas pipeline adjacent, but offsite. The offsite natural gas pipeline is operated by the California Resources Corporation (CRC) and runs north/south along Deer Valley Road and then turns to the east along Balfour Road. Kinder Morgan operates one of the liquid pipelines that runs northwest to southeast and bisects the Project site. This pipeline contains non-highly volatile liquid (HVL). The second liquid pipeline contains crude oil and is operated by Crimson Pipeline. This pipeline runs parallel to the Kinder Morgan pipeline within the Project site. There are no reported incidents or accidents for these pipelines within the Project vicinity. As noted previously, in addition to the two on-site active pipelines, the site contains a 26-inch abandoned PG&E natural gas pipeline.

Environmental Records Review

As part of the 2019 Phase I ESA, a review of Federal, State, and local regulatory agency databases provided by 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.

On-Site Database Listings

The Project site is not identified in the researched regulatory agency databases.

Adjoining Property Database Listings

The Project site is not listed on the Federal, State, or local ASTM Standard or supplemental sources or databases. The Project site is not listed in any of the reported environmental databases. The 2019 Phase I ESA identified four nearby facilities on the database within the ASTM Standard minimum search radii. These nearby facilities are listed below:

- Loma Vista Elementary School is located at 2110 San Jose Avenue
- Balfour Road Culvert
- Mountain Mike’s Pizza is located at 380 W. Country Club Drive
- Occidental Petroleum (2 listings)

Based on the information reviewed from identified database sites, regional topographic gradient, and the EDR findings, it is unlikely that these four nearby facilities would pose an environmental risk to the Project site because the lower topographic gradient of the identified database sites is lower than the Project site, thus minimizing the likelihood of an environmental risk to the proposed project from those sites.

City and County Agency File Review

During the preparation of the 2019 Phase I ESA, ENGEO contacted the following public agencies pertaining to possible past development and/or activity at the Project site: East Contra Costa Fire Protection District (ECCFPD); Contra Costa County Health Services, Hazardous Materials Division; Contra Costa County Assessor's Office, California State Water Resources Control Board and Department of Toxic Substances Control.

East Contra Costa Fire Protection District

The ECCFPD reported that it did not have any documents related to hazardous material incidents regarding the Project site.

Contra Costa County Health Services, Hazardous Materials Division

The Contra Costa County Hazardous Materials Division of the Contra Costa County Department of Environmental Health (CCCDEH) was contacted to check for files related to the Project site associated with fuel storage tanks (USTs and AST's) and the storage of hazardous materials. No pertinent environmental records were found for the site.

Contra Costa County Assessor's Office

There were no pertinent environmental records found for the site at the Contra Costa County Assessor's Office.

California State Water Resources Control Board

The California State Water Resources Control Board (SWRCB)'s online database, GeoTracker, was reviewed for files relating to the Project site and surrounding properties. No listings for the Project site were identified in the database. However, the California SWRCB did report a Shell Yard site, located approximately 0.5 mile northeast of the Site. The Shell Yard was formerly used as an office and maintenance yard for pipeline operations, with secondary use as a support area for oil and gas production operations. Between 1997 and 2009, OXY USA identified petroleum hydrocarbon contamination at the site. Contaminated soil was removed using excavation and biotreatment. After remedial action, a No Further Action letter was issued February 17, 2011.

Department of Toxic Substances Control

The Department of Toxic Substances Control (DTSC)'s online database, Envirostor, was reviewed for files relating to the Project site and surrounding properties. No listings for the Project site were identified in the database. However, DTSC identified the Loma Vista

Elementary Classroom Addition site as a school investigation site. School investigation sites are required to be evaluated from a hazardous material perspective in order to site a school. The school investigation required no subsequent action.

Division of Oil, Gas and Geothermal Resources Map

To evaluate the presence of oil or gas wells on-site and in the immediate site vicinity, maps available on-line at the California Department of Conservation, DOGGR (<http://www.consrv.ca.gov/dog>) were reviewed. There are eight abandoned/plugged oil/gas wells located on the Project site. There are two active gas wells located in the northwest portion of the Project site.

Interviews with Persons Knowledgeable of the Project Site

To assist in obtaining information on current and historical use of the Project site, the current owner and owner's representative of the property completed environmental questionnaires provided during the preparation of the 2019 Phase I ESA. The owner and owner representative identified the active gas production well on the site. They did not identify other potential environmentally related issues with the Project site. In addition, the owner for the area south of Balfour Road, where the extension of American Avenue is proposed to be located, stated that there are no current or past oil or gas wells or underground storage tanks located on the site.

4.9.2 Regulatory Setting

The management of hazardous materials and hazardous wastes is regulated at Federal, State, and local levels, including, among others, through programs administered by the USEPA; agencies within the California Environmental Protection Agency (CalEPA), such as the DTSC; Federal and State occupational safety agencies; and the Contra Costa County Environmental Health Division. Regulations pertaining to flood hazards are discussed in Section 4.10, Hydrology & Water Quality, of this EIR, and regulations for geologic and soil-related hazards are discussed in Section 4.7, Geology, Soils, and Minerals.

At the Federal level, the USEPA 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 Central Valley 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 USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes.

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. This, in practice, means major roads and highways, although secondary roads are permitted to be used for local delivery. These policies are enforced by both the California Highway Patrol and the California Department of Transportation (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 Central Valley 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 stormwater and with the intent of keeping all products of erosion from moving off-site into receiving waters;
- Eliminate or reduce non-stormwater 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 or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain NPDES coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity ("Construction General Permits").

As part of the CWA, the USEPA 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.

Pipeline and Hazardous Materials Safety Administration

Natural gas pipelines and hazardous liquid pipelines are regulated for safety by the U.S. DOT, Pipeline and Hazardous Materials Safety Administration (PHMSA, formerly the Office of Pipeline Safety or OPS). Governing regulations for natural gas pipelines are found in 49 Code of Federal Regulations (CFR) 192 and for hazardous liquid pipelines in 49 CFR 195.

No Minimum Setback Requirements

Federal pipeline safety regulations, including the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, and industry codes and standards establish no minimum setback requirements from natural gas or hazardous liquid underground pipelines.

AB 1511 - Real Property: Disclosures: Transmission Pipelines

Existing law requires certain natural hazard disclosures to be made upon the transfer of residential real property, as specified, and prescribes the manner and the form of the disclosures. Assembly Bill 1511 requires all contracts for the sale of residential real property entered into on or after July 1, 2013, to contain a specified notice pertaining to gas and hazardous liquid transmission pipelines. The bill provides that nothing in the notice requirement would alter any existing duty under any other statute or decisional law imposed

upon the seller or broker of the residential real property, as specified. The following text describes the requirements of the bill:

SECTION 1. Section 2079.10.5 is added to the Civil Code, to read:

2079.10.5. (a) Every contract for the sale of residential real property entered into on or after July 1, 2013, shall contain, in not less than 8-point type, a notice as specified below:

NOTICE REGARDING GAS AND HAZARDOUS LIQUID TRANSMISSION PIPELINES

This notice is being provided simply to inform you that information about the general location of gas and hazardous liquid transmission pipelines is available to the public via the National Pipeline Mapping System (NPMS) Internet Web site maintained by the United States Department of Transportation at <http://www.npms.phmsa.dot.gov/>. To seek further information about possible transmission pipelines near the property, you may contact your local gas utility or other pipeline operators in the area. Contact information for pipeline operators is searchable by ZIP Code and county on the NPMS Internet Web site.

(b) Upon delivery of the notice to the transferee of the real property, the seller or broker is not required to provide information in addition to that contained in the notice regarding gas and hazardous liquid transmission pipelines in subdivision (a). The information in the notice shall be deemed to be adequate to inform the transferee about the existence of a statewide database of the locations of gas and hazardous liquid transmission pipelines and information from the database regarding those locations.

(c) Nothing in this section shall alter any existing duty under any other statute or decisional law imposed upon the seller or broker, including, but not limited to, the duties of a seller or broker under this article, or the duties of a seller or broker under Article 1.5 (commencing with Section 1102) of Chapter 2 of Title 4 of Part 4 of Division 2.

State

California Environmental Protection Agency

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 USEPA 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 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 Contra Costa County Health Services Department 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 Public Utilities Commission

In the State of California, natural gas pipelines are regulated by the California Public Utilities Commission (CPUC). The CPUC ensures that natural gas pipelines are designed, constructed, operated, and maintained according to safety standards set by the CPUC and Federal government. Natural gas and liquid petroleum gas pipelines regulations are enforced by the CPUC. The CPUC also inspects construction, operation, and maintenance activities, and makes any necessary amendments to regulations to protect and promote the safety of the public, the utility employees that work on the pipelines, and the environment. Regulations and standards concerning operation and maintenance of pipelines apply to all pipelines regardless of the year of installation.

California State Fire Marshal

The California State Fire Marshal (CSFM) regulates hazardous liquid pipelines in the State of California. The CSFM currently regulates the safety of approximately 6,500 miles of intrastate hazardous liquid transportation pipelines. The Pipeline Safety Division of the CSFM consists of engineers, analytical staff, and clerical support located in northern, central, and southern California. Staff in the Pipeline Safety division inspect pipeline operators to ensure compliance with Federal and State pipeline safety laws and regulations. This division is also responsible for the investigation of pipeline ruptures, fires, or accidents for cause and determination of probable violations.

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.

Department of Toxic Substance Control

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 (DHS) 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 Sections 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.

Regional and Local

City of Brentwood General Plan

The City of Brentwood's General Plan includes Goals that outline conservation Policies for hazards and hazardous materials in the city. Project-relevant General Plan Goals and Policies for hazards and hazardous materials are addressed in this section. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below.

Conservation and Open Space Element Goal 2: Preserve designated agricultural lands in Brentwood's Planning Area.

- **Policy COS 2-7:** Require the use of buffers such as greenbelts, drainage features, parks, or other improved and maintained features in order to separate residential and other sensitive land uses, such as schools and hospitals, from agricultural lands and agricultural operations.
- **Policy COS 2-10:** Limit incompatible uses (i.e., schools, hospitals, and high density residential) near agriculture.

Infrastructure Element Goal 5: Ensure adequate and environmentally responsible waste disposal and recycling services.

- **Policy IF 5-1:** Provide adequate waste disposal, recycling, and reuse services, including programs that improve public access to solid waste collection and recycling facilities.
- **Policy IF 5-2:** Reduce the amount of waste requiring disposal at landfills and increase recycling and reuse among residents, businesses, and City departments, as set forth in the City's Source Reduction and Recycling Element.
- **Policy IF 5-3:** When feasible, minimize the potential impacts of waste collection, transportation, and the location of potential disposal facilities upon the residents of Brentwood.
- **Policy IF 5-4:** Locate waste collection, transfer, and processing facilities in areas that minimize impacts to the surrounding community.
- **Policy IF 5-5:** Coordinate with Contra Costa County on any future plans to establish new landfill sites within the county in order to minimize potential adverse impacts to the Brentwood community.
- **Policy IF 5-6:** Participate with Contra Costa County to implement a hazardous materials collection and disposal program.

Safety Element Goal 3: Protect the safety of life and property throughout the Brentwood community by providing high quality emergency services.

- **Policy SA 3-1:** Continue to maintain and implement the Emergency Operations Plan.
- **Policy SA 3-2:** Provide an effective communications system to properly respond to emergencies.
- **Policy SA 3-3:** Keep emergency access routes free of traffic impediments.

- Policy SA 3-4: Coordinate with the Contra Costa County Sheriff and the California Standardized Emergency Management System (SEMS) to ensure coordinated local and State-level responses in the event of an emergency.
- Policy SA 3-5: Ensure that all areas of the city are accessible to emergency response providers.
- Policy SA 3-6: Continue to promote public safety through public education programs.
- Policy SA 3-7: Maintain effective mutual aid agreements for fire, police, medical response, mass care, heavy rescue, and other functions as appropriate.
- Policy SA 3-8: Clearly communicate to the public the City's plans, procedures, and responsibilities in the event of a disaster or emergency.
- Policy SA 3-9: Encourage residents and community leaders to participate in disaster training programs, such as the Community Emergency Response Team (CERT) program.

Safety Element Goal 4: Protect citizens from dangers related to the movement, storage, and manufacture of hazardous materials.

- Policy SA 4-1: Encourage producers and users of hazardous materials to reduce the amounts of hazardous materials generated.
- Policy SA 4-2: Require hazardous waste generated within the city limits of Brentwood to be disposed of in a safe manner, consistent with all applicable local, State, and Federal laws.
- Policy SA 4-3: Hazardous materials shall be stored in a safe manner, consistent with all applicable local, State and Federal laws.
- Policy SA 4-4: Coordinate with the East Contra Costa Fire Protection District to ensure that businesses in Brentwood which handle hazardous materials prepare and file a Hazardous Materials Business Plan (HMBP). The HMBP shall consist of general business information, basic information on the location, type, quantity, and health risks of hazardous materials, and emergency response and training plans.
- Policy SA 4-5: Require compliance with Contra Costa County's Countywide Integrated Waste Management Plan as well as all of the Consolidated Unified Protection Agency (CUPA) program elements.

Land Use Element Goal 4: Maintain a high quality natural environment and recreational opportunities in and around Brentwood.

- Policy LU 4-5: To the extent feasible, encourage school districts to locate school sites within easy walking distance of a large percentage of the student population and in areas where there are existing or planned safe routes to school (complete sidewalk/bike lane access from the residential neighborhoods within the enrollment boundary).

Brentwood Emergency Operations Plan

The objective of the Brentwood Emergency Operations Plan (EOP) is to provide a process for emergency management and response within the city in order to effectively to protect lives,

property and the environment during disasters. 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.

City of Brentwood Fire Code

The 2016 California Fire Code sets forth requirements including those for building materials and methods pertaining to fire safety and life safety, fire protection systems in buildings, emergency access to buildings, and handling and storage of hazardous materials. The City of Brentwood adopted the 2016 California Fire Code with certain amendments, additions, and deletions, as Chapter 15.06 of the Brentwood Municipal Code.

Brentwood Zoning Ordinance

Section 17.680.021 of the Brentwood Zoning Ordinance contains regulations related to new development in the vicinity of petroleum facilities, which are reproduced below as follows:

- A. Onsite Petroleum Facilities. Where a developer proposes to subdivide, rezone or otherwise develop property which contains existing drilling and/or production operations, the developer shall provide a plan showing how all existing petroleum related facilities will be protected and integrated into the proposed development so such facilities will satisfy the requirements of this chapter. The developer shall also submit a plan of the ultimate use of the land after cessation of petroleum operations and abandonment of the wells. Any buildable lot containing an area which may be not built upon because development could not comply with this chapter shall be encumbered by the developer with a deed restriction specifying the area so encumbered and identifying the name and location of the well causing the encumbrance. If a final map is filed, such encumbrance shall be recorded concurrent with the final map. If a petroleum facility is subsequently abandoned, such lot may then be considered for development, pursuant to this chapter.
- B. Abandoned Wells. Tentative maps, planned development and other development plans submitted to the city shall show the location of all wells drilled on the property. Prior to development of an area, any well shown as abandoned shall be accompanied by written verification for the DOG. Development shall be designed such that the building official is satisfied that no structure will be built within ten feet of any well that has been properly abandoned pursuant to DOG requirements. Any lot or parcel containing an abandoned well shall be encumbered with a deed restriction specifying the exact location of such well and prohibiting any construction within the ten-foot area. If a final map is recorded, the encumbrance shall be recorded concurrent with the final map. The DOG, at their discretion, may

also require that any abandoned well be uncovered, tested for leakage, require remedial work on leaking wells, and be accurately located on the final map before recordation of the map.

- C. Drilling Islands. As part of any rezoning, subdivision, or other development, the developer must provide the city with written documentation that he/she has contacted all mineral rights owners who have rights of surface entry on the property, to either reserve lands for future drilling and/or production operations as drilling islands, or to waive their rights to drill for oil and gas under the surface, within the subject site. Drilling islands shall be no less than two net acres in size, configured so that the proposed development and petroleum activities can be adequately buffered from one another, provide for adequate access, and be accompanied with a plan of the ultimate use of the site after abandonment or a decision not to pursue petroleum operations. Future drilling and/or production operations shall be required to acquire necessary permits as well as satisfy all well site development standards. (Ord. 597 § 2 (Exh. A (part)), 1998)

4.9.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for hazards and hazardous materials were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as well as the previously certified General Plan EIR. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria.

- 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.

- If located in or near State responsibility areas or lands classified as very high fire hazard severity zones:
 - Substantially impair an adopted emergency response plan or emergency evacuation plan;
 - 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;
 - 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; or
 - 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.

Method of Analysis

As noted previously, the analysis presented herein is based primarily on the 2019 Phase I ESA prepared for the Project site by ENGEO, Incorporated. The 2019 Phase I ESA was conducted in accordance with (1) the U.S. EPA Standards and Practices for AAI, 40 CFR Part 312); and (2) guidelines established by the ASTM Standard Practice E 1527-13. The 2019 Phase I ESA included a review of local, State, tribal, and Federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources. In addition, interviews were conducted with persons having knowledge of prior site uses. The following agencies were contacted pertaining to possible past development and/or activity at the Project site: the CCCDEH, the ECCFPD, the Contra Costa County Assessor's Office, the SWRCB, and the DTSC.

A reconnaissance of the Project site was conducted by ENGEO on December 17, 2018 to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials. As part of the reconnaissance, the site was checked for evidence of fill/ventilation pipes, ground subsidence, and other evidence of existing or preexisting underground storage tanks.

Impacts of the Proposed Project

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 with application of site-specific mitigation measures)*

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 with application of site-specific mitigation measures)*

The 2014 General Plan EIR concluded that compliance with applicable General Plan Policies and Actions, as well as Federal and State regulations, would ensure that potential impacts associated with the routine use, transport, storage or disposal of accidental release of hazardous materials would be less than significant.

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, oils, solvents, paints, pesticides, and fertilizers. Table 4.9-1 summarizes typical hazardous material types by project Land Use category. 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 and environment.

Table 4.9-1: Hazardous Material Usage Within the Project Site

Land Use Designation	Operations/Activities	Hazardous Materials
Residential	Three dwelling units per acre	Heavy metals, household chemicals, paints, pesticides, petroleum, oil, lubricants, thinners, fertilizers, and solvents.
Community Recreation Center	Indoor and outdoor recreation amenities	Aerosols, cleaners, corrosives, fuels, heating oils, household chemicals, paints, pesticides, petroleum, oil, lubricants, thinners and solvents.
Commercial / Civic	Agricultural and farm-to-table related civic uses and functions.	Aerosols, cleaners, household chemicals, paints, pesticides, petroleum, oil, lubricants, thinners and solvents.
Open Space ¹	Walking trails, agriculture, community gardens, play areas, picnic areas, wildlife habitat areas, and other open space areas.	Aerosols, cleaners, fuels, heating oils, household chemicals, paints, pesticides, petroleum, oil, lubricants, thinners, and solvents.

Note: 1. Includes stormwater detention basins.

Although not anticipated, if a facility is proposed that has a threshold quantity of a regulated substance greater than as specified by the applicable health and safety code, then MM HAZ-1 described below would be triggered and require preparation and implementation of a Hazardous Materials Risk Management Plan (RMP) for that facility. With implementation of MM HAZ-1 (if applicable) and compliance with all applicable Federal, State, and regional

regulations regarding hazardous material generation and usage on the site, potential impacts related to transport, use, or disposal of hazardous materials would be reduced to less-than-significant levels.

Underground Pipelines

As described above, there are eight abandoned well sites associated with past mining activities and two active oil/gas wells located within the Project site. In addition, there are two underground liquid pipelines and one abandoned natural gas pipeline located within the Project area. There is a potential that accidental releases from these pipelines and from the two active oil/gas wells and inactive wells could impact the Project site or surrounding area. In addition, there is the potential that historic oil/gas activity did not fully remove all underground infrastructure (abandoned pipelines) and therefore, all abandoned pipelines should be removed in accordance with MM HAZ-2 below. MM HAZ-3 and MM HAZ-4 below also require the Project Proponent to submit to the city's Public Works Department plans that verify that future inhabited structures will not be located over the on-site abandoned and active oil/gas wells and that all DOGGR guidelines and recommendations for setback, casing height and measures for venting systems are implemented.

With implementation of MM HAZ-2 through HAZ-5, potential impacts associated with accidental leakage from active and inactive pipelines and wells would be reduced to less-than-significant levels.

2019 Phase I ESA Findings

The 2019 Phase I ESA investigations 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 ESAs did not identify any recognized environmental conditions (REC)s associated with the Project site.

Conclusion

Implementation of the below-listed mitigation measures would ensure that potential impacts from the accidental release of hazardous materials related to routine transport, use, or disposal by the Project into the environment during construction and operation would be ***less than significant***.

Mitigation Measures

- MM HAZ-1** *If a facility is proposed that has a threshold quantity of a regulated substance greater than as specified by the applicable health and safety code, the user shall coordinate with the East Contra Costa Fire Protection District to prepare and implement a Hazardous Materials Business Plan for facilities that store, handle, or use regulated substances as defined in the California Health and Safety Code 25532 (g) in excess of threshold quantities. This plan shall be reviewed and approved by the Contra Costa County Environmental Health Department (EHD) through the Certified Unified Program Agencies (CUPA) process prior to implementation as required by the California Accidental Release Prevention (CalARP) Program. Generation, storage, and disposal of any hazardous waste must be done in accordance with all applicable local, state, and federal laws.*
- MM HAZ-2** *Eight known oil/gas wells have been abandoned within the Project site; although no abandoned pipelines associated with the eight on-site abandoned oil/gas wells have been identified, if such abandoned infrastructure is encountered during grading, it shall be removed. The Project Geotechnical Consultant shall be consulted and the soil surrounding the abandoned infrastructure area shall be sampled by a qualified Phase II/Site Characterization Specialist to determine whether there is a need for removal and disposal, in accordance with applicable ordinances.*
- MM HAZ-3** *During Final Map Review, the Project Proponent shall demonstrate that no proposed inhabited structures are located either over an abandoned oil/gas wells or within the required setback from any active oil production wells in compliance with the DOGGR Construction Site Review Program. The City of Brentwood Public Works Department shall verify this prior to approval of the Final Map that includes this situation.*
- MM HAZ-4** *Prior to issuance of the grading permit, DOGGR should be consulted to determine if the abandoned wells or active wells will require modification in casing height, if grading is proposed proximate to these well locations.*
- MM HAZ-5** *Prior to issuance of the grading permit, the Project proponent shall coordinate with Crimson Pipeline, Kinder-Morgan, and PG&E to determine the accurate depths and alignment of the existing on-site gas pipelines and shall conduct field checking and potholing of the pipelines, if necessary. Arrangements for potholing of the pipelines shall be made at least 48 hours in advance. The Project proponent shall be responsible for providing a backhoe and operator, as well as a surveyor if needed. All construction plans that involve pipeline easement encroachments shall be submitted to the applicable pipeline owner to allow for review.*

After determining the accurate depths and alignments of the existing and proposed pipelines, the results shall be noted on all project construction plans, subject to review by the City Engineer. For any work occurring within the pipeline easement, construction plans shall demonstrate compliance with applicable local, State, and Federal regulations and development restrictions, which would include, but would not be limited to, the following:

- *Maintain a minimum of 12 inches of clearance between the pipelines and other cross-lines that intersect at a 90-degree angle, or a minimum of 24 inches of clearance for intersection angles less than 90-degrees;*
- *Maintain a minimum of 24 inches of undisturbed clearance between the top of pipe and bottom of the sub grade for paving and grass or shallow rooted plants within the pipeline easements;*
- *Prohibit deep-rooted trees and structures within pipeline easements;*
- *All excavations within 24-inches of the pipelines shall be accomplished using hand tools only;*
- *Restrict use of heavy vibratory equipment over pipelines; and*
- *Notify Underground Service Alert (USA) at 800-227-2600 at least 48 hours prior to any excavation work.*

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 with application of site-specific mitigation measures*)

The nearest school (Heritage High School) is located approximately 0.1 mile south of the southern border of the Project site. Adams Middle School is the nearest middle school and is located approximately 0.4 mile south of the Project site. R Paul Krey Elementary School is the nearest elementary school and is located approximately 1.0 mile southeast of the Project site. The proposed 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 land uses.

However, to minimize potential impacts associated with the accidental release of hazardous materials (known or unknown) into the environment during construction, MM HAZ-1 through MM HAZ-5 described above would be implemented. With implementation of these mitigation measures, impacts associated with the accidental release of hazardous materials or pipeline releases would be reduced to a ***less-than-significant*** level.

Mitigation Measures

MM HAZ-6 *Implement MM HAZ-1 through MM HAZ-5.*

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 site is not included on a hazardous site list compiled pursuant to California Government Code Section 65962.5. According to the Phase I ESAs, there were no RECs (as defined by ASTM Practice E 1527-13) identified in association with the Project site. No significant adverse impacts relative to hazardous materials sites would result with Project implementation. **No impact** would occur.

Mitigation Measures

None required.

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*)**

The Project site is not located in the vicinity of a public or public use airport. The closest airport to the Project site is located approximately 9.5 miles away in Byron. Therefore, **no impact** would occur as a result of the Project.

Mitigation Measures

None required.

Impact HAZ-6: **Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (*less than significant with application of site-specific mitigation measures*)**

The Project would not impair or physically interfere with an adopted emergency response or evacuation plan. According to the city's General Plan (Community Services and Facilities Element), Policy CSF 4-1 supports the ECCFPD in terms of maintaining "adequate staff and equipment to provide high quality and responsive fire protection and emergency medical services to existing and future growth in Brentwood." The Brentwood 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. Future residential and commercial development contemplated as part of the

Project is not expected to remove or impede evacuation plans or conflict with adopted emergency response plans.

Further, off-site roadway improvements to Balfour Road, American Avenue, and (to the extent feasible and undertaken) Deer Valley Road would improve the ability of emergency providers to respond and adhere to emergency response and/or evacuation plans by improving roadway surfaces, line-of-site clearances, signage and general safety of the roadways in the Project area.

By complying with the General Plan and participating in the city's Impact Fee Program, implementation of the Project would result in a ***less-than-significant*** impact with respect to interference with an adopted emergency response plan or emergency evacuation plan.

Mitigation Measures

Compliance with the measures noted below shall be required as a Condition of Approval on future subdivision maps and/or design reviews.

MM HAZ-7 *During construction, emergency access routes shall be kept free of traffic impediments to the satisfaction of the City Engineer.*

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 with application of site-specific mitigation measures*)**

Impact HAZ-8: **If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the Project: substantially impair an adopted emergency response plan or emergency evacuation plan; 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; 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; or expose people or structures to significant risk, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability or drainage changes? (*less than significant with application of site-specific mitigation measures*)**

Brentwood is not categorized as a "Very High" FHSZ by CAL FIRE, because it is within an LRA. The Project site is located adjacent to the city limits and is surrounded by mostly undeveloped land. CAL FIRE designates the Project site and the undeveloped area adjacent to the Project site, outside of the city limits, as a "Moderate" FHSZ. Under State and local law, all new construction in a "Very High" FHSZ is 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 a "Very High" FHSZ, the city, in conjunction with the ECCFPD, reviews all building plans for compliance with the California

Building Code, 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. Given that the Project site is not located in or near a State Responsibility Area (SRA) or lands classified as Very High FHSZs, pursuant to the language of the Appendix G checklist, the CEQA document is not required to address whether the Project would result in any of the following:

- Substantially impair an adopted emergency response plan or emergency evacuation plan;
- 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;
- 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; or
- 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.

Nonetheless, a brief discussion on each of the above is provided for informational purposes. See Impact HAZ-6 above regarding emergency response plan/emergency evacuation plan. Regarding slope, prevailing winds, and other factors, according to wind rose data for the Project area, wind generally travels to the southwest and has an average speed of 10.8 mph. Therefore, in general wind is traveling away from the Project area towards undeveloped areas to the southwest. In the event of a wildfire that may occur in undeveloped adjacent areas to the Project site, wind would be traveling away from the Project site and thereby, reducing the impact to the Project site from the uncontrolled spread of wildfire. In addition, the Project site consists of rolling hills and valleys, but does not include any steep slopes, which would exacerbate the spread of wildfires.

Potable water service for the proposed project would consist of a series of water lines located in two “project zones” (2 and 3). The proposed project would extend the Zone 2 system from the adjacent lines within Canmore Court in the Shadow Lakes residential neighborhood. The proposed project would create Zone 3 service on-site (above elevation 220) with the installation of a hydropneumatic pump station located adjacent to a proposed water tank, which would provide sufficient pressure to serve Zone 3. A looped water system would be implemented in Phase 1 with the construction of a new 8-inch water line that would extend from the existing 8-inch line located at the south end of Canmore Court, and a separate water line that would extend from an existing 20-inch line located in Balfour Road. Also, as part of Phase 1, the proposed project would complete the 16-inch waterline connection at the end of Foothill Drive to John Muir Parkway. This connection would address a current deficiency in the overall operation of the water system on the west side of SR 4. Thus, adequate water required for fire emergency services would be available to the proposed project.

The construction of new roads would be provided with the proposed project. The addition of roads would allow emergency response personnel to access the Project area, if necessary to suppress fires, should they occur. In addition, the ECCFPD, as part of the city's review process, will review all plans for adequate fire suppression, fire access, and emergency evacuation. Additionally, the Project would not include the installation of above ground utilities or power lines that could exacerbate the fire risk. Any existing overhead utilities onsite or along the Project frontage roads would be undergrounded in accordance with standard city requirements.

As described in Section 4.10, Hydrology and Water Quality, of this EIR, potential hazards related to downstream flooding are less than significant. A small portion of the Project site is located within Zone A, which is described by the Federal Emergency Management Agency as an area determined to be within the 0.1 percent annual chance floodplain (100-year floodplain) and is associated with the existing Deer Creek. These areas are not proposed for urban development and are incorporated into the open space component of the VDCSP. Additionally, as described in Section 4.7, Geology, Soils, and Minerals of this EIR, landslide areas within the limits of grading would be mitigated during grading of the proposed development by removal and replacement, setbacks, debris benches, and other stabilizing methods. Compliance with General Plan Policies SA 1-1, SA 1-2, SA 1-3, and SA 1-6 would require all new development and construction be reviewed by the city to ensure conformance with applicable building standards related to geologic safety. Thus, compliance with the Policies stated in the General Plan would reduce exposure of people or structures to potential substantial adverse effects related to flooding or landslides as a result of runoff, post-fire slope instability to a less-than-significant level.

No individual development proposals have been submitted for city review or consideration; however, the proposed project would be subject to the City of Brentwood Development Fee Program. Applicable fees would be determined by the City of Brentwood during the tentative map review for each development phase and would be generated based on the number of residential units and square feet of commercial uses proposed in conjunction with a more refined design. The Fire Facility Fee is calculated on the per capita existing facility standard of the ECCFPD, formerly East Diablo Fire Protection (Fire Protection District). The city previously collected these fees as part of a regional effort that was coordinated by the Fire Protection District. While that regional effort has ceased, the fees continue to be collected for future city use to meet the city's demand for critical fire and emergency services infrastructure. As noted in the 2016 Deployment Performance and Headquarters Staffing Adequacy Study conducted by Citygate Associates for the Fire Protection District, four fire stations are needed within the city limits of Brentwood to meet public safety response times at industry level standards. The city continues to collect fees (including inflationary increases) at amounts adopted by studies conducted in 1998, 2004, and 2007 and adopted by City Council Resolutions 98-85, 2004-32, and 2017-146, and determined the fees to be adequate to support the construction of stations necessary to serve new development (City of Brentwood, 2018). Actual construction of a new fire station cannot move forward until the ECCFPD has the financial resources necessary to staff the new station.

Overall, adherence to regulations already in place through the development application and review process at the city, as well as implementation of applicable mitigation measures in the Geology, Soils, and Minerals Section, would reduce the potential impacts associated with fire hazards as a result of adjacent wildlands to a ***less-than-significant*** level.

Mitigation Measures

MM HAZ-8 *Implement MM GEO-1, MM GEO-2, MM GEO-4, and MM GEO-8.*

Impact HAZ-9: **Would the off-site infrastructure improvements result in impacts related to hazards and hazardous materials? (*less than significant with application of site-specific mitigation measures*)**

Off-site Sewer Pipe Improvements

Alternatives 2 and 3 for the proposed off-site sewer improvements would both involve off-site ground-disturbing activity (trenching) to the east of the Project site boundary. As noted previously, the off-site sewer improvement area consists primarily of ruderal grasses, as well as portions of paved roadway. Neither Alternative would require disturbance within the vicinity of an existing oil/gas well, pipeline, or other known hazard. Removal of existing such structures would not be required. Thus, the proposed off-site sewer improvements would not be likely to result in upset of existing hazardous materials. However, given that the 2019 Phase I ESA prepared for the Project did not include analysis of the off-site sewer improvement areas, the potential exists for contaminated soils to be encountered during trenching activities.

Off-site Irrigation Pipe Improvements

The proposed off-site irrigation line improvement (Alternative 1) would occur entirely within the Balfour Road right-of-way. Generally, pre-existing hazards have not been identified within the improvement area. However, given that the 2019 Phase I ESA prepared for the Project did not include analysis of the off-site irrigation line improvement area, the potential exists for contaminated soils to be encountered during pavement removal and/or trenching associated with installation of the irrigation line.

Off-site Roadway Improvements

The following sections describe potential hazards associated with the proposed off-site roadway improvements.

American Avenue Extension

The proposed American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. Generally, pre-existing hazards have not been identified within the improvement area. However, given that the 2019 Phase I ESA prepared for the Project did not include analysis of the off-site American Avenue extension improvement area, the potential exists for contaminated soils to be encountered during vegetation removal and grading

associated with the proposed roadway improvement, including soils contaminated by historic and ongoing agricultural uses.

Balfour Road and Deer Valley Road Improvements

As part of the Project and as further described in other sections of this report, Balfour Road would be improved and/or widened from the existing American Avenue intersection west to Deer Valley Road, and the Project may widen or contribute funding for improvements to Deer Valley Road. As noted previously, the proposed improvements would be primarily limited to the existing Balfour Road and Deer Valley Road rights-of-way and the graveled shoulders of the roadways, which contain scattered shrubs and ruderal grasses. Generally, pre-existing hazards have not been identified within the improvement area. However, given that the 2019 Phase I ESA prepared for the Project did not include analysis of the off-site road widening improvement area, the potential exists for contaminated soils to be encountered during pavement removal, vegetation clearing, and grading associated with the proposed widenings.

Conclusion

Based on the above, given that the Project includes off-site improvements in areas that were not studied as part of the 2019 Phase I ESA, ground disturbance associated with such off-site improvements could result in a significant impact related to the accidental upset of existing hazardous materials. However, implementation of MM HAZ-9 would ensure that proper precautions are taken if evidence of contaminated soil or groundwater is detected during off-site improvements, thereby avoiding potential risks to workers or the environment. With implementation of mitigation, the impact would be reduced to a **less-than-significant** level.

Mitigation Measures

MM HAZ-9 *If unidentified or suspected contaminated soil or groundwater evidenced by stained soil, noxious odors, or other factors, is encountered during off-site improvements, work shall stop in the area of potential contamination, and the type and extent of contamination shall be identified by a Registered Environmental Assessor (REA) or qualified professional. The REA or qualified professional shall prepare a report that includes, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations, relevant environmental screening levels for identified contaminants, whether the contaminants exceed Environmental Screening Levels, thus warranting remediation, and recommendations for appropriate handling and disposal. Off-site improvement activities shall not recommence within the contaminated areas until any necessary remediation identified in the report is complete. The report and verification of proper remediation and disposal shall be submitted to the City of Brentwood Engineering Department for review and approval.*

Cumulative Impact Analysis

Impact HAZ-10: Would the Project result in cumulative impacts to hazards and hazardous materials? (*less than significant*)

Most hazards and hazardous materials impacts from development are site-specific and, if properly designed, the Project would not result in additive worsening of the environment or public health and safety. Cumulative development would be subject to site-specific hazards; 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's contribution to cumulative impacts related to hazards or hazardous materials would be *less than significant*.

Mitigation Measures

None required.

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to changes to groundwater conditions, drainage patterns, runoff quantity and quality, the capacity of existing storm drain infrastructure and flood hazards. The Regional Setting provides information on the baseline conditions in the larger region, while the Project Setting describes baseline conditions specific to the Project site and immediate physical area. Technical on-site information used to prepare this section was provided by the following resource:

- Balance Hydrologics, Inc., *Preliminary Stormwater Control Plan for the Vineyards at Deer Creek Project*, March 2019

The existing setting discussion is followed by a discussion of the regulatory framework, including Federal, State and local policies and regulations that pertain to groundwater resources, water quality, increases in runoff from impervious surfaces, and flood control. The impact analysis determines impacts based on the significance criteria as outlined by CEQA Guidelines Appendix G, and appropriate mitigation measures are identified where necessary.

Regional Hydrologic Setting

Watersheds

The State uses a hierarchical naming and numbering convention to define watershed areas for management purposes. This means that boundaries are defined according to size and topography, with multiple sub-watersheds within larger watersheds.

Brentwood is located within the San Joaquin River Hydrologic Region, which covers about 9.7 million acres (15,200 square miles) and includes all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of Alpine, Fresno, Alameda, Contra Costa, Sacramento, El Dorado, and San Benito counties. Significant geographic features include the northern half of the San Joaquin Valley, the southern part of the Sacramento-San Joaquin Delta, the Sierra Nevada, and the Diablo Range (City of Brentwood, 2014).

Regional Topography

The City of Brentwood is located in eastern Contra Costa County, approximately 50 miles east of San Francisco and 50 miles southwest of Sacramento. Brentwood is situated in the western portion of the San Joaquin Valley, immediately east of the Diablo Range which forms the eastern boundary of the Coast Ranges. The topography of Brentwood is characterized by the relatively flat terrain typical of the Central Valley, with a few gently sloping hills in the southern and western portions of the city near the foothills of the Diablo Range. Elevations in Brentwood range from

25 feet above mean sea level (MSL) in the northeast portion of the city to 492 feet above MSL at the highest peak in the southwest portion of the city (City of Brentwood, 2014).

Regional Drainage Systems

Extending eastward from the Diablo Range toward the San Joaquin Valley is a series of east-west trending ridges and valleys. A set of drainage basins are formed by the Lone Tree Valley, Deer Valley, and Briones Valley, all of which collect seasonal rainwater and direct runoff into a network of small streams and creeks in Brentwood.

The Project is located entirely within the Lower Marsh Creek watershed. Marsh Creek, with a total watershed area of 94 square miles, is the largest waterway in the city and is divided between Upper Marsh Creek (51 square miles) and Lower Marsh Creek (42 square miles) following the portions of the creek upstream and downstream of the Marsh Creek Reservoir. The middle portion of Marsh Creek that forms the Lower Marsh Creek watershed originates at the outlet of the Marsh Creek Reservoir and currently flows generally northeast to its confluence with the San Joaquin River located in the City of Oakley. The major tributaries entering the middle portion of Marsh Creek include Dry Creek, Sand Creek, and Deer Creek.

Local Hydrologic Setting

The Project site is bounded to the south by Balfour Road and to the west by Deer Valley Road. The site topography is characterized by low, rolling hills generally clustered into two groups that are separated by the headwaters of an unnamed tributary of Sand Creek. The southern group of hills rises in elevation from east to west, with a high point of just under 380 feet. The northern hills likewise are higher in the west, but rise to an elevation of approximately 300 feet. The lowest elevations, at approximately 160 feet, are in the northeast portion of the site where the unnamed tributary flows off-site toward Sand Creek.

The approximately 815-acre Project site straddles the divide between three regionally important east county watersheds that are components of the Marsh Creek system. The watershed of the Project is approximately 841 acres and includes drainage from several off-site areas. Most of the site drains to a headwater watershed that flows generally to the northeast and north to join Sand Creek approximately 2,500 feet north of the Project area boundary and downstream of the recently constructed Upper Sand Creek Basin flood control facility. This headwater system is referred to as the “unnamed tributary.” It begins west of Deer Valley Road upstream of the western Project area boundary and flows approximately 7,500 feet across the site. At the northeast boundary of the Project area, the unnamed tributary drains about 0.9 square miles, with about 97 percent of that drainage lying within the Project area boundaries.

The northeastern portion of the Project area naturally drains northwestward into Horse Valley Creek, which is a relatively large tributary watershed to Sand Creek. The southern portion of the Project area drains southward into Deer Creek. Deer Creek enters the Project boundary at the southwest border through an undersized culvert under Balfour Road. Deer Creek meanders eastward within the Project area for approximately 2,500 feet until passing through another

culvert under Balfour Road and entering the Contra Costa County Flood Control and Water Conservation District's ("Flood Control District") Deer Creek Reservoir from which it continues eastward following the south side of Balfour Road. Deer Creek drains a total area of 4.2 square miles, with about 7 percent of which (188 acres) are contributed by the Project site. Deer Creek only flows through the Project area during seasonal storm events.

The Lower Marsh Creek Watershed system and local watershed boundaries are illustrated in Figure 4.10-1, Regional Watersheds.

Climate

The City of Brentwood has cool and humid winters and hot and dry summers, with average daily temperature ranging from 35 to 92 degrees Fahrenheit (°F). Historical low and high temperatures in Brentwood have been 18°F in 1972 and 117°F recorded in 1961 (Intellicast, 2017). Similar to the greater Bay Area, the rainy season in Brentwood typically begins in October/November and ends in March/April. Average monthly precipitation during the winter ranges between two to three inches, although historical records show that the monthly winter precipitation has been as high as eight inches and as low as zero inches. Consequently, water demands during the winter months are relatively low (City of Brentwood, 2014).

Humidity during the summer months (May to September) is relatively low. The combination of hot and dry weather during the summer results in high water demand during these periods. Landscape irrigation, including lawn irrigation in the summer, significantly contributes to higher water demand during summer months (City of Brentwood, 2014).

Floodplain Mapping

FEMA Flood Zones

The Federal Emergency Management Agency (FEMA) provides important guidance for the city in planning for flooding events and regulating development within identified flood hazard zones. FEMA's National Flood Insurance Program (NFIP) is intended to encourage State and local governments to adopt responsible floodplain management programs and flood measures.

Local and regional flood hazards play an important role in planning for stormwater management. Both Horse Valley Creek and Deer Creek have mapped approximate Special Flood Hazard Areas ("SFHAs"), more commonly known as 100-year floodplains. The 100-year floodplains in both cases are designated as Zone A on the currently-effective Flood Insurance Rate Map (FIRM) prepared by the FEMA that covers this area. This designation indicates that the 100-year flood boundaries are approximate only, and that base flood elevations have not been determined through detailed study. Zone A is identified as an area that has a one percent chance of being flooded in any given year. The portions of the Zone A touching the Project site are the creek areas along Balfour Road and Deer Creek Road, as shown in in Figure 4.10-2, FEMA Flood Hazard Zones along the Deer Creek and Horse Valley Creek.

Figure 4.10-1
Regional Watersheds

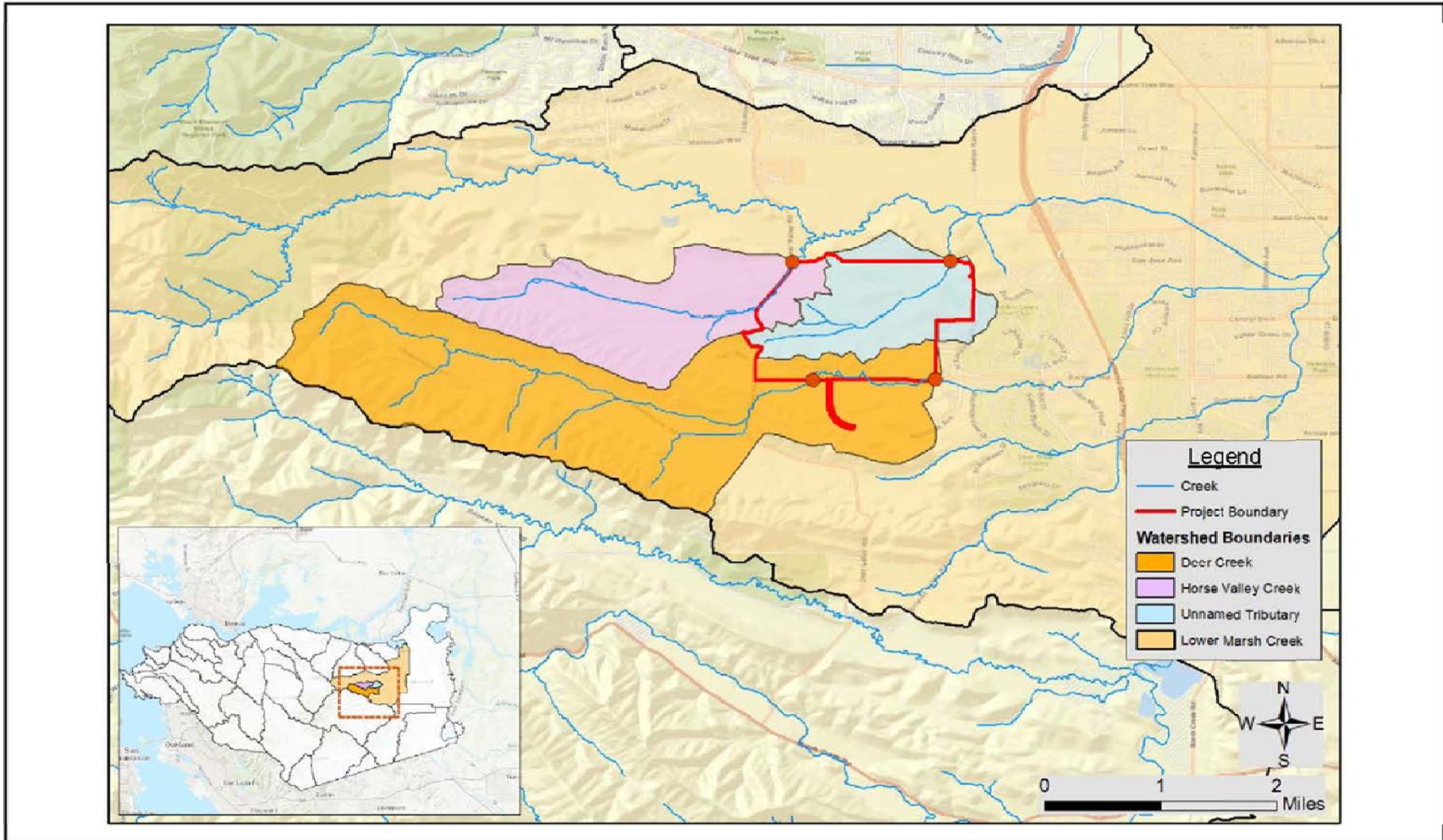
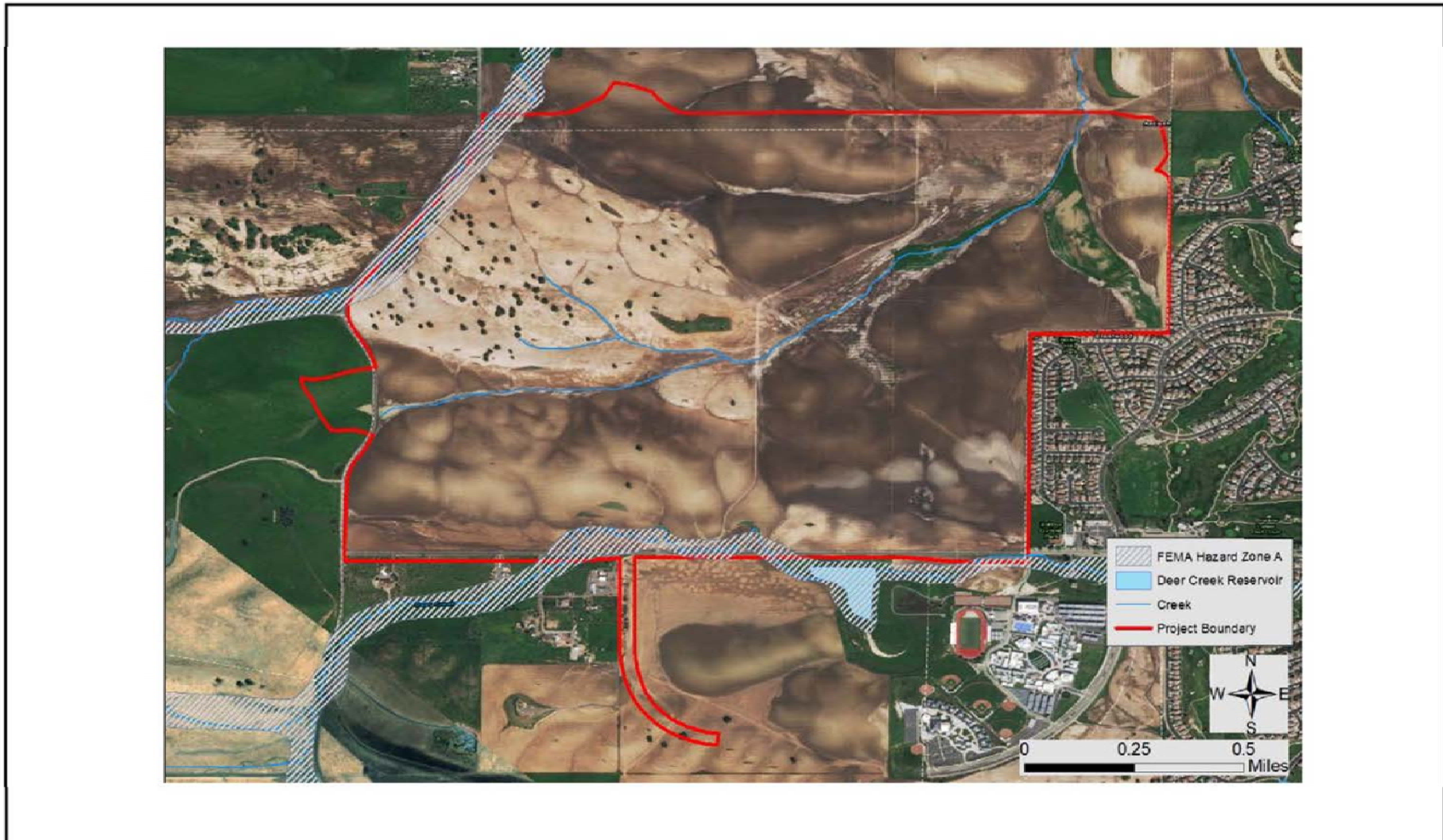


Figure 4.10-2
FEMA Flood Hazard Zones



Dam Inundation

Earthquakes centered close to a dam are typically the most likely cause of dam failure. Dam Inundation maps have been required in California since 1972, following the 1971 San Fernando Earthquake and near failure of the Lower Van Norman Dam. The city's Planning Area has four dams that are identified by the Division of Safety of Dams as Major Dams. Only one of these dams, the Deer Creek Dam, is discussed herein based upon its relative location to the Project area and the potential for inundation (ArcGIS 2019). Other local dams (Dry Creek, Marsh Creek and Upper Pine Creek) and their potential inundation zones are downstream of the Project site and would therefore pose no risk to the Project area.

The Deer Creek Dam, owned and operated by the Flood Control District, is an earthen dam located on Deer Creek. This dam was built in 1963 at a height of 28 feet with a reservoir capacity of 233 acre-feet. Based on 2015 mapping, the Deer Creek Dam inundation area includes the southeast corner of the Project site (ArcGIS, 2019).

This and other local dams do not have a history of dam failure and the owners/operators are responsible for the management, monitoring, and improvements to these dams to reduce the risk of dam failure and inundation.

Existing Water Quality Conditions

"Category 5 waterbodies" are those waters where at least one beneficial use (aquatic or wildlife habitat or recreation) is not supported and a total maximum daily limit (TMDL) is needed. TMDLs are a calculation of the maximum amount of pollution allowed to enter a waterbody and still meet water quality standards for that particular pollutant. The "303(d)" list reports that a TMDL program for all source pollutants is expected to be complete by the United States Environmental Protection Agency (USEPA) by 2021.

Multiple beneficial uses have been designated for Marsh Creek (to which Deer Creek and Sand Creek drain), as well as for the Sacramento-San Joaquin Delta complex. Marsh Creek beneficial uses include warm freshwater habitat, wildlife habitat, presence of rare and endangered species, and water recreation (contact and non-contact).

There are currently no waterbody Category 5 303(d) listings for Deer Creek or Horse Valley Creek. However, there are seven waterbody Category 5 listings for Sand Creek, including chlorpyrifos, DDE, DDT, dieldrin, E. coli, salinity and unknown toxicity. All source pollutants were added to the list in 2010.

Potential impairments to surface water quality include the following nonpoint pollution problems: high turbidity from sediment resulting from erosion of improperly graded construction projects, concentration of nitrates and dissolved solids from agriculture or surfacing septic tank failures, contaminated street/driveway and lawn run-off from urban areas, and warm water drainage discharges into cold water streams.

Currently, the approximately 815-acre Project site has limited impacts to downstream surface water quality. The site supports limited dry crop agriculture, does not currently support cattle or livestock grazing, and contains limited improvements or potential sources of contaminants compared to an urban setting. Dry farming can be a source of soil erosion; however, dry farming occurs on the portions of the Project site that do not have excessive slopes and therefore would not cause substantial downstream sediment that could pose water quality impacts. As also noted in Section 4.9, Hazards, Hazardous Materials, and Wildfire, the Project site contains several plugged and abandoned natural gas wells, which were identified as a potential source of groundwater contamination.

Groundwater

The city's groundwater wells are located within the northwest part of the Tracy Subbasin of the San Joaquin Valley Groundwater Basin. The Tracy Subbasin has a total surface area of 539 square miles and is bounded by the Diablo Range of the Coast Range foothills to the west, the San Joaquin and Mokelumne Rivers on the north, and the San Joaquin-Stanislaus county line to the south. The Tracy Subbasin is comprised of continental deposits of Late Tertiary to Quaternary age. Deposits include the Tulare Formation, Older Alluvium, Flood Basin Deposits, and Younger Alluvium. The cumulative thickness of these deposits increases from a few hundred feet near the Coast Range foothills on the west, to approximately 3,000 feet along the eastern margin of the basin (City of Brentwood, 2014).

The city's wells range in depth from 200 to 660 feet, and draw water from the Tulare Formation. The Tulare Formation is exposed in the Coast Range foothills along the western margin of the basin and dips eastward toward the valley's axis. It consists of semi-consolidated, poorly sorted, discontinuous deposits of clay, silt, and gravel. Corcoran clay occurs near the top of the Tulare Formation and confines the underlying fresh water deposits. The eastern limit of the Corcoran clay is near the eastern boundary of the basin. The Tulare Formation is moderately permeable, with most of the larger agricultural, municipal, and industrial extractions coming from below the Corcoran clay layer. Wells completed in this zone can produce up to 3,000 gallons of water per minute. Small domestic wells often obtain their supply from above the Corcoran clay. However, groundwater above the Corcoran clay is often of poor quality (Coleman Engineering, 2017).

The City of Brentwood has nine permitted groundwater wells within its service area, seven of which are active wells. The wells pump from an alluvial basin underlying the city. Some treatment is necessary before delivery to the users. The total design capacity of the wells is 6.63 million gallons per day (MGD). The firm design capacity of the wells, where firm capacity is the capacity of all the wells minus the capacity of the largest well, is 5.19 MGD. The city treats groundwater with chloramines at the wellheads prior to delivering the drinking water to the distribution system (City of Brentwood, 2017).

As shown below in Table 4.10-1, groundwater pumping in the city has decreased between 2006 and 2015 due to an increase in the use of surface water supplies from the City of Brentwood Water Treatment Plant (COBWTP) and due to an increased availability of recycled water from the Wastewater Treatment Plant (WWTP) (2014 General Plan EIR). According to the California

Department of Water Resources (DWR), the Tracy Subbasin (including the newly formed East Contra Costa Subbasin) is not on the list of critically over-drafted groundwater basins.

Total Groundwater Pumped	2006	2007	2008	2009	2010	2015
Total Groundwater Pumped	1,886	1,331	1,474	1,235	1,152	828
Groundwater as a percent of total water supply	48%	30%	33%	29%	29%	21%

MGY: Million Gallons per Year
Source: 2014 General Plan EIR; City of Brentwood 2015 Urban Water Management Plan.

Approximately 30 percent of the city's water is derived from groundwater, which is supplied by 7 of the 9 permitted wells within its service area. The city's groundwater wells have capacities ranging from 0.36 MGD (250 gallons per minute [GPM]) to 1.44 MGD (1,000 GPM). The total design capacity of the city's wells is 6.63 MGD. The firm design capacity of the wells, where firm capacity is the capacity of all the wells minus the capacity of the largest well, is 5.19 MGD. Annual groundwater production from the seven active wells averaged 4.13 MGD for the 2000 through 2010 period (City of Brentwood, 2014).

Water use in Brentwood varies seasonally, with maximum water use typically occurring during the months of June, July, August, and September, due to increased landscape irrigation. As such, the city is tasked with meeting demand from all supply sources on the maximum demand day of the year. According to the General Plan, the city projects a maximum water demand of 41 MGD by 2035, a portion of which would be provided by sustainable groundwater draws. According to the General Plan (2014), the total groundwater draw needed to meet the maximum water demand would not result in a significant depletion of groundwater resources.

The City of Brentwood projects a total water surplus of 4,685 MGY in 2020 and 3,798 MGY in 2040 (2015 Urban Water Management Plan [UWMP]). As approximately 30 percent of the city's supply is groundwater, the groundwater surplus would be 1,406 MGY in 2020 and 1,130 MGY in planning year 2040.

Groundwater Quality

While water quality in the city aquifer is adequate, the water does have relatively high levels of total dissolved solids (TDS), chlorides, and nitrates. The occurrence of nitrates in groundwater in this area has generally been attributed to agricultural influences, which is limited to the upper sequences of aquifer materials.

Groundwater Management

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).

Because the California Statewide Groundwater Elevation Monitoring (CASGEM) Program has ranked the Tracy Subbasin as a medium priority basin of importance, a GSA(s) must be formed. The City of Brentwood and other local water purveyors (municipalities and districts) are currently in the process of forming individual GSAs for their service area of the Tracy Subbasin. In accordance with SGMA, effective April 20, 2017, the City of Brentwood formed the Brentwood Groundwater Sustainability Agency through a Memorandum of Understanding (MOU) with other East Contra Costa County Water Agencies. The primary purposes of the MOU are to:

- Establish separate GSAs for each of the East Contra Costa County member agencies.
- Facilitate a cooperative and ongoing working relationship among the parties.
- Develop and implement mutually beneficial approaches and strategies for implementing the SGMA in the Tracy Subbasin.
- Facilitate contacts with other agencies, both current and prospective, overlying the Tracy Subbasin so that they can coordinate to implement the Groundwater Sustainability Plan (GSP) and to satisfy the requirements of the SGMA.

A GSP for the East Contra Costa County portion of the larger Tracy Subbasin was developed and adopted in April 2017. In 2018, the Tracy Subbasin (5-022.15), at the request of the City of Brentwood, was successfully subdivided (a jurisdictional subdivision) to create a separate and unique basin boundary for the East Contra Costa Subbasin (5-022.19). The newly approved boundary modification separates the subbasin along jurisdictional lines, carving out that portion of the Tracy Subbasin that lies within Contra Costa County. Eastern Contra Costa County has diverse sources of water supplies including surface water and groundwater, which are used for agriculture and municipal/domestic purposes. The new subdivision affects no existing or historic water supply coordination with other local agencies in the subbasin. According to the California Department of Water Resources (DWR), the Tracy Subbasin is not on the list of critically overdrafted groundwater basins.

Recycled Water Supplies

Recycled water is a relatively small but important part of the city's water resources. Recycled water makes up approximately four percent of the city's water supply. Recycled water enables the city to conserve potable water, thereby ensuring a reliable water supply for current and future demand. The City of Brentwood WWTP is used for treatment and disposal or reuse, of wastewater generated by the city's service area. The WWTP currently has a treatment capacity of 5 MGD but is capable of expanding to 10 MGD, in 2.5 MGD increments during peak wet-weather flows. The WWTP's tertiary treatment provides recycled water for landscaping, as well as industrial users such as the Antioch Building Materials concrete batch plant.

Non-Potable Water

The city obtains raw water via the Roddy Ranch Pump Station on the East Contra Costa Irrigation District Main Canal, which is routed to the city's non-potable distribution system. This water is used primarily for irrigation purposes, with current users including golf courses, parks and parkways, schools, and commercial landscaped areas. The city purchased 268 million gallons (0.73 MGD average daily use) in 2015. The city currently projects a purchase of about 500 million gallons per year by 2035 (City of Brentwood, 2016).

Existing Water Use at the Project Site

The Project site is not irrigated, has no active groundwater wells, and currently has no quantifiable demand on municipal, groundwater, or agricultural water supplies (Balance Hydrologics, 2019).

4.10.2 Regulatory Setting

Federal

Clean Water Act (CWA)

The Clean Water Act (CWA) (33 U.S.C. Section 1251, et seq.), formerly known as 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 establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and has given the USEPA 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).

In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs). The City of Brentwood operates under two separate NPDES permits. In November 2016, the City of Brentwood requested a jurisdictional change for the city's NPDES Permit from Central Valley to San Francisco RWQCB. As a result, stormwater discharges from industrial and construction activities in the city are regulated by San Francisco Bay RWQCB and are covered under their Municipal Regional Stormwater NPDES Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008). For wastewater discharges, the city operates under the Central Valley RWQCB (under Order R5-2013-0106, NPDES Permit No. CA5083313).

Clean Water Act Section 402

Section 402 of the CWA authorizes the California State Water Resources Control Board (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 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.

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 2009 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 (REAP), which must be designed to protect all exposed portions of a project site within 48 hours prior to any likely precipitation event.

Clean Water Act Section 404

Section 404 of the CWA (33 U.S.C. 1251, et seq.) requires a permit from the United States Army Corps of Engineers (Corps) for the discharge of dredged or fill material into “waters of the United States,” 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 USEPA 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 USEPA for review and approval. An affected waterbody, and associated pollutant or stressor, is then prioritized in a list of impaired water bodies known as the 303(d) List. The CWA further requires the development of a TMDL for each listing.

National Flood Insurance Program (NFIP)

The NFIP, implemented by Congress in 1968, enables participating communities to purchase flood insurance. Flood insurance rates are set according to flood-prone status of property as

indicated by FIRMs developed by FEMA. FIRMs identify the estimated limits of the 100-year floodplain for mapped watercourses, among other flood hazards. As a condition of participation in the NFIP, communities must adopt regulations for floodplain development intended to reduce flood damage for new development through such measures as flood proofing, elevation on fill, or floodplain avoidance.

State

California Municipal Storm Water Permitting Program

This program regulates storm water discharges from municipal separate storm sewer systems (MS4s). MS4s are defined as a conveyance system or conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, channels or storm drains) owned or operated by a public entity designed or used to collect or convey stormwater. Under the Phase 1 MS4 permit program, the RWQCB issued a Municipal Regional Stormwater NPDES Permit Order R5-2010-0102 (“East Contra Costa County MS4 Permit”), which regulates development within the eastern portions of Contra Costa County that drain into the Sacramento-San Joaquin Delta east of Suisun Bay. This permit recognizes impairments to receiving waters and prescribes compliance requirements for municipalities to avoid violations of water quality standards.

The permit imposes regulations and requirements that must be met for all new development projects, primarily through implementation of stormwater management strategies to enhance runoff water quality and assure that adverse impacts due to changes in the flow rates and durations and runoff are avoided. The Contra Costa County Clean Water Program has compiled a Stormwater C.3 Guidebook (CCCCWP, 2017) to help ensure that new development projects comply with the applicable requirements (Balance Hydrologics, 2019).

Sustainable Groundwater Management Act

As noted above, Section 10720.1 of the 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 GSAs.

Specifically, the Act establishes a definition of “sustainable groundwater management,” requires that a GSP be adopted for the most important groundwater basins in California, establishes a timetable for adoption of GSP, empowers local agencies to manage basins sustainably, establishes basic requirements for GSPs, and provides for a limited State role.

Porter-Cologne Water Quality Control Act

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 Project falls under the jurisdiction of both the Central Valley RWQCB and the San Francisco RWQCB, which are responsible for the

implementation of State and Federal water quality protection statutes, regulations, and guidelines.

California Department of Fish and Wildlife

Section 1602 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the CDFW in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State, and requires any person, State, or local governmental agency, or public utility to notify the CDFW before beginning any activity that will:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

A Streambed Alteration Agreement is required prior to any construction if CDFW determines that a project could substantially adversely affect an existing fish and wildlife resource. The Agreement includes measures to protect fish and wildlife resources while conducting the project. CDFW must comply with CEQA before it may issue a final Agreement; therefore, CDFW must wait for the lead agency to fully comply with CEQA before it finalizes the Agreement.

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.

Local

The City of Brentwood and Contra Costa County have established several plans and programs to regulate and improve water quality locally. These plans and regulations work together to address long term management of water resources and to mitigate and prevent water quality impacts. They include the following:

- City of Brentwood Urban Water Management Plan (2015)
- City of Brentwood Water Master Plan (2017)
- Contra Costa Clean Water Program and C.3 Guidebook
- Contra Costa Clean Water Program Stormwater Management Plan 1999-2004
- Start at the Source: Design Guidance Manual for Stormwater Quality Protection

City of Brentwood General Plan

Project relevant General Plan Goals and Policies for hydrology and water quality are addressed below. The City of Brentwood developed and adopted the General Plan to include goals, policies and actions that, when implemented, will coordinate the provision of stormwater, water quality, and flood control facilities as the city grows.

The General Plan Goals and Policies identified below include numerous requirements and recommendations that would reduce the potential for project-specific impacts related to hydrology and water quality through project design and permit compliance.

Infrastructure Goal 1: Maintain and improve Brentwood's infrastructure to provide high-quality services and protect health and safety.

- **Policy IF 1-1:** Provide adequate public infrastructure (i.e., street, sewer, water, and storm drain) to meet the needs of existing and future development.
- **Policy IF 1-2:** Require development, infrastructure, and long-term planning projects to be consistent with all applicable City infrastructure plans, including the Water Master Plan, the Wastewater Master Plan, and the Capital Improvement Program.
- **Policy IF 1-2:** Require all development projects to mitigate their infrastructure service impacts or demonstrate that the City's infrastructure, public services, and utilities can accommodate the increased demand for services, and that service levels for existing users will not be degraded or impaired.
- **Policy IF 1-4:** Require new development projects to develop comprehensive infrastructure plans for City review and approval as part of an application submittal.
- **Policy IF 2-1:** Ensure the water system and supply is adequate to meet the needs of existing and future development.

Infrastructure Goal 4: Provide adequate storm drainage facilities.

- **Policy IF 4-1:** Maintain and improve Brentwood's storm drainage facilities.
- **Policy IF 4-2:** Incorporate recreational trails and parkway vegetation design in channel improvements, and explore utilizing detention basins for parks, ball fields, and equestrian areas.
- **Policy IF 4-3:** Require all development projects to demonstrate how storm water runoff will be detained or retained on-site and/or conveyed to the nearest drainage facility as part of the development review process and as required by the City's NPDES Municipal Regional Permit. Project applicants shall mitigate any drainage impacts as necessary.
- **Policy IF 4-4:** Maintain drainage channels in a naturalized condition to the greatest extent feasible, subject to health and safety requirements and as otherwise described in the Conservation and Open Space Element of the General Plan.

Safety Goal 2: Reduce risks to human life, property, and public services associated with flooding.

- **Policy SA 2-2:** Require all development projects to demonstrate how storm water runoff will be detained or retained on-site, treated, and/or conveyed to the nearest drainage facility as part of the development review process. Project applicants shall demonstrate that project implementation would not result in increases in the peak flow runoff to adjacent lands or drainage facilities that would exceed the design capacity of the drainage facility or result in an increased potential for offsite flooding.
- **Policy SA 2-3:** Ensure that construction activities will not result in adverse impacts to existing flood control and drainage structures.
- **Policy SA 2-6:** Unless otherwise mitigated, require new structures to be located outside of the 100-year floodplain to the greatest extent possible.
- **Policy SA 2-8:** Encourage and accommodate multipurpose flood control projects that incorporate recreation, resource conservation, preservation of natural riparian habitat, and scenic values of Brentwood's streams, creeks, and wetland/riparian areas. Where appropriate and feasible, the City shall also encourage the use of flood and/or storm water retention facilities for use as groundwater recharge facilities.
- **Policy SA 2-9:** Encourage flood control measures that respect natural drainage features, vegetation, and natural waterways, while still providing for adequate flood control and protection.
- **Policy SA 2-11:** Ensure that new development or governmental action does not compound the potential for flooding.
- **Policy SA 2-12:** Ensure that adequate drainage and erosion control measures are provided during construction of all new development.

Conservation and Open Space Goal 4: Protect and enhance water resources in local creeks, riparian habitat, wetlands, the Marsh Creek Watershed, and aquatic habitat.

- **Policy COS 4-1:** Where feasible, protect and enhance surface water quality in creeks, streams, channels, seasonal and permanent marshland, wetlands, sloughs, riparian habitat, and vernal pools through sound land use planning, community design, and site planning.
- **Policy COS 4-4:** Require discretionary projects, as well as new flood control and storm water conveyance projects, to integrate best management practices and natural features to the greatest extent feasible, while ensuring that these features adequately convey and control storm water to protect human health, safety, and welfare.
- **Policy COS 4-5:** Encourage the use of natural features such as bio swales, vegetation, retention ponds, and other measures to remove storm water pollutants prior to discharge, subject to State regulations.

- Policy COS 4-6: Where feasible, new development adjacent to creeks and streams should include opportunities for beneficial uses, such as flood control, ecological restoration, public access trails, and walkways.
- Policy COS 4-7: Consult with State and Federal agencies during the development review process to help identify wetland and riparian habitat that has candidacy for restoration, conservation, and/or mitigation. Focus restoration and/or conservation efforts on areas that would maximize multiple beneficial uses for such habitat.
- Policy COS 4-8: Conserve riparian habitat along local creeks, including but not limited to Marsh Creek, Deer Creek, Dry Creek, and Sand Creek, in order to maintain water quality and provide suitable habitat for native fish and plant species.
- Policy COS 4-9: Consider the effects of development on ground and surface water quality, and implement measures to reduce water contamination.
- Policy COS 4-10: Where feasible, encourage and support multipurpose detention basins that provide water quality protection, storm water detention, open space amenities, and recreational amenities.

4.10.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for hydrology and water quality were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as amended effective December 2018, as well as the previously certified General Plan EIR. 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 groundwater 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.

IV. Impede or redirect flood flows.

- In a flood hazard, tsunami, or seiche zone, risk release of pollutants due to project inundation.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impact HYD-1: Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? (*less than significant with application of site-specific mitigation measures*)

Short-Term Construction Impacts

Construction of the Project would result in the grading and alteration of landform over most of the Project site. 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. As described in Chapter 3, Project Description, of this EIR, the resulting total cut and fill of soils for the Project site is estimated to be approximately 5 million cubic yards. All cut soils would be redistributed and balanced on the site, and no off-site hauling of excess soils would occur.

Construction activity for each phase of development could also result in soil compaction and wind erosion impacts that could adversely affect soils and reduce the revegetation potential at specific locations. 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.

In November 2016, the City of Brentwood requested a jurisdictional change for the city's NPDES Permit from Central Valley to San Francisco Regional Water Quality Control Board. As a result, stormwater discharges from industrial and construction activities in the City of Brentwood are regulated by San Francisco Bay RWQCB and are covered under their Municipal Regional Stormwater NPDES Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008).

Because the Project would disturb more than one acre of land, the Project would be required to comply with the requirements of the NPDES General Construction Permit, which helps control water pollution by regulating point and non-point sources that discharge pollutants into receiving waters. The Project would be required to implement a site-specific SWPPP that is consistent with the Construction General Permit. The SWPPP would include project construction features designed to protect the quality of stormwater runoff, known as BMPs. 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; and a sediment monitoring plan, should the site discharge directly into a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit lists all elements that must be contained in a SWPPP.

The SWPPP would also contain a summary of the structural and non-structural 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.

Preparation, implementation, and participation with the Construction General Permit, including preparation of a SWPPP containing site-specific 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.

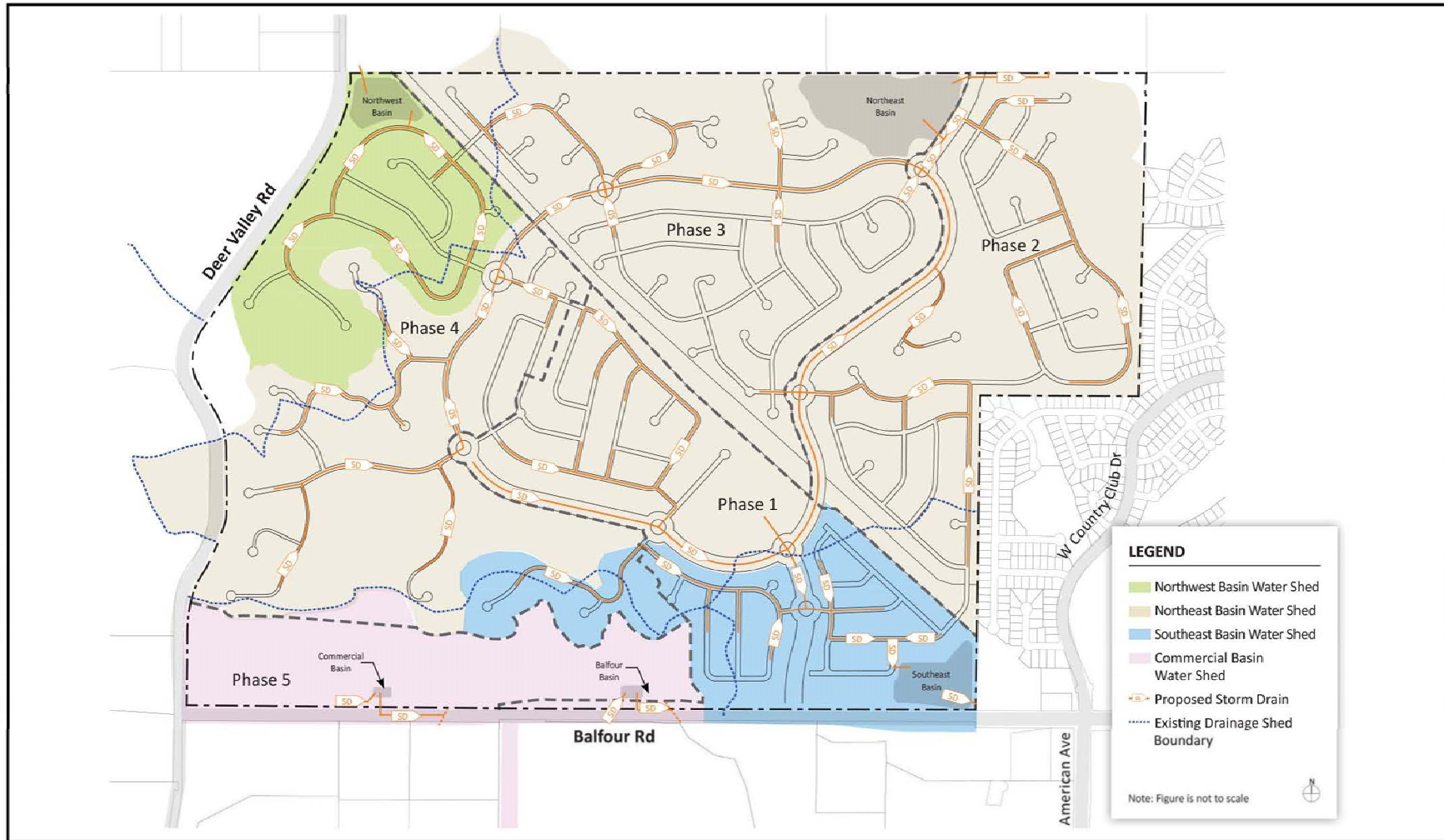
Long-Term Operational Impacts

Project buildout would necessitate the construction of entirely new drainage systems. The Project’s proposed stormwater conveyance system would drain the Project site through five local watersheds, each draining to a detention basin. As shown in Figure 4.10-3, on-site drainage from the new impervious surfaces (driveways, parking areas, and building rooftops) have been conceptually designed to convey stormwater via gravity through underground stormwater pipes to various detention basins. The basins would be designed to detain and percolate some stormwater on site, and ultimately discharge off site to existing channels and creeks to the north and south.

The Project would implement an effective water quality management approach within and across the Project site. Implementing water quality best practices into the Project design is the most effective method for minimizing impacts to receiving waters.

Treatment controls are generally necessary as a final element in water-quality protection even when the use of approved site planning and source control BMPs is maximized. Pollutants typically found in urban runoff include heavy metals (i.e., copper, lead, zinc, cadmium, mercury), oils and greases, nutrients (especially nitrogen and phosphorus), household and lawn-care chemicals, and coliform bacteria.

**Figure 4.10-3
Proposed Stormwater Conveyance System**



As already mandated by the San Francisco RWQCB, the Project's stormwater drainage facilities would be planned and designed to satisfy the mandatory requirements of the RWQCB's Municipal Regional Permit (MRP) 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.
- Incorporating bio-retention in combination with site planning, minimizing impervious areas, and dispersion of runoff to meet Low Impact Development (LID) requirements.

Ultimately, BMPs must comply with the requirements of the MRP which regulates development in Contra Costa County. Compliance with MRP requirements would reduce operational water quality impacts of the Project. The MRP design facilities require the Project to evapotranspire, infiltrate, harvest/use, and/or biotreat stormwater runoff. The clayey soils and low infiltration rates of the Project site make infiltration unlikely; therefore, bioretention basins are proposed as the primary treatment mechanism.

With respect to groundwater, the Project site is likely not conducive to aquifer recharge due to the clayey soils, as well as annual rainfall of under 14 inches that results in most precipitation soaking into the upper soil column and transpiring into the atmosphere rather than percolating. These factors suggest that existing groundwater recharge at the site is low and most runoff would likely be metered out of the basins via outflow orifices.

Through planning and design, newly installed stormwater drainage facilities would comply with the requirements of the MRP and all other applicable requirements and water quality standards. As a result, stormwater flows and associated sediments, particulates, and contaminants contained within the runoff would be collected at the Project site, managed and discharged to the existing municipal storm drain system and receiving waters consistent with permit requirements.

Compliance with the NPDES requirements is an existing regulatory requirement designed to address water quality impacts. However, even with implementation of NPDES requirements, operational stormwater impacts to Deer Creek and Horse Valley Creek as natural drainages immediately adjacent to the Project are potentially significant due to the density of the development proposed.

Conclusion

During construction of the proposed project, NPDES and city regulations would be implemented to ensure that a less-than-significant impact related to violation of water quality standards would result. However, because operations of the proposed project would result in a higher density of development than anticipated in the General Plan, operational impacts could result in a potentially significant impact related to violation of water quality standards.

To reduce potential impacts related to violation of water quality standards during operation, implementation of MM HYD-1 through MM HYD-3 would be required. MM HYD-1 would require submittal of a Final Drainage Plan to the city demonstrating compliance with applicable standards. MM HYD-2 would require review and approval of Project Drainage Plans by the Contra Costa County Flood Control and Water Conservation District to ensure the Project design is to their satisfaction. MM HYD-3 would require city approval of a Water Quality Management Plan for the Project specifying BMPs sufficient to adequately control stormwater runoff associated with the site. Implementation of MM HYD-1 through MM HYD-3 would ensure Project consistency with applicable General Plan policies and would reduce any impacts related to violation of water quality standards or waste discharge requirements during operation to a **less-than-significant** level.

Mitigation Measures

MM HYD-1 *Approval of the Drainage Plans by the city. Prior to the approval of each Tentative Map, the Project proponent shall submit a Final Drainage Plan for review and approval by the City of Brentwood Public Works Department. The Final Drainage Plan shall:*

- a. *Demonstrate that the Project's new stormwater facilities will reduce stormwater pollutants in discharge from the Project site in compliance with the standards in the East Contra Costa County MS4 Permit and consistent with the Stormwater C.3 Guidebook;*
- b. *Include analysis and measures to address vector control and algae in storm ponds. These measures shall include the Best Management Practices provided by the Contra Costa Mosquito & Vector Control District;*
- c. *Identify whether any basins will have water in the summer months to provide an emergency source of fire-fighting water, and if so, demonstrate that adequate stormwater storage capacity exists;*
- d. *Identify the hydrologic modeling methodology, to the satisfaction of the City of Brentwood Public Works Department, as well as the RWQCB.*

MM HYD-2 *Approval of the Drainage Plans by the Contra Costa County Flood Control and Water Conservation District. Prior to the issuance of a grading permit for each Phase, the Project proponent shall provide documentation that the Contra Costa County Flood Control and Water Conservation District has approved the Drainage Plans.*

MM HYD-3 *Approval of a Water Quality Management Plan. Prior to issuance of a grading permit for each Phase, the Project proponent shall submit to the City Engineer for review and approval, a final Water Quality Management Plan. The Water Quality Management Plan shall specify best management practices (BMPs) specific to the Project site, which shall be integrated into the Final Drainage Plan. The plan shall identify specific strategies, including the following.*

- *Site design features, including maximizing open space, preservation of natural drainages, and minimization of impervious surfaces.*
- *Source control features, including leveraging public outreach and education, use of appropriate landscaping, and covering trash storage areas.*
- *Treatment controls, including the use of bioretention basins. Such basins shall be sized and designed consistent with C.3 Guidebook provisions in the MRP.*

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*)

Groundwater Supplies

As described in Section 4.16, Utilities & Services, of this EIR, the Project would generate potable water demand of approximately 343 MGY, or 0.94 MGD (West-Yost, 2019). Based on a groundwater source of approximately 30 percent of that demand, the Project's groundwater demand would be approximately 103 MGY. Thus, the Project's demand represents less than 10 percent of the city's existing and projected surplus groundwater supply. This does not represent a substantial decrease in total groundwater supply. Further, the DWR has not designated the San Joaquin Groundwater Basin in overdraft. Therefore, impacts would be less than significant.

Groundwater Recharge

Given the low infiltration capacities of the clayey soils at the Project site, and the fact that most precipitation that soaks into the upper soil column transpires into the atmosphere rather than percolating into the deeper groundwater system, existing groundwater recharge at the site is low and will not dramatically change with the introduction of increased impervious cover under post-project conditions (Balance Hydrologics, 2019). Existing natural recharge capabilities are low (loss or infiltration rate of 0.17 inches per hour) and will be further reduced to an average of 0.08 inches per hour with the Project. However, as noted above, most precipitation does not migrate to the aquifer and thus this change in infiltration is less than significant. Although proposed bioretention basins may provide opportunities for some groundwater infiltration, basins would not be considered primary recharge zones. Most runoff is projected to be metered out of the basins via outflow pipes (Balance Hydrologics, 2019).

Conclusion

As a result, the Project would not result in substantial decreases in groundwater supply due to ample supply in the aquifer, would not significantly affect recharge capabilities due to existing the low permeability of the local soils, and would not interfere with groundwater management efforts due to the city's participation in regional efforts toward the general health of the aquifer. This is a ***less-than-significant*** impact.

Mitigation Measures

None 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:**

- i. **Result in substantial erosion or siltation on- or off-site?**
- ii. **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site?**
- iii. **Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?; or**
- iv. **Impede or redirect flood flows (*less than significant with application of site-specific mitigation measures*)**

The Project will require an entirely new storm drainage system to manage all post-project stormwater flows. A system of conveyance infrastructure and bio-retention basins with outflow controls has been designed on a preliminary basis as part of the Project. The introduction of all Project improvements and infrastructure will alter the existing drainage pattern of the immediate Project area.

To analyze potential adverse impacts associated with alteration of the existing drainage pattern of the Project area, the overall hydrologic study area was divided into four drainage management areas, or “DMAs” based on hydrologic points of concentration (Balance Hydrologics, 2019).

Below, specific potential hydrologic impacts associated with changes to the existing drainage pattern are analyzed. Table 4.10-2 below quantifies the pre- and post-project changes for each DMA.

DMA	Drains to	Pre-Project Area (acres)	Pre-Project Impervious %	Post-Project Area (acres)	Post-Project Impervious %
Northeast	Unnamed Tributary of Sand Creek	562	0	581	50
Northwest	Horse Valley Creek	92	0	74	60
Southeast	Deer Creek	74	3	96	75
Commercial	Deer Creek	114	3	90	25
Total		841	1	841	51

Source: Balance Hydrologics, 2019

Erosion and Siltation

The Project would alter the existing natural drainage pattern and route all flows into the new stormwater system. Currently, storm event flows rapidly increase and decrease within natural channels. These rapid uncontrolled changes can exacerbate erosion where flows are fastest and volumes are highest. The design of the system would detain flows in basins prior to controlled release to receiving waters. This system would serve to reduce the potential for substantial erosion on- and off-site as flows would be controlled within new pipelines internally and would include outfalls to manage the rate and volume of flows into natural channels. This alteration of drainage patterns from increases in impervious surface could result in increased flows and erosion/siltation in the local creeks and watershed, which could impede or redirect flood flows. Such changes are a potentially significant impact. However, design of all drainage facilities would be subject to current water quality control standards as identified in Impact HYD-1 and associated site-specific mitigation measures MM HYD-1 through MM HYD-3 would effectively mitigate this erosion impact.

Rate and Amount of Surface Runoff Related to On- or Off-Site Flooding

As identified in the Environmental Setting, the 100-year floodplains for both Horse Valley Creek and Deer Creek are narrow and parallel to the existing creek alignments. As discussed previously, impervious surface area would increase from approximately 1 percent to 51 percent of the Project site.

Table 4.10-3 below illustrates the pre- and post- project peak flow rates for each DMA.

DMA	10-year, 24-hour Storm		100-year, 24-hour Storm	
	Pre-Project (cfs)	Post-Project (cfs)	Pre-Project (cfs)	Post-Project (cfs)
Northeast	171	20	371	91
Northwest	41	30	89	59
Southeast	42	33	83	64
Commercial	47	21	91	56

cfs = cubic feet per second

Source: Balance Hydraulics, Inc., 2019.

This alteration of drainage patterns from increases in impervious surface area could result in increases in the rate and amount of surface runoff in the local creeks and watershed, which could result in flooding on- or off-site and/or impede or redirect flood flows. Runoff would be increased compared to existing conditions, and also as compared to development conditions assumed for SPA 2 in the 2014 General Plan EIR. These changes represent a potentially significant impact. However, as demonstrated by Table 4.10-3, the Project would reduce peak flow. This reflects the fact that the existing stormwater control basin in each DMA is optimized for peak flow control.

The preliminary hydrologic modeling indicates that the post-project condition, with stormwater controls (conveyance, basins and outfalls) in place, would serve to reduce peak storm flows compared to the existing natural condition, even with the increase in impervious surface. Because these calculations are preliminary, without review and approval of the Final Drainage Report and Water Quality Management Plan for the Project required per MM HYD-1 through MM HYD-3, the Project could have a potentially significant impact related to an increase in the rate or amount of surface runoff which could result in flooding on- or off-site and/or impediment or redirection of flood flows. Implementation of MM HYD-1 through MM HYD-3 would ensure that the Project's drainage system is designed sufficient to adequately control stormwater runoff associated with the site to the satisfaction of the city and Contra Costa County Flood Control and Water Conservation District.

Contribute Runoff Which Would Exceed the Capacity of Existing or Planned Stormwater Systems or Provide Substantial Sources of Polluted Runoff

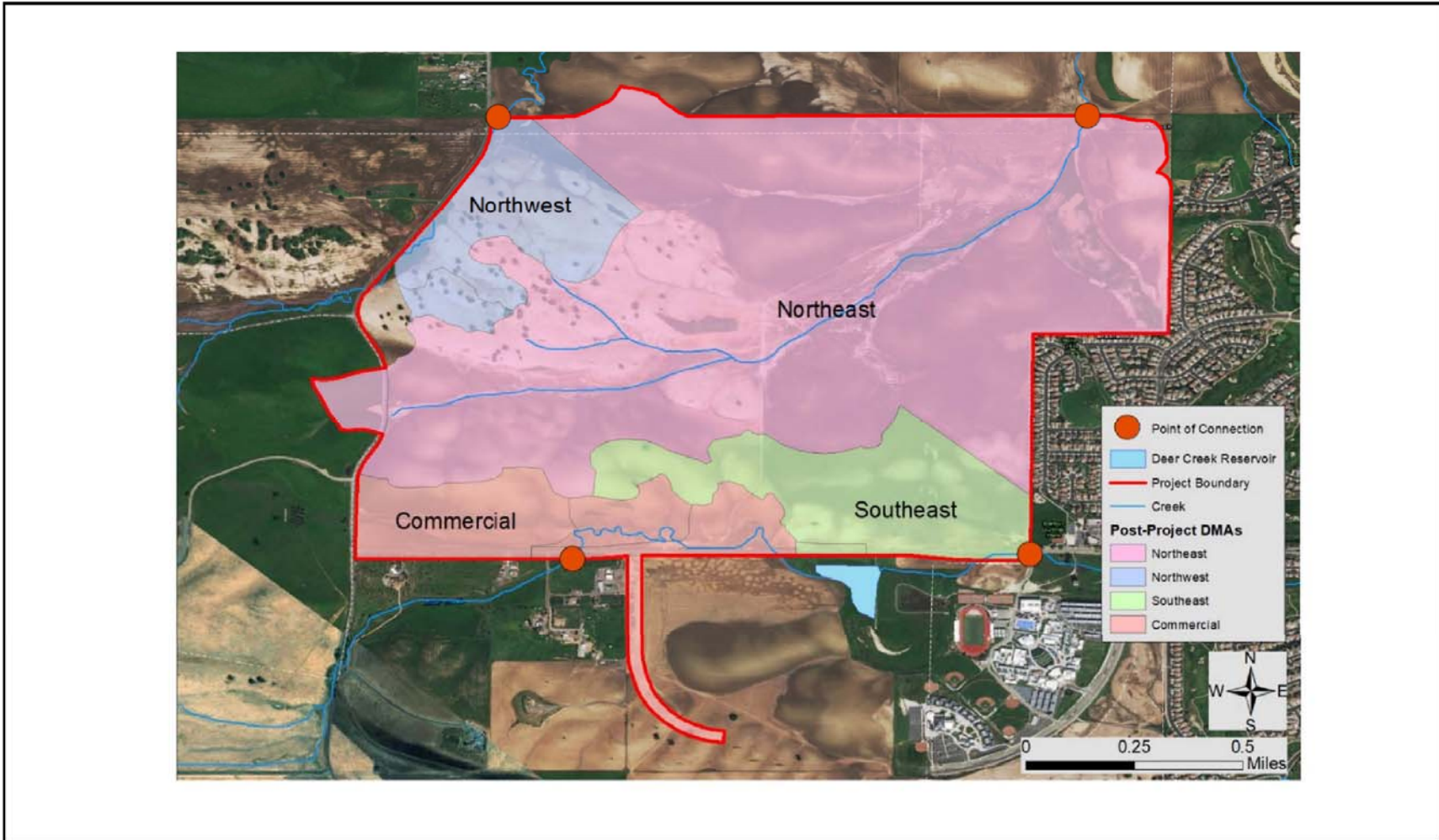
As shown in Figure 4.10-4, Horse Valley Creek barely enters the Project site along the reach where it flows east of Deer Valley Road. On the southern Project boundary Deer Creek enters and then leaves the Project site at culvert crossings under Balfour Road. The upstream culvert crossing has been identified as under-capacity and only a small fraction of the total creek flow is conveyed under Balfour Road, with the majority of flow entering Deer Creek Reservoir as overflow across the property south of Balfour Road. The restriction of flow through the Balfour Road culvert has decreased the magnitude of flood flows in Deer Creek for the 1,500- foot section within the Project boundary.

The points of connection for the DMAs are located where the future stormwater infrastructure will discharge to the immediate receiving waters such that changes in land use and drainage area at each connection could be accounted for in the modeling process.

At the macro scale, the overall combined watershed area within the Project would remain the same in terms of acreage and direction of drainage, as the Project grading concept is intended to maintain existing drainage boundaries to the extent practicable. The only DMA that will not have a new outfall is the Southeast DMA, which will be connected to an existing 30-inch storm drain line that currently drains to Deer Creek downstream of the Deer Creek Reservoir.

Pre-and post-Project characteristics of each DMA are shown in Table 4.10-2 above. As indicated by the table, impervious area within the Project area will increase from 1 percent to 51 percent. However, as shown in the peak flow analysis in Table 4.10-3, the runoff created by the Project would be adequately accommodated by the existing and planned stormwater drainage system as designed and modeled. As peak stormwater flows would be below pre-Project flows, impacts to these systems in terms of runoff volume could be less than significant; however, modeling is preliminary and methodology has not been reviewed. Thus, the Project could have a potentially significant impact on drainage patterns.

Figure 4.10-4
Drainage Management Areas



Although the Project would include on-site drainage infrastructure, the Project would be subject to the Flood Control District's drainage fee ordinance. Per the drainage fee ordinance, new development that involves construction of new impervious surfaces within the Flood Control District's jurisdiction is obligated to pay a fee to the drainage area fund for the project area. Fees paid to the drainage area fund are then used to construct necessary drainage improvements. Without payment of the applicable drainage fees to the Flood Control District, the Project could result in exceedance of the capacity of existing or planned systems, and a potentially significant impact on drainage infrastructure could occur.

The post-Project runoff would be urban runoff that would include pollution from driveways, roads, and parking lot, heavy metals, landscaping runoff and nutrients, and similar sources of common urban pollutants. Aquatic habitats are the most sensitive to this form of pollutant, which could be mobilized by rainfall and transported to Horse Valley Creek, Deer Creek and Sand Creek.

Existing regulatory requirements and water quality measures shall be incorporated into the Project as specified in MM HYD-1 through MM HYD-3. These measures would result in stormwater basins and bioretention facilities large enough to accommodate stormwater management for water quality treatment prior to discharge. No additional mitigation is necessary to address this issue.

Conclusion

Based on the above, the Project would increase the total area of impervious surfaces and alter the existing drainage pattern in a way that could result in an increase in erosion and siltation or increase the rate and amount of surface runoff above what has been anticipated for the Project site in the General Plan EIR, which could impede or redirect flood flows. Additionally, the increase in impervious surface area could contribute runoff water which would exceed the capacity of the existing stormwater drainage systems. While the preliminary modeling conducted by Balance Hydrologics concluded that pre-Project flows would not exceed current flows, the modeling is preliminary and until the plan has been reviewed and approved by the city, the Project could substantially alter the existing drainage pattern of the site or area, result in substantial erosion, substantially increase the rate or amount of surface runoff, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. In addition, MM HYD-5 would require payment of impact fees for new development, which would be necessary to ensure that the Project contributes towards construction and maintenance of city and Flood Control District stormwater drainage infrastructure. Implementation of MM HYD-1 through MM HYD-3 and HYD-5, as well as the Project's required compliance with the city's existing Design Guidelines and Municipal Code standards would reduce any impacts related to the alteration of drainage patterns to a ***less-than-significant*** level.

Mitigation Measures

MM HYD-4 *Implement MM HYD-1 through MM HYD-3.*

MM HYD-5 *The Project proponent shall pay all required impact fees for new development.*

Impact HYD-4: In a flood hazard, tsunami, or seiche zone, would the Project risk release of pollutants due to project inundation? (*less than significant*)

As analyzed above, the Project will not be subject to significant flooding risk, and housing development is not proposed within existing 100-year flood zones or within the small area of potential inundation from a failure of Deer Creek Dam in the southeast corner of the Project site¹. There are no large bodies of water present that could cause seiches, and the Project site is not subject to inundation from tsunami. In addition, the Project is primarily residential with limited commercial uses, and would not support significant amounts of pollutants that would be at risk from inundation compared to, for example, an industrial site. For these reasons, the risk of release of pollutants due to inundation is *less than significant*.

Mitigation Measures

None required.

Impact HYD-5: Would the off-site infrastructure improvements result in any impacts to water quality? (*less than significant with application of site-specific mitigation measures*)

As noted in Chapter 3, Project Description, of this EIR, off-site improvements associated with the Project would include the extension of a new off-site sewer line connecting between the northeastern portion of the Project site and an existing sewer line located in St. Regis Avenue, extension of a new irrigation line within Balfour Road, extension of American Avenue west and north to Balfour Road, and the widening and improvement of certain portions of Balfour Road from two to four lanes, as well as the improvement of an additional portion of Balfour Road.

Off-site Sewer Pipe Improvements

Alternatives 2 and 3 for the proposed off-site sewer improvements would both involve off-site ground-disturbing activity (trenching) to the east of the Project site boundary. The off-site sewer improvement area consists primarily of ruderal grasses, as well as portions of paved roadway. Off-site sewer pipe infrastructure would result in temporary ground disturbance. However, the sewer pipeline would be underground and would not create new impervious surfaces. Additionally, as discussed in Impact HYD-1 above, construction of the proposed project would include creation of a SWPPP and compliance with the NPDES General Construction Permit, which would ensure that construction associated with the off-site sewer pipe improvement would not create impacts associated with water quality.

Off-site Irrigation Pipe Improvements

The proposed off-site irrigation line improvement (Alternative 1) would occur entirely within the Balfour Road right-of-way. Installation of the below ground irrigation line would result in temporary ground disturbance. Upon installation, irrigated water would be supplied by the ECCID

¹ Please note that 100-year floodplain and dam failure risk have been removed from CEQA impact thresholds with the 2019 Guidelines.

to the Project site. While the off-site irrigation pipe improvements would create ground disturbance, adverse effects to water quality would be mitigated through regulations and requirements established by the city for construction, as well as compliance with MM HYD-1 through MM HYD-3. The Final Drainage Report required per MM HYD-1 would account for drainage conditions within off-site irrigation pipe improvement areas.

Off-site Roadway Improvements

American Avenue Extension

The American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. Extension of American Avenue to Balfour Road would involve grading and development activity that would create new impervious surfaces that could impact the existing drainage pattern. Although American Avenue would be extended through an area that is currently undeveloped, development of the area, including extension of American Avenue has been planned for in the 2014 General Plan. Consequently, impacts to water quality and runoff from the proposed extension of American Avenue have been previously analyzed in the 2014 General Plan EIR. Considering that the proposed roadway extension has been previously planned for and analyzed as part of the 2014 General Plan and General Plan EIR, and the water quality analysis was found to be less than significant, off-site development of the American Avenue Extension would not result in a significant impact related to water quality.

Balfour Road Widening

Consistent with the 2014 General Plan, Balfour Road would be widened from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection. The proposed Balfour Road improvements would introduce additional impervious area and reduce the Flood Control District's flowage easement for the Deer Creek Reservoir. However, these roadway improvements to Balfour Road would be implemented in collaboration with the Flood Control District as responsible agency to ensure that the overall capacity of the current and future proposed Deer Creek Reservoir is not reduced or negatively impacted. The added impervious area has been explicitly accounted for in the preliminary modeling conducted by Balance Hydrologics (2019) for the Project's stormwater plan. Additionally, the proposed widening has been previously analyzed in the 2014 General Plan EIR. Therefore, the Balfour Road widening would result in a less-than-significant impact on water quality.

Conclusion

Based on the discussions above, the off-site infrastructure improvements have either been anticipated by the city in the 2014 General Plan EIR or will be analyzed within in the Final Drainage Report, the preparation of which is required by MM HYD-1 above. Additionally, implementation of MM HYD-2, MM HYD-3, and MM HYD-5 included in this section would ensure that the Project would result in a ***less-than-significant*** impact related to water quality.

Mitigation Measures

MM HYD-6 *Implement MM HYD-1 through MM HYD-3 and MM HYD-5.*

Cumulative Impact Analysis

Impact HYD-6: **Would the project result in cumulative impacts to hydrology and water quality? (*less than significant with application of site-specific mitigation measures*)**

Groundwater, a regional resource that comprises a portion of the city's potable water system, is not confined to political boundaries. As such, other jurisdictions outside of the City of Brentwood (and cumulative development within the city) all play a part in the use and management of groundwater resources. However, as explained in this section, the groundwater basin is carefully managed and the projected long-term use of groundwater resources, including from the Project as well as past, present, and probable future projects, is not expected to adversely affect the basin. As analyzed in detail in Section 4.16 of this EIR, the City of Brentwood is projecting a year 2040 water total surplus of 3,798 MGY, and the city's reliance on groundwater (currently approximately 30% of water use) has been trending downward as a percentage of overall use. As such, and as demonstrated by the Project's Water Supply Assessment, the Project's contribution to the city's cumulative demand on groundwater would not be cumulatively considerable.

Changes to the pattern, quantity and quality of stormwater runoff can potentially result in downstream impacts as these flows are combined with cumulative development, incrementally increasing runoff volumes from increases in impervious surfaces. Surface water quality also has the potential to be impacted, as urban pollutants enter the drainage system and combine with urban flows and constituents from cumulative development.

For the Project, the site plan has been designed to detain the Project's stormwater flows on site, resulting in controlled releases to existing ditches and creeks that currently drain the site and reducing peak storm flows compared to existing conditions. Other cumulative development contributing to flows in the Lower Marsh Creek Watershed will also be required to comply with NPDES and local requirements for stormwater quantity and quality. The system of onsite controls, as planned as required by existing regulations, serves to regulate flows off site, minimizing the Project's contribution to the volume and rate of downstream flow and related issues such as increased erosion. These design features, together with implementation of mandatory State and local regulations addressing best practices in design, as required by MM HYD-1, would allow the Project to manage the rate and volume of flow, treat through biofiltration, minimize impacts to the existing storm drainage system, and reduce the Project's contribution to cumulative hydrologic impacts to a ***less-than-significant*** level

Mitigation Measures

MM HYD-7 *Implement MM HYD-1 through MM HYD-3 and MM HYD-5.*

4.11 Land Use and Population

4.11.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to land use and population that could result from implementation of the proposed project. The current condition was used as the baseline against which to compare potential impacts associated with implementation of the Project. The significance of each impact after the incorporation of identified mitigation measures is included at the end of this chapter. Information used to prepare this chapter came from the following sources:

- City of Brentwood General Plan Update, 2014
- City of Brentwood Housing Element, 2015
- City of Brentwood General Plan EIR, *Draft Program Environmental Impact Report* for the 2014 Brentwood General Plan Update, 2014
- Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), Plan Bay Area

Existing and Surrounding Land Uses

The Project site is primarily undeveloped, with the exception of one small outbuilding, and currently used for agricultural purposes including dryland grass farming and limited seasonal cattle grazing. There are no existing buildings within the area proposed for the American Avenue extension. As discussed in Section 4.9, Hazards, Hazardous Materials, and Wildfire, of this EIR, limited infrastructure exists on the Project site, including pipelines previously used for oil and gas exploration and a current active well and associated oil and gas infrastructure located in the northeast area of the Project site.

Adjacent land uses include the single-family Shadow Lakes and Brentwood Hills residential neighborhood to the east, single-family Deer Ridge residential neighborhood to the southeast, and agricultural and open space to the north, west, and south. The area to the north of the Project site is planned for residential development as set forth under the City of Antioch's General Plan. The area to the south of the Project site is planned for residential development under the City of Brentwood's General Plan. Heritage High School and Adams Middle School are located southeast of the Project site and are accessed from American Avenue. The proposed location for the extension of American Avenue, south of Balfour Road, is currently used for agricultural purposes, specifically, farming of dryland hay and safflower crops.

General Plan and Zoning Designations

The Project site is located in an area designated in the City of Brentwood General Plan as Special Planning Area (SPA) 2. The General Plan envisions the future development for SPA 2 as the following:

SPA 2 should include a significant area of protected open space, with open space protection prioritized for hillsides, sensitive natural habitat, and areas of exceptional scenic beauty. Residential uses may include Ranchette Estate and Very Low Density Residential. An increase in the overall residential density within SPA 2 may be allowed in order to accommodate the development of age restricted housing units. Limited areas of local-serving General Commercial may also be allowed within SPA 2.

The Project site currently does not have a zoning designation under the city's Zoning Ordinance and Zoning Map; however, the Project would include pre-zoning of the Project site in anticipation of its incorporation within the city's Urban Limit Line (ULL) and Sphere of Influence (SOI), and ultimately, its annexation to the city. The Project site is currently located in unincorporated Contra Costa County and is zoned A-4 Agricultural Preserve District under Title 8 of the Contra Costa County Code. The proposed location for the extension of American Avenue, south of Balfour Road, has a land use designation of Residential-Very Low Density (R-VLD). Land use entitlements required for development of the proposed project are discussed below.

Land Use Entitlements

Pre-Annexation Agreement

The Project Proponent intends to enter into a Pre-Annexation Agreement (Agreement) with the City of Brentwood in anticipation of annexation of the Project site into the city's boundaries. Annexation is subject to the Contra Costa County Local Agency Formation Commission Board (LAFCo) approval, and would occur following adoption of the ULL modification by the Initiative. The intent of the Agreement would be to establish the terms and conditions under which the landowner would agree to annex the property to the city and the city would agree to that annexation.

Urban Limit Line Amendment (By Voter Initiative Pursuant to Measures J And L)

The Project would require an amendment to the city's Urban Limit Line. The Brentwood City Council adopted the Contra Costa County Measure L Voter-Approved Urban Limit Line (Resolution No.2008-3) as the City of Brentwood's Urban Limit Line on January 8, 2008. As discussed in the General Plan, any changes to the ULL are required to be in accordance with the provisions of City Council Resolution No. 2008-3 and consistent with the provisions of Measure J (an extension of Contra Costa County's Measure C Sales Tax, requiring the adoption of an Urban Limit Line for each jurisdiction). Thus, any modifications to the ULL are subject to voter ballot initiative.

General Plan Amendment

Future development of the Project would require General Plan amendments to modify the ULL and make conforming text amendments to the General Plan, including language modifications to Chapter 7, "Growth Management" and Chapter 9, "Land Use", as well as amendments to various General Plan maps and figures to be consistent with the ULL modification, VDCSP, and

pre-zoning. If approved by voter ballot initiative, the Project would result in the following amendments to the General Plan:

- Description of the 2019 voter-approved modifications to the ULL and voter initiative process;
- Modification of the ULL;
- Description of the voter approval and subsequent LAFCo action as related to the realignment of city limit and SOI;
- Revisions to the General Plan Maps to include amendments to the current demarcations indicating the city limits and related infrastructure and circulation improvements;
- Modification of applicable text and graphics to re-designate SPA 2 as Special Planning Area 2/Vineyards at Deer Creek Specific Plan (SPA 2/VDCSP);
- Modification of allowed residential uses to allow for a mix of residential densities within the SPA 2/VDCSP, provided that overall density does not exceed three dwelling units per gross acre;
- Amend the General Plan Land Use Designation and Zoning Districts/Combining Zones Compatibility within the Land Use Element (Chapter 9) of the City of Brentwood General Plan to add the “VDCSP (Vineyards at Deer Creek Specific Plan)” zoning district;
- Revision of text to allow for Community Recreation and Open Space uses, as defined in the Vineyards at Deer Creek Specific Plan;
- Revision of text to allow for local-serving General Commercial within SPA 2/VDCSP, as provided in the VDCSP; and
- Description of density calculation based on total acreage of the SPA 2/VDCSP area.

Vineyards at Deer Creek Specific Plan

As noted above, the VDCSP area does not currently maintain a City of Brentwood zoning designation. Located in unincorporated Contra Costa County, it is zoned A-4 Agricultural Preserve District under Title 8 of the Contra Costa County Code. If the citizen’s Vineyards at Deer Creek Voter Initiative (Initiative) is approved by Brentwood voters, the VDCSP would constitute the zoning for the area as required by Government Code section 65451, which sets forth the basic content of specific plans. The VDCSP provides a framework for development of the proposed project, a residential community supporting both an age-restricted active-adult community and non-age restricted residential development set among an agriculturally-themed landscape of vineyards and olive groves. The VDCSP would serve as the implementing guide for developing and using land within the Project site. VDCSP Policies, as identified in Chapter 1 of the VDCSP, are intended to develop a residential community for both age-restricted and non-age restricted households within a community that provides for social, recreational, and housing needs while also providing high-quality architectural and landscape design, space for commercial/civic uses and the integration of the natural and built environments.

The VDCSP policies would also address site planning and design; mobility and circulation; infrastructure and public services; and resource management. The VDCSP contains land use regulations, site development standards, design guidelines, and conceptual public facility improvement plans, which together, govern development of the VDCSP area. The VDCSP was prepared in accordance with State law and with the General Plan, as amended in connection with the Project. The VDCSP would function as a hybrid document, in that it would contain a vision and a series of Goals/Policies, as well as Development Standards for implementation. As such, while there may be some references to certain chapters of the Brentwood Municipal Code, it is intended that the VDCSP would serve as a “one stop shop” for property owners, staff, and decision-makers (e.g., Planning Commission and City Council). The VDCSP would be adopted through a voter ballot initiative.

Development Agreement

If the Initiative is approved, the landowner and the city may enter into a Development Agreement (DA). The DA would further memorialize the landowner’s commitments to provide public benefits to the city and the community in return for assuring that the Project can be developed pursuant to the Initiative. The DA would be examined in light of this EIR to determine what additional environmental review, if any, must be undertaken. The Project Proponent and city would be required to confirm and substantiate that the terms of the DA are in conformance with the VDCSP and that any environmental effects are within the scope of those analyzed within this EIR. If the environmental effects are determined to be within the parameters and timeframe analyzed within this EIR, no additional environmental review would be required.

Existing and Projected Population

Contra Costa County

Contra Costa County has a current population of approximately 1,149,363 persons (Department of Finance [DOF], 2018a). Table 4.11-1 shows population numbers for the County as determined by the California DOF. The Association of Bay Area Governments (ABAG) estimates that the population of Contra Costa County will increase to 1,338,400 by 2040. As identified in the table, the population in Contra Costa County is forecasted to grow nearly 28 percent between 2010 and 2040.

Location	2010	2040	Change (2010-2040)	Percent Change
Contra Costa County	1,049,025	1,338,400	289,375	28%
Brentwood	51,481	80,917	29,436	57%

Source: Department of Finance, Table 2: E-5, 1/1/2018b; City of Brentwood, Urban Water Management Plan, 2015.

City of Brentwood

As of January 2018, the City of Brentwood had an estimated population of 63,042 persons, representing approximately 5 percent of Contra Costa County's total population (DOF, 2018a). This represents an approximate 12 percent increase in population from 2014, when the city's General Plan was comprehensively updated and adopted by the City Council. As identified in Table 4.11-1, the population in Brentwood is forecast to grow nearly 57 percent between 2010 and 2040 (City of Brentwood Urban Water Management Plan, 2015). Because the February 2016 ABAG update does not breakdown projections by city, projections included in the 2015 Urban Water Management Plan have been used for 2040 population and household projections.

Whereas the county's population is projected to increase by 289,375 or 28 percent between 2010 and 2040, population within Brentwood is anticipated to increase by 29,436 or 57 percent over the same time frame. As shown in Table 4.11-1, the population of Brentwood is expected to increase to 80,917 by 2040.

Existing and Projected Housing

Contra Costa County

As shown in Table 4.11-2, Contra Costa County has an estimated 413,923 housing units with an average of 2.90 persons per household (DOF, 2018b) and the City of Brentwood has approximately 20,154 units with an average of 3.18 persons per household.

Location	2018	Persons per Household	Vacancy Rate
Contra Costa County	413,923	2.90	5.3%
Brentwood	20,154	3.18	4.2%

Source: Department of Finance, Table 2: E-5, 1/1/2018b; City of Brentwood, 2015 (Housing Element).

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 Contra Costa County is estimated to be 5.3 percent (DOF, 2018). As identified in Table 4.11-3, households in Contra Costa County are forecasted to increase from 17,523 to 27,512 (approximately 24 percent) between 2010 and 2040.

Table 4.11-3: Household Projections for Contra Costa County and Brentwood: 2010-2040

Location	2010	2017	2040	Increase in Number of Households from 2010 to 2040 (%)
Contra Costa County	375,364	412,196	464,150	24
Brentwood	17,523	19,655	27,512 ¹	57

¹ Estimate based on percentage increase consistent with estimated population growth as shown in Table 4.11-1.

Sources: Department of Finance, Table 2: E-5, 1/1/2018b; City of Brentwood, 2015 (Housing Element); City of Brentwood, Urban Water Management Plan, 2015.

City of Brentwood

According to the DOF (2018), as of 2018, the City of Brentwood has approximately 20,154 housing units, and the 2015 City of Brentwood Housing Element reports an average of 3.18 persons per household (see Table 4.11-2). The vacancy rate for housing in the city was estimated to be 4.2 percent (DOF, 2018). There is no existing residential development on the Project site or the proposed location for the extension of American Avenue, south of Balfour Road. According to the 2014 General Plan EIR, 36.3 percent of the city’s land area is classified as existing single-family residential use. Approximately 1 percent of the city’s land area is classified as existing multi-family use, which includes active-adult housing.

ABAG determines total housing need for each community in the region based on employment opportunities, market demand for housing, availability of suitable sites and public facilities, community patterns, types and tenure of housing needs, and other factors. The city’s Regional Housing Needs Allocation (RHNA) allocation for 2014–2022 is shown in Table 4.11-4. The city is required to ensure that sufficient sites that are planned and zoned for housing can accommodate its need and to implement proactive programs that facilitate and encourage the production of housing commensurate with its housing needs. The allocation is adjusted to avoid an over-concentration of lower income households in one jurisdiction. In addition to the allocation in the four income categories, recent legislation requires cities to consider the needs of extremely low-income households. The extremely low-income need (0 to 30 percent of the area median income) is 50 percent (117 units) of the allocated very low-income need (234 units).

Housing Characteristics

As of 2018, the City of Brentwood had approximately 20,154 housing units (see Table 4.11-2). As shown in Table 4.11-5, approximately 87 percent of the housing units are single-family detached homes and approximately six percent are multi-family homes comprised of five units or more.

Income Level	Total Need	Units Built (October 2014)	Remaining Need
Extremely low	117	0	117
Very low	117	1	116
Low	124	1	123
Moderate	123	27	96
Above Moderate	279	290	0
Total	760	319	452

Source: City of Brentwood Housing Element, 2014.

Income Level	Percent of Total Housing
Single Family (detached)	87%
Five Plus Units	6%
Single Family (attached)	3%
Two to Four Units	3%
Mobile Homes	2%

Source: City of Brentwood General Plan EIR, 2014.

According to the Plan Bay Area Forecast of Jobs, Population, and Housing, the number of households is expected to continue increasing in Brentwood at a lesser rate than in Contra Costa County as a whole. As shown in Table 4.11-3, the number of households in the city is expected to be 27,512 by 2040.

The General Plan includes provisions for meeting the requirements of housing element law, including “promoting housing opportunities for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability” (Government Code section 65583(c)(5)); preparing “an analysis of population and employment trends, analysis and documentation of household characteristics, housing characteristics, including overcrowding, and housing stock condition”; and analyzing “special housing needs” such as with the elderly, disabled, and those requiring emergency shelter (Government Code section 65583(a)).

Senior and Pre-Retirement Age Housing

Between 2010 and 2040 the Bay Area’s population is expected to grow significantly older. As discussed in the 2015 Brentwood Housing Element, people who were 65 and over represented 11 percent of Brentwood’s total population in 2010, an increase of 1 percent over the 2000 65 and over population. According to the Housing Element, the median age of Brentwood residents between 2000 and 2010 decreased from 38.5 in 2000 to 35.6 in 2010.

Over the last several years, the city has approved a number of recent developments for seniors (age 55+). These include developments at Summerset, The Vineyards, Cortona Park, Eskaton Lodge, Brentwood Senior Commons, Sycamore Place 2, as well as a pending 121-unit assisted living facility on Balfour Road (known as Merrill Gardens), a project which was approved in early

May 2018 and is expected to commence construction in 2019.¹ The city has been successful in facilitating the development of these senior facilities. As discussed in the city's Housing Element, participants in a workshop for the Housing Element held on September 22, 2014, identified a need for more housing for seniors, disabled persons, low income households, and persons at risk of homelessness. The city expects a continuing demand for various types of age restricted/assisted living facilities as the active senior population ages. This will result in the need for continuous housing options, ranging from independent living units to nursing home facilities.

4.11.2 Regulatory Setting

State

California Housing Element Law

Government Code Sections 65580–65589.8 include provisions related to the requirements for housing elements of local government general plans. Among these requirements, some of the necessary elements include an assessment of housing needs and an inventory of resources and constraints relevant to the meeting of these needs. Additionally, to assure that counties and cities recognize their responsibilities in contributing to the attainment of the State housing goals, the statute calls for local jurisdictions to plan for, and allow the construction of, a share of the region's projected housing needs. The share is known as the RHNA. The RHNA for the Bay Area is based on a Regional Housing Needs Plan (RHNP) developed by the local council of government. ABAG is the lead agency for developing the RHNP for a nine-county area that includes Contra Costa County and the City of Brentwood. The city's RHNA that covers the period from mid-2007 through 2014 includes 2,705 units. The city's RHNA for 2014 through 2022 includes 760 units.

Regional

Association of Bay Area Governments

ABAG is the official comprehensive regional planning agency for the San Francisco Bay area, which is composed of nine counties, including 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 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"

¹ City of Brentwood, Community *Development* Department, *Projects*. 2018. Available at: https://www.brentwoodca.gov/gov/cd/planning/development_projects/default.asp.

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 Environmental Impact Report (EIR). The second such regional housing and transportation plan adopted by MTC and ABAG, Plan Bay Area 2040 is a long-range blueprint to guide transportation investments and land-use decisions through 2040, while meeting the requirements of California's landmark 2008 Senate Bill 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 greenhouse gas 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.

Contra Costa County Code-65/35 Land Preservation Standard

Consistent with Measure C, the 1991 voter-approved ballot measure that established the County's original urban limit line, the Contra Costa County Code includes a "65/35 land preservation standard" requiring that (i) urban development in the County be limited to no more than 35 percent of the total land in the County and (ii) that the remaining 65 percent of total land must be preserved for agriculture, open space, wetlands, parks and other non-urban uses.

East Contra Costa County Habitat Conservancy

The East Contra Costa County Habitat Conservancy is a joint exercise of powers authority formed by the Cities of Brentwood, Clayton, Oakley, and Pittsburg, and Contra Costa County to implement the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP or Plan). The HCP/NCCP provides a framework to protect natural resources in eastern Contra Costa County, while improving and streamlining the environmental permitting process for impacts on endangered species. The HCP/NCCP allows Contra Costa County, the Contra Costa County Flood Control and Water Conservation District, the East Bay Regional Park District, and the cities of Brentwood, Clayton, Oakley, and Pittsburg (collectively, the Permittees) to control endangered species permitting for activities and projects in the region in which they perform or approve activities. The HCP/NCCP also provides for comprehensive species, wetlands, and ecosystem conservation and contributes to the recovery of endangered species in northern California.

East Contra Costa County Habitat Conservation Plan

The East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP or Plan) is intended to provide regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for endangered species and wetland regulations. The Plan was developed by a team of scientists and planners with input from independent panels of science reviewers and stakeholders. Within the 174,018-acre inventory area, the Plan will provide permits for between 8,670 and 11,853 acres of development and will permit impacts on an additional 1,126 acres from rural infrastructure projects. The Preserve System to be acquired under the Plan will encompass 23,800 to 30,300 acres of land that will be managed for the benefit of 28 species as well as the natural communities that they, and hundreds of other species, depend upon. By proactively addressing the long-term conservation needs, the Plan strengthens local control over land use and provides greater flexibility in meeting other needs such as housing, transportation, and economic growth in the area. The City of Brentwood approved an ordinance in 2007 that requires future development projects to comply with the HCP/NCCP. The HCP/NCCP is discussed in greater detail in Section 4.4, Biological Resources, of this EIR.

Transportation 2035 Plan

The *Transportation 2035 Plan* (MTC 2009) is the most recently adopted Regional Transportation Plan prepared by the Metropolitan Transportation Commission (MTC) for the San Francisco Bay Area region. The *Transportation 2035 Plan* specifies how some \$218 billion in anticipated Federal, State, and local transportation funds would be spent in the nine-county Bay Area during the next 25 years. Consistency with applicable air quality plans is demonstrated through the *Transportation Air Quality Conformity Analysis for the Transportation 2035 Plan* (MTC 2009), which was prepared using population forecasts for each local jurisdiction as inputs into the regional travel demand model.

Contra Costa Local Agency Formation Commission

The objectives of a LAFCo are to encourage the orderly formation of local government agencies, preserve agricultural land, and discourage urban sprawl. LAFCOs review proposals for the formation of new local government agencies and regulate changes, such as boundary lines, of existing agencies. The Contra Costa LAFCo has authority over land use decisions in Contra Costa County affecting local agency boundaries. Its authority extends to the incorporated cities, including annexation of County lands into a city, and special districts within the county. The project site is currently located outside the city's SOI and ULL and would require annexation. If the proposed project were approved, the City of Brentwood would provide municipal services.

Local

City of Brentwood General Plan

The City of Brentwood General Plan (2014) is the comprehensive planning document governing development within the Project, and contains goals, policies, and actions describing the community's vision for economic viability, livable neighborhoods, and environmental protection. The General Plan establishes Policies for the orderly growth and development of the City of Brentwood. Among other purposes, the General Plan identifies policies necessary to protect and enhance those features and services which contribute to the quality of life of the community in which it serves.

A general plan functions as a guide for the type of community that is desired for the future and provides the means to achieve it. The City of Brentwood General Plan contains the following elements: Circulation; Community Services and Facilities; Conservation and Open Space; Economic Development; Fiscal Sustainability; Growth Management; Infrastructure; Land Use; Noise; Safety; and Housing. These are further defined below.

Circulation. The Circulation Element provides the framework for decisions concerning the city's multimodal transportation system, which includes roadway, transit, bicycle, pedestrian, and rail modes of travel. The Circulation Element provides for coordination with the Contra Costa Transportation Authority, which serves as the coordinating agency for transportation funding for Contra Costa County.

Community Services and Facilities. The city and various local public agencies and districts provide a range of public services that are integral to providing a high quality of life for Brentwood's residents. The Community Services and Facilities Element includes goals, policies, and actions that address the following public services and facilities: Parks, Trails, and Recreation Facilities; Police Services; Fire Protection Services; Schools; Civic, Library, Medical, and Other Community Facilities.

Conservation and Open Space. The Conservation and Open Space Element provides the framework to protect, maintain, and enhance Brentwood's natural resources. The Conservation and Open Space Element balances the overall vision of the General Plan for preserving Brentwood's high living standards, agricultural heritage, and natural resources while simultaneously providing for economic development and balanced growth.

Economic Development. The Economic Development Element seeks to sustain and diversify the city's economy, recognizing the importance of supporting existing and local businesses while broadening and expanding the employment base and economic opportunities within the city. Long-term fiscal sustainability would be supported by economic growth from increasing the range of business, commercial services, and high-quality jobs in the Project. Providing a broader economic base is intended to improve the city's economic vitality while increasing access for residents to local goods and services and local employment opportunities.

Fiscal Sustainability. The Fiscal Sustainability Element presents goals, policies, and actions relating to the city’s long-term financial health and prosperity. The ability of the city to provide services such as police protection, parks, recreation, code enforcement, planning, and public works is dependent on the city collecting adequate revenues.

Growth Management. The Growth Management Element is part of the General Plan because the city wants to ensure orderly and fiscally sustainable growth, while maintaining high levels of public services and infrastructure, and because Contra Costa County voters approved a 0.5 percent sales tax increase in November 1988, commonly known as “Measure C,” that includes both Transportation Improvement and Growth Management Programs (GMP).

Infrastructure. The Infrastructure Element includes goals, policies, and actions that address the following infrastructure services and facilities: Water Supplies; Sewer Services; Storm Drainage Infrastructure; and Solid Waste Disposal. While not specifically required by State law for inclusion in the General Plan, the Infrastructure Element is a critical component in meeting the infrastructure and utility services needs of businesses and residents.

Land Use. The Land Use Element provides for a development and resource conservation pattern that preserves and protects the high-quality family-oriented neighborhoods throughout Brentwood and the agricultural lands throughout the city’s Planning Area, while promoting opportunities for economic development, high-quality local job growth, and fiscal sustainability. The Land Use Map (Figure LU-1) depicts the city’s vision for how open space, commercial, industrial, agricultural, residential, and other uses would occur in the city limits and the surrounding areas.

Noise. The Noise Element is one of the seven mandatory elements of the General Plan. The overall purpose of the Noise Element is to address major noise sources and to promote safe and comfortable noise levels throughout Brentwood. The Noise Element contains goals, policies, and actions that seek to reduce community exposure to excessive noise levels through the establishment of noise level standards for a variety of land uses.

Safety. The Safety Element provides the framework to reduce risks associated with a range of environmental and human-caused hazards that may pose a risk to life and property in Brentwood. Inclusion of the Safety Element in the General Plan is required by State law.

Housing. Development of housing in Brentwood is guided by the goals, policies, and actions contained in the Housing Element. Government Code Section 65400(a)(1) requires the city’s planning agency (i.e., the Community Development Department) to make recommendations to the City Council that identify reasonable and practical means for implementation of the General Plan. The Community Development Department is also required to provide an annual report to the City Council, the State Office of Planning and Research (State Clearinghouse), and the State Department of Housing and Community Development that includes the status of the General Plan, the city’s progress in the implementation of the General Plan, and the city’s progress in meeting its allocation of regional housing needs and removing governmental constraints to the maintenance, improvement, and development of housing.

The City of Brentwood updated and adopted its Housing Element on April 28, 2015. Brentwood's Housing Element, which focuses on the regional housing needs for the period between 2014 and 2022, includes all the mandatory sections as identified by California law, including an inventory of land parcels that could accommodate its RHNA as set by ABAG. The element outlines housing production objectives, describes strategies to achieve those objectives, examines the local need for special needs populations, identifies adequate sites for housing production serving various income levels, analyzes constraints to new development, and evaluates the Housing Element's consistency with other General Plan elements.

General Plan Policies for land use and population that are relevant to the Project are addressed in this section. Where potential inconsistencies exist, if any, they are addressed in the respective analysis below.

Land Use Goal 1: Establish a land use pattern in Brentwood that provides for a diverse, self-sufficient community that offers a broad spectrum of job opportunities, housing types, community facilities, and commercial services.

- **Policy LU 1-4:** Require new development to occur in a logical and orderly manner, focusing growth on infill locations and areas designated for urbanization on the Land Use Map (Figure LU-1), and be subject to the ability to provide urban services, including paying for any needed extension of services.
- **Policy LU 1-5:** Encourage new development to be contiguous to existing development, whenever possible.
- **Policy LU 1-6:** Encourage early annexation of all lands within the City's Sphere of Influence, provided the following criteria are met:
 1. The land is within the Sphere of Influence and Urban Limit Line;
 2. The capacity of the water, sewer, fire, school, and police services are adequate to service the area; and
 3. The area to be annexed is contiguous to existing developed areas.
- **Policy LU 1-8:** Maintain and/or establish buffers and appropriate open space areas between Brentwood and the neighboring cities of Antioch and Oakley.
- **Policy LU 1-9:** Support and encourage the annexation of SPA 2 (as depicted on the Land Use Map) into the city of Brentwood.
- **Action LU 1e:** Review and periodically amend, as needed, the existing boundary agreement with the City of Antioch. Prioritize the placement of SPA 2 within Brentwood's planned expansion boundary.

Land Use Goal 2: Establish and maintain residential neighborhoods as safe and attractive places to live with convenient access to commercial services, recreational facilities, employment opportunities, public services, and other destinations.

- **Policy LU 2-1:** Maintain Brentwood’s predominant land use of single family residential, while providing for a mix of housing types throughout the community, in accordance with the Housing Element.
- **Policy LU 2-2:** Development at the interface of residential land use designations with other designations shall be designed to ensure compatibility between the uses and to reduce any potential negative impacts associated with aesthetics, noise, and safety.
- **Policy LU 2-3:** Where appropriate, encourage clustered development and the clustering of housing so that larger areas of open space may be permanently preserved. Clustered development may provide flexibility in site design and layout to allow for smaller lot sizes, but shall not allow a project to exceed the gross density ranges established under Policy LU 1-2.
- **Policy LU 2-4:** Locate residences away from areas of excessive noise, smoke, or dust, and ensure that adequate provisions, including buffers or transitional uses, are made to ensure the health and well-being of existing and future residents.
- **Policy LU 2-5:** Encourage neighborhood development that includes convenience commercial uses and school uses, but restrict the amount of retail strip development and ensure that commercial development is well integrated into the community.
- **Policy LU 2-6:** Encourage new development that is convenient to bus or future passenger rail transit lines (e.g. BART service) in order to reduce automobile dependence.
- **Policy LU 2-7:** Strongly encourage residential development in the City in a balanced and efficient pattern that reduces sprawl, preserves open space, and creates convenient connections to other land uses.
- **Policy LU 2-8:** Provide for a variety of residential products through the Zoning Ordinance in order to accommodate the housing needs of all segments of the Project’s population.

Land Use Goal 3: Provide for a diversified mix of strong retail centers, service commercial activities, manufacturing enterprises, and high-paying employment opportunities that contribute to Brentwood’s economic well-being.

- **Policy LU 3-10:** Require adequate buffers and/or architectural consideration to protect residential areas, developed or undeveloped, from intrusion of nonresidential activities that may degrade the quality of life in such residential areas.

Land Use Goal 4: Maintain a high quality natural environment and recreational opportunities in and around Brentwood.

- **Policy LU 4-1:** Protect those environmental features that make Brentwood an attractive and desirable place to live, work, play, and visit.
- **Policy LU 4-2:** Require development projects to provide adequate and appropriately located land, easements, or other accommodation for recreational uses, including neighborhood parks, existing and planned trails, and connections to existing or planned

trails and other recreational resources as set forth in the Conservation and Open Space Element, the Community Services and Facilities Element, and the Circulation Element.

- Policy LU 4-6: Protect selected significant habitat areas for their ecological, educational, scenic, and recreational values.

Land Use Goal 6: Maintain and enhance the visual quality of Brentwood by promoting the highest standards of architecture and site design for all development projects, both public and private.

- Policy LU 6-1: Create residential areas in Brentwood that include innovative designs which are linked with bikeways and pedestrian trails, commercial and employment centers, and transit stops.
- Policy LU 6-2: Maintain the character of existing neighborhoods by ensuring new development is compatible in style, size, color, and footprint with the existing residences in the neighborhood.
- Policy LU 6-3: Residential neighborhoods should be well-defined with park and recreation facilities, schools, open space, and neighborhood commercial land uses that incorporate unifying landscape and architectural themes and provide visible functional centers.
- Policy LU 6-4: Apply design standards regulating setbacks, landscaping, screening, and architectural style to new residential development and rehabilitation projects.
- Policy LU 6-5: The use of soundwalls to attenuate noise is discouraged; however, it is acknowledged that the use of soundwalls along thoroughfares is often necessary to maintain noise standards. The City's preferred method of attenuating adverse noise levels is to utilize a combination of frontage roads, earth berming, and larger building setbacks along thoroughfares in new subdivision design. When soundwalls must be constructed, they should be designed in a meandering pattern and setback a minimum average distance of ten (10) feet from the adjacent right-of-way with extensive landscaping in front of the wall.

Housing Goal 1: Provide a diversity of housing opportunities to enhance the City's living environment and to satisfy the shelter needs of all Brentwood residents.

- Policy H 1-1: Provide adequate residential sites with densities distributed throughout the City for the production of new for-sale and rental residential units, emergency shelters, and transitional and supportive housing sites for existing and future residents.
- Policy H 1-2: Endeavor to ensure the supply of safe, decent, and sound housing for all residents.
- Policy H 1-3: Provide incentives for water and energy conservation measures in new housing and substantial housing rehabilitation projects.
- Policy H 1-4: Ensure that available multi-family rental units for Brentwood's population include an adequate variety of choices of product types, price, unit sizes, amenities, and location of housing in the community and maintain an adequate supply of rental

housing available to low- and moderate-income persons. Minimize displacement of tenants, particularly seniors, disabled, and low- and moderate-income residents, in rental apartments and encourage ownership of lower-cost residential units by prior renters through the regulation of condominium conversions.

Housing Goal 2: Provide housing that is affordable to all socio-economic segments of Brentwood's population.

- **Policy H 2-1:** Provide housing affordable and appropriate for a variety of Brentwood households at all economic levels throughout the City.
- **Policy H 2-2:** Support the use of available local, County, State, and Federal housing assistance programs.

Housing Goal 3: Achieve and maintain an equitable distribution of housing for all economic groups throughout the community.

- **Policy H 3-1:** Facilitate the integration of new lower income households into the fabric of the community, avoiding, where feasible, identifying housing developments or portions of a development as being restricted to very low, low, or moderate income households
- **Policy H 3-2:** Facilitate infill and new residential projects within all areas of the City as a means of making each neighborhood more attractive for all types of housing units thereby encouraging future private economic investment in the community.
- **Policy H 3-3:** Maintain an inventory of lands that equitably distributes, through General Plan land use designations and zoning, low, medium, high, and very high density residential development throughout the community.

Housing Goal 4: Provide equal housing opportunities for all residents of Brentwood.

- **Policy H 4-1:** Encourage and support the enforcement of laws and regulations prohibiting discrimination in lending practices and in the sale or rental of housing.
- **Policy H 4-2:** Assure the provision of housing opportunities for those residents of the City who have special housing needs, including farmworkers, the elderly, disabled, developmentally disabled, large families, and the homeless.

Community Services and Facilities Goal 5: Enhance the quality of life for all Project residents through the provision of cultural and social resources including quality schools, libraries, medical, and other community services and facilities.

- **Policy CSF 5-18:** Encourage services and programs that meet the unique needs of seniors within Brentwood, including the establishment of medical facilities, transportation options for seniors and people with mobility disabilities, senior centers, and programs that provide for in-home care and aging-in-place.

City of Brentwood Zoning Ordinance

Title 17 of the Brentwood Municipal Code is the city's Zoning Ordinance. The Zoning Ordinance carries out the policies of the city's General Plan by classifying and regulating the uses of land and structures within the city, consistent with the General Plan. The Zoning Ordinance is adopted to protect and promote the public health, safety, comfort, convenience, prosperity, and general welfare of residents and businesses in the city.

The Affordable Housing Program

In 2003, the city adopted an Affordable Housing Ordinance (Chapter 17.725) to ensure new housing developments within the city include new affordable housing opportunities. The purpose of the Affordable Housing Ordinance is to enhance the public welfare and assure that further housing development contributes to the attainment of the city's housing goals as described in the Housing Element of the General Plan, by creating, preserving, maintaining, and protecting affordable housing for households of very-low, low, and moderate income. The Ordinance calls for affordable units to be dispersed with the market rate housing, so as to visually blend in with residential neighborhoods.

The city allows higher densities consistent with the city's Density Bonus Ordinance, in accordance with State law.

1992 Memorandum of Understanding

The Project site is currently unincorporated and located outside the spheres of influence of both the City of Brentwood and the City of Antioch. In 1992, the cities of Antioch and Brentwood adopted a Memorandum of Understanding (MOU), which expires in October 2022, that recognizes the mutual interest of the two cities in resolving boundary issues, including the SPA 2 property. Along with several development standards (open space buffers, ridgeline protection, grading, visual, tree protection, circulation, etc.), the MOU stipulates that neither city shall file to change its SOI or to annex within the boundary line of the other city, for so long as the MOU remains in place. If the Project were to proceed, the MOU would be terminated by the Brentwood City Council.

4.11.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for land use and population were derived from the Environmental Checklist in the State CEQA Guidelines Appendix G, as amended effective December 2018, as well as the previously certified 2014 General Plan EIR. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria.

- 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.
- 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.

Method of Analysis

Land Use and Planning

This section qualitatively evaluates whether the Project would physically divide an established community or result in other land use conflicts. Existing and planned land uses in the project vicinity were identified based on information provided by the city. This section also assesses the consistency of the proposed project with the goals and policies of the city's General Plan, as well as other applicable local environmental and planning documents.

Population and Housing

Potential impacts of the proposed project related to population and housing were evaluated based on a review of the City of Brentwood General Plan, the City of Brentwood General Plan EIR, and the city's Municipal Code. The standards of significance listed above are used to determine the significance of any potential impacts.

Impacts of the Proposed Project

Impact LU-1: **Would the project physically divide an established community? (*no impact*)**

Projects that are typically considered to have the potential to divide an established community include the construction of new freeways, highways, or roads, or other uses that physically separate an existing or established neighborhood. A project could have a significant environmental impact if its size or configuration would create a physical barrier or other physical division within an established community.

The proposed project would be located adjacent to existing residential development to the east, residential development planned by the City of Antioch to the north, and potential future residential development planned by the City of Brentwood to the south. The Project site does not currently provide any connection to existing surrounding neighborhoods to the east, nor does it provide connectivity or accessibility to other neighboring uses. As such, neither the residential development to the east nor other existing or planned communities surrounding the Project site would be physically divided by the proposed project. In compliance with General Plan Policy LU 1-8, the Project would include buffers and open space areas between Brentwood and Antioch as well as a 100-foot landscaped buffer that would be located along the eastern boundary of the Project where it adjoins existing residential development. The buffers would

not physically divide the communities but rather, would provide a landscaped transition between communities and a cohesive aesthetic.

The Project site currently does not provide a connection to surrounding communities. Therefore, the Project would not interrupt existing connections to neighboring sites. Connectivity between the proposed project and the sites to the east and north would be enhanced with the implementation of a proposed interconnected system of bikeways, sidewalks, and multi-use paths throughout the Project site. This system of paths would provide connections to regional bike and pedestrian facilities. This may include the construction of a multi-use public path along the east side of Deer Valley Road that provides pedestrian and bike connectivity towards the East Bay Regional Park District property to the west, and the City of Antioch to the north.

Additionally, off-site improvements would include widening a portion of Balfour Road, extending American Avenue west and north to Balfour Road, and providing funding that could potentially be used for future safety improvements to Deer Valley Road. These improvements would enhance vehicle and pedestrian safety and would connect neighborhoods. The extension of American Avenue would improve circulation and provide a connection between the neighboring residential neighborhoods and Heritage High School and Adams Middle School.

The Project does not include features such as a highway or above ground infrastructure that would preclude or impede movement through the Project site, such that a permanent disruption in the physical arrangement of the surrounding community or isolation of that community would occur. Implementation of the proposed project would not physically divide an established community and ***no impact*** would occur.

Mitigation Measures

None required.

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*)

Specific potential impacts due to conflicts with adopted land use plans, policies, and regulations are discussed below. Impacts related to conflicts with plans, policies, and regulations relate, in some cases, to specific issue areas such as noise, air quality, visual resources, and traffic. The following land use compatibility analysis is therefore supported, in part, by other specific sections within this EIR, as referenced below.

The VDCSP, including its Design Guidelines for both residential and non-residential development, has been prepared in accordance with California Government Code Section 65451 and in conformance with and in furtherance of the General Plan Goals and Policies. With implementation of the VDCSP, the Design Guidelines proposed therein would replace the city's

previously approved Residential and Industrial and Commercial Design Guidelines for development within the Project site. The VDCSP Design Guidelines include parameters for site design, architecture, lighting, landscaping, and signage while the Specific Plan Development Standards establish rules for the physical development of property, including building placement, scale and form, and site design, all of which are factors in ensuring land use compatibility. Project proposals within the Specific Plan area would apply the Specific Plan Design Guidelines (included as Chapter 6 of the Specific Plan) and Specific Plan Development Standards (included as Chapter 3 of the Specific Plan) as the sole design guidelines and development standards applicable to residential and non-residential development within the Specific Plan area.

Plan Bay Area 2040

As discussed above, MTC and ABAG's *Plan Bay Area 2040* is the Bay Area's Regional Transportation Plan (RTP)/Sustainable Community Strategy (SCS). Consistent with *Plan Bay Area 2040* GHG emission reduction targets and citywide goals, the Project would implement Title 24 guidelines to reduce emissions.

The city has an increasing need for senior housing solutions as expressed in the city's Housing Element. To accommodate a growing senior population, the city has approved a number of recent developments for seniors (age 55+). This will contribute to the provision of continuous housing options, ranging from independent living units to nursing home facilities. Consistent with *Plan Bay Area 2040*, the proposed project would provide varied housing types for active adults.

The adopted Plan Bay Area does not include population projections at the local level, but rather presents regional projections and information related to changes in the number of households in the Plan area. Plan Bay Area 2040 states that by 2040 the San Francisco Bay Area is projected to add 2.1 million people, increasing total regional population from 7.2 million to 9.3 million, an increase of 30 percent or roughly one percent per year. The proposed Project would accommodate a maximum of 2,400 units with an estimated population of 4,437, which is well within the regional projections of Plan Bay Area 2040.

Contra Costa County Code 65/35 Land Preservation Standard

As discussed in the analysis in Section 4.2, Agricultural and Forest Resources, of this EIR, the proposed project is consistent with the Contra Costa County Code's 65/35 Land Preservation Standard. (Note that this standard does not apply to sites within Brentwood city limits, and annexation of the Project site into the City of Brentwood would render this standard inapplicable to the Project site thereafter.)

East Contra Costa County Habitat Conservation Plan

As discussed in the analysis in Section 4.4, Biological Resources, of this EIR, the proposed project is consistent with the East Contra Costa County Habitat Conservation Plan.

Transportation 2035 Plan

As discussed in the analysis in Section 4.14, Transportation and Circulation, of this EIR, the proposed project is consistent with the Transportation 2035 Plan.

1992 Memorandum of Understanding

The Project is currently located outside the spheres of influence of both the City of Brentwood and the City of Antioch. Because the Project requests annexation into the City of Brentwood, prior to approval of the annexation of the Project or a modification to the SOI to include the Project site, the cities would need to amend or terminate the MOU.

City of Brentwood Residential Design Guidelines

The residential design guidelines included in Chapter 6 of the VDCSP describe and illustrate building designs, concepts, and features meant to promote the high-quality development that is envisioned for the VDCSP area. As discussed above, the VDCSP, including the Residential Design Guidelines, was prepared in accordance with the General Plan Goals and Policies, and are designed to be consistent with the city's residential design guidelines. If the VDCSP is approved by the Brentwood voters by ballot initiative, development of the Project would comply with the design guidelines specifically crafted for use within the VDCSP area. Implementation of these guidelines would be conducted in accordance with the city's design and site development review process pursuant to the Brentwood Municipal Code as amended by the Initiative.

City of Brentwood Commercial & Industrial Design Guidelines

The non-residential design guidelines included in Chapter 6 of the VDCSP include site planning and architectural design consistent with the city's Commercial & Industrial Design Guidelines to create a friendly and welcoming commercial destination and continue the vision established in the residential community, including integrating pedestrian-friendly design. As discussed above, the VDCSP, including the non-residential design guidelines, was prepared in accordance with the General Plan Goals and Policies, and are designed to be consistent with the city's Commercial & Industrial Design guidelines. If the VDCSP is approved by the Brentwood voters by approval of the Initiative, development of the Project would comply with the Design Guidelines. Implementation of these guidelines would be conducted in accordance with the city's design and site development review process pursuant to the Brentwood Municipal Code as amended by the Initiative.

City of Brentwood General Plan Consistency Analysis

In accordance with 14 CCR Section 15125(d), this section of the EIR analyzes the consistency between the Project and the City of Brentwood's General Plan.

The General Plan states that SPA 2, within which the Project is located, should:

[...] include a significant area of protected open space, with open space protection prioritized for hillsides, sensitive natural habitat, and areas of exceptional scenic beauty.

Residential uses may include Ranchette Estate and Very Low Density Residential. An increase in the overall residential density within SPA 2 may be allowed to accommodate the development of age restricted housing units. Limited areas of local-serving General Commercial may also be allowed within SPA 2.

This development was evaluated in the General Plan EIR as including 583 residential units on the Project site, with an increase in overall residential density contemplated in order to accommodate the development of age-restricted housing. In addition, the General Plan currently contemplates the possibility of limited neighborhood-serving commercial uses on the Project site. The Project would require an amendment to the General Plan to revise the text and maps to reflect the expansion of the ULL and the inclusion of the VDCSP area. If approved by the Brentwood voters, the Initiative would modify the General Plan, thereby limiting the average gross density across the area covered by the VDCSP to a maximum of three dwelling units per gross acre. The VDCSP would provide a framework for development of a residential community supporting both an age-restricted active-adult community and non-age restricted residential development set among an agriculturally-themed landscape of vineyards and olive groves. The VDCSP would serve as the implementing guide for developing and using land within the Project site. The residential zoning within the Project would allow development of up to 2,400 residential units, for a gross density of no more than three dwelling units per gross acre. If the VDCSP is adopted, it would be consistent with the zoning it proposes, as well as the General Plan as amended by voter ballot initiative.

Consistency with General Plan Goals and Policies

The project’s consistency with applicable General Plan Goals and Policies is illustrated in Table 4.11-6 below.

Table 4.11-6: Consistency with General Plan Goals, Policies, and Actions	
General Plan Goals, Policies, and Actions	Project Consistency
Policy LU 1-4: Require new development to occur in a logical and orderly manner, focusing growth on infill locations and areas designed for urbanization on the Land Use Map (Figure LU-1), and be subject to the ability to provide urban services, including paying for any needed extension of services.	The Project is in an area designated as a Special Planning Area (SPA 2) in the General Plan. This area is envisioned for urbanization. As presently written, the development was evaluated in the General Plan EIR as including the development of less than 600 residential units on the Project site, with an increase in overall residential density contemplated in order to accommodate the development of age-restricted housing. (The General Plan identified Ranchette and Very Low Density Residential (VLDR) as land use designations suitable for SPA 2). In addition, the General Plan currently contemplates the possibility of limited neighborhood-serving commercial uses on the Project site. The land use sub-designations identified in the VDCSP would allow for a range of residential uses consistent with the VLDR designation at a density of up to three dwelling units per acre. If the initiative is approved, the General Plan will be amended to describe the density calculation of the proposed VDCSP based on the total acreage of the VDCSP area.

Table 4.11-6: Consistency with General Plan Goals, Policies, and Actions

General Plan Goals, Policies, and Actions	Project Consistency
	<p>Table 3-2 of the VDCSP shows the proposed parcel configuration, setbacks, building separation, off-street parking, maximum building height, and minimum common open space for residential developments. Table 3-3 of the VDCSP shows the intensity and lot coverage, setbacks, building separation, maximum building height, façade configuration & projections, encroachments, and off-street parking and loading standards for non-residential developments within the VDCSP area. Table 3-4 of the VDCSP establishes land use and corresponding entitlement requirements for the VDCSP’s four land use designations.</p> <p>Development of the VDCSP area would be logical, orderly, and high quality. The VDCSP includes a set of Design Guidelines to address site design, architecture, circulation, parking, lighting, and other distinguishing features. These design features promote the high-quality development that is envisioned for the VDCSP area. Although policy decisions related to consistency with the General Plan will be subject to the discretion of the City Council, the Development Standards and Design Guidelines contained in the VDCSP will promote and encourage development that is logical and orderly.</p> <p>As discussed in Section 4.16, Utilities and Service Systems, and Section 4.13, Public Services and Recreation, of this EIR, the Project site would be served by all applicable urban services with incorporation of design features, payment of required development impact fees, and mitigation measures. All necessary extensions for services would be paid for through fair-share fees and applicant improvements incorporated into the project or required as mitigation for the project.</p>
<p>Policy LU 1-5: Encourage new development to be contiguous to existing development, whenever possible.</p>	<p>As shown in Figure LU-1 of the General Plan, the VDCSP would be located adjacent to existing development, including existing and planned low-density residential areas.</p> <p>Adjacent land uses include the single-family Shadow Lakes residential neighborhood to the east, Deer Ridge residential neighborhood to the southeast, and agricultural and open space to the north, west, and south. The area to the north of the Project site is planned for residential development as set forth under the City of Antioch’s General Plan. The area to the south of the Project site is planned for residential development under the City of Brentwood’s General Plan. Heritage High School and Adams Middle School are located southeast of the Project site and are accessed from American Avenue.</p>

Table 4.11-6: Consistency with General Plan Goals, Policies, and Actions	
General Plan Goals, Policies, and Actions	Project Consistency
<p>Policy LU 1-6: Encourage early annexation of all lands within the City’s Sphere of Influence, provided the following criteria are met:</p> <ol style="list-style-type: none"> 1. The land is within the Sphere of Influence and Urban Limit Line; 2. The capacity of the water, sewer, fire, school, and police services are adequate to service the area; and 3. The area to be annexed is contiguous to existing developed areas. 	<p>The Project would be consistent with General Plan Policy LU 1-6. As shown in General Plan Figure LU-1, SPA 2 is adjacent to the City of Brentwood’s boundary and contiguous to existing developed areas. The Project would include pre-zoning of the Project site in anticipation of its incorporation within the city’s ULL and SOI, and ultimately, its annexation to the city. The Project includes a General Plan Amendment to General Plan Figure LU-1 to show SPA 2 within the city’s SOI and ULL. As discussed in Section 4.16, Utilities and Service Systems, and Section 4.13, Public Services and Recreation, of this EIR, the capacity of the water, sewer, fire, school, and police services are adequate to service the Project site, with incorporation of design features, payment of required development impact fees, and mitigation measures.</p>
<p>Policy LU 1-9: Support and encourage the annexation of SPA 2 (as depicted on the Land Use Map) into the city of Brentwood.</p>	<p>The Project would involve annexation of SPA 2 into the City of Brentwood, consistent with Policy LU 1-9.</p>
<p>Action LU 1e: Review and periodically amend, as needed, the existing boundary agreement with the City of Antioch. Prioritize the placement of SPA 2 within Brentwood’s planned expansion boundary.</p>	<p>Consistent with Action LU 1e, the Project would require the termination or modification of the existing boundary agreement with the City of Antioch and the annexation of SPA 2 into the City of Brentwood.</p>
<p>Policy LU 2-1: Maintain Brentwood’s predominant land use of single family residential, while providing for a mix of housing types throughout the community, in accordance with the Housing Element.</p>	<p>The Project would provide the community with up to 2,400 residential dwelling units with at least 80 percent dedicated to age-restricted housing for active adults. The housing types are envisioned to include a combination of single-family attached and detached, and multi-family residential units. The number of residences and mix of housing types permitted by the VDCSP would support Policy LU 2-1 by providing single-family and multi-family housing opportunities for the community.</p>
<p>Policy LU 2-2: Development at the interface of residential land use designations with other designations shall be designed to ensure compatibility between the uses and to reduce any potential negative impacts associated with aesthetics, noise, and safety.</p>	<p>Adjacent land uses include the single-family Shadow Lakes residential neighborhood to the east, Deer Ridge residential neighborhood to the southeast, and agricultural and open space to the north, west, and south. The area to the north of the Project site is planned for residential development as set forth under the City of Antioch’s General Plan. The area to the south of the Project site is planned for residential development under the City of Brentwood’s General Plan. Heritage High School and Adams Middle School are located southeast of the Project site and are accessed from American Avenue.</p> <p>The Project utilizes the site’s natural topography and ridgelines to position much of the residential development in the interior of the site, below ridgelines, which would create a natural buffer providing transition between the proposed project</p>

Table 4.11-6: Consistency with General Plan Goals, Policies, and Actions	
General Plan Goals, Policies, and Actions	Project Consistency
	and neighboring developments. See Section 4.1, Aesthetics, of this EIR for more detailed discussion of the limitations on development on Project hilltops and ridgelines.
LU 2-3: Where appropriate, encourage clustered development and the clustering of housing so that larger areas of open space may be permanently preserved. Clustered development may provide flexibility in site design and layout to allow for smaller lot sizes, but shall not allow a project to exceed the gross density ranges established under Policy LU 1-2.	The Project would, with respect to with General Plan Policy LU 2-3, include clustered development and the clustering of housing so that larger areas of open space may be permanently preserved. The Project would allow residential and/or commercial development on some 72 percent of the Project site. The Project would not exceed the gross density ranges established under Policy LU 1-2. As discussed in the General Plan, the Special Planning Area designation was assigned, in part, to “facilitate comprehensive planning of large strategic areas utilizing planning techniques to ensure high quality development and integrate development with the provision of infrastructure[.]” The General Plan requires that a SP or Planned Development Zoning be utilized for development of SPA 2 (re-designated as SPA 2/VDCSP by the Initiative); adoption of this VDCSP through the Initiative satisfies this requirement.
Policy LU 2-4: Locate residences away from areas of excessive noise, smoke, or dust, and ensure that adequate provisions, including buffers or transitional uses, are made to ensure the health and well-being of existing and future residents.	The residential development would be positioned in the interior of the site, largely below ridgelines, which would create a natural buffer between the Project and neighboring uses. Strategically siting development on the site in accordance with the VDCSP’s Design Guidelines would locate future residents away from areas of excessive noise, smoke, and dust. Natural buffers and open space buffers would ensure the health and well-being of future residents. Development under the VDCSP would be primarily residential, with a large portion of the residential being designated as age-restricted housing with onsite amenities, which would reduce traffic in the VDCSP area. Therefore, the Project would not cause excessive noise, smoke, or dust that would affect the health or well-being of existing nearby residents.
Policy LU 2-5: Encourage neighborhood development that includes convenience commercial uses and school uses, but restrict the amount of retail strip development and ensure that commercial development is well integrated into the community.	The commercial development proposed on the Project site is envisioned for agricultural and farm-to-table related civic and commercial uses that would be well integrated with the residential component of the VDCSP and neighboring uses.
Policy LU 2-7: Strongly encourage residential development in the city in a balanced and efficient pattern that reduces sprawl, preserves open space, and creates convenient connections to other land uses.	The Project would involve low-density residential, open space, community recreation, and limited commercial/civic development. The VDCSP includes a set of Design Guidelines to address site design, architecture, circulation, parking, lighting, and other distinguishing features. These design features would promote high-quality development; preserve some

Table 4.11-6: Consistency with General Plan Goals, Policies, and Actions	
General Plan Goals, Policies, and Actions	Project Consistency
	225 acres of open space; create connections to community recreation uses and open space for residents; reduce the massing of the development; and encourage strategic siting of uses within the VDCSP area. In addition to these features, the Project includes other measures to reduce sprawl, which is generally understood to be unchecked urban growth, by imposing a cap on the number of housing units that could be constructed, as well as limiting most commercial uses to an approximately 20-acre portion of the Project site. The Project would also expand the city's ULL and allow for more residential uses than currently planned (though not unanticipated) by the General Plan.
Policy LU 2-8: Provide for a variety of residential products through the Zoning Ordinance in order to accommodate the housing needs of all segments of the city's population.	The VDCSP would provide up to 2,400 residential units, with 80 percent being age-restricted units. The residential units would be a mix of single-family and multi-family. As such, the VDCSP would accommodate many segments of the city's population.
Policy LU 3-10: Require adequate buffers and/or architectural consideration to protect residential areas, developed or undeveloped, from intrusion of non-residential activities that may degrade the quality of life in such residential areas.	The Project would include buffers and open space areas between Brentwood and Antioch as well as a 100-foot landscaped buffer that would be located along the eastern boundary of the Project where it adjoins existing residential development. The buffers would provide a landscaped transition between communities and a cohesive aesthetic. The VDCSP includes Design Guidelines that would guide development of the area to ensure proper articulation and high-quality architecture.
Policy LU 4-1: Protect those environmental features that make Brentwood an attractive and desirable place to live, work, play, and visit.	The Project would incorporate a minimum of 225 acres of open space within the VDCSP area and would provide community and recreation uses for future residents. To the extent practicable, the VDCSP would maintain important existing ecological functions and values, including species and habitat management and permanent protection of areas containing sensitive natural resources. Edge effects would be reduced through transitional or buffer areas between open space resources and development. Agricultural activities within the VDCSP area would be enhanced to contribute to the protection of the rural character and agricultural economy of East Contra Costa County. With incorporation of design features and VDCSP Design Guidelines, the Project would protect environmental features that make Brentwood an attractive and desirable place to live, work, play and visit.
Policy LU 4-2: Require development projects to provide adequate and appropriately located land, easements, or other accommodation for recreational	The Project would provide at least 225 acres of open space in the VDCSP area, potentially including permanent agricultural crops, natural areas, formal or

Table 4.11-6: Consistency with General Plan Goals, Policies, and Actions	
General Plan Goals, Policies, and Actions	Project Consistency
uses, including neighborhood parks, existing and planned trails, and connections to existing or planned trails and other recreational resources as set forth in the Conservation and Open Space Element, the Community Services and Facilities Element, and the Circulation Element.	informal parkland, low-impact trails, and/or waterways. As individual subdivision maps applications are submitted to the city for approval, each such application will be subject to parkland dedication requirements (or in-lieu fee payments, as the case may be) to ensure that individual developments on the Project site are supplying adequate recreational opportunities.
Policy LU 4-6: Protect selected significant habitat areas for their ecological, educational, scenic, and recreational values.	The Project would incorporate a minimum of 225 acres of open space within the VDCSP area and would provide community and recreation uses for future residents. To the extent practicable, the VDCSP would maintain important existing ecological functions and values, including species and habitat management and permanent protection of areas containing sensitive natural resources. Edge effects would be reduced through transitional or buffer areas between open space resources and development. See Section 4.4, Biological Resources, of this EIR for a more detailed discussion of the Project’s impacts on significant habitat areas.
Policy LU 6-1: Create residential areas in Brentwood that include innovative designs which are linked with bikeways and pedestrian trails, commercial and employment centers, and transit stops.	The VDCSP includes Design Guidelines that would promote high-quality, connected development within the VDCSP area. The residences proposed as part of the Project would be connected to open space, including natural areas, parkland, trails, and/or waterways. The VDCSP envisions a commercial/civic use in the southwest corner of the VDCSP area, which would serve the residential population in the VDCSP area. The VDCSP would also include a community recreation use to serve residents. One of the VDCSP Design Guidelines is to encourage a flexible network that can accommodate future transit service to link Project users to off-site destinations. The Project would provide ample links between housing and on-site open space, community space, recreational opportunities, and transit.
Policy LU 6-2: Maintain the character of existing neighborhoods by ensuring new development is compatible in style, size, color, and footprint with the existing residences in the neighborhood.	The Project would be compatible with the surrounding neighborhoods, which are generally low-density residential uses. The project would provide transition zones, buffers, and open space to adequately transition from low-density residential uses to commercial or multi-family residential. The VDCSP requires architectural features of the residential and non-residential components of the Project to be compatible in architectural style and character. The recreation center and commercial/civic area would be constructed with a compatible and harmonious quality and style, including integrating pedestrian-friendly design.

Table 4.11-6: Consistency with General Plan Goals, Policies, and Actions	
General Plan Goals, Policies, and Actions	Project Consistency
<p>Policy LU 6-3: Residential neighborhoods should be well-defined with park and recreation facilities, schools, open space, and neighborhood commercial land uses that incorporate unifying landscape and architectural themes and provide visible functional centers.</p>	<p>The VDCSP would include at least 225 acres of open space, including park and recreational facilities. Neighborhood land uses would include the commercial/civic use at the southwest corner of the VDCSP area, which would be utilized by future residents. The Design Guidelines would ensure high-quality and unifying landscaping and architectural themes. The residential portion of the VDCSP would be clustered near the center of the VDCSP area to provide a functional center.</p> <p>The agricultural theme of the open space located throughout the Project site, and the agricultural and farm-to-table related civic and commercial uses located in the southwestern portion of the Project site, would be consistent with General Plan Policy LU 6-3 by promoting well-defined park and recreation facilities, open space, and neighborhood commercial land uses that incorporate unifying landscape and architectural themes and providing visible functional centers.</p>
<p>Policy LU 6-4: Apply design standards regulating setbacks, landscaping, screening, and architectural style to new residential development and rehabilitation projects.</p>	<p>The VDCSP includes Design Guidelines that regulate setbacks, landscaping, screening, and architectural style to ensure future residential development is high-quality, connected to recreational opportunities and open space, and cohesive.</p>
Housing Element Goals and Policies	Project Consistency
<p>Policy H 3-1: Facilitate the integration of new lower income households into the fabric of the community, avoiding, where feasible, identifying housing developments or portions of a development as being restricted to very low, low, or moderate income households.</p>	<p>The proposed Project does not explicitly propose to identify housing developments or portions of developments as being restricted to very low, low, or moderate income households. As individual residential developments are proposed on the Project site, each such development would be subject to the city’s Affordable Housing Ordinance (Brentwood Municipal Code Chapter 17.725), which imposes affordable housing requirements on residential single-family home developments of 25 units or more.</p>
<p>Policy H 4-2: Assure the provision of housing opportunities for those residents of the City who have special housing needs, including farmworkers, the elderly, disabled, developmentally disabled, large families, and the homeless.</p>	<p>The Project would provide housing opportunities for active-adult age restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law.</p>

Due to the nature of the Special Planning Areas and the intention to facilitate high quality developments, a planning process specific to the Special Planning Areas is defined in the General Plan, which stipulates that the city must adopt a specific plan which cannot contain less than 50 acres or represent less than 25 percent of the developable acreage of a Special Planning Area. Once a specific plan is adopted, discretionary approvals (such as subdivision maps, rezoning, or design review) may then be granted by the city. The Project is consistent with the Special Planning Area planning process and thus compliant with General Plan Policies

LU 1-4, 1-5, 1-6, and 1-9, as well as Action LU 1e. As illustrated in Table 4.11-6 above, the proposed project would comply with applicable General Plan policies allowing for orderly growth, diverse housing types, a high quality natural environment, and recreational opportunities. Thus, implementation of the Project would be generally consistent with the City of Brentwood General Plan policies; and impacts are less than significant.

Contra Costa LAFCo Policy Consistency Analysis

Table 4.11-7 provides a summary of the Project’s consistency with LAFCo’s Agricultural and Open Space Preservation Policy (AOSPP). The purpose of the AOSPP is threefold: 1) to provide guidance to the applicant on how to assess the impacts on prime agricultural, agricultural and open space lands of applications submitted to LAFCo, and enable the applicant to explain how the applicant intends to mitigate those impacts; 2) to provide a framework for LAFCo to evaluate and process in a consistent manner, applications before LAFCo that involve or impact prime agricultural, agricultural and/or open space lands; and 3) to explain to the public how LAFCo will evaluate and assess applications that affect prime agricultural, agricultural and/or open space lands.

The AOSPP states that:

It is the policy of Contra Costa LAFCo that, consistent with the CKH Act, an application for a change in organization, reorganization, for the establishment of or change to an SOI, the extension of extraterritorial services, and other LAFCo actions as contained in the CKH Act (“applications”), shall provide for planned, well-ordered, efficient urban development patterns with appropriate consideration to preserving open space, agricultural and prime agricultural lands within those patterns. LAFCo’s Agricultural and Open Space Preservation Policy provides for a mitigation hierarchy which 1) encourages avoidance of impacts to prime agricultural, agricultural and open space lands, 2) minimizes impacts to these lands, and 3) mitigates impacts that cannot be avoided while pursuing orderly growth and development.

The following policies in Table 4.11-7 support the AOSPP goals and will be used by Contra Costas LAFCo when considering an application that involves prime agricultural, agricultural and/or open space lands. As demonstrated in the table, the proposed Project (including its mitigation requirements set forth in this EIR), is generally consistent with the AOSPP policies.

Table 4.11-7: Consistency with Contra Costa LAFCo Agricultural and Open Space Preservation Policy	
LAFCo Policy/Standard	Project Consistency
Policy 1. The Commission encourages local agencies to adopt policies that result in efficient, coterminous and logical growth patterns within their General Plan, Specific Plans and SOI areas, and that encourage preservation of prime agricultural, agricultural and open	Brentwood General Plan Policy LU 1-4 meets the intent of AOSPP Policy 1 in that it states: <i>Require new development to occur in a logical and orderly manner, focusing growth on infill locations and areas designed for urbanization on the Land Use Map (Figure LU-1), and be subject to the ability to provide urban services,</i>

Table 4.11-7: Consistency with Contra Costa LAFCo Agricultural and Open Space Preservation Policy	
LAFCo Policy/Standard	Project Consistency
space lands in a manner that is consistent with LAFCo’s policy.	<i>including paying for any needed extension of services.</i> For a detailed discussion of the proposed Project’s consistency with this policy, please refer to Table 4.11-6 above.
<p>Policy 2. Vacant land within urban areas should be developed before prime agricultural, agricultural and/or open space land is annexed for non-agricultural and non-open space purposes.*</p> <p>* The Commission recognizes there may be instances in which vacant land is planned to be used in a manner that is important to the orderly and efficient long-term development of the county and land use agency and that differs from the proposed use of the area in an application to LAFCo. LAFCo will consider such situations on a case-by-case basis.</p>	<p>The City of Brentwood does not contain sufficient vacant land within urban areas to accommodate development of the residential and commercial land uses proposed by the Project. For example, Appendix A of the Brentwood Housing Element (2015) lists a total carrying capacity of 940 units for vacant single-family sites. While there is sufficient capacity to accommodate the Project on other sites with approved entitlements, this would require the Project to be built across multiple urban locations, which would not enable the development of an integrated, master planned age-restricted community. Furthermore, as already stated, the Project is in an area designated as a Special Planning Area (SPA 2) in the General Plan. This area is envisioned for urbanization. Brentwood General Plan Policy LU 1-9 states:</p> <p><i>Policy LU 1-9: Support and encourage the annexation of SPA 2 (as depicted on the Land Use Map) into the city of Brentwood.</i></p>
Policy 3. Land substantially surrounded by existing jurisdictional boundaries (e.g., islands) should be annexed before other lands.	The Project site is substantially surrounded by existing jurisdictional boundaries. Currently, the city’s SOI includes only two islands, both of which are located at the northeastern edge of the city limits. Neither island is contiguous with the Project site boundaries.
Policy 4. Where feasible, and consistent with LAFCo policies, non-prime agricultural land should be annexed before prime agricultural land.	As demonstrated in Table 4.2-1 of the Agricultural Resources section of this EIR, the Project site is considered non-prime agricultural land.
Policy 5. While annexation of prime agricultural, agricultural and open space lands is not prohibited, annexation of these areas for urban development is not encouraged if there are feasible alternatives that allow for orderly and efficient growth. Large lot rural development that places pressure on a jurisdiction to provide services, and causes agricultural areas to be infeasible for farming or agricultural business, is discouraged.	<p>As noted in Table 4.11-6 above under Policy LU 1-4, development of the VDCSP area would be logical and orderly, and is anticipated in the Brentwood General Plan. As a result, it is not necessary to pursue a feasible alternative for the expressed purpose of this policy to allow for orderly and efficient growth.</p> <p>It should also be noted that permanent agricultural uses will be encouraged within the Open Space land use areas on-site, such as vineyards and olive groves.</p>
Policy 6. The continued productivity and sustainability of agricultural land surrounding existing communities should be promoted by preventing the premature	Currently, agricultural and open space uses are located to the north, west, and south of the Project site. The area to the north of the Project site is planned for residential development, as set forth

Table 4.11-7: Consistency with Contra Costa LAFCo Agricultural and Open Space Preservation Policy	
LAFCo Policy/Standard	Project Consistency
<p>conversion of agricultural land to other uses and, to the extent feasible, minimizing conflicts between agricultural and other land uses. Buffers and/or local right to farm ordinances should be established to promote this policy. Contra Costa County has a Right to Farm ordinance which requires notification of purchasers and users of property adjacent to or near agricultural operations of the inherent potential problems associated with such purchase or residential use.</p>	<p>under the City of Antioch’s General Plan. The area to the south of the Project Site, in the vicinity of the proposed extension of American Avenue, is planned for residential development under the City of Brentwood’s General Plan. The area to the west, across Deer Valley Road, a portion of which is the former Roddy Ranch Golf Course, is owned by the East Bay Regional Park District and the site of a future Regional Park/Preserve. The Park District has plans in the foreseeable future to restore the former golf course back to open space and make it available for passive recreation.</p> <p>As noted in Table 4.11-6 above under Policy LU 4-1, the Project would incorporate a minimum of 225 acres of open space within the VDCSP area and would provide community and recreation uses for future residents. Edge effects associated with future on-site agricultural uses within the open space areas would be reduced through transitional or buffer areas between open space resources and development. In addition, the open space would be provided along substantial portions of the north, west, and south boundaries of the Project site to provide a transitional buffer between the site and the neighboring areas.</p> <p>In addition, as noted in Chapter 4.2, Agricultural and Forest Resources, of this EIR, the Project would be subject to the city’s Right to Farm ordinance (Chapter 8.01 of the Brentwood Municipal Code), which requires notification of purchasers and users of property near agricultural operations of the potential inconveniences associated with such operations.</p>
<p>Policy 7. Development near agricultural land should minimize adverse impacts to agricultural operations.</p>	<p>See Policy 6 above.</p>
<p>Policy 8. Development near open space should minimize adverse impacts to open space uses.</p>	<p>See Policy 6 above.</p>
<p>Policy 9. The Commission will consider feasible mitigation (found in the AOSPP Guidelines) if an application would result in the loss of prime agricultural, agricultural and/or open space lands.</p>	<p>The Project site does not contain prime agricultural land, as defined by LAFCo. However, as discussed in Section 4.2, Agricultural and Forest Resources, the Project site is classified as Agricultural Land pursuant to Government Code Section 56016, as it has been used historically for dryland farming of hay and dry grains. In addition, the County’s Municipal Code, Section 17.730.020, defines “Agricultural land” for the purposes of the Agricultural Preservation Program as “those land areas of Contra Costa County specifically designated as agricultural core (AC) or agricultural</p>

Table 4.11-7: Consistency with Contra Costa LAFCo Agricultural and Open Space Preservation Policy	
LAFCo Policy/Standard	Project Consistency
	<p>lands (AL) as defined in the Contra Costa County General Plan; those land areas near the city designated as agricultural conservation (AGCON) as defined in the Brentwood General Plan; and/or other lands upon which agricultural activities, uses, operations or facilities exist or could exist that contain Class I, II, III or IV soils as defined by the United States Department of Agriculture Natural Resource Conservation Service.” Under the County General Plan, the property is designated as Agricultural Land (AL). In addition, the Project site has been used historically for dryland farming, the proposed project would incorporate a minimum of 225 acres of open area, most of which would be used for irrigated agriculture, and the Project site consists of Class III and IV soils. For the aforementioned reasons, the Project meets the city’s definition for agricultural land.</p> <p>Accordingly, the Project would be subject to the requirements of the Brentwood Agricultural Preservation Program, which, requires that projects of one acre or more that will permanently change agricultural land to non-agricultural mitigate this conversion by one of two methods: 1) the granting of a farmland conservation easement, farmland deed restriction or other conservation mechanism (including fee title purchase by the city or qualifying entity) on qualifying lands; or 2) the payment of an in-lieu fee based upon a formula for a one-to-one land area ratio. Consistency with such standards would be required by MM AG-1 of this EIR, which is consistent with the mitigation hierarchy of the LAFCo AOSPP.</p>
<p>Policy 10. Any mitigations that are conditions of LAFCo’s approval of an application should occur close to the location of the impact and within Contra Costa County.</p>	<p>The Project applicant and the city will consider this policy’s recommendations when considering potential off-site agricultural conservation easements and/or use of in-lieu fees for land acquisition.</p>

City of Brentwood Zoning Consistency Analysis

As discussed previously, the Project site currently does not have a city zoning designation. The Project would include pre-zoning of the Project site in anticipation of its incorporation within the city’s ULL and SOI, and ultimately, its annexation to the city. The proposed location for the extension of American Avenue, south of Balfour Road, has a land use designation of Residential-Very Low Density (R-VLD).

This VDCSP creates a new VDCSP zoning district that would implement the VDCSP’s purpose and objectives described in Chapter 1 of the VDCSP. The Project would implement four land use

districts: Residential (VDC-R); Community Recreation Center (VDC-CR); Commercial/Civic (VDC-CC); and Open Space (VDC-OS). The Project would include setbacks from the surrounding neighborhoods, private and public open spaces, walking trails and recreation, a community center or centers, and a publicly accessible commercial/civic area envisioned for agricultural and farm-to-table related civic and commercial uses and functions. Table 3-1 in Chapter 3, Project Description, of this EIR identifies the approximate acres for the four land use sub-designations that apply within the VDCSP area.

Zoning Sub-designations

The VDCSP's land use subdistricts would implement both the VDCSP and the General Plan vision, policies, and land use classifications for the VDCSP area. The designations replace the application of the city's conventional zoning districts for the VDCSP area.

Development in the Residential (VDC-R) land use district would be consistent with the development regulations as described in Table 3-2 and Table 3-4 of the VDCSP, subject to minor deviations as permitted in Chapter 8 of the VDCSP. The purpose of the VDC-R district is to create, maintain, and enhance areas for residential uses, and ancillary supporting uses such as neighborhood recreation centers, parks and trails, open space, roads, and utility services. The VDC-R district would allow development of up to 2,400 residential units, for a gross density of no more than three dwelling units per acre. It is anticipated that the VDC-R district would include single-family detached units, single-family attached units, and multi-family units. Senior care facilities would also be allowed as a commercial use within the VDC-R district.

Development in the remaining three non-residential land use districts (VDC-CR, VDC-CC, and VDC-OS) would be regulated by the standards set forth in Table 3-3 and Table 3-4 of the VDCSP, subject to minor deviations as permitted in Chapter 8 of the VDCSP.

The purpose of the VDC-CR district is to allow for the development of a community recreation center located generally in the center of the Project site that would serve as the focal recreation point for the community, used predominantly for recreational, social, cultural, and educational purposes and could include other minor supporting uses or activities. The community recreation center would be linked to the rest of the Project site through pedestrian, bicycle and local use vehicle path connections and it is anticipated that most of these facilities would be accessible to the general public. The VDCSP allows for development of additional smaller private neighborhood recreation centers associated with different neighborhoods. Depending on market conditions and to allow a degree of flexibility, the VDCSP allows for development of one community recreation center, or a series of neighborhood recreation centers, or a combination of the two.

The purpose of the VDC-CC district is to allow for development of community-accessible and agriculturally themed commercial and civic land uses which may only be located on the southwestern corner of the Project site at the northeastern corner of Deer Valley Road and Balfour Roads.

The purpose of the VDC-OS district is to preserve and enhance agricultural land within the VDCSP area in perpetuity. Uses within the VDC-OS district may include vineyards, olive groves, natural areas, grazing/grasslands, informal parkland, and low-impact (permeable and semi-permeable) trails. Other uses may include unimproved access roads, water storage tanks, water quality features and detention/retention basins, and underground and above ground utilities.

The proposed VDCSP and associated zoning is intended to ensure orderly planning and quality design that would strive for harmony with the existing surrounding residential development. The VDCSP zone would serve as a specially tailored development plan and ordinance that designates the zoning regulations for the accompanying Project, sets specific development standards, and ensures that the zoning and the General Plan are consistent. Thus, the proposed zoning sub-designations would allow for development within the Project site that is consistent with the General Plan.

Conclusion

As discussed above, the Project is consistent with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect. With approval of the Initiative, the Project would be consistent with the new zoning for the property. Impacts related to conflict with an applicable policy would be ***less than significant*** and additional site-specific mitigation is not required.

Mitigation Measures

None required.

Impact LU-3: Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (*significant and unavoidable*)

The Project provides the framework for development of a residential community of up to 2,400 dwelling units. Of these residential units, at least 80 percent (1,920 units) would be active-adult age restricted, and no more than 20 percent (480 units) would be non-age restricted. The Project would add a maximum residential population estimated at approximately 4,407 persons.² This residential population estimate is based on the proposed number of residential units multiplied by an estimated average household size for the Project, which is 1.5 persons per household for a senior project and 3.18 persons per household for non-age restricted housing³. As shown in Table 2.0-2 of the city's 2014 General Plan EIR, the city's population growth estimates are based largely on residential land uses. Approximately 1.46 percent of the

² The Initiative includes proposed language to modify the General Plan thereby limiting the average gross density across the area covered by the VDCSP to up to three dwelling units per acre. The multi-family residences would be age restricted and in no event would the maximum number of age restricted multi-family exceed 20 percent of the total 2,400 units.

³ West-Yost Associates. 2019. *Vineyards at Deer Creek Water Supply Assessment (Draft)*.

projected increase in the population of the city and Planning Area at buildout of the General Plan is attributed to only general commercial uses. Based on the population increase assumed for general commercial uses in the General Plan EIR, the commercial uses in the Project site could contribute an additional 30 persons. Thus, the commercial component of the Project is not expected to generate a notable increase in population.

The total (residential and commercial) population associated with the proposed project is estimated to be 4,437 persons. It should be noted that the VDCSP allows senior care facilities by-right within the residential and commercial portions of the VDCSP area. Although development of senior care facilities could occur within the VDCSP area in the future, such development is speculative at this time and would not be anticipated to result in substantial changes to the overall population estimated for the VDCSP area. The City of Brentwood's population in 2018 was 63,042 persons. Full buildout of the General Plan within the city limits supports a total population of 80,917. Full buildout within the city's Planning Area would result in a total population of 92,336 (per Table 2.0-3 of the GP EIR). An additional 4,437 people would represent approximately 5 percent of the General Plan's full population buildout within the city limits.

As a policy document, the General Plan does not identify a specific buildout assumption for SPA 2; rather, the General Plan qualitatively describes SPA 2 as a property that should contain a significant area of protected open space, with residential uses that may include Ranchette Estate and Very Low Density Residential. The General Plan further states that an increase in overall residential density within SPA 2 may be allowed in order to accommodate the development of age-restricted housing units, though no specific residential densities are provided for SPA 2. For analytical purposes, the General Plan EIR assumes a dwelling unit potential for SPA 2 of 583 units.⁴ Given that the Project includes an increase in overall residential density, compared to that which was evaluated for the project site in the GP EIR, due to the Project's inclusion of age-restricted housing, this EIR evaluates the potential physical direct and indirect effects of the proposed increase in density.

In terms of a direct effect, according to the "Planning Area Buildout" analysis contained in the General Plan EIR, 583 dwelling units were assumed for SPA 2 as a baseline (See Table 2.0-2: "City Limits and Planning Area Population Potential"). Based on Table 2.0-2 of the city's General Plan EIR, the GP EIR anticipated an approximate population for SPA 2 of at least 1,877 persons associated with these 583 units. From this perspective, the Project population estimate of 4,437 would appear to be a 138 percent increase over the population estimate generally assumed for SPA 2 in the General Plan EIR. However, the General Plan description for SPA 2 also states that, "An increase in the overall residential density within SPA 2 may be allowed in order to accommodate the development of age-restricted housing units." Eighty (80) percent of the Project would be age-restricted; thus, at least some proposed increase in population attributable to the Project's age-restricted units was contemplated in the General Plan. While

⁴ According to the "Planning Area Buildout" analysis contained in the General Plan EIR, a total of 583 dwelling units were assumed for SPA 2 (See Table 2.0-2: "City Limits and Planning Area Population Potential").

the technical analysis performed in the GP EIR was based on 583 units for SPA 2, and thus yielded a smaller population estimate of 1,877 persons, the City also anticipated that additional age-restricted units would ultimately drive the SPA 2 population higher. However, no quantitative buildout assumptions are made in the General Plan or the General Plan EIR with regard to age-restricted housing. As a result of these factors, and despite the fact that at least some population increase associated with age-restricted housing was anticipated by the City, the proposed Project's 2,400 unit cap is conservatively deemed to have a significant impact related to inducing substantial unplanned population growth in an area.

With regard to indirect effects, CEQA is an environmental protection statute that is concerned with foreseeable physical changes in the environment. Significant effects on the environment are those that result in a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project, including conditions related to land, air, water, mineral resources, flora, fauna, noise, and objects of historic or aesthetic significance (see CEQA Guidelines Section 15382).

Economic or social changes alone are not considered significant effects on the environment. CEQA Guidelines Section 15064(e) provides that economic and social changes resulting from a project shall not be treated as significant effects on the environment (see also CEQA Guidelines Sections 15358(b), 15064(e), and 15382). A social or economic change related to a physical change may, however, be considered in determining whether the physical change is significant (see CEQA Guidelines Section 15382). CEQA requires a discussion of socioeconomic effects only if there is a causal linkage between a project and an adverse physical environmental effect. Herein lies the link to consider population growth in an EIR; that is, the indirect physical effects on the environment that may result from population growth. The indirect physical effects of population growth attributable to the Project are considered throughout the technical sections of this EIR (Sections 4.1 through 4.16, in particular). Population growth can place burdens on infrastructure systems, such as those related to roads, water, and sewer, and public services, such as police, fire, and schools. Vehicle trips associated with population growth also results in increased air quality and greenhouse gas emissions and traffic noise levels. The analysis of these CEQA topics in this EIR are summarized in the following sections.

Transportation (Section 4.14 of this EIR) indicates that the Project would introduce nearly 15,000 daily trips to the surrounding roadway network. The resultant effects include, but are not limited to, several significant intersection impacts, most of which can be mitigated through measures required in the EIR, though there are some exceptions, where the Project's incremental impact would remain significant and unavoidable (e.g., Near-Term Plus Project impact to Balfour Road/State Route 4 Eastbound Ramps, and Balfour Road/Deer Valley Road).

Utilities (Section 4.16 of this EIR) determined that the Project could generate a substantial increase in the amount of wastewater requiring collection and treatment at the City's WWTP. However, the EIR determined that the WWTP could accommodate the Project's wastewater, and mitigation is required to ensure that the collection system can handle the Project's increased flows (MM UTIL-1). With respect to water supply, the project's increased water demand would require the Project to complete several infrastructure system upgrades.

However, Mitigation Measure UTIL-1 requires the Project to complete these system upgrades, which would ensure the resultant impact is less than significant.

Air Quality and Greenhouse Gas Emissions (Section 4.3 and 4.8 of this EIR) indicates that the Project at buildout would generate a substantial amount of criteria pollutant emissions that would exceed the Air District's thresholds of significance, even after implementation of mitigation AQ-2. This would be considered a significant and unavoidable Project impact. Section 4.8 of the EIR determined that, while the Project would result in a substantial increase in GHG emissions, implementation of Mitigation Measures GHG-1 through GHG-7 would reduce the impact to a less-than-significant level.

Noise (Section 4.12 of this EIR) determined that due to the Project's substantial increase in traffic, operational traffic noise on one roadway segment (Balfour Road between Foothill Drive and John Muir Parkway) in the Near-Term scenario (opening year) would exceed the limits established in General Plan Policy N 1-7. Consequently, despite the implementation of mitigation measures, impacts related to the permanent increase in ambient noise levels in excess of local standards would be considered significant and unavoidable.

Conclusion

Considering that the only means of reducing the identified impact would be to reduce the number of units included in the proposed project, and such a unit reduction would represent a fundamental change in the Project, mitigation measures that would be capable of reducing the above identified impact to a less-than-significant level are not available, and impacts would remain **significant and unavoidable**.

Mitigation Measures

No additional mitigation measures available beyond those identified in the technical sections of this EIR.

Impact LU-4: Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (no impact)

The Project site is undeveloped and maintains no housing units or habitable structures onsite. Therefore, implementation of the proposed project would not displace substantial numbers of people, nor would it require the construction of replacement housing elsewhere. As a result, **no impact** would occur.

Mitigation Measures

None required.

Impact LU-5: Would the off-site infrastructure improvements result in any impacts related to land use or population? (*less-than-significant*)

As noted in Chapter 3, Project Description, off-site improvements associated with the Project would include the extension of a new off-site sewer line connecting between the northeastern portion of the project site and an existing sewer line located in St. Regis Avenue, extension of a new irrigation line within Balfour Road, extension of American Avenue west and north to Balfour Road, and the widening and improvement of certain portions of Balfour Road

Off-site Sewer Pipe Improvements

Alternatives 2 and 3 for the proposed off-site sewer improvements would both involve off-site ground-disturbing activity (trenching) to the east of the Project site boundary. The off-site sewer improvement area consists primarily of ruderal grasses, as well as portions of paved roadway. Off-site sewer pipe infrastructure would result in temporary disturbance of the area overlying the proposed alignment; however, the sewer pipe would be installed underground, and disturbed areas would not alter any land use designations or induce any population growth. Therefore, off-site sewer pipe improvements would not result in impacts related to land use or population.

Off-site Irrigation Pipe Improvements

The proposed off-site irrigation line improvement (Alternative 1) would occur entirely within the Balfour Road right-of-way. Installation of the below ground irrigation line would result in temporary ground disturbance; however, such improvements would not involve a change in land use or population. Therefore, off-site irrigation pipe improvements would not result in impacts related to land use or population.

Off-site Roadway Improvements**American Avenue Extension**

The American Avenue off-site extension would occur within an undeveloped area that is currently used for agricultural purposes, specifically, for the cultivation of dryland hay and safflower crops. Although American Avenue would be extended through an area that is currently used for agricultural purposes, development of the area, including extension of American Avenue has been planned for in the 2014 General Plan. Consequently, impacts to land use designations from the proposed extension of American Avenue have been previously analyzed in the 2014 General Plan EIR.

Balfour Road Widening

Consistent with the 2014 General Plan, Balfour Road would be improved and/or widened from the existing eastern American Avenue intersection west to Deer Valley Road. Because the Balfour Road widening was planned in the 2014 General Plan, potential impacts due to such widening have been previously analyzed in the 2014 General Plan EIR. The proposed widening/improvement would not convert any current land use or induce population growth.

Therefore, the Balfour Road widening would not be anticipated to result in a significant impact related to land use or population.

Conclusion

Based on the above, the impact would be considered *less than significant*.

Mitigation Measures

None required.

Cumulative Impact Analysis

Impact LU-6: Would the project create long-term changes in the land use and population associated with cumulative development of the proposed project in combination with future buildout in the City of Brentwood? (*significant and unavoidable*)

The cumulative setting for land use and planning impacts includes the City of Brentwood and the Brentwood Planning Area. Cumulative land use and planning impacts, such as the potential for conflicts with adjacent land uses and consistency with adopted plans and regulations, are typically site- and project-specific. Subsequent projects may result in site-specific land use conflicts; however, these effects are not anticipated to be cumulatively considerable. As described above, the Initiative would amend the city's General Plan to redesignate the VDCSP area from SPA 2 to SPA 2/Vineyards at Deer Creek Specific Plan (SPA 2/VDCSP) and amend the city's Zoning Code to incorporate implementing zoning provisions consistent with the VDCSP, which would amend the zoning applicable to the Plan Area. If the VDCSP is adopted, it would be consistent with the zoning it proposes, as well as the General Plan as amended by voter ballot initiative.

The 2014 General Plan EIR did not evaluate a specific development proposal for SPA 2. While it did identify a baseline buildout potential for SPA 2 at a lower density than the proposed Project, it also anticipated that additional age-restricted units might ultimately drive the SPA 2 population higher. No quantitative buildout assumptions were made in the General Plan or the General Plan EIR with regard to age-restricted housing, however. As a result, the proposed Project's incremental contribution to cumulative population growth would be considered cumulatively considerable and significant. In addition, to the extent the incremental effects of population growth on the Project site translate to additional burdens on infrastructure systems, including transportation, water, sewer, public services, et cetera, such incremental cumulative effects are evaluated throughout the technical sections of this EIR. As demonstrated above, in some cases, the Project's population increase results in significant and unavoidable indirect physical effects to the environment. Mitigation sufficient to reduce the identified incremental impacts related to population growth to a less than cumulative considerable level does not exist, and impacts would remain cumulatively considerable and *significant and unavoidable*.

Conclusion

Based on the above, the impact would be considered ***significant and unavoidable***.

Mitigation Measures

None feasible.

4.12 Noise and Vibration

4.12.1 Environmental Setting

This section of the EIR identifies and evaluates potential Project impacts related to noise. Noise is defined as loud, unexpected, or annoying sound. Noise is the product of a sound source, a receptor (the person hearing the sound), and the path between the two. Various factors determine the volume and characteristics of the noise. A typical noise environment consists of a steady background noise coming from many distant and indistinguishable noise sources. Added to this background noise is sound from closer individual sources. “Ambient” noise is the composite of noise from all sources near and far as heard at a given location.

Background

Sound is measured in decibels (dB). Changes in decibel level correspond closely to human perception of relative loudness. Table 4.12-1, Typical Noise Levels, provides decibel noise levels associated with common activities.

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

Notes: 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

While noise levels reported in this Section are expressed as dB unless otherwise noted, other noise descriptors are applicable to this analysis, as described in Table 4.12-2.

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, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} 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.
L_{max} , L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01} , L_{10} , L_{50} , L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average L_{eq} 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 L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
Community Noise Equivalent Level, CNEL	A 24-hour average L_{eq} 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 L_{eq} 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.
Source: Compiled from Cyril M. Harris, <i>Noise Control in Buildings</i> , 1994; Cyril M. Harris, <i>Handbook of Noise Control</i> , 1979; and James P. Cowan, <i>Handbook of Environmental Acoustics</i> , 1994.	

Addition of Decibels

The decibel scale is logarithmic, not linear. 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 each produce sound of the same loudness from the same distance, the resulting sound level would be 3 dB greater than if it came from only one of the sources. For three sources, the increase is 5 dB.

Decreases in Sound Level

Sound level decreases (attenuates) by approximately 6 dB for each doubling of distance from a stationary source and 3 dB for each doubling of distance from a “line source,” such as a roadway, with variations based upon ground surface characteristics. Hard surfaces such as a parking lot or a body of water may not produce a decrease, while soft surfaces, such as soft dirt or grass, can absorb sound, decreasing the sound level. Intervening structures also may reduce noise levels. Generally, a single row of buildings between the source and the receptor reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Excessive community noise can inhibit general well-being and contribute to stress and annoyance by interfering with human activities such as sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise levels. Typically:

- A change of 1 dBA cannot be perceived by humans.
- A 3 dBA change is considered a just-perceivable difference.
- A 5 dBA change is required before a noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10 dBA change would be expected to cause a negative community response.

Effects of Noise on People

Hearing Loss

Although hearing loss from an intense noise impulse is rare, it can occur within a community noise environment (i.e., noise from all sources, except the industrial workplace). Hearing loss occurs mainly from 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.

Annoyance

Attitude surveys measuring community annoyance caused by noises intruding into homes or affecting outdoor activity show that annoyance comes from interference with speech, radio and television, sleep, and rest, as well as from noise-induced house vibrations. While response varies among individuals, a noise level of about 55 dBA Ldn is the threshold at which a substantial percentage of people begin to report annoyance.¹

General Information on 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, which can be expressed in units of vibration decibels (VdB). 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 4.12-3 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 because 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 at off-site uses. Construction equipment such as vibratory compactors or rollers, pile drivers, 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.

¹ Federal Interagency Committee on Noise. 1992. *Federal Agency Review of Selected Airport Noise Analysis Issues*. August 1992.

Table 4.12-3: 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*, September 2013.

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.

Ambient Noise Measurements

Currently, Brentwood is impacted by various noise sources. Mobile sources of noise, especially cars and trucks, are the most common and significant. Other sources are various daily activities (residential, commercial, institutional, and recreational and parks) throughout the city. To determine ambient noise levels in the Project area, five 10-minute noise measurements were taken between 12:30 PM and 2:21 PM on February 28, 2019. Detailed information pertaining to the noise measurement process can be found in Appendix F and Figure 4.12-1.

The primary noise sources measured were major roadway traffic, student activities, playground activities, birds, barking dogs, general conversation, chickens, and airplanes. Table 4.12-4 provides the ambient noise levels measured at these locations.

Figure 4.12-1
Noise Measurement Locations



Site No.	Location	L _{eq} (dBA)	L _{min} (dBA)	L _{max} (dBA)	Time
1	Deer Valley Road	71.7	34.0	84.1	12:30 PM
2	Heritage High School north gate entrance	53.6	41.8	76.2	1:06 PM
3	Balfour-Guthrie Park	44.7	34.6	59.9	1:26 PM
4	Rolling Hills Park	41.4	31.5	63.6	1:45 PM
5	Saint Regis Avenue	41.6	32.8	66.3	2:21 PM

Source: Noise measurements taken by Kimley-Horn on February 28, 2019.

Sensitive Receptors

Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion. As shown in Table 4.12-5, there are sensitive receptors near the Project area. These include existing single-family residences, a high school, and a middle school.

Receptor Type/ Description	Distance and Direction from the Project Site
Single Family Residential	100 feet east of the Project area
Single Family Residential	250 feet south of the Project area
Single Family Residential	560 feet northwest of the Project area
Heritage High School	600 feet southeast of the Project area
Adams Middle School	1,530 feet south of the Project area

¹ Distance calculated from property line of Project site and property line of the sensitive receptors.

Existing Roadway Noise Levels

The Project area is surrounded by residential uses to the east, schools to the southeast, and primarily vacant land to the north, west, and south. The existing mobile noise in the Project area is generated along Balfour Road which borders the site on the south, and Deer Valley Road which borders the site on the west.

Existing noise levels for the roadway segments in the project vicinity were measured using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and existing traffic volumes from the project traffic impact assessment (Fehr and Peers, 2019). The noise prediction model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions, . adapted to reflect average vehicle noise rates identified by the California Department of Transportation (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 the project vicinity are shown in Table 4.12-6.

Table 4.12-6: Existing Traffic Noise Levels

Roadway Segment	Existing Conditions	
	ADT	dBA L _{dn}
Balfour Road		
Deer Valley Road to Project Retail Driveway	8,478	62.9
Project Driveway to American Ave. Extension	9,243	63.2
American Ave. Extension to Hillcrest Extension	9,305	63.3
Hillcrest Extension to W. Country Club Drive	9,305	63.3
W. Country Club Drive to Foothill Drive	20,823	65.9
Foothill Drive to John Muir Parkway	19,765	65.7
John Muir Parkway to SR-4 EB Ramps	23,438	66.5
SR-4 EB Ramps to SR-4 WB Ramps	27,005	67.0
SR-4 WB Ramps to Summerset Drive	23,770	66.5
Summerset Drive to Fairview Avenue	23,663	66.4
Deer Valley Road		
North of Balfour Road	7,540	61.3
South of Balfour Road	1,495	54.2
American Avenue		
South of Balfour Road	9,893	58.0
Notes: ADT = average daily traffic; dBA = A-weighted decibels; L _{dn} = day-night average sound level;		
Source: Based on traffic data within the <i>Transportation Impact Assessment for the Vineyards at Deer Creek</i> , prepared by Fehr and Peers, 2019. Refer to Appendix G for traffic noise modeling assumptions and results.		

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, or long-term/continuous noise.

Project Setting

The approximately 815-acre Project site consists of hills and valleys ranging in elevation from approximately 191 feet above sea level to 385 above sea level. A shallow seasonal creek channel crosses the southeastern corner of the site and a natural drainage area crosses the site from west to east. The area south of Balfour Road, where the extension of American Avenue is proposed to be located, is currently undeveloped. The Project site is located west of the City of Brentwood, in unincorporated Contra Costa County; north of Balfour Road, and east of Deer Valley Road, as shown in Figure 4.12-1.

4.12.2 Regulatory Setting

Federal

U.S. Department of Transportation Federal Transit Administration

Noise

The U.S. Department of Transportation Federal Transit Administration (FTA) has recommended noise criteria related to traffic-generated noise. Recommendations contained in the September 2018 *Transit Noise and Vibration Impact Assessment Manual* prepared by FTA can be used as guidance to determine whether or not a change in traffic would result in a substantial permanent increase in noise.

Under the FTA standards, the allowable noise exposure increase is reduced with increasing ambient existing noise exposure, such that higher ambient noise levels have a lower allowable noise exposure increase. Table 4.12-7 shows significance thresholds traffic-related noise levels. These standards are applicable to project impacts on existing sensitive receptors.

Existing Noise Exposure (dBA Ldn or Leq)	Allowable Noise Exposure Increase (dBA Ldn or Leq)
45-50	7
50-55	5
55-60	3
60-65	2
65-74	1
75+	0

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

Vibration

The FTA recommends vibration impact thresholds to determine whether groundborne vibration would be “excessive.” According to FTA, groundborne vibration impact criteria for residential receptors are 72 Vdb for frequent events, 75 Vdb for occasional events, and 80 Vdb for infrequent events (FTA, 2018). The FTA recommends an 80 Vdb threshold for infrequent events at residences and buildings where people normally sleep and 83 Vdb threshold at institutional buildings with primarily daytime uses. In terms of groundborne vibration impacts on structures, the FTA states that groundborne vibration levels in excess of 100 Vdb would damage fragile buildings, and levels in excess of 95 Vdb would damage extremely fragile historic buildings. The threshold for the Project is 80 Vdb for infrequent events at residences and buildings where people normally sleep (e.g., residential neighborhoods).

State

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 states that 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

General Plan Noise Element

Figure 4.12-2 shows the noise level compatibility of various land uses as shown in the city’s General Plan Noise Element.

Figure 4.12-2: City of Brentwood Land Use Compatibility for Community Noise Environment

Land Use Category	Exterior Noise Exposure (Ldn)					
	55	60	65	70	75	80
Single-Family Residential	[White]		[Grey]			
Multi-Family Residential, Hotels, and Motels	[White]			[Grey]		
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	[White]			[Grey]		
Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, Churches	[White]			[Grey]		
Office Buildings, Business Commercial, and Professional	[White]			[Grey]		
Industrial	[White]			[Grey]		
	[White] NORMALLY ACCEPTABLE Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements					
	[Grey] CONDITIONALLY ACCEPTABLE Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design					
	[Black] UNACCEPTABLE New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies					

Source: City of Brentwood General Plan, Noise Element

The city’s Noise Element includes Goals and Policies, identified below, which would reduce the potential for or degree of project-specific impacts related to noise.

Noise Goal 1: Preserve a pleasant noise environment and enhance the quality of existing and future land uses by minimizing exposure to harmful and excessive noise.

- **Policy N 1-1:** Ensure the noise compatibility of existing and future development when making land use planning decisions.

- Policy N 1-2: Require development and infrastructure projects to be consistent with the Land Use Compatibility for Community Noise Environments standards indicated in Table N-1 to ensure acceptable noise levels for existing and future development.
- Policy N 1-3: Require new development to mitigate excessive noise through best practices, including building location and orientation, building design features, placement of noise-generating equipment away from sensitive receptors, shielding of noise-generating equipment, placement of noise tolerant features between noise sources and sensitive receptors, and use of noise-minimizing materials such as rubberized asphalt.
- Policy N 1-4: Require mixed-use projects to minimize noise exposure for indoor areas of nearby residential areas through the use of noise attenuating building materials, engineering techniques, and site design practices. Site design practices may include locating mechanical equipment, loading bays, parking lots, driveways, and trash enclosures away from residential uses, and providing noise-attenuating screening features onsite.
- Policy N 1-6: Require acoustical studies for new developments and transportation improvements that affect noise-sensitive uses such as schools, hospitals, libraries, group care facilities, convalescent homes, and residential areas.
- Policy N 1-7: For projects that are required by the California Environmental Quality Act (CEQA) to analyze noise impacts, the following criteria shall be used to determine the significance of those impacts:

Stationary and Non-Transportation Noise Sources

- A significant impact will occur if the project results in an exceedance of the noise level standards contained in this element, or the project will result in an increase in ambient noise levels by more than 3 dB, whichever is greater.

Transportation Noise Sources

- Where existing traffic noise levels are less than 60 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +5 dB Ldn increase in roadway noise levels will be considered significant;
- Where existing traffic noise levels range between 60 and 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +3 dB Ldn increase in roadway noise levels will be considered significant; and
- Where existing traffic noise levels are greater than 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB Ldn increase in roadway noise levels will be considered significant.

- **Policy N 1-8:** Support noise-compatible land uses along existing and future roadways, including County, State, and Federal routes.
- **Policy N 1-9:** Local truck traffic, including loading and unloading, shall be limited to specific routes, times, and speeds appropriate to each zoning district.
- **Policy N 1-11:** Ensure that existing development is protected, to the greatest extent feasible, from noise impacts due to construction on adjacent or nearby properties.
- **Policy N 1-13:** Control non-transportation related noise from site specific noise sources to the standards shown in Table N-2 [of the City of Brentwood General Plan].
- **Policy N 1-14:** Ensure that new development does not result in indoor noise levels exceeding 45 dBA Ldn for residential uses.
- **Policy N 1-15:** Require construction activities to comply with standard best practices (see Action N 1e).

Noise Goal 2: Protect the city's economic base by preventing incompatible land uses from encroaching upon existing or planned noise producing agriculture, industries, farmland, airports, and other sources.

- **Policy N 2-1:** Recognizing that existing and future traffic noise along the State Route 4 corridor, major arterials within Brentwood, and noise from the UPRR are areas of potential land use conflict for existing and future development, reasonable use of this land will be allowed with an exterior noise exposure level not exceeding 65 dB Ldn. New development that includes noise-sensitive uses (i.e., residential) along the State Route 4 corridor, major arterials, and the UPRR should incorporate appropriate noise attenuation measures in order to maintain interior noise levels of 45 dB Ldn or less. Application of this noise standard is intended to provide for reasonable exterior noise levels while discouraging the use of excessively high and/or unattractive sound walls.
- **Policy N 2-2:** Recognizing that agricultural activities are important to Brentwood's economic base and that agricultural operations are characterized by increased noise levels from the use of tractors, heavy equipment, crop dusting, agricultural products processing, and other supporting equipment and activities, new noise sensitive land uses that interface with agricultural lands must acknowledge and accept these increased noise levels as part of Brentwood's rural heritage and lifestyle.

Municipal Code

Section 9.32.030 of the city's Municipal Code establishes interior and exterior noise level limits for residential, commercial, and industrial uses. Table 4.12-8 shows the exterior noise standards.

Municipal Code Section 9.32.050A allows grading, site improvement, infrastructure improvements, and outside heavy construction that exceed the noise standards to occur between 7:00 AM and 3:30 PM, or, with City Engineer approval, until 5:30 PM Monday through Friday. With City Engineer approval, construction on Saturday is allowed between 8:00 AM and 5:00 PM. The city's Municipal Code also allows outside carpentry construction activities that exceed the noise standards to occur between 7:00 AM and 7:00 PM, Monday through Friday, and between 9:00 AM and 5:00 PM on Saturdays.

Zones #	Designated Zone	Time Interval	Exterior Noise Levels
Zone I	Residential	7:00 AM to 10:00 PM	60
		10:00 PM to 7:00 AM	45
Zone II	Commercial	7:00 AM to 10:00 PM	60
		10:00 PM to 7:00 AM	45
Zone III	Industrial	7:00 AM to 10:00 PM	65
		10:00 PM to 7:00 AM	60

Source: City of Brentwood Municipal Code, Section 9.32.030.

4.12.3 Environmental Impacts and Mitigation Measures

This section evaluates the potential environmental impacts of the Project, based upon the level of detail provided in the VDCSP. Where significant impacts are identified, appropriate findings, and/or mitigation measures are identified, consistent with the requirements of CEQA.

Significance Criteria

The following significance criteria for noise impacts are adapted from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as amended effective December 2018, as well as certain provisions of the city's General Plan and Municipal Code. The analysis assumes that, as standard project conditions, the specific applicable requirements of the General Plan and Municipal Code will be imposed on the Project. A Project noise impact will be considered significant and will require mitigation if it exceeds the following significance thresholds.

- 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. In the case of the Project, a substantial increase in ambient noise levels would occur if the project results in exterior noise levels exceeding the city's standards presented in Figure 4.12-2 and Table 4.12-8, above, or in excess of the substantial increase criteria for cumulative noise presented in Table 4.12-9 below.

Table 4.12-9: Significance of Changes in Cumulative Noise Exposure

Ambient Noise Level Without Project, L _{dn} dB	Increase Required for Significant Impact
<60	+5.0 dB or more
60-65	+3.0 dB or more
>65	+1.5 dB or more

- Generation of excessive groundborne vibration or groundborne noise levels that would exceed the vibration levels presented in Table 4.12-10 below.

Table 4.12-10: 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.

- 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.

Method of Analysis

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 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. As noted above, construction noise will be compared considered in the context of the exterior and interior standards set forth in Section 9.32.030 of the city's Municipal Code, as referenced in Table 4.12-8 above.

Operational

Traffic noise impacts are assessed using the U.S. Federal Highway 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 based on the data included in Appendix G.

Stationary source noise (e.g., mechanical equipment, on-site trucks/loading docks, etc.) is evaluated by identifying the noise levels generated by calculating the noise level from each noise source at sensitive receiver property lines and comparing such noise levels to existing ambient noise levels. Stationary noise is calculated using a reference noise level from manufacturer specifications or environmental noise publications and the inverse square law of sound propagation (i.e., a decay rate of 6 dBA per doubling of distance).

Operational noise is evaluated based on the standards within the city's Noise Ordinance (Chapter 9.32: Noise Regulations), as well as the noise standards presented in Figure 4.12-2, Table 4.12-8, and Table 4.12-9.

Impacts of the Proposed Project

Impact NOI-1: During project construction, would the project result in a substantial temporary 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 with application of site-specific mitigation measures*)

Construction

Construction for the Project, including off-site improvements, is expected to occur in four phases spread over approximately 20 years. There will be two types of noise generated by this construction: noise from equipment and noise from increased traffic flow on local streets.

Equipment Noise

Project construction, including off-site improvements, has the potential to impact exterior noise levels in the portions of residential neighborhoods closest to the construction site. The closest that Project construction will get to individual residences will be approximately 100 feet (see Table 4.12-5 above.) The vast majority of Project construction, however, will occur beyond 100 feet from existing homes.

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). 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. Because construction of the Project will occur in phases over an extended period of time, construction equipment would not operate at an individual site or location for an extended period of time. Additionally, each construction sub-phase (e.g., grading, paving, building, etc.) would have different noise profiles and would occur

at various locations throughout the Project site as the construction progresses. 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 the hydraulic movement of machinery lifts, which would last less than one minute. According to the Project civil engineer, no pile-driving will occur.

Typical noise levels associated with individual construction equipment are listed in Table 4.12-11. Because the nearest sensitive receptor is 100 feet from the Project site, Table 4.12-11 shows typical noise levels starting at 100 feet from the source.

Equipment	Typical Noise Level (dBA)			
	100 feet from Source ¹	150 feet from Source ¹	200 feet from Source ¹	250 feet from Source ¹
Air Compressor	74	70	68	66
Backhoe	74	70	68	66
Ballast Equalizer	76	72	70	68
Ballast Tamper	77	73	71	69
Compactor	76	72	70	68
Concrete Mixer	79	75	73	71
Concrete Pump	76	72	70	68
Concrete Vibrator	70	66	64	62
Crane, Derrick	82	78	76	74
Crane, Mobile	77	73	71	69
Dozer	79	75	73	71
Generator	76	72	70	68
Grader	79	75	73	71
Impact Wrench	79	75	73	71
Jack Hammer	82	78	76	74
Loader	74	70	68	66
Paver	79	75	73	71
Pneumatic Tool	79	75	73	71
Pump	71	67	65	63
Rail Saw	84	80	78	76
Rock Drill	89	85	83	81
Roller	79	75	73	71
Saw	70	66	64	62

(Continued on next page)

Table 4.12-11: Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA)			
	100 feet from Source ¹	150 feet from Source ¹	200 feet from Source ¹	250 feet from Source ¹
Scarifier	77	73	71	69
Scraper	79	75	73	71
Shovel	76	72	70	68
Spike Driver	71	67	65	63
Tie Cutter	78	74	72	70
Tie Handler	74	70	68	66
Tie Inserter	79	75	73	71
Truck	78	74	72	70

1. Using Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018, levels for 50 feet from source and calculating increased distances using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1 + 20\log(d_1/d_2)$ where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance.

While much of the equipment potentially used for construction of the Project has the potential to cause an exceedance of the residential exterior noise standards shown in Table 4.12-8, there are a number of mitigating factors that come into consideration in evaluating the potential exterior noise impacts, including:

- Until tentative maps are approved, it is not known how close specific construction activity and the use of particular items of equipment will be to the nearest existing homes.
- Advances in technology have, in many cases, made it possible to use quieter equipment to perform the same construction tasks when in close proximity to sensitive receptors.
- As shown in Figure 4.12-2 above, the city's General Plan exterior noise levels of up to 75 dBA are conditionally acceptable after analysis and appropriate mitigation.
- The city's Municipal Code allows grading, site improvement, infrastructure improvements, and outside heavy construction that exceed the noise standards to occur between 7:00 AM and 3:30 PM, or, with City Engineer approval, until 5:30 PM Monday through Friday. With City Engineer approval, construction on Saturday is allowed between 8:00 AM and 5:00 PM.
- The city's Municipal Code also allows outside carpentry construction activities that exceed the noise standards to occur between 7:00 AM and 7:00 PM Monday through Friday and between 9:00 AM and 5:00 PM on Saturdays.

Nonetheless, the potential remains for some construction activity to generate noise that will not be "Conditionally Acceptable" under Figure 4.12-2 above (which depicts Table N-1 in the General Plan Noise Element). Prior to the processing of tentative maps for the Project that will provide greater specificity as to the location of construction areas, if any, that might generate excessive noise levels, it is impractical to identify specific nearby homes which might be the

receptors of that noise. Therefore, this EIR conservatively concludes that Project construction, including off-site improvements, could result in significant impacts related to temporary increases in ambient noise levels, and further site-specific mitigation is required.

MM NOI-1 requires, as a condition to each tentative map for the Project, prior to the issuance of the Grading Permit for that map, the Project proponent will prepare a Construction Noise Mitigation Plan for approval by the City of Brentwood Community Development Department. This plan will incorporate Suggested Best Practices 2-12 in Action N 1e of the Noise Element, with particular emphasis on the use of the latest “quiet” technology for noise generating construction equipment where necessary to meet the Conditionally Acceptable standard of Figure 4.12-2 above (Table N-1 of the Noise Element). With implementation of MM NOI-1, equipment noise impacts would be less than significant.

Construction Traffic Noise

Construction noise may be generated by large trucks moving materials to and from the Project site and off-site improvement areas. 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. Based on the California Emissions Estimator Model (CalEEMod) default assumptions for this Project, as analyzed in Section 4.3, Air Quality, the Project would generate the highest number of daily construction trips during the building construction phase (compared to other construction phases). The model estimates that the Project would generate up to 1,928 worker trips and 408 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. As shown in the existing traffic conditions discussion, Balfour Road east of the Hillcrest Extension has an average daily trip volume between 19,765 and 27,005 vehicles. Balfour Road west of the Hillcrest Extension has an average daily trip volume between 8,478 and 9,305 vehicles. Therefore, 2,336 project construction trips (1,928 worker trips plus 408 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.

The State of 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 dB. 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 76 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).

As such, noise from truck trips associated with the Project would not be expected to exceed FTA threshold levels of 90 dBA (one-hour Leq) or 80 dBA (eight-hour Leq) (FTA, 2006).

Conclusion

Sensitive receptors surrounding the Project area include residences approximately 100 feet east and 250 feet south of the site and two schools approximately 600 feet south. These distances are from the Project site to the sensitive receptor property line. These sensitive uses may be exposed to elevated noise levels during Project construction.

Based on the discussion above, if the noisiest piece of equipment is operated at the closest point to the nearest residence, the exterior noise level at that residence could reach 89 dBA, with the other sensitive receptors in the area receiving lesser noise levels still in excess of city exterior noise standards. Such noise levels would be considered a substantial temporary increase in ambient noise levels, which would constitute a significant impact.

Compliance with MM NOI-1 and MM NOI-2 would reduce construction noise, including associated with off-site improvements, by requiring compliance with the city's allowable hours, equipment to be muffled, locating stationary equipment away from sensitive receptors, and requiring a noise disturbance coordinator to respond to noise complaints to reduce construction-related noise. MM NOI-1 would require the Project proponent to prepare, for approval by the Community Development Department, a Construction Noise Mitigation Plan. This plan will incorporate Suggested Best Practices 2-12 in Action N 1e of the General Plan Noise Element, with particular emphasis on the use of the latest "quiet" technology for noise generating construction equipment where necessary to meet the Conditionally Acceptable standard of Figure 4.12-2 above (Table N-1 of the Noise Element).

Considering implementation of MM NOI-1, Project construction, including off-site improvements, would not generate a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established in the city's General Plan or Noise Ordinance, and construction noise impacts would be ***less than significant***.

Mitigation Measures

MM NOI-1 *Construction Noise. As a condition to each tentative map for the Project, prior to the issuance of the Grading Permit for that map, the Project proponent shall prepare a Construction Noise Mitigation Plan. This plan shall incorporate Suggested Best Practices 2-12 in Action N 1e of the 2014 General Plan Noise Element, with particular emphasis on the use of the latest "quiet" technology for noise generating construction equipment where necessary to meet the Conditionally Acceptable standard of Figure 4.12-2 above (Table N-1 of the Noise Element). To ensure compliance with these existing standards, the Construction Noise Mitigation Plan shall demonstrate, to the satisfaction of the Brentwood Community Development Department, that the Project complies with the following:*

- *N-1a: Heavy Construction Activities. Per Brentwood Municipal Code 9.32.050, heavy construction activities shall be restricted to the hours of 7:00 AM and 3:30 PM, or until 5:30 PM with the express written approval of the City Engineer or designee Monday through Friday, 8:00 AM and 5:00 PM on Saturdays with written approval of the City Engineer or designee, and never on Sunday or city holidays. Outside carpentry construction shall be restricted to the hours of 7:00 AM and 7:00 PM Monday through Friday, 9:00 AM and 5:00 PM on Saturdays and never on Sunday or city holidays.*
- *N-1b: Construction Equipment. Properly maintain construction equipment and ensure that all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds (if the equipment had such devices installed as part of its standard equipment package) that are in good condition and appropriate for the equipment. Equipment engine shrouds shall be closed during equipment operation. Contractor, shall maintain and tune-up all construction equipment to minimize noise emissions.*
- *N-1c: Vehicle and Equipment Idling. Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use.*
- *N-1d: Stationary Equipment. The construction contractor shall utilize “quiet” models of air compressors and other stationary noise sources where technology exists. All noise-generating stationary equipment such as air compressors or portable power generators shall be located as far as possible from sensitive receptors. Temporary noise barriers shall be constructed to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 10 dBA.*
- *N-1e: Construction Route. All construction traffic to and from the Project site shall be routed using designated truck routes where feasible. All construction-related heavy truck traffic in residential areas shall be prohibited where feasible.*
- *N-1f: Workers’ Radios. All noise from workers’ radios shall be controlled to a point that they are not audible at sensitive receptors near the construction activity.*
- *N-1g: Construction Plan. Prior to issuance of any grading and/or building permits, the contractor shall prepare and submit to the City of Brentwood for approval a detailed construction plan identifying the schedule for major noise-generating construction activity.*

- *N-1h: Disturbance Coordinator. A “noise disturbance coordinator” shall be designated by the contractor. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. The coordinator shall post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.*

Impact NOI-2: During project operations, would the project result in a substantial 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? (significant and unavoidable, even with application of site-specific mitigation measures)

Operational

Implementation of the 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. heating, ventilation, and air conditioning [HVAC] units);
- Delivery trucks on the Project site (i.e. approaching and leaving the loading areas, maneuvering and idling trucks, loading/unloading, and equipment noise);
- Recreational noise (i.e. amphitheater, pool area, recreation center, etc.);
- Landscape maintenance activities.

As discussed above, the closest sensitive receptors are single-family residences located 100 feet to the east, 250 feet to the south, and 560 feet northwest of the Project area. The City of Brentwood’s stationary source exterior noise standard for residential areas is 60 dBA (refer to Table 4.12-8). The land use compatibility standard for residential areas is also 60 dBA for normally acceptable conditions (refer to Figure 4.12-2).

It should be noted that agricultural activities currently occur within the Project site, and would be anticipated to continue to occur with implementation of the Project, albeit to a more limited extent. Because the Project site is currently used for agricultural purposes and the Project would include continuation of such uses, noise related to on-site agricultural activities would not be anticipated to change compared to the existing conditions, and is not further analyzed within this Section.

Traffic Noise

Implementation of the Project would generate increased traffic volumes along study roadway segments. According to the transportation impact analysis (Fehr & Peers, April 2019), the Project would result in a total of 14,970 average daily trips, which would result in noise increases on Project area roadways. Transportation Noise Sources are assessed based on the criteria in Brentwood General Plan Policy N 1-7. Per Policy N 1-7, transportation noise is significant according to the following:

- Where existing noise levels are less than 60 dBA L_{dn} , increases of +5 dBA are significant;
- Where existing traffic noise levels range between 60 and 65 dB L_{dn} , increases of +3 dB are significant; and
- Where existing traffic noise levels are greater than 65 dB L_{dn} , increases of +1.5 dB are significant.

For reference, traffic noise increases of less than 3 dBA are barely perceptible to people, while a 5-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 dBA.

Table 4.12-12, Existing and Existing Plus Project Traffic Noise, shows traffic noise levels on Project-vicinity roadways at 100 feet from the roadway centerline. The Existing Plus Project condition is considered a hypothetical scenario because it assumes that the Project would be fully implemented immediately in 2019, which is not feasible. Nonetheless, an analysis of this scenario is conservatively provided. As shown in Table 4.12-12, existing roadway noise levels with the Project would range from 32.7 to 67.0 dBA. The highest increase in noise levels would occur along Balfour Road between the SR-4 eastbound and westbound ramps. Noise levels along this roadway segment would increase 0.8 dBA over the Existing Without Project scenario.

As shown in Table 4.12-12, noise levels along the roadways segments in the Project area would be below the thresholds identified in General Plan Policy N 1-7 except for Balfour Road between Hillcrest Extension and John Muir Parkway. Therefore, a potentially significant impact would occur.

Roadway Segment	Existing Conditions		Existing With Project		Project Change	Significant Impact?
	ADT	dBA L_{dn}^1	ADT	dBA L_{dn}^1		
Balfour Road						
Deer Valley Road to Project Retail Driveway	8,478	62.9	10,198	63.7	0.8	No
Project Driveway to American Ave. Extension	9,243	63.2	12,143	64.4	1.2	No
American Ave. Extension to Hillcrest Extension	9,305	63.3	14,033	65.0	1.8	No

(Continued on next page)

Roadway Segment	Existing Conditions		Existing With Project		Project Change	Significant Impact?
	ADT	dBA L _{dn} ¹	ADT	dBA L _{dn} ¹		
Hillcrest Extension to W. Country Club Drive	9,305	63.3	19,893	66.6	3.3	Yes
W. Country Club Drive to Foothill Drive	20,823	65.9	29,375	67.4	1.5	Yes
Foothill Drive to John Muir Parkway	19,765	65.7	28,228	67.2	1.5	Yes
John Muir Parkway to SR-4 EB Ramps	23,438	66.5	31,493	67.8	1.3	No
SR-4 EB Ramps to SR-4 WB Ramps	27,005	67.0	32,665	67.9	0.8	No
SR-4 WB Ramps to Summerset Drive	23,770	66.5	26,700	67.0	0.5	No
Summerset Drive to Fairview Avenue	23,663	66.4	26,593	67.0	0.5	No
Sand Creek Road						
West of Hillcrest Avenue	N/A	N/A	N/A	N/A	N/A	N/A
Hillcrest Avenue to Heidorn Ranch Road	N/A	N/A	N/A	N/A	N/A	N/A
Heidorn Ranch Road to SR-4 EB Ramps	10	32.7	10	32.7	0	No
Deer Valley Road						
North of Balfour Road	7,540	61.3	9,150	62.1	0.8	No
South of Balfour Road	1,495	54.2	1,605	54.5	0.3	No
American Avenue						
South of Balfour Road	9,893	58.0	9,843	58.0	0	No
Hillcrest Avenue						
Balfour Road to Sand Creek Road	N/A	N/A	8,335	61.8	N/A	No
North of Sand Creek Road	N/A	N/A	N/A	N/A	N/A	N/A
Notes: ADT = average daily traffic; dBA = A-weighted decibels; L _{dn} = day-night average sound level; N/A = applies to a future planned roadway						
1. Traffic noise levels are at 100 feet from the roadway centerline.						
Source: Based on traffic data within the <i>Transportation Impact Assessment for the Vineyards at Deer Creek</i> , prepared by Fehr and Peers, 2019. Refer to Appendix G for traffic noise modeling assumptions and results.						

Table 4.12-13 shows the Near-Term traffic noise levels on Project-vicinity roadways at 100 feet from the roadway centerline. Near-Term is considered Opening Year of the full Project, or 2024. As shown in Table 4.12-13, Near-Term roadway noise levels with the Project would range from 56.1 to 68.3 dBA. The highest increase in noise levels would occur along Balfour Road between Hillcrest Extension and West Country Club Drive. Noise levels along this roadway segment would increase 2.9 dBA over the Near-Term Without Project scenario. As shown in Table 4.12-13, noise levels along the roadways segments in the Project area would be below the thresholds identified in General Plan Policy N 1-7 except for Balfour Road between Foothill Drive and John Muir Parkway, as the Project would increase noise levels by 1.5 dBA and without the Project (Near-Term) noise levels would be 66.0 dBA. Therefore, a potentially significant impact would occur.

Typically, feasible mitigation measures for off-site roadway noise impacts include repairing the roads with rubberized asphalt and developing sound walls or attenuation barriers to minimize noise impacts. Sound walls would be infeasible due to impacts on right of way, restricted views, and not being proportional to the imperceptible increase in sound. Rubberized asphalt could be considered by the city's Public Works Department in the future as part of scheduled maintenance funding, but it would not be roughly proportional to impose paving costs on the

project for an imperceptible sound level increase. The Project proponent would pay transportation impact fees (TIF) and property taxes that could be used for such improvements if those improvements were added to the city's Capital Improvement Program.

Roadway Segment	Near-Term Without Project		Near-Term With Project		Project Change	Significant Impact?
	ADT	dBA L _{dn} ¹	ADT	dBA L _{dn} ¹		
Balfour Road						
Deer Valley Road to Project Retail Driveway	9,310	63.3	11,030	64.0	0.7	No
Project Driveway to American Ave. Extension	10,115	63.6	13,065	64.7	1.1	No
American Ave. Extension to Hillcrest Extension	10,180	63.6	14,055	65.0	1.4	No
Hillcrest Extension to W. Country Club Drive	10,178	63.6	19,913	66.6	2.9	No
W. Country Club Drive to Foothill Drive	22,270	66.2	30,823	67.6	1.4	No
Foothill Drive to John Muir Parkway	21,183	66.0	29,645	67.4	1.5	Yes
John Muir Parkway to SR-4 EB Ramps	25,810	66.9	33,865	68.1	1.2	No
SR-4 EB Ramps to SR-4 WB Ramps	30,230	67.5	35,888	68.3	0.7	No
SR-4 WB Ramps to Summerset Drive	26,975	67.0	29,903	67.5	0.4	No
Summerset Drive to Fairview Avenue	26,903	67.0	29,833	67.5	0.4	No
Sand Creek Road						
West of Hillcrest Avenue	3,450	58.1	3,450	58.1	0	No
Hillcrest Avenue to Heidorn Ranch Road	5,730	60.3	5,730	60.3	0	No
Heidorn Ranch Road to SR-4 EB Ramps	7,708	61.6	7,778	61.6	0	No
Deer Valley Road						
North of Balfour Road	8,125	61.6	9,735	62.4	0.8	No
South of Balfour Road	2,185	55.9	2,295	56.1	0.2	No
American Avenue						
South of Balfour Road	10,388	58.2	10,388	58.2	0	No
Hillcrest Avenue						
Balfour Road to Sand Creek Road	0	0	5,815	60.2	N/A	No
North of Sand Creek Road	5,530	59.9	5,530	59.9	0	No
Notes: ADT = average daily traffic; dBA = A-weighted decibels; L _{dn} = day-night average sound level; N/A = applies to a future planned roadway 1. Traffic noise levels are at 100 feet from the roadway centerline.						
Source: Based on traffic data within the <i>Transportation Impact Assessment for the Vineyards at Deer Creek</i> , prepared by Fehr and Peers, 2019. Refer to Appendix G for traffic noise modeling assumptions and results.						

Therefore, impacts to off-site uses from traffic noise would also be considered significant because feasible mitigation measures would not be available to mitigate noise levels on all surrounding roadways to below thresholds. It should be noted that this impact is from a 1.5 dBA increase, which is significant for existing noise levels above 65 dBA per General Plan Policy N 1-7. As noted above, traffic noise increases of less than 3 dBA are barely perceptible. Nonetheless, the noise level increase would result in a significant and unavoidable impact in the Near-Term (Opening Year). This impact is consistent with the conclusion in the 2014 General Plan EIR, which also found that traffic noise impacts would be significant and unavoidable.

Traffic Calming Measures

Roadways associated with the proposed Project could potentially include traffic safety improvements and traffic calming measures. These measures could include rumble strips. Rumble strips use both noise and vibration to alert a driver that he or she is leaving the travel path. Rumble strips are designed to be traversed infrequently (e.g., when a driver drifts from his or her lane or makes a passing maneuver). Careful attention to design details can result in less nuisance hits on the rumble strips (i.e., vehicle tires crossing the rumble strip when a crash is not imminent).

The noise generated outside the vehicle can be disruptive to residents or businesses in the area, and the goal is to produce as little sound as possible outside the vehicle. The sound level of rumble strips can be difficult to measure as it occurs more intermittently than normal highway noises. The maximum noise level is typically the key consideration for rumble strips, whereas the average noise level, over a period of time, is the key consideration for highway noise.

To address this potential source of unnecessary road noise, agencies may consider widening the pavement through the curve or using a "spiral transition" to reduce the likelihood of vehicles crossing the rumble strips. Best practices to minimize noise from rumble strips include restriping the pavement to increase the travel lane width while reducing the shoulder width for center line rumble strips and placing the strips at a greater offset from the edge line in the specific locations where noise might be problematic for edge or shoulder rumble strips.

As noted above, noise from traffic calming measures would occur infrequently. The Caltrans *Technical Supplement to the Traffic Noise Protocol* (September 2013) indicates that it takes a doubling of traffic on a roadway to result in a noticeable (i.e., 3 dBA) sound level increase. Occasional intermittent noise from traffic calming measures would not be significant enough to double the total sound energy of the roadway. Traffic noise is typically evaluated with the 24-hour metric (e.g., CNEL or L_{dn}) or hourly L_{eq} . Therefore, infrequent noise from traffic calming measures would not substantially influence overall traffic noise on the CNEL/ L_{dn} or L_{eq} level.

Mechanical Equipment

Mechanical equipment (HVAC units) would be located within the Project area. HVAC units typically generate noise levels of approximately 50 dBA at 50 feet. As stated above, the nearest existing sensitive receptor's property lines are located approximately 100 feet from the proposed residential uses within the Project area. Noise generated by mechanical equipment on the Project site would not exceed the city's 60 dBA standard at off-site sensitive receptors. Compliance with the General Plan Policies and Municipal Code would reduce potential on-site noise impacts from mechanical equipment. For example, General Plan Policies N 1-3 and N 1-13 requires new developments to mitigate excessive noise through best practices. Noise levels from mechanical equipment would be further reduced with implementation of MM NOI-2, which requires location of equipment away from any sensitive receptors, proper selection of equipment, and installation of equipment with proper acoustical shielding. In addition, the

standards included in MM NOI-5 would ensure Project consistency with General Plan Policy N 1-4, which requires new development to minimize noise exposure for indoor areas of residential uses located adjacent to commercial uses. Therefore, the proposed Project would result in a less-than-significant impact related to stationary noise levels.

Delivery Trucks

Truck loading and unloading areas may be included at future potential commercial uses. Noise sources at truck loading areas may include maneuvering and idling trucks, truck refrigeration units, forklifts, banging and clanging of equipment (i.e., hand carts and roll-up doors), and voices of truck drivers and employees. The maximum noise levels of slow-moving heavy and small trucks range between 70 and 73 dBA at 50 feet. Based on the inverse square law of sound propagation (i.e., a standard attenuation rate of 6 dBA per doubling of distance), noise levels would be reduced to 59.0 dBA at 250 feet. Existing off-site sensitive receptors within 250 feet would not experience noise levels above the city's 60 dBA exterior standard. However, proposed on-site receptors could be located within 250 feet of the commercial areas and an exceedance of the city's 60 dBA noise standard could occur at future sensitive receptors.

The final location of loading areas has not been determined. To mitigate noise levels resulting from activities in these areas, loading areas established within 250 feet of a residential use shall be designed to have either a depressed (i.e., below grade) loading area; an internal bay area (i.e., within a building); or a wall to break the line of sight between residential land uses and other noise sensitive uses, and loading activities (refer to MM NOI-3). Prior to issuance of any building permits, an acoustical analysis shall be performed to demonstrate that operation of potential loading areas does not result in noise levels that exceed the city's Municipal Code standard of 60 dBA at the exteriors of nearby residences' living areas or other sensitive uses.

Residential Areas

Noise that is typical of higher-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 AM to 10:00 PM. Furthermore, the residences would be required to comply with the noise standards set forth in the city's General Plan and Municipal Code.

Recreation Areas

Recreation areas would potentially include an amphitheater, community recreation areas, and swimming pools. However, as discussed in Chapter 3, Project Description, the final constructed mix of uses, while being recreation focused, would be refined based on the mix of housing types, evolving market trends, and programming requirements.

The southwestern portion of the Project area includes commercial space for civic uses and functions. This area could potentially include a 1,000 to 2,000 seat outdoor amphitheater for

music concerts and performances. Other uses in this sub-area may include offices, winery, farm-to-table restaurant, and a wine barn for tastings, weddings, and other community events.

Amphitheater Noise. An amphitheater would provide occasional live music events. Live music typically generates noise levels of 88 dBA at 20 feet from the source. The nearest existing sensitive receptors would be located approximately 400 feet from the live music stage/area at the Project site. However, the exact location of a proposed amphitheater is unknown as the site plan is in conceptual form. Consistent with the requirements of General Plan Policy N 1-6 (acoustical studies for new developments that affect noise-sensitive uses), MM NOI-4 requires an acoustical analysis to demonstrate that operation of potential loading areas does not result in noise levels that exceed the city's Municipal Code standard of 60 dBA at the exteriors of nearby residences' living areas or other sensitive uses. The city's Noise Ordinance does not explicitly permit/exempt music or events; however, the amphitheater would be a permitted use in the VDCSP. Additionally, an acoustical analysis would be required to identify design features or other mitigation measures that would ensure that the city's noise standards are not exceeded.

Recreation Center Noise. Each of the six neighborhoods may have its own neighborhood recreation center. These recreation centers may include multi-purpose rooms, fitness centers, restaurants, health spa, tennis courts and other informal recreation activities. The major noise source associated with the recreation center would be human voices. The human voice can range from approximately 40 dBA to 105 dBA. However, recreation uses such as tennis matches are not considered a high-volume activity, where random shouts would be the most disruptive noise. In addition, the hours of operation of the recreation center would limit the effects in compliance with the city's Noise Ordinance (Chapter 9.32: Noise Regulations), which prohibits excessive noise after 10:00 PM. Therefore, impacts are considered less than significant.

Crowd Noise. The Project area may include some crowd noise due to events in the commercial/civic area or at the community recreation areas. Crowd noise is dependent on several factors including vocal effort, impulsiveness, and the random orientation of the crowd members. Crowd noise is estimated at 60 dBA at one meter (3.28 feet) away for raised normal speaking. This noise level would have a +5 dBA adjustment for the impulsiveness of the noise source, and a -3 dBA adjustment for the random orientation of the crowd members. Therefore, crowd noise would be 62 dBA at one meter from the source. Noise has a decay rate due to distance attenuation, which is calculated based on the Inverse Square Law. Based upon the Inverse Square Law, sound levels decrease by 6 dBA for each doubling of distance from the source. As a result, crowd noise would be 56.0 dBA at 6.56 feet and 52.3 dBA at 10 feet. Therefore, crowd noise at the closest existing sensitive receptors (located 250 feet away) would not exceed the city's 60 dBA standard. A less-than-significant impact would occur in this regard.

Swimming Pool Noise. The Project would include multiple swimming pools throughout the Project area. Noise associated with the swimming pools includes pool equipment and pool activities. Pool mechanical equipment would produce constant noise levels of 55 dBA at 50 feet from the source. This would not exceed the city's exterior noise standard of 60 dBA for residential uses. As noted above, General Plan Policies N 1-3 and N 1-13 requires new

developments to mitigate excessive noise through best practices. Therefore, pool equipment would be enclosed in pump rooms, which would attenuate noise levels to a reduced a noise level within the city's noise standards.

Additionally, noise levels associated with recreational swimming are typically 57 dBA at 75 feet from the edge of the pool for lap swim activities and 56 to 67 dBA for community swim activities. The swimming pools would be located within the proposed neighborhoods and would be buffered by proposed recreational buildings and intervening residential structures. Pool areas would be located more than 250 feet from the closest off-site sensitive receptors. At this distance pool noise would attenuate to 57 dBA, without accounting for additional attenuation from intervening structures, terrain, or other barriers. Pool noises would only be heard during daytime hours. Swimming pool noise levels would not exceed city standards and impacts would be less than significant.

Landscape Maintenance Activities

Development and operation of the Project would introduce new landscaping requiring periodic maintenance. Noise generated by a gasoline-powered lawnmower is estimated to be approximately 70 dBA at a distance of five feet. However, maintenance activities would operate during daytime hours for brief periods of time as allowed by the city Municipal Code and would not permanently increase ambient noise levels in the project vicinity. Therefore, with adherence to the city's Municipal Code, impacts associated with landscape maintenance would be less than significant.

Conclusion

Overall, adherence to Municipal Code requirements would ensure that noise impacts associated with recreational areas, swimming pools, and landscape maintenance would be reduced to a less-than-significant level. Additionally, the implementation of site-specific mitigation measures MM NOI-2 through MM NOI-5, in addition to adherence to Municipal Code requirements, would ensure that noise impacts associated with stationary noise impacts from mechanical equipment, deliveries, loading/unloading activities, and potential amphitheater noise would be reduced to a less-than-significant level. As noted above, MM NOI-5 would ensure Project consistency with General Plan Policy N 1-4, which requires new development to minimize noise exposure for indoor areas of residential uses located adjacent to commercial uses. MM NOI-6 would further require inclusion of noise attenuation measures for residential development along Balfour Road in order to maintain interior noise levels of 45 dB L_{dn} or less, consistent with City standards. It should be noted that the various recreational areas would be distributed throughout the approximately 815-acre Project site. Each recreational area would be scaled to serve the associated neighborhood. In addition to distance, these uses would be separated by intervening structures and topography. Therefore, concurrent use of the recreational areas would not combine to result in an exceedance of a noise standard. Additionally, recreational noise would primarily occur only during daytime hours. However, operational traffic noise on one roadway segment (Balfour Road between Foothill Drive and John Muir Parkway) in the Near-Term scenario (opening year) would exceed the limits

established in General Plan Policy N 1-7. Consequently, despite the implementation of mitigation measures, impacts related to the permanent increase in ambient noise levels in excess of local standards would be considered **significant and unavoidable**.

Mitigation Measures

MM NOI-2 *Mechanical Equipment. Prior to the issuance of any building permit, the Project proponent shall demonstrate compliance with the city's Municipal Code provisions pertaining to the types and placement of mechanical equipment. To the satisfaction of the Community Development Department, compliance with the city's Municipal Code shall be demonstrated through preparation of a technical noise memorandum covering the area proposed for development at the time of building permit application. At a minimum, the technical noise memorandum prepared for proposed mechanical equipment shall demonstrate compliance with the city's Municipal Code Exterior Noise Level standards and compliance with the following:*

- *To the extent feasible, all mechanical equipment shall be oriented away from the nearest noise sensitive receptors; and*
- *All mechanical equipment shall be screened and enclosed to minimize noise or the equipment shall be factory rated at a noise level that would comply with the noise limits set forth in the city's Municipal Code.*

MM NOI-3 *Loading and Delivery Areas. Prior to the issuance of any building permit, the Project proponent shall demonstrate, through preparation of a technical noise memorandum, that where a loading/delivery area is located within 250 feet of a residential use, all deliveries of goods and supplies; trash pick-up; and the operation of machinery or mechanical equipment which emits noise levels in excess of 60 dBA, as measured from the closest property line to the equipment, shall only be allowed between the hours of 7:00 AM and 10:00 PM, unless otherwise specified in a separate approval. The separate approval shall require a detailed acoustical study based on architectural plans to demonstrate that loading/delivery noise levels do not exceed the city's 60 dBA standard. If necessary, the acoustical study shall incorporate noise reduction measures to meet the city's standard. Approval of the detailed acoustical study by the City of Brentwood Community Development Department shall be required prior to the issuance of any building permits.*

MM NOI-4 *Amphitheater Noise. Prior to the issuance of any building permit for the Amphitheater in the commercial/civic area, a detailed acoustical study based on architectural plans shall be prepared by a qualified acoustical consultant and submitted for approval to the Community Development Department. The acoustical study shall demonstrate that events hosted at the*

Amphitheater would meet the city's 60 dBA daytime (7:00 AM to 10:00 PM) exterior noise standard, and 45 dBA nighttime (10:00 PM to 7:00 AM) exterior noise standard. The acoustical study shall identify design features or other measures, if necessary, to ensure compliance with the city's standard.

MM NOI-5 *Uses on the Project site that introduce commercial noise to nearby residences shall minimize noise exposure for indoor areas of such residential uses to the satisfaction of the Community Development Director through the use of noise attenuating building materials, engineering techniques, and site design practices. Site design practices may include, but shall not be limited to, locating mechanical equipment, loading bays, parking lots, driveways, and trash enclosures away from residential uses, and providing noise-attenuating screening features onsite.*

MM NOI-6 *Residential development along Balfour Road must include appropriate noise attenuation measures in order to maintain interior noise levels of 45 dB Ldn or less. Application of this noise standard is intended to provide for reasonable exterior noise levels while discouraging the use of excessively high and/or unattractive sound walls.*

Impact NOI-3: **Would the project result in generation of excessive groundborne vibration or groundborne noise levels? (less than significant with application of site-specific mitigation measures)**

Construction

Increases in groundborne vibration levels attributable to the Project would be primarily associated with construction-related activities, including off-site improvements. Construction on the Project area 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 that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.50 in/sec 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; refer to Table 4.12-14, 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.

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 Project proponent, the Project does not expect to use pile drivers as construction equipment. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Because the City of Brentwood has established no vibration standards, 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).

	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
2. 1. RMS velocity calculated from vibration level (VdB) using the reference of one micro-inch/second.			

Table 4.12-15, 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 inch/second PPV at 25 feet from the source of activity. It is also acknowledged that construction activities would occur throughout the Project area and would not be concentrated at the point closest to the nearest structure.

Equipment Type	PPV at 25 Feet (in/sec)	PPV at 100 Feet (in/sec)	PPV at 250 Feet (in/sec)
Large Bulldozer	0.089	0.0111	0.0028
Caisson Drilling	0.089	0.0111	0.0028
Loaded Trucks	0.076	0.0095	0.0024
Rock Breaker	0.059	0.0074	0.0019
Jackhammer	0.035	0.0044	0.0011
Vibratory Roller	0.210	0.0263	0.0066
Small Bulldozer/Tractor	0.003	0.0004	0.0001
Notes: 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.			

The nearest sensitive receptors would be approximately 100 feet to the east and 250 feet to the south. Based on typical vibration levels, ground vibration generated by heavy-duty equipment could reach levels of 0.026 inches per second peak particle velocity at 100 feet and 0.0066 at 250 feet. The use of construction equipment would not result in a groundborne vibration velocity level above the established threshold of 0.2 inches per second PPV for off-site sensitive receptors. In addition, the future on-site receptors could be located adjacent to a phase that is currently being built. However, these on-site receptors would not be closer than 50 feet from an active construction site. At 50 feet, the highest vibration level would be 0.0263 inches per second PPV. As noted above, construction activities, including off-site improvements, would be required to comply with MM NOI-1. This measure includes administrative controls such as notifying neighbors of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with the least potential to affect nearby businesses, in order to ensure that perceptible vibration can be kept to a minimum, and as such would not result in a significant impact with respect to perception. As a result, impacts associated with excessive groundborne vibration during construction, including off-site improvements, would be less than significant.

Operational

The 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 occasional delivery vehicles (which do not have the potential to exceed 0.2 inches per second PPV) to the Project site once facilities are operational. As a result, impacts from vibration associated with Project operation would be less than significant.

Conclusion

Considering the analysis provided above, implementation of the Project would not result in the generation of excessive groundborne vibrations or groundborne noise, and a ***less-than-significant*** impact would result.

Mitigation Measures

MM NOI-7 *Implement MM NOI-1.*

Impact NOI-4: **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? (*no impact*)**

The nearest public airports to the Project area are the Byron Airport located approximately 9.5 miles southeast, Buchanan Field Airport located approximately 16 miles northwest, and the Livermore Municipal Airport, located approximately 16 miles southwest. Funny Farm Airport is the nearest private airport located approximately 5.5 miles northeast of the Project area.

According to the 2014 General Plan EIR, the City of Brentwood is not located within two miles of any public or private use airport. Therefore, no impacts would occur.

Mitigation Measures

None required.

Cumulative Impacts

Impact NOI-5: Would the project result in exposure of persons or generation of noise in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (*less than significant with application of site-specific mitigation measures*)

Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Cumulative noise impacts involve development of the 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 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 bounded by Deer Valley Road to the west, existing residences to the south and east, and vacant land to the north. Construction activities at other planned and approved project sites would be required to take place during daytime hours, and the city and Project proponents 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 Brentwood 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.

Operational

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the 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 Project and other projects in the vicinity. However, noise from generators and other stationary sources could also generate cumulative noise levels.

Stationary Noise

As discussed above, impacts from the Project's stationary noise sources would be less than significant with General Plan Policy compliance and the implementation of MM NOI-2 through

MM NOI-6. 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. The cumulative with Project noise level would cause a significant cumulative impact if a substantial increase over cumulative without project conditions occurs. Per the 2014 General Plan a significant increase is defined as:

1. Where existing traffic noise levels are less than 60 dB L_{dn} , a +5 dB L_{dn} increase in roadway noise levels will be considered significant;
2. Where existing traffic noise levels range between 60 and 65 dB L_{dn} , a +3 dB L_{dn} increase in roadway noise levels will be considered significant; and
3. Where existing traffic noise levels are greater than 65 dB L_{dn} , a + 1.5 dB L_{dn} increase in roadway noise levels will be considered significant.

Table 4.12-16 shows the Cumulative year (i.e., 2040) traffic noise levels on Project-vicinity roadways, at 100 feet from the roadway centerline, with and without Project generated traffic. According to the Transportation Impact Analysis prepared by Fehr and Peers (2019), the Cumulative year represents conditions over the next 20 to 25 years (2040-2045). As shown in Table 4.12-16, Cumulative roadway noise levels With Project would range from 57.6 to 68.5 dBA. The highest increase in noise levels would occur along Hillcrest Avenue Road between Balfour Road and Sand Creek Road. Noise levels along this roadway segment would increase 4.3 dBA over the Cumulative Without Project scenario. Despite the anticipated change in roadway noise, as shown in Table 4.12-16, noise levels along the roadways segments in the Project area would be below the thresholds identified in General Plan Policy N 1-7. Therefore, the incremental contribution to cumulative impacts related to Project implementation would be less than significant.

Conclusion

Based on the above, with implementation of MM NOI-1, Project construction would not contribute to cumulative impacts and associated impacts would not cumulatively considerable. With regard to operations, the project's contribution to cumulative traffic noise would be less than cumulatively considerable. However, implementation of MM NOI-2 through MM NOI-5 would be necessary to avoid a significant impact related to stationary noise sources. With

implementation of MM NOI-1 through MM NOI-5, the Project’s incremental contribution to cumulative noise impacts would be *less than cumulatively considerable*.

Table 4.12-16: Cumulative Traffic Noise

Roadway Segment	Cumulative Without Project		Cumulative With Project		Project Change	Significant Impact?
	ADT	dBA L _{dn} ¹	ADT	dBA L _{dn} ¹		
Balfour Road						
Deer Valley Road to Project Retail Driveway	12,250	64.5	13,610	64.9	0.5	No
Project Driveway to American Ave. Extension	12,250	64.5	14,390	65.2	0.7	No
American Ave. Extension to Hillcrest Extension	12,675	64.6	15,620	65.5	0.9	No
Hillcrest Extension to W. Country Club Drive	12,625	64.6	19,295	66.4	1.8	No
W. Country Club Drive to Foothill Drive	25,850	66.8	31,455	67.7	0.9	No
Foothill Drive to John Muir Parkway	24,625	66.6	30,208	67.5	0.9	No
John Muir Parkway to SR-4 EB Ramps	28,825	67.4	34,003	68.1	0.7	No
SR-4 EB Ramps to SR-4 WB Ramps	33,700	68.0	38,040	68.5	0.5	No
SR-4 WB Ramps to Summerset Drive	29,350	67.4	32,820	67.9	0.5	No
Summerset Drive to Fairview Avenue	29,350	67.4	32,820	67.9	0.5	No
Sand Creek Road						
West of Hillcrest Avenue	18,350	65.3	18,680	65.4	0.1	No
Hillcrest Avenue to Heirdon Ranch Road	18,650	65.4	20,460	65.8	0.4	No
Heirdon Ranch Road to SR-4 EB Ramps	31,150	67.6	32,300	67.8	0.2	No
Deer Valley Road						
North of Balfour Road	11,700	63.2	12,950	63.6	0.4	No
South of Balfour Road	3,150	57.5	3,260	57.6	0.1	No
American Avenue						
South of Balfour Road	13,600	59.4	13,600	59.4	0.0	No
Hillcrest Avenue						
Balfour Road to Sand Creek Road	2,350	56.3	6,375	60.6	4.3	No
North of Sand Creek Road	6,900	60.9	8,130	61.6	0.7	No
Notes: ADT = average daily traffic; dBA = A-weighted decibels; L _{dn} = day-night average sound level						
Source: Based on traffic data within the <i>Transportation Impact Assessment for the Vineyards at Deer Creek</i> , prepared by Fehr and Peers, 2019. Refer to Appendix G for traffic noise modeling assumptions and results.						

Mitigation Measures

MM NOI-8 Implement MM NOI-1 through MM NOI-5.

4.13 Public Services and Recreation

4.13.1 Environmental Setting

This section presents information on primary public services and recreational facilities in the City of Brentwood that could be affected by the Project, including police and fire protection, schools, libraries, and parks. As an assessment of environmental impacts, this section considers the environmental effects, if any, which could result from an addition or expansion of the aforementioned facilities or services needed to serve the Project.

Public Services

Police Protection

The Brentwood Police Department provides law enforcement and police protection services throughout the city, an approximately 14-square-mile service area (City of Brentwood, 2019). Established in 1948, the Brentwood Police Department is a full-service law enforcement agency that is charged with the enforcement of local, State, and Federal laws, and with providing 24-hour protection of the lives and property of the public. The Brentwood Police Department is divided in four separate, geographic beats, with headquarters located approximately 3 miles east of the Project site at 9100 Brentwood Boulevard. The Brentwood Police Department functions both as an instrument of public service and as a tool for the distribution of information, guidance, and direction (City of Brentwood General Plan, 2014). A future secondary facility or station is not currently planned (Brentwood Police Department, 2017).

The Field Operations Division is one of the Brentwood Police Department's two Divisions (the other being Support Services). The Field Operations Division is responsible for front line law enforcement. Field Operations consists of six Field Teams responsible for calls for service, the Traffic Safety Unit, the School Resource Officers, two K-9 Units, Field Training Officer Program, Community Service Officers, and S.W.A.T.

The Brentwood Police Department currently has 62 sworn police officers and 30 civilian support staff. In addition to the permanent staff, the department has approximately 20 volunteers who are citizens of the community and assist with day to day operations (City of Brentwood, 2019).

The Brentwood Police Department provides an annual Performance Report to the City Council, which identifies the average response time for priority calls for service. Currently, the Brentwood Police Department's average response time for Priority 1 (Emergency) calls is 4 minutes 53 seconds and for Priority 2 (Priority Response) calls is 5 minutes 38 seconds (Brentwood Police Department, 2017).

Fire Protection

The East Contra Costa Fire Protection District (ECCFPD) includes the second largest fire service area in Contra Costa County, providing fire protection services to the City of Brentwood and surrounding communities. In addition to the fire suppression and fire prevention services,

ECCFPD personnel also provide basic life support services, including first aid, CPR, administration of oxygen, maintenance of airway, spinal immobilization, splinting of fractures, control of external hemorrhage, emergency childbirth, and administration of epinephrine and Norco (for certain drug overdoses). In addition, ECCFPD coordinate closely with AMR and a medical helicopter operator for ambulance transportation for patients.

The ECCFPD provides these fire suppression and emergency services for an approximately 250-square-mile area that includes the City of Brentwood, City of Oakley, and the communities of Bethel Island, Byron, Discovery Bay, Knightsen, and Marsh Creek/Morgan Territory. The ECCFPD was formed in 2002 by the Contra Costa County Board of Supervisors and the Contra Costa Local Agency Formation Commission (LAFCo) as a consolidation of the Oakley, Bethel Island, and Brentwood fire districts (ECCFPD, 2019). Today, about 115,000 residents depend on ECCFPD for fire protection and emergency medical services. The ECCFPD consists of the following three divisions¹:

- **Operations Division.** The Fire Suppression (Operations Division) is the largest Division within the ECCFPD. It is responsible for emergency medical services (EMS), fire suppression, rescue, hazardous conditions, and all other emergency and non-emergency calls for service.
- **Training Division.** The Training Division is responsible for the delivery of training programs for the professional development of ECCFPD employees. The Training Division's programs include professional development, automatic and mutual aid training, communications management, and occupational safety.
- **Public Education Division.** The Public Education Division of the ECCFPD is responsible for providing the public with information and resources to prevent not only fires, but also to reduce or prevent injuries and death from causes unrelated to fire. Each year the ECCFPD firefighters are dispatched to more emergency medical service calls for unintentional injuries than for actual fire-related emergencies.

As of February 2019, the ECCFPD operates three fire stations staffed by 30 operational and 3 administrative personnel, which includes a total District staffing of 9 firefighters per day (3 firefighters per station per day). The ECCFPD responds to over 8,000 calls a year from these three District fire stations and a CAL FIRE station contracted by the District to provide year-round services (ECCFPD, 2018). The Project site is located within the ECCFPD's Brentwood West service area.

The city is served primarily by Fire Station 52, located at 201 John Muir Parkway in the City of Brentwood; Fire Station 53, located in the City of Oakley at 530 O'Hara Avenue; and Fire Station 59, located in the Discovery Bay community at 1685 Bixler Road. Station 16 (CAL FIRE) is located at 11851 Marsh Creek Road in the City of Clayton (CAL FIRE Sunshine Station). ECCFPD contracts with this CAL FIRE facility for year-round services for the Marsh Creek and Morgan Territory region.

¹ Information listed for the Operations, Training, and Public Education divisions was obtained from the City of Brentwood General Plan EIR, 2014.

Fire Station 52 is the closest fire station to the Project site and is located just over one mile east of the Project site. Fire Station 53 is located approximately 5 miles northeast of the Project site and Fire Station 59 is located approximately 6 miles east of the Project site. According to the ECCFPD Strategic Plan 2019-2023 (December 2018), the District intends to add staffing and/or stations to meet current service level response time standards. However, specific near-term station or staffing increases have not been identified or funded. The recently approved PA-1 Specific Plan includes a Public Facilities parcel that has been planned to accommodate a fire station.

Service response times present a unique challenge for the District given resource, staffing and station constraints. In addition to serving a diverse range of land use types, limited resources and capacity translate to response times that currently do not meet national standards. Based on national standards, the “first due” engine company should arrive earlier than is currently possible. Current response times are as presented in Table 4.13-1.

Table 4.13-1: ECCFPD Response Times

	Recommended Response Times	Actual District Response Times (meets 90% of the time)
Urban Areas (Brentwood and Oakley)	7:30	10:00
Suburban Areas (Discovery Bay)	11:30	13:28
Rural Areas (Other County Unincorporated areas)	15:30	16:02

Source: ECCFPD, 2018.

These standards also require 15 firefighters to adequately fight a structure fire, which is more staffing than the District currently has on duty at any one time. As the District has only three fire stations, most structure fires are dealt with in a defensive manner with a focus on life safety, preventing fire from spreading to adjacent structures, and minimizing the size and damage from fire. Accordingly, and based on District information, the District is underperforming compared to national standards.

Schools

The City of Brentwood is served by the Brentwood Union School District (BUSD) (elementary schools serving grades K-5 and middle schools serving grades 6-8) and the Liberty Union High School District (LUHSD) (high schools serving grades 9-12). The BUSD operates eight K-5 elementary schools and three middle schools, while the LUHSD operates four high schools.

R. Paul Krey Elementary School and Bright Star Christian Child Care Center are located in the vicinity of the Project, and are less than one mile southeast of the Project area. R. Paul Krey is located on Crawford Drive, south of Balfour Road, and Bright Star Christian Child Care Center is located just south of the Elementary School on Ventura Drive. Heritage High School and Adams

Middle School are located immediately south of the Project, area across Balfour Road. Table 4.13-2 below provides a summary of the public schools serving the City of Brentwood.

Table 4.13-2: Public Schools Serving Brentwood					
School	Grades Served	Address	Capacity	Enrollment	Remaining Capacity
Elementary Schools					
Brentwood Elementary	K-5	200 Griffith Lane	6,291 Students (2017/18 School Year)	6,900 Students (2017/18 School Year)	-609 Students
Garin Elementary	K-5	250 1st Street			
Loma Vista Elementary	K-5	2110 San Jose Avenue			
Marsh Creek Elementary	K-5	601 Grant Street			
Mary Case Black Elementary	K-5	480 Farmington Drive			
Pioneer Elementary	K-5	2010 Shady Willow Lane			
Ron Nunn Elementary	K-5	1755 Central Boulevard			
R. Paul Krey Elementary	K-5	190 Crawford Drive			
Middle Schools					
J. Douglas Adams Middle School	6-8	401 American Avenue	2,354 Students (2017/18 School Year)	2,296 Students (2017/18 School Year)	58 Students
Edna Hill Middle School	6-8	140 Birch Street			
William B. Bristow Middle School	6-8	855 Minnesota Avenue			
High Schools					
Freedom High School	9-12	1050 Neroly Road, Oakley, CA	6,840 Students (2015/16 School Year)	8,219 Students (2017/2018 School Year)	-1,379 Students
Heritage High School	9-12	101 American Avenue			
Independence High School	9-12	929 2nd Street			
La Paloma High School (Continuation School)	9-12	400 Ghiggeri Drive			
Liberty High School	9-12	850 2nd Street			
Sources: City of Brentwood. Draft EIR. Priority Area 1 Specific Plan. June 2018. Brentwood Union School District. School Facility Needs Analysis. May 17, 2018. Liberty Union High School District. Facility Needs Assessment. April 4, 2016. Educational Data Partnership. <i>Liberty Union High</i> . Available at: http://www.ed-data.org/district/Contra-Costa/Liberty-Union-High . Accessed April 2019.					

Libraries

The Brentwood Library is the only public library located in the City of Brentwood and is part of the Contra Costa County Library system. This allows Brentwood Library users to access all libraries within the Contra Costa Library system in order to obtain information not found in the Brentwood Library (City of Brentwood, 2019). The Brentwood Library is located at 104 Oak Street in the Downtown area, approximately 3 miles east of the Project area. The Library

opened its new facility in September 2018 and serves a population of more than 50,000. The library collection includes materials in both Spanish and English and offers a wide variety of media. The library is open from 10 AM to 8 PM Monday through Thursday, 10 AM to 6 PM Friday and Saturday, and is closed on Sunday.

Parks and Recreation

The City of Brentwood currently has approximately 237 acres of developed parkland consisting of 90 parks and facilities and approximately 19.2 miles of multi-use trails maintained by the Parks and Recreation Department (City of Brentwood, 2019c). The city also currently has 63 miles of signed and striped on-road bikes lanes. Approximately 8 new parks that are associated with new development are currently approved and in various stages of design and construction throughout the city. When completed, these new parks will add over 14 acres of park to the city's park system. The city also owns almost 20 acres of undeveloped park land.

In February of 2019, the city approved the updated 2019 Parks, Trails and Recreation Master Plan to serve as the guiding document for implementation of various General Plan policies. The Master Plan conducted a Community Needs Assessment to identify the recreation needs of the residents and provides a list of recommended projects related to park development, trail development and recreation programming for the residents.

Nearest Parks and Recreation Facilities to Project Site

Five neighborhood and community parks are located near the Project area within the adjacent Shadow Lakes and Deer Ridge communities.

Black Gold Park is located to the east of the Project site at 2671 St. Regis Avenue. Black Gold Park is a 6.22-acre neighborhood park which is largely an open space area.

Rolling Hills Park is directly adjacent to and east of the Project site at 773 Waterville Drive. It is a 2.05-acre passive neighborhood park.

Balfour-Guthrie Park is directly adjacent to and east of the Project site and is located at 1701 Balfour Road. Balfour-Guthrie is a 6.43-acre community park programmed with active sports facilities, soccer and baseball fields, tennis and basketball courts, play structures, restrooms, and parking.

Lake Park is located near the intersection of Balfour Road and East Country Club Drive at 401 Lakeview Drive. It is a 1.5-acre neighborhood park with a play structure, parking lot, and large turf area.

Oak Meadow Park is located south of Balfour Road at 180 Crawford Drive adjacent to Krey Elementary School. Oak Meadow is a 9.68-acre community park programmed with active sports facilities, soccer and baseball fields, play structures, restrooms, and parking.

The Brentwood Senior Activity Center is located at 193 Griffin Lane, adjacent to Veterans Park and the Brentwood Family Aquatic Complex. The Senior Activity Center contains a main

hall/multi-purpose room that accommodates weddings, luncheons, corporate functions, banquets, training, parties, and special events.

The city also has joint use agreements for certain facilities at Adams Middle School and Heritage High School located on the south side of Balfour Road, south of the Project site. The adjacent Deer Ridge community also provides golf as a semi-private recreational opportunity.

4.13.2 Regulatory Setting

Federal

There are no applicable Federal regulations pertaining to public services and recreation.

State

Police Services

All law enforcement agencies within California are organized and operate in accordance with the applicable provisions of the California Penal Code. This Code sets forth the authority, rules of conduct, and training for police officers.

Fire Protection

California Occupational Safety and Health Administration

In accordance with California Code of Regulations, Title 8, Sections 1270, "Fire Prevention," and Section 6773, "Fire Protection and Fire Equipment," the California Occupational Safety and Health Administration (Cal/OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all fire-fighting and emergency medical equipment.

Emergency Response/Evacuation Plans

The State passed legislation authorizing the Office of Emergency Services (OES) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Non-compliance with SEMS could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster.

Fire Protection

The California Fire Code contains regulations relating to construction and maintenance of buildings and the use of premises. Topics addressed in the Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions to protect and assist first responders, industrial processes, and many other general and specialized fire safety requirements for new and existing buildings and premises.

The International Fire Code (IFC) with the State of California Amendments contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the IFC include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The IFC contains specialized technical regulations related to fire and life safety.

International/California Building Code

On January 1, 2017, the State of California adopted the 2016 California Building Code, which affects the design and construction of new and existing buildings. The 2016 California Building Code is based on the 2015 International Building Code (IBC). Various California agencies add their own amendments to the 2015 IBC.

California Health and Safety Code

State fire regulations are set forth in Sections 13000, et seq., of the California Health and Safety Code. This includes regulations for building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

Schools

Senate Bill 50

Senate Bill (SB) 50 (funded by Proposition 1A, approved in 1998) limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development and provides instead for a standardized developer fee. SB 50 generally provides for a 50/50 State and local school facilities funding match. SB 50 also provides for three levels of statutory impact fees. The application level depends on whether State funding is available, whether the school district is eligible for State funding, and whether the school district meets certain additional criteria involving bonding capacity, year-round school, and the percentage of moveable classrooms in use.

California Government Code, Section 65995(b), and Education Code Section 17620

SB 50 amended California Government Code Section 65995, which contains limitations on Education Code Section 17620, the statute that authorizes school districts to assess development fees within school district boundaries. Government Code Section 65995(b)(3) requires the maximum square footage assessment for development to be increased every two years, according to inflation adjustments. On January 24, 2018, the State Allocation Board (SAB) approved increasing the allowable amount of statutory school facilities fees (Level I School Fees) to \$3.79 per square foot of assessable space for residential development of 500 square feet or more, and to \$0.61 per square foot of chargeable covered and enclosed space for commercial/industrial development (State Allocation Board, 2018). School districts may levy higher fees if they apply to the SAB and meet certain conditions.

California Department of Education

The California Department of Education (CDE) School Facilities Planning Division (SFPD) prepared a School Site Selection and Approval Guide that provides criteria for locating appropriate school sites in California. School site and size recommendations were changed by the CDE in 2000 to reflect various changes in educational conditions, such as lowering of class sizes and use of advanced technology. The expanded use of school buildings and grounds for community and agency joint use and concern for the safety of the students and staff members also influenced the modification of the CDE recommendations.

The Kindergarten-University Public Education Facilities Bond Act of 2002 (Proposition 47)

This act was approved by California voters in November 2002 and provides for a bond issue of \$13.05 billion to fund necessary education facilities to relieve overcrowding and to repair older schools. Funds will be targeted at areas of greatest need and must be spent according to strict accountability measures. Funds will also be used to upgrade and build new classrooms in the California Community Colleges, the California State University, and the University of California in order to provide adequate higher education facilities to accommodate growing student enrollment.

Parks and Recreation

Quimby Act

The Quimby Act (California Government Code Section 66477) states that “the legislative body of a city or county may, by ordinance, require the dedication of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative or parcel map.” Requirements of the Quimby Act apply only to the acquisition of new parkland and do not apply to the physical development of new park facilities or associated operations and maintenance costs. The Quimby Act seeks to preserve open space needed to develop parkland and recreational facilities; however, the actual development of parks and other recreational facilities is subject to discretionary approval and is evaluated on a case-by-case basis with new residential development. The City of Brentwood has adopted park impact fees as allowed by the Quimby Act, as described in greater detail below.

Local

Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area

The Association of Bay Area Governments (ABAG) prepared and adopted a Local Hazards Mitigation Plan in 2005. The purpose of the Plan is to serve as a catalyst for a dialogue on public policies needed to mitigate the natural hazards that affect the San Francisco Bay Area. The overall strategy of the Plan is to utilize a multi-jurisdictional effort to maintain and enhance the disaster resistance of the region, and to fulfill the requirements of the Disaster Mitigation Act of 2000 for all local governments to develop and adopt this type of plan.

Brentwood Development Fee Program

The City of Brentwood Development Fee Program contains the city's capital improvement facilities fee program to pay for the required infrastructure identified in the city's General Plan. Infrastructure, including parks and recreation facilities, is developed in two major ways. New development builds it as each project is developed, or the city builds it as part of the Capital Improvement Program (CIP). The Development Fee Program evaluates planned capital improvements and associated budget cost estimates, and assigns eligible costs as fees based upon the relative demand imposed by the various types of new development. In addition, a separate Parks and Trails Facility Fee provides for the acquisition and development of parks as specified in the city's Parks, Trails, and Recreation Master Plan and Development Fee Program. Parks and trails fees are collected from all new residential development projects in the city, and are assessed on a per-unit basis (City of Brentwood, 2016).

The city's Development Fee Program does not include fees imposed by outside agencies such as the BUSD and the LUHSD, the East Contra Costa Regional Fee and Financing Authority, and the Contra Costa County Flood Control and Water Conservation District. As part of the Development Fee Program, the following funds have been established to account for the impact of new development on the following types of public facilities: Water, Roadway, Parks and Trails, Wastewater, Community Facility, and Fire.²

The city's Fire Facility Fee Fund serves to provide funding for fire facilities required to serve new development in the City of Brentwood through buildout as defined by the General Plan (City of Brentwood, 2016). The ECCFPD Strategic Plan (2018) also outlines a series of goals and strategies intended to enhance revenue to improve response times and overall performance.

The Brentwood Police Department currently has no development fees for law enforcement services; however, the City of Brentwood is exploring the use of development fees to enhance existing video surveillance projects, such as License Plate Readers (Brentwood Police Department, 2017). Historically, facilities for law enforcement have been covered under the Community Facilities Fee Fund (Community Facilities District [CFD]). The city's Development Impact Fee Program does not fund law enforcement services, but the CFD special tax does fund Police Services, as well as stormwater facilities and other facilities (Galey, 2017).

Brentwood Emergency Operations Plan

The purpose of the Brentwood Emergency Operations Plan (EOP) is to provide a blueprint for emergency management within the city. The goal of the plan is to reduce the loss of lives and property in the event of a disaster. The EOP identifies the city's emergency planning, organization, and response policies and procedures. The EOP also addresses the integration and coordination within other governmental agencies that are required during an emergency.

² For the purposes of this analysis, only the Parks and Trails and Fire fees are analyzed in this section.

The city's response to disasters is based on five phases:

1. Preparedness;
2. Increased readiness;
3. Initial response operations;
4. Extended response operations; and
5. Recovery operations.

During each phase, specific actions are taken to reduce and/or eliminate the threat of specific disaster situations. In coordination with the City Manager and Incident Commanders, the Emergency Services Coordinator determines the phase and initiates the appropriate level of alert for response agencies, including the activation of the Emergency Operations Center as required.

The City of Brentwood Parks, Trails, and Recreation Master Plan Update

The 2002 City of Brentwood Parks, Trails, and Recreation Master Plan (Master Plan) was updated in 2019 and adopted by the City Council on February 26, 2019. The Master Plan is the guiding document for decisions regarding the provisions of parks, trails, open space, and recreation facilities and programming in the City of Brentwood. The Master Plan identifies guidelines for park development and existing parks, trails, and recreation.

City of Brentwood General Plan

The City of Brentwood developed and adopted the General Plan to include goals, policies and actions that, when implemented, will coordinate the provision of new community services and recreation facilities as the city grows. The goals and policies identified below include requirements that would reduce the potential for project specific impacts related to public services and recreation through project design and participation in funding programs.

Community Services and Facilities Goal 1: Provide high quality community services and facilities to all residents, businesses, and visitors in Brentwood.

- **Policy CSF 1-1:** Ensure that new growth and development participates in the provision and expansion of community services and facilities, and does not exceed the City's ability to provide them.
- **Policy CSF 1-2:** Require new development to demonstrate that the City's community services and facilities can accommodate the increased demand for said services and facilities associated with the project.
- **Policy CSF 1-3:** Require new development to offset or mitigate impacts to community services and facilities to ensure that service levels for existing users are not degraded or impaired by new development, to the satisfaction of the City.

Community Services and Facilities Goal 2: Maintain a diverse and comprehensive system of high quality parks, trails, recreation facilities, and recreational programs and services that meets the needs of all segments of the community.

- Policy CSF 2-1: Ensure the provision of sufficient land that is well distributed and interconnected throughout the community for parks, trails, and recreation facilities.
- Policy CSF 2-2: Achieve and maintain a minimum overall citywide ratio of 5 acres of park land per 1,000 residents.
- Policy CSF 2-3: Park acreage should be provided in accordance with the following standards:
 - Neighborhood Park - 3.0 acres per 1,000 residents; and
 - Community Park - 2.0 acres per 1,000 residents.
- Policy CSF 2-4: Develop new parks, trails, and recreation facilities through developer fees in areas which are accessible and convenient to the community, prioritizing areas that are lacking these facilities.
- Policy CSF 2-6: Uphold design, construction, implementation, and maintenance standards to ensure high quality parks, trails, and recreation facilities, programs, and services, now and into the future.
- Policy CSF 2-7: Expand, renovate, and maintain high quality parks, trails, and recreation facilities, programs, and services to accommodate existing and future needs that address traditional and non-traditional recreation, active and passive recreation, wellness, historical, cultural arts, environmental education, conservation, accessibility, inclusion, diversity, safety, and new technology.
- Policy CSF 2-8: Consider the effects of new development on parks, trails, and recreation facilities, programs, and services, and condition new development appropriately to ensure that the City maintains an adequate inventory and network of facilities and resources.
- Policy CSF 2-9: Continue to collect development impact fees in order to fund the acquisition of parkland, construction of new facilities and resources, and maintenance of City parks, trails, and recreation facilities. The City shall ensure that park facility impact fees are collected for new development that increases demand for parks, trails, and recreation facilities.
- Policy CSF 2-11: Encourage the provision and dedication of parkland within future development projects in order to ensure that the City maintains an extensive network of neighborhood parks that serve all areas of the community.
- Policy CSF 2-12: Through conditions of approval and/or development agreements, ensure that the development of new parks, trails, and recreation facilities occurs during the infrastructure construction phase of new development projects so that they are open and available to the public prior to completion of the project.
- Policy CSF 2-17: Encourage and maintain diverse public access to parks, trails, and recreation facilities to the greatest extent feasible.

Community Services and Facilities Goal 3: Maintain a safe community through the provision of high quality police services and crime prevention measures.

- **Policy CSF 3-1:** Ensure that the Police Department has adequate funding, staff, and equipment to accommodate existing and future growth in Brentwood.
- **Policy CSF 3-2:** The City shall strive to maintain a police force level of 1.5 to 2.5 officers per 1,000 population.
- **Policy CSF 3-3:** Promote and support community-based crime prevention programs, as an important augmentation to the provision of professional police services.
- **Policy CSF 3-4:** Emphasize the use of physical site planning as an effective means of preventing crime. Open spaces, landscaping, parking lots, parks, play areas, and other public spaces should be designed with maximum feasible visual and aural exposure to community residents.
- **Policy CSF 3-5:** Promote coordination between land use planning and urban design through consultation and coordination with the Police Department during the review of new development applications.

Community Services and Facilities Goal 4: Ensure the provision of high quality and responsive fire protection services.

- **Policy CSF 4-1:** Encourage and support the East Contra Costa Fire Protection District and providers of emergency medical services to maintain adequate staff and equipment to provide high quality and responsive fire protection and emergency medical services to existing and future growth in Brentwood.
- **Policy CSF 4-2:** Encourage, and work cooperatively with, the East Contra Costa Fire Protection District and providers of emergency medical services to maintain a three to five-minute response time for all emergency response calls within Brentwood.
- **Policy CSF 4-4:** Design and maintain roadways in such a way so as to maintain acceptable emergency vehicle response times.
- **Policy CSF 4-5:** Ensure that new development is designed, constructed, and equipped consistent with the requirements of the California Fire Code in order to minimize the risk of fire.
- **Policy CSF 4-6:** Ensure that new development is served with adequate water volumes and water pressure for fire protection.

Community Services and Facilities Goal 5: Enhance the quality of life for all City residents through the provision of cultural and social resources including quality schools, libraries, medical, and other community services and facilities.

- **Policy CSF 5-4:** Support the provision of high quality civic, library, medical, and other community facilities in order to meet the broad range of needs within Brentwood.
- **Policy CSF 5-7:** Pursue additional funding sources for library operations that serve Brentwood.

- Policy CSF 5-9: Work with health care providers to provide a range of health-related facilities in Brentwood to meet the needs of the growing population.
- Policy CSF 5-11: Provide responsive and high quality City government services to residents and businesses.
- Policy CSF 5-16: Encourage and support the provision of residential care facilities in accordance with State law to meet the needs of existing and future residents.
- Policy CSF 5-17: Consider the needs of seniors and people with disabilities when reviewing future development applications and land use plans.
- Policy CSF 5-18: Encourage services and programs that meet the unique needs of seniors within Brentwood, including the establishment of medical facilities, transportation options for seniors and people with mobility disabilities, senior centers, and programs that provide for in-home care and aging-in-place.

Conservation and Open Space Goal 1: Ensure the provision and preservation of diverse and accessible open spaces throughout the Brentwood Planning Area.

- Policy COS 1-4: Where possible, integrate open space and stream corridors with trails and other recreational open space in an environmentally sustainable manner.
- Policy COS 1-5: Recognize urban open space as essential to maintaining a high quality of life within the City limits of Brentwood.
- Policy COS 1-7: Encourage public and private efforts to preserve open space.
- Policy COS 1-9: Encourage the protection and incorporation of existing, native, mature, non-orchard trees and areas of natural vegetation as part of new development.

Economic Development Goal 5: Recognize the importance of local creeks, waterways, and recreational opportunities in providing a desirable environment for businesses and providing tourism and recreation opportunities.

- Policy ED 5-1: Ensure that public, residential, and non-residential developments locating along local creeks, waterways, and open space are designed to include these natural features as an attraction and amenity, while also providing for their conservation where appropriate.
- Policy ED 6-2: Provide high quality public amenities, including parks, community facilities, and other public infrastructure.

Land Use Policy Goal 4: Maintain a high quality natural environment and recreational opportunities in and around Brentwood.

- Policy LU 4-2: Require development projects to provide adequate and appropriately located land, easements, or other accommodation for recreational uses, including neighborhood parks, existing and planned trails, and connection to existing or planned trails and other recreational resources as set forth in the Conservation and Open Space Element, the Community Services and Facilities Element, and the Circulation Element.

- **Policy LU4-4:** Site new park and recreation facilities where they will be accessible by the City's pedestrian and bicycle network and in close proximity to medium and higher density residential uses, where appropriate.

City of Brentwood Municipal Code

The City of Brentwood Municipal Code contains all ordinances for the city. The Municipal Code is organized by Title, Chapter, and Section.

The city's Fire Code, codified at Brentwood Municipal Code Section 15.06.020, regulates permit processes, emergency access, hazardous material handling, and fire protection systems, including automatic sprinkler services, fire extinguishers, and fire alarms. The Fire Code contains specialized technical regulations related to fire and life safety in the city.

4.13.3 Environmental Impacts and Mitigation Measures

The section below describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential project-specific impacts related to public services and recreation. In addition, a discussion of the Projects' impacts, as well as mitigation measures where necessary, is also presented.

Significance Criteria

The following significance criteria for public services and recreation were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G, as amended effective December 2018, as well as the previously certified General Plan EIR. An impact would be considered significant and would require mitigation if it would meet one of the following criteria.

- Result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
 - Fire protection;
 - Police protection;
 - Schools;
 - Parks; and
 - Other public facilities.
- 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; or
- If the project includes recreational facilities or requires the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Method of Analysis

Evaluation of potential impacts of the proposed project on public services and recreation is based on the following: the Brentwood General Plan and associated EIR; the City of Brentwood Parks, Trails, and Recreation Master Plan; and the East Contra Costa County Fire Protection District Strategic Plan. The standards of significance listed above are used to delineate the significance of any potential impacts.

Impacts of the Proposed Project

Impact PSR-1: Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services? (*less than significant*)

The Project includes a residential community of up to 2,400 residential units, approximately 80 percent (1,920 units) of which would be reserved for age-restricted active adult residents and approximately 20 percent (480 units) of which would be non-age-restricted housing. Each of the six residential neighborhoods would have a neighborhood recreation center. A centrally-located community recreation center would serve as a focal point to the community and include a variety of indoor and outdoor recreation amenities.

Physical impacts resulting from the construction or modification of governmental facilities are usually associated with population growth in an area, which increases the demand for a particular service. Based on the *Water Supply Assessment* prepared by West Yost Associates, March 2019, 1.5 people per unit was used as an average household size for senior projects in the City of Brentwood. Therefore, construction of 1,920 age-restricted units would result in approximately 2,880 new residents. The 480 non-age restricted units, at 3.18 persons per household average (City of Brentwood Housing Element, 2015), would generate approximately 1,527 residents, for a project total of 4,407 additional residents in the city. This number assumes that current Brentwood residents relocating to the Project, if any, would be replaced by new residents in their current homes.

A detailed analysis regarding the Project's short-term effects on public services during Project construction, as well as long-term operational effects on fire and police protection services, schools, and libraries, is provided below.

Impact PSR-1a: Would Project construction, including off-site infrastructure improvements, result in any substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services? (*less than significant*)

During construction, the Project may attract vandals or other security risks and potentially increase traffic along State Route 4 (SR-4), Balfour Road and Deer Valley Road that would increase demand on police protection/law enforcement services. The Project proponent would implement best management practices and standard construction site security by controlling site access to the Project areas under construction. Project construction personnel commuting to the Project site via nearby highways (SR-4) could increase services required by the CHP in the event of accident or traffic violations. Project construction personnel would be required to adhere to all Federal, State and local traffic laws. The additional volume of traffic associated with construction personnel commuting to the Project site during construction is not expected to exceed the CHP's ability to patrol the highways. This increase due to construction would be temporary in nature and impacts would be less than significant.

With regard to fire protection services, construction activities would be required to comply with Chapter 33, Fire Safety During Construction and Demolition, of the International Fire Code, which outlines general fire safety precautions for all structures and all occupancies during construction and demolition operations. Thus, Project construction activities not substantially increase demand for fire protection services, as fire suppression equipment would be provided on-site.

It should be noted that the proposed off-site sewer, irrigation, and roadway improvements associated with the Project could have the potential to result in temporary lane closures or other obstructions during construction, thereby affecting fire and police response times. However, all such construction activities would be coordinated with the city. The city would require, as a condition of approval, a construction management program, which would include traffic control measures such as appropriate land closure proceedings, signage, and other safety precautions to guide pedestrian and vehicular traffic around any required traffic obstructions, as well as designation of construction access routes. Accordingly, adequate access to the site and within the surrounding area would be provided during construction. In addition, as discussed in Section 4.14, Transportation and Circulation, of this EIR, required improvements to roadway facilities in the project area would be triggered by specific phases of Project buildout, timed to occur with issuance of building permits. As such, roadway facilities would be upgraded as needed to accommodate Project traffic, and provision of emergency services along such local roadways would not be adversely affected by the Project. All roadway improvements included in the Project would be designed and maintained consistent with applicable City of Brentwood standards, consistent with General Plan Policy CSF 4-4.

An increase in response times or in demand on public facilities, services, and utilities that will result from a project is not, standing alone, an environmental impact under CEQA. (*City of*

Hayward v. Trustees of California State University (2015) 242 Cal.App.4th 833.) If such an increase requires the construction of new or expanded public facilities to meet the increased demand, then the construction necessitated by that project will require environmental analysis under CEQA. However, based on the above, Project construction activities alone would not generate sufficient numbers of fire and/or police calls to necessitate the construction or expansion of public facilities. In addition, Project construction activities would not increase demand for schools, parks, or libraries. As a result, Project construction, including off-site improvements, will result in a ***less-than-significant*** impact related to public services.

Mitigation Measures

None required.

Impact PSR-1b: **Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and medical services? (*less than significant*)**

With the addition of 2,400 housing units, ECCFPD also expects to see an increase in calls for service due to the number of units and higher than average age of Project residents. Active-adult age restricted housing presumably has a higher rate of use of medical emergency services (ECCFPD correspondence, 2017). This would potentially increase the need for emergency medical services and facilities. As noted under existing conditions, average response times by ECCFPD in Brentwood are in excess of the national standards for industry best practices. Response time is influenced by several factors, including fire station location, available equipment/vehicles and staffing. For emergency vehicle access, the number of access points, width and design of those access points and width of internal roadways is also relevant.

Because, as noted earlier, an increase in demand on public facilities, services, and utilities that will result from a project is not considered an environmental impact under CEQA, the potential for the Project to result in long medical or emergency service response times does not, standing alone, create a significant environmental impact.

Overall, because the Project is projected to be constructed over a 20+ year period, the need, if any, for a new or expanded facility to handle an increase in medical emergency service calls is likely to evolve over time as phases of the Project are built and occupied. In addition, the lengthy build out horizon of the Project makes facility impacts at any given point uncertain and speculative. Finally, the proposed location of a fire station as part of the PA-1 Specific Plan would appear to accommodate the most immediate future demand for facilities within the ECCFPD service area. The Project is subject to the city's Fire Facility Fee and, therefore, would contribute to the construction or expansion, if any, of fire service facilities in the city which would be analyzed for potential environmental impacts, consistent with the requirements of CEQA.

It should be noted that all future development occurring within the Project site would be subject to review by the ECCFPD to ensure that such development is consistent with applicable provisions of the California Fire and Building Codes, the local Fire District Ordinance and Standards, and National Fire Protection Association standards, consistent with General Plan Policies PSR-2 and PSR-3. Compliance with such standards would ensure that development occurring under buildout of the Project site would be provided with adequate fire suppression systems and would not be exposed to excessive fire risk.

A specific development proposal has not been submitted for city review or consideration; however, the Project would be subject to the City of Brentwood Development Fee Program. Applicable fees would be determined by the City of Brentwood during the tentative map review for each development phase and would be generated based on the number of residential units and square feet of commercial and office building uses proposed in conjunction with a more refined design. The Fire Facility Fee is calculated on the per capita existing facility standard of the ECCFPD, formerly East Diablo Fire Protection (Fire Protection District). The city previously collected these fees as part of a regional effort that was coordinated by the Fire Protection District. While that regional effort has ceased, the fees continue to be collected for future city use to meet the city's demand for critical fire and emergency services infrastructure. As noted in the 2016 Deployment Performance and Headquarters Staffing Adequacy Study conducted by Citygate Associates for the Fire Protection District, four fire stations are needed within the city limits of Brentwood to meet public safety response times at industry level standards. The Brentwood City Engineer has determined that maintaining fees (including inflationary increases) at amounts adopted by studies conducted in 1998 and 2004, and adopted by City Council Resolutions 98-85 and 2004-32, is adequate to support the stations necessary to serve new development (City of Brentwood, 2018.)

However, as discussed above, a fire station expansion or new fire station project would be analyzed for potential environmental impacts, consistent with the requirements of CEQA. Expansion or construction of a fire station would not be expected to result in significant environmental impacts due to the limited area that is typically required to build a fire station (less than one acre) and standard mitigation measures that address construction projects of that size. Therefore, impacts related to fire services would be ***less than significant***.

As noted in Chapter 3, Project Description, of this EIR, the Project includes enhanced funding for fire and other emergency services as part of the Pre-Annexation Agreement. To start to address the funding shortfall for personnel which requires stable ongoing funding for salaries and benefits, and thereby enable ECCFPD to get closer to meeting response times that are consistent with standards for industry best practices, the Project proponent has agreed to provide ECCFPD with additional funding that can be used for staffing and salaries.

With respect to physical emergency vehicle access, see Section 4.14, Transportation and Circulation of this EIR.

Mitigation Measures

None required.

Impact PSR-1c: Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection? (*less than significant*)

The proposed project would result in the future construction of up to 2,400 housing units. As indicated above, it is estimated that the Project would result in an estimated population increase of 4,407 residents, the majority of which would be adults age 55 and over. This increase in population would likely increase calls for service proportional to the population, which in turn could require additional police staffing or other resources. Officers patrolling the city are dispatched from police headquarters, located at 9100 Brentwood Boulevard, approximately 3 miles east of the Project site.

The proposed project could potentially affect response times and coverage ability by creating the need for additional police staff within the existing service area. However, according to the Brentwood Police Department (City of Brentwood 2018), the increased demand generated by the Project would not require the construction of a new police station and police services would continue to be dispatched from the existing police headquarters. Moreover, the lengthy build out horizon of the Project makes police facility impacts at any given point uncertain and speculative. If future development in the city requires new police service facilities to be constructed, the city would be required to conduct CEQA review and analyze the impacts of construction of such facilities. Additionally, should future development require the existing Police Department to be expanded to support more staff (generated by development inclusive of and beyond the Project), the existing facility at 9100 Brentwood Boulevard was designed to accommodate future expansion at its existing site. The Project's impacts would be *less than significant*.

Mitigation Measures

None required.

Impact PSR-1d: Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools? (*less than significant*)

As mentioned above, the proposed project would result in the development of up to 1,920 age-restricted housing units, and 480 market rate units. Only the market rate units would be expected to generate additional students. According to a Facility Needs Assessment prepared

for the LUHSD in April of 2016, the LUHSD student generation factor for grades nine through 12 is 0.1436 for single-family detached units.³ Thus, the 480 single-family residential units included in the Project would generate approximately 69 new high school students. As shown in Table 4.13-3 below, the Project would contribute to the LUHSD's current capacity deficiency.

2015/16 Facilities Capacity	2017/18 Student Enrollment	Remaining Capacity (No Project)	Project Students	Remaining Capacity (With Project)
6,840	8,219	-1,379	69	-1,310

Sources:
 Liberty Union High School District. Facility Needs Assessment. April 4, 2016.
 Educational Data Partnership. Liberty Union High. Available at: <http://www.ed-data.org/district/Contra-Costa/Liberty-Union-High>. Accessed April 2019.

With regard to the BUSD, the District's 2018 School Facilities Needs Analysis provides student generation rates of 0.3046 Grade K-5 students/household and 0.1155 Grade 6-8 students/household for single-family units. Thus, the 480 single-family residential units included in the proposed project would generate approximately 146 K through 5th grade students and 55 6th through 8th grade students. Between the eight elementary schools and three middle schools within the district, the BUSD has a collective capacity of 8,645 seats. Of the 8,645 seats, 6,291 are at the elementary school level and 2,354 are at the middle school level. As shown in Table 4.13-4, available capacity exists to accommodate the additional 6th through 8th grade students anticipated from the Project, but not the anticipated new high school, nor the K through 5th grade students generated by the Project's implementation.

School Level	2017/18 Facilities Capacity	2017/18 Student Enrollment	Remaining Capacity (No Project)	Project Students	Remaining Capacity (With Project)
Elementary School (Grades K-5)	6,291	6,900	-609	146	-755
Middle School (Grades 6-8)	2,354	2,296	58	55	3
Total	8,645	9,196	-551	201	-752

Source: Brentwood Union School District. School Facility Needs Analysis. May 17, 2018.

Because the Project would generate approximately 270 additional students, the Project would be subject to school facility impact fees to mitigate any potential project-related increases in student enrollment. The BUSD and LUHSD require the payment of development fees based on a per square foot basis of new development. The fees, which vary depending on the type of land use (e.g., the fees for residential uses may be different than commercial or civic uses), would be

³ Liberty Union High School District. 2016. *Facility Needs Assessment*. April 4, 2016. To the extent multi-family development is allowed on the Project site, it is limited to age-restricted housing, which presumably would not generate additional students in the local schools.

collected at the building permit stage and are paid prior to building construction of the Project. While the fee varies, and even though the active-adult age-restricted housing would not be expected to generate a student population, all onsite land uses would be required to pay requisite school fees. Pursuant to Section 65995(h) of the California Government Code, the payment of school fees is considered full and complete mitigation for impacts on school facilities. Once funded, the school districts are responsible for identifying the location of new school facilities and undertaking acquisition, design, construction, and any required CEQA review of the facilities. As a result, impacts to schools would be ***less than significant***.

Mitigation Measures

None required.

Impact PSR-1e: Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for libraries? (*less than significant*)

The Brentwood Library is the only public library located in the City of Brentwood. Additional libraries exist within public schools located in the city, but these libraries are intended to serve only the students. The Brentwood Library recently moved to its new location on Oak Street in the Downtown area, providing additional space and resources. The library is part of the Contra Costa County Library System and therefore, the Brentwood library can access any other library materials within the Contra Costa County Library System when needed.

As noted earlier, the Project is expected to increase the city's population by approximately 4,407 residents that may use city library facilities. The new residents to the City of Brentwood may use city library facilities; however, this increase in use should be accommodated by the expanded and relocated library and would not be expected to create a significant increase in demand on library facilities, services, or materials that would trigger the construction of new facilities. Impacts would be less than significant. The city has established a Development Impact Fee Program to supplement the Community Facility Fee Fund, which covers funding sources for public facilities, including library operations. These fees are collected at issuance of building permit for new development with fees determined by the fee schedule in effect at the time of permit issuance. As a standard condition of project approval, the Project proponent is required to pay the city's development impact fee pursuant to the Schedule of City Fees in effect at the time of issuance of building permits. Moreover, as discussed above, an increased demand for public services, standing alone, is not an environmental impact under CEQA. As a result, the Project's impacts on library facilities are ***less than significant***. New facilities would not be anticipated.

Mitigation Measures

None required.

Impact PSR-2: 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 Brentwood Parks and Recreation Department maintains parks, community facilities, a Senior Activity Center, and trails for public use throughout the city. The city's General Plan outlines policies to ensure parks, trails, and recreation facilities citywide are maintained and sets park acreage standards for new development in the city. Policy CSF 2-2 is meant to achieve and maintain an overall citywide ratio of 5 acres of park land per 1,000 residents. Policy CSF 2-3 states that the ratio for Neighborhood Parks shall be 3 acres per 1,000 residents, and for Community Parks there shall be 2 acres per 1,000 residents. The Project's generation of 4,407 additional residents would require approximately 22 acres of parkland to meet that threshold. Compliance with Policy CSF 2-3 will be required of each subdivision as maps are submitted to the City for review and approval. The Project would also be required to comply with other relevant General Plan policies related to existing neighborhood and regional parks or other recreational facilities.

The Project would include approximately 225 acres of open space area, which could include formal or informal parkland uses. In addition, the Project would include approximately 15 acres designated for development of community recreation uses. At the plan level, locations of neighborhood and community parks have not yet been identified. At the time of submittal of maps subject to the Subdivision Map Act, the Project will be required to provide the acreage for neighborhood and community parks as set forth in the General Plan. Provision of such parkland would avoid substantial physical deterioration of existing neighborhood and regional parks, as users would have additional facilities to use and thus would not contribute to the accelerated or substantive decline of existing facilities. Therefore, impacts to parks and recreational facilities would be *less than significant*.

In addition, the Project would be required to pay development fees per the city's established Development Fee Program to supplement the Parks and Trails Facility Fee and would be required to participate in either a CFD or Landscape and Lighting District. These fees are collected at issuance of building permit for new development, with fees determined by the fee schedule in effect at the time of permit issuance.

Mitigation Measures

None required.

Impact PSR-3: Would the project require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (*less than significant*)

Please see above analysis for PSR-2. Construction of new park and recreation facilities within the Project boundaries are assumed in overall project development and construction impacts

and would not result in a separate or distinct environmental impact. The Project will not directly cause the expansion to any existing park or recreational facility in the city; however, payment of required fees could be used toward expansion or enhancement of such facilities. As a result, Project impacts on city park and recreation facilities would be ***less than significant***.

Mitigation Measures

None required.

Cumulative Impact Analysis

Impact PSR-4: Would implementation of the project, in combination with past, present, and reasonably foreseeable projects result in cumulative impacts with respect to public services and recreation? (*less than significant*)

At buildout, the Project would result in up to 2,400 housing units and an estimated 4,407 new city residents. With regard to police and fire protection services, the Project and past, present, and reasonably foreseeable projects under General Plan buildout would increase the demand for police protection and fire protection services. Specifically, fire services and response times could be impacted given existing deficiencies, which may cause the need for new facilities. However, as discussed above, an increased demand for services that causes increased response times, standing alone, is not an environmental impact under CEQA because the ECCFPD is responsible for ensuring adequate emergency services response times.

Nonetheless, the Project will pay property taxes, development fees, and fair share funding to support the ECCFPD. Future cumulative projects would provide similar funding for the District. This funding would help provide funding for equipment and personnel needed to improve service times. At this time, however, the location and timing of any future facilities is unknown and forecasting the environmental effects of construction of any such facility would be speculative. As a result, with payment of required fees, the Project will not have a cumulatively considerable impact with respect to a significant cumulative fire facilities impact and, thus, no significant cumulative impact with respect to fire facilities.

With respect to law enforcement, as discussed previously, the City of Brentwood General Plan anticipates a buildout population of 80,917 by 2035. The Project would increase the population by an estimated 4,407 residents. Population growth would increase the number of service calls (both emergency and non-emergency) resulting in the need for police services. However, an increased demand for law enforcement services, standing alone, would not result in a significant environmental impact under CEQA unless it creates the need for new or expanded facilities. The Project will be built out over 20 or more years, and there is currently no certainty as to when and what type of facilities will be necessary. Further, the Project and future projects would contribute property and sales tax to increase the city's funds in rough proportion to population increases. As a standard condition of project approval, the Project proponent would be required to pay the city's development impact fee pursuant to the Schedule of City Fees in effect at the time of issuance of building permits. The development impact fees are intended to finance public facilities necessary to ensure that new development pays its fair share of

associated with the costs of those facilities. As a result, the Project will not have a cumulatively considerable contribution to a significant cumulative police facilities impact and, thus, a less-than-significant cumulative impact would result.

With respect to schools, the Project could generate approximately 270 students. The Project, combined with other planned growth, would increase demand on local school districts. The Project would be subject to school impact fees. BUSD and LUHSD require the payment of development fees based on a per square foot basis of new development.

As noted above, payment of statutory fees for new development is deemed to be full and complete mitigation of impacts to public schools. The Project, as well as past, present, and reasonably foreseeable future projects, would be required to pay these fees, thus fully and completely mitigating the cumulative impacts related to school facilities. As a result, the Project will not have a cumulatively considerable contribution to a significant cumulative school facilities impact.

With respect to parks and recreation, the Project, as well as past, present, and reasonably foreseeable future projects, would be required to pay any applicable impact fees as part of the Development Fee Program to supplement the city's General Plan, Infrastructure Master Plans, and Capital Improvement Program. Provision of adequate on-site parkland would be ensured through the Subdivision Map Act approval process as each proposed map is submitted to the City. Furthermore, the Project would provide for the development of approximately 15 gross acres of community recreation uses. While being recreation focused, the ultimate indoor and outdoor offerings of the community recreation center would be refined based on the mix of housing types, evolving market trends, and programming requirements. Growth associated with implementation of the Project could potentially increase demand for existing parks and recreational facilities such as the Brentwood Senior Activity Center; however, the provision of new parks and recreational facilities included with the Project would reduce the potential for adverse impacts and physical deterioration of existing parks and recreation facilities by providing additional facilities to accommodate the demand for parks and recreation facilities. As noted under Impact PSR-2 above, the Project would be required to meet applicable General Plan requirements related to provision of high-quality, appropriately-located public amenities, including parks and recreation facilities as individual development projects are brought forward for approval.

The Project would, therefore, not have a cumulatively considerable contribution to a significant cumulative parks and recreation impact and, thus, will not have a significant cumulative impact with respect to park and recreation facilities.

With respect to library services, the Project would add a maximum population of 4,407 residents that may use city library facilities. The city's General Plan anticipates a buildout population of 80,917 by 2035. The Project would, therefore, represent approximately 5 percent of the city's population by 2035. The Project is required to pay the city's Development Fee to supplement city funding for public services such as libraries. Therefore, the Project will not have a cumulatively considerable contribution to a significant cumulative library facilities

impact and, thus, would result in a less-than-significant significant cumulative impact with respect to library facilities.

Based on the above, the Project, combined with other cumulative development in the project region, could result in a potentially significant cumulative impact related to public services and recreation. However, with the imposition of General Plan policies related to park and recreation facilities on future subdivision maps as they are submitted to the City, the cumulative impact would be reduced to a ***less-than-significant*** level.

Mitigation Measures

None required.

4.14 Transportation and Circulation

4.14.1 Environmental Setting

This section summarizes the Transportation Impact Analysis (TIA) prepared by Fehr & Peers in March 2019 (March 2019 TIA). The TIA was prepared to evaluate the potential transportation impacts associated with the proposed project. The TIA considers both short-term and long-term transportation impacts associated with implementation of the Project and is based on criteria set forth by the City of Brentwood and the Contra Costa Transportation Authority (CCTA). The TIA is included in its entirety as Appendix G of this EIR.

Existing Roadway Network

The approximately 815-acre Project site is located north of Balfour Road, east of Deer Valley Road, and west of American Avenue in unincorporated Contra Costa County, adjacent to the City of Brentwood. The Project site borders the City of Antioch to the north and west, and the City of Brentwood to the east.

Adjacent land uses include a single-family residential neighborhood to the east and agricultural and open space to the north, west, and south. Land to the north and south of the Project site is planned for residential development as set forth under the City of Antioch's General Plan. Heritage High School and Adams Middle School are southeast of the Project site. Regional access to the site is provided by State Route 4 (SR-4).

The proposed development would take access to the surrounding street system.

State Highways

SR-4 is an east-west freeway (oriented north-south in the traffic study area), connecting eastern Contra Costa County with the San Francisco Bay area and California's Central Valley. SR-4 currently provides four travel lanes in each direction to SR-160; three travel lanes are provided in each direction from SR-160 to Laurel Road in Oakley. Two travel lanes in each direction are provided from Laurel Road to Balfour Road, and one travel lane in each direction is provided from Balfour Road through Brentwood and beyond. SR-4 is a designated Route of Regional Significance (defined later in this section).

City Streets

Balfour Road is an east-west major arterial that provides two travel lanes in each direction east of American Avenue, and one travel lane in each direction west of American Avenue. To the west of American Avenue, properties adjacent to the roadway are mostly undeveloped. Balfour Road connects Deer Valley Road in the west to Bixler Road in the east, where it terminates. Sidewalks and bicycle lanes are provided on Balfour Road adjacent to existing development. Balfour Road is a designated Route of Regional Significance.

Deer Valley Road is a north-south rural roadway that provides one travel lane with a gravel shoulder in each direction, connecting the City of Brentwood to the City of Antioch. Properties

adjacent to this roadway are mostly undeveloped and agricultural. Deer Valley Road has a posted speed limit of 45 miles per hour (mph). No bicycle or pedestrian facilities are provided on Deer Valley Road within the traffic study area. Deer Valley Road is a designated Route of Regional Significance.

American Avenue is a four-lane, north-south collector roadway that connects Balfour Road to Heritage High School and Adams Middle School. It currently terminates at the City of Brentwood limits at Adams Middle School but is proposed by the Project to be extended in a loop, connecting to Balfour Road approximately $\frac{3}{4}$ -mile west of its current connection to Balfour Road. A sidewalk, bicycle lane, and parking lane are provided on the west side of American Avenue adjacent to existing development.

West Country Club Drive is a two-lane collector roadway that forms the north leg of the Balfour Road at American Avenue intersection, and loops through a residential neighborhood, connecting to Balfour Road at Foothill Drive/East Country Club Drive. Sidewalks and bicycle lanes are provided on West Country Club Drive.

Foothill Drive is a two-lane, north-south collector roadway that forms the southern leg of the East Country Club Drive at Balfour Road intersection. Foothill Drive serves a residential neighborhood and is planned to extend to John Muir Parkway. Sidewalks are provided on Foothill Drive.

John Muir Parkway is a north-south minor arterial that generally provides one travel lane in each direction. It connects Balfour Road to Vineyards Parkway from Concord Avenue. Sidewalks and bicycle lanes are provided on portions of John Muir Parkway.

Fairview Avenue is a two- to four-lane minor arterial south of Balfour Road to its transition to Vineyards Parkway. Between Balfour Road and Sand Creek Road, it is a four-lane major arterial. The posted speed limit is 35 to 45 mph. Sidewalks and bicycle lanes are provided on Fairview Avenue. Fairview Avenue is a designated Route of Regional Significance.

Vasco Road is a two- to four-lane rural highway that connects east Contra Costa County to the City of Livermore. The posted speed limit on Vasco Road is 45 to 55 mph. Sidewalks and bicycle facilities are not provided on Vasco Road. Vasco Road is a designated Route of Regional Significance.

Marsh Creek Road is an east-west rural roadway connecting east Contra Costa County (i.e., Discovery Bay) with central Contra Costa County (i.e., cities of Clayton and Concord). It generally parallels Balfour Road through Brentwood. The roadway provides one travel lane in direction. Sidewalks and bicycle facilities are not provided on Marsh Creek Road. Marsh Creek Road is a designated Route of Regional Significance.

Sand Creek Road is a four-lane, east-west roadway that extends east from SR-4 through the City of Brentwood. The posted speed limit is 45 mph. On-street parking is not permitted on Sand Creek Road. Class II bicycle lanes and sidewalks are provided along most of the roadway

through Brentwood. Sand Creek Road from Brentwood Boulevard to its current terminus at SR-4 is a designated Route of Regional Significance. An extension of Sand Creek Road that would connect SR-4 to Deer Valley Road is planned as part of development in the area. When constructed, the future extension of Sand Creek Road would also be a designated Route of Regional Significance.

Hillcrest Avenue is a north-south roadway that provides two travel lanes in each direction. Hillcrest Avenue currently terminates at Prewett Ranch Drive in the south and Jacobsen Street in the north, past SR-4. The posted speed limit is 45 mph within the traffic study area. Sidewalks and bicycle facilities are provided along the full length of Hillcrest Avenue within the traffic study area. Hillcrest Avenue, north of Lone Tree Way, is a designated Route of Regional Significance. Hillcrest Avenue is planned to be extended from its current terminus to the site as adjacent development occurs.

Routes of Regional Significance

Contra Costa County Measure C established a sales tax to be used to fund transportation improvements in Contra Costa County. The measure includes a growth management program and requires the CCTA to develop a comprehensive transportation plan and update it every other year. To receive a share of the sales tax generated by Measure C, local jurisdictions must adhere to the Level of Service (LOS) standards that Measure C applies to local streets and roads. The Measure C standards are applied to streets and roads for which the jurisdictions are responsible. Each jurisdiction must take appropriate action to ensure that the LOS standards are met, including Routes of Regional Significance. Designated regional routes include all the freeways and State highways, and the most significant arterials in Contra Costa County.

Within the traffic study area, the following roadways are classified as Routes of Regional Significance in the East County Action Plan for Routes of Regional Significance:

1. SR-4 (freeway)
2. Balfour Road (suburban arterial route)
3. Deer Valley Road (rural roads, unimproved portion)
4. Sand Creek Road (suburban arterial route)
5. Fairview Avenue (suburban arterial route)
6. Marsh Creek Road (rural road)
7. Walnut Boulevard (rural road)
8. Vasco Road (rural road)

As such, these facilities are required to be analyzed considering the Multimodal Transportation Service Objectives. For intersections, LOS D should be maintained. For freeway segments, the delay index should be evaluated as a measure of effectiveness. Delay index is a comparison of congested travel time to free-flow travel time along the route. According to CCTA, the delay index for freeway segments should not exceed 2.5 during the AM or PM peak periods.

Pedestrian Facilities

Pedestrian facilities in the traffic study area include sidewalks, crosswalks, pedestrian signals, and multi-use trails. Improved roadways in the traffic study area generally provide sidewalks on both sides of the street. Sidewalks are not currently provided on Balfour Road along the Project frontage. At the signalized intersections in the area, crosswalks and pedestrian push-button actuated signals are provided.

Bicycle Facilities

The City of Brentwood currently has approximately 10 miles of Class I Bicycle paths and 16 miles of Class II bike lanes. In the immediate area, there are Class II bike lanes along portions of Balfour Road, American Avenue, Country Club Drive, John Muir Parkway, and Fairview Avenue.

Bicycle facilities are classified as follows:

Bike paths (Class I) – Bike paths provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.

Bike lanes (Class II) – Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).

Bike routes (Class III) – Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.

Separated Bikeway (Class IV) – Separated bikeways, also referred to as cycle tracks or protected bikeways, are for the exclusive use of bicycles which are physically separated from vehicle traffic. Separated bikeways were adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

Transit Facilities

Eastern Contra Costa Transit Authority (Tri Delta Transit) provides transit service in eastern Contra Costa County, serving the communities of Brentwood, Antioch, Oakley, Concord, Discovery Bay, Bay Point, and Pittsburg. Thirteen routes operate on weekdays, with four routes

operating on weekends. Route 385 provides limited school hour service to American Avenue around school bell times. No other transit service is provided in the study area.

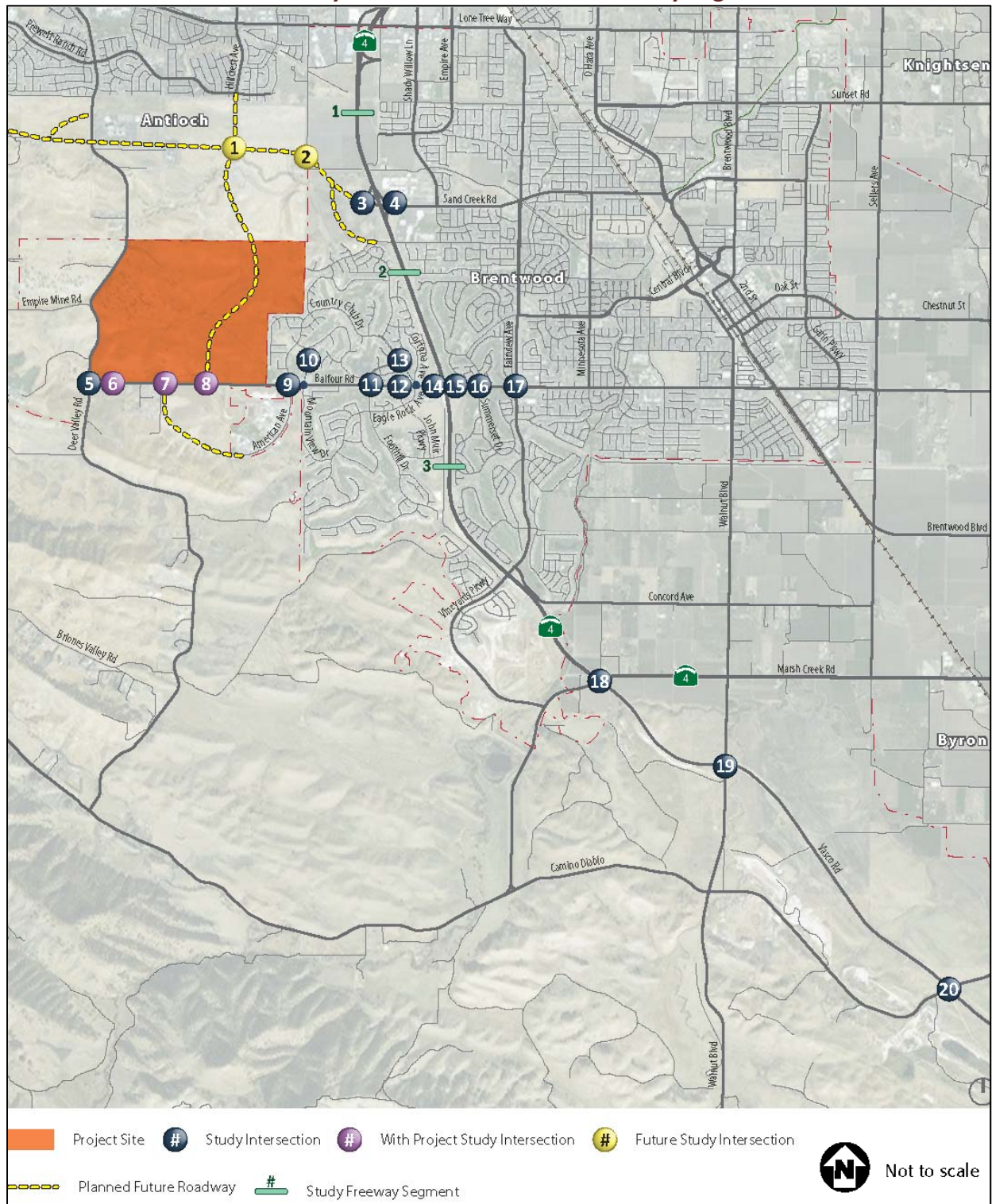
Traffic Study Area

The TIA methodology and the traffic study area were defined by the City of Brentwood, in accordance with the CCTA *Technical Procedures*. The traffic study area was selected in consultation with the City of Brentwood 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 4.14-1. It includes 20 intersections: 16 existing intersections, 2 Project roadway connections, and 2 future intersections associated with the Sand Creek Road Extension. Three freeway/highway segments are also evaluated. Each intersection was analyzed using the methodology and parameters employed by the jurisdiction in which the facility is located.

Intersections

1. Sand Creek Road at Hillcrest Avenue (City of Antioch, future signalized intersection)
2. Sand Creek Road at Heidorn Ranch Road (City of Antioch, future signalized intersection)
3. Sand Creek Road at SR-4 Eastbound Ramps (Caltrans, signalized)
4. Sand Creek Road at SR-4 Westbound Ramps (Caltrans, signalized)
5. Balfour Road at Deer Valley Road (City of Brentwood/City of Antioch, side-street stop-controlled)
6. Balfour Road at Commercial Entrance (“With Project” intersection)
7. Balfour Road at American Avenue Extension (City of Brentwood, “With Project” signalized intersection in *Existing* and *Near-Term* Conditions)
8. Balfour Road at Hillcrest Avenue (City of Brentwood, “With Project” signalized intersection)
9. Balfour Road at American Avenue/West Country Club Drive (City of Brentwood, signalized)
10. Balfour Road at Mountain View Drive (City of Brentwood, side-street stop-controlled)
11. Balfour Road at Foothill Drive/East Country Club Drive (City of Brentwood, signalized)
12. Balfour Road at John Muir Parkway (City of Brentwood, signalized)
13. Balfour Road at Eagle Rock Way/Cortona Way (City of Brentwood, signalized)
14. Balfour Road at SR-4 Eastbound Ramps (Caltrans, signalized)
15. Balfour Road at SR-4 Westbound Ramps (Caltrans, signalized)
16. Balfour Road at Summerset Drive (City of Brentwood, signalized)
17. Balfour Road at Fairview Avenue (City of Brentwood, signalized)
18. Marsh Creek Road/SR-4 at Vasco Road (Caltrans, signalized)

Figure 4.14-1
Traffic Study Area Intersections and Freeway Segments



19. Walnut Boulevard at Vasco Road (Contra Costa County, signalized)
20. Camino Diablo Road at Vasco Road (Contra Costa County, signalized)

Freeway Segments

1. SR-4 between Lone Tree Way and Sand Creek Road
2. SR-4 between Sand Creek Road and Balfour Road
3. SR-4 between Balfour Road and Marsh Creek Road

Analysis Scenarios

The analysis locations were evaluated for the following scenarios.

- **Existing Conditions** – Existing Conditions (2019) based on recent traffic counts.
- **Existing Plus Project** – For this scenario, projected Project peak hour traffic volumes are added to the *Existing Conditions* volumes to obtain the *Existing Plus Project* traffic volumes. This is a purely hypothetical scenario which, because it assumes that the Project would be fully implemented immediately (2019), is not feasible. Nonetheless, because a phasing program for the Project has not yet been formulated, this scenario provides an impact analysis and mitigation measures which will assure long-term compliance with CEQA.
- **Near-Term Without Project (2024)** – The *Near-Term* scenario reflects existing traffic conditions plus projected traffic from approved and pending (near-term cumulative) developments that are expected to be completed and occupied by 2024 and whose traffic distribution would be within the Project’s traffic study area. Additionally, existing traffic volumes were increased by five percent to account for through traffic growth from developments outside the immediate traffic study area.
- **Near-Term With Project (2024)** – This scenario reflects the same near-term conditions as the previous scenario with the addition of Project-related traffic associated with full buildout of the Project.
- **Cumulative Without Project (2040)** – Forecasts for the *Cumulative* scenario based on traffic growth trends as described in the City of Antioch General Plan EIR and the City of Brentwood 2014 General Plan EIR, supplemented by traffic forecasts for the traffic study area in the most recent Contra Costa Transportation Authority Countywide travel demand model, and reflecting the recently adopted Priority Area One Specific Plan. The scenario reflects projected conditions to year 2040.
- **Cumulative With Project (2040)** – This scenario projects Cumulative (to year 2040) conditions plus Project-related traffic associated with full buildout of the Project.

Level of Service

The operations of roadway facilities are described with the term LOS. LOS is a qualitative description of traffic flow from a vehicle driver’s perspective based on factors such as speed,

travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations “at capacity.” When volumes exceed capacity, stop-and-go conditions result and operations are designated LOS F.

Signalized Intersections Level of Service

Traffic conditions at signalized intersections were evaluated using methods developed by the Transportation Research Board, as documented in the 2010 *Highway Capacity Manual* (2010 HCM) for vehicles. The HCM method calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between LOS and control delay at signalized intersections is summarized in Table 4.14-1.

The level of service standard for all signalized study intersections is LOS D, based on the City of Brentwood, City of Antioch, Contra Costa County, California Department of Transportation (Caltrans), and CCTA criteria.

Unsignalized Intersections Level of Service

For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2010 HCM method for unsignalized intersections was used. With this method, operations are defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. Table 4.14-2 summarizes the relationship between LOS and delay for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left-turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/ approach delay are reported for side-street stop-controlled intersections. The City of Brentwood strives to maintain LOS E operations for the worst-case movement at uncontrolled intersections.

Freeway Segments

For freeway segments, the *East County Action Plan for Routes of Regional Significance*, CCTA has established the delay index as the Multimodal Transportation Service Objective for SR-4 through the traffic study area. The delay index is the ratio of actual travel times on a facility divided by the travel times that occur during non-congested free-flow periods. Should the delay index exceed 2.5 during the AM or PM peak period, freeway operations would be considered deficient. This would equate to peak hour travel taking more than 2.5 times longer than off-peak travel or an average travel speed below 26 mph assuming a non-congested free-flow speed of 65 mph.

Table 4.14-1: Signalized Intersection Levels of Service Criteria

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	< 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: 2010 Highway Capacity Manual.

Table 4.14-2: Unsignalized Intersection Levels of Service Criteria

Level of Service	Description	Delay in Seconds
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: 2010 Highway Capacity Manual.

Existing Traffic Conditions

Existing Traffic Volumes

Weekday morning (6:00 to 9:00 AM) and evening (3:00 to 6:00 PM) peak period intersection turning movement counts were collected at the study intersections, including separate counts of pedestrians and bicyclists, in January 2019 with area schools in normal session.

Intersection Levels of Service

The intersection analysis was conducted for the traffic study area intersections using the applicable intersection analysis methodology. Table 4.14-3 shows that all traffic study area intersections are currently operating at acceptable levels of service during the weekday AM and PM peak hours with the exception of the following:

Intersection 9: Balfour Road at American Avenue/West Country Club Drive

- Operates at LOS E during AM Peak

Intersection 13: Balfour Road at Eagle Rock Way/Cortona Way

- Operates at LOS E during PM Peak

Signal Warrants

To assess the need for signalization of stop-controlled intersections, the Manual of Uniform Traffic Control (Federal Highway Administration, 2009) presents nine signal warrants. The peak hour volume warrant was used as a supplemental analysis tool to assess operations at unsignalized intersections.¹ The Balfour Road at Mountain View Drive and Balfour Road at Deer Valley Road intersections do not currently meet peak hour volume signal warrants. (Signal warrant worksheets are provided in Appendix G to this EIR.)

Freeway Operations

Mainline traffic counts were conducted on SR-4 at Marsh Creek Road in January 2019. Based on on-ramp and off-ramp volumes at the Balfour Road and Sand Creek Road interchanges, mainline traffic volumes for each analysis segment was calculated.

¹ Unsignalized intersection warrant analysis is intended to examine the general correlation between existing conditions and the need to install new traffic signals. Existing peak-hour volumes are compared against a subset of the standard traffic signal warrants recommended in the Manual of Uniform Traffic Control and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions. The responsible State or local agency should undertake regular monitoring of actual traffic conditions and accident data and conduct a timely re-evaluation of the full set of warrants to prioritize and program intersections for signalization.

Table 4.14-3: Existing Conditions: Intersection Levels of Service

Intersection		Control ¹	Peak Hour	Delay ^{2,3}	LOS
1	Sand Creek Rd at Hillcrest Ave	(Future Intersection)			
2	Sand Creek Rd at Heidorn Ranch Rd	(Future Intersection)			
3	Sand Creek Rd at SR-4 Eastbound Ramps	Signal	AM PM	11 6	B A
4	Sand Creek Rd at SR-4 Westbound Ramps	Signal	AM PM	7 7	A A
5	Balfour Rd at Deer Valley Rd	SSSC	AM PM	14 (22) 10 (14)	B (C) A (B)
6	Balfour Rd at Commercial Entrance	(With Project Intersection)			
7	Balfour Rd at American Ave Extension	(With Project Intersection)			
8	Balfour Rd at Main Project Entry	(With Project Intersection)			
9	Balfour Rd at American Ave/ W Country Club Dr	Signal	AM PM	58 35	E C
10	Balfour Rd at Mountain View Dr ⁴	SSSC	AM PM	1 (36) 4 (107)	A (E) A (F)
11	Balfour Rd at Foothill Dr/ E Country Club Drive	Signal	AM PM	49 33	D C
12	Balfour Rd at John Muir Pkwy	Signal	AM PM	22 20	C B
13	Balfour Rd at Eagle Rock Way/ Cortona Way	Signal	AM PM	33 69	C E
14	Balfour Rd at SR-4 Eastbound Ramps	Signal	AM PM	31 29	C C
15	Balfour Rd at SR-4 Westbound Ramps	Signal	AM PM	28 23	C C
16	Balfour Rd at Summerset Dr	Signal	AM PM	4 5	A A
17	Balfour Rd at Fairview Ave	Signal	AM PM	27 34	C C
18	Marsh Creek Rd/SR-4 at Vasco Rd	Signal	AM PM	21 21	C C
19	Walnut Boulevard at Vasco Rd	Signal	AM PM	19 12	B B
20	Camino Diablo Rd at Vasco Rd	Signal	AM PM	24 27	C C

Notes: **Bold** text indicates potentially unacceptable intersection operations.

1. Signal = Signalized intersection; SSSC = Side-street stop-controlled intersections; traffic on the main street does not stop while traffic on the side-street is controlled by a stop sign.
2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
3. For SSSC intersections, average delay or LOS is listed first followed by the delay or LOS for the worst approach in parentheses.
4. During the morning peak hour around school bell times, signage prohibits the northbound left-turn movement from Mountain View Drive to Balfour Road

Source: Fehr & Peers, 2019.

The traffic volumes and number of travel lanes were used to calculate vehicle speeds, which were then used to calculate the delay index, presented in Table 4.14-4 for the AM peak hour and Table 4.14-5 for the PM peak hour. The results were verified through travel of the corridor during peak hours. With the recent completion of the Balfour Road interchange, travel on SR-4 between Marsh Creek Road and the Sand Creek Road interchange experiences minimal levels of congestion during peak hours, with delay indices well within the standards set by the CCTA in the East County Action Plan.

Table 4.14-4: Existing Conditions: AM Peak Hour Freeway Operations

Segment	Direction	Existing	
		Volume	Delay Index
South of Sand Creek Rd	Southbound	2,448	1.00
	Northbound	2,815	1.01
North of Sand Creek Rd	Southbound	2,009	1.00
	Northbound	2,014	1.00
South of Balfour Rd	Southbound	1,201	1.20
	Northbound	940	1.03

Source: Fehr & Peers, 2019.

Table 4.14-5: Existing Conditions: PM Peak Hour Freeway Operations

Segment	Direction	Existing	
		Volume	Delay Index
South of Sand Creek Rd	Southbound	3,185	1.03
	Northbound	2,932	1.02
North of Sand Creek Rd	Southbound	2,038	1.00
	Northbound	2,220	1.00
South of Balfour Rd	Southbound	1,015	1.05
	Northbound	1,431	1.82

Source: Fehr & Peers, 2019.

4.14.2 Regulatory Setting

State Regulations

Caltrans has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as SR 4. Any improvements to such roadways would require Caltrans approval.

Guide for the Preparation of Traffic Impact Studies

Caltrans' *Guide for the Preparation of Traffic Impact Studies* (December 2002) provides guidance for Caltrans staff who review local development and land use change proposals. The

Guide also informs local agencies about the information needed for Caltrans to analyze the traffic impacts to state highway facilities, which include freeway segments, on- or off-ramps, and signalized intersections.

Regional

Contra Costa Transportation Authority (CCTA)

CCTA is the countywide planning and programming agency for transportation related issues in Contra Costa County. CCTA plays a leading role in transportation by managing the County's transportation sales tax program (Measure J), securing transportation funds, providing project oversight, and initiating long term planning activities. Every two years, the CCTA updates the Congestion Management Plan (CMP), which:

- Sets standards for and assesses performance of the countywide circulation system;
- Establishes a list of prioritized capital improvements needed to maintain performance of the circulation network over the next seven years;
- Determines the process for evaluating land use decisions and their impacts to the regional roadway system;
- Provides a travel demand element that promotes circulation by modes other than single-occupant vehicles; and
- Establishes the countywide circulation improvements to be incorporated into MTC's Regional Transportation Improvement Program.

CCTA also maintains the regional transportation demand model, which contains a full database of existing and future land use projections, as well as current and planned circulation networks. The model is used to determine and assess the effectiveness of circulation network improvements, and to evaluate the circulation impacts associated with land use decisions such as the Brentwood General Plan.

Measure J funds are dedicated to the specific programs and projects specified in Measure J: Contra Costa's Transportation Sales Tax Expenditure Plan, CCTA, as amended through November 2011. Programs include funding for bus services, paratransit, Safe Routes to School, congestion management and transportation planning programs, and the Growth Management Program. Measure J projects in the Brentwood area include major infrastructure improvements such as SR-4, safety and capacity improvements on major streets, local street maintenance and improvements, One Bay Area grants, and new facilities for pedestrians and bicyclists.

The Growth Management Program (GMP) included in Measure J sets performance standards for regional corridors, as well as procedures for evaluating major land use changes or General Plan amendments. These procedures and standards are outlined in the Growth Management Implementation Guide (CCTA, 2010). The GMP defines Routes of Regional Significance throughout the County and requires the preparation of sub-regional "action plans" that specify how performance on each of these routes is to be maintained and assessed. The East County

Action Plan for Routes of Regional Significance (CCTA, September 2017) defines the performance criteria to be applied on designated Routes of Regional Significance in and surrounding Brentwood. The level of service standard for intersections on Routes of Regional Significance is LOS D. For freeway/highway segments, the delay index should not exceed 2.5 during either the AM or PM peak period.

Local

City of Brentwood General Plan

The City of Brentwood General Plan includes a set of goals, policies, and actions designed to ensure acceptable travel conditions on local roadways through adequately planning and funding roadway improvements. Applicable General Plan goals, policies, and actions have been adopted to ensure that development projects address their project-level impacts, pay their proportional share of roadway improvements, and/or provide necessary off-site improvements to ensure that impacts to the city's intersections and roadways remain less than significant. The specific goals and policies that address the thresholds of significance for transportation are noted below.

Circulation Goal 1: Provide a transportation system that facilitates the efficient movement of people and goods within and through the City of Brentwood and promotes the use of alternatives to the single occupant vehicle.

- **Policy CIR 1-2:** Ensure that the City's circulation network is a well-connected system of streets, roads, highways, sidewalks, and paths that effectively accommodates vehicular and non-vehicular traffic in a manner that considers the context of surrounding land uses and the needs of all roadway users.
- **Policy CIR 1-5:** Maintain LOS D or better operation at intersections within Brentwood that are not on designated Routes of Regional Significance, and LOS E or better operation at intersections in the Downtown Specific Plan area. At unsignalized intersections, levels of service shall be determined for both controlled movements and for the overall intersection. Controlled movements operating at LOS E or LOS F are allowable if the intersection is projected to operate at LOS C or better overall, and/or if the "Peak Hour" signal warrant outlined in the California Manual on Uniform Traffic Control Devices remains unmet.
- **Policy CIR 1-6:** Intersections may be exempted from the LOS standards established in Policy CIR 1-5 in cases where the City Council finds that the infrastructure improvements needed to maintain vehicle LOS (such as roadway or intersection widening) would be in conflict with goals of improving multimodal circulation, or would lead to other potentially adverse environmental impacts. For those locations where the City allows a reduced motor vehicle LOS or queuing standard, additional multimodal improvements may be required in order to reduce impacts to mobility.

- Policy CIR 1-7: Improve circulation in locations with high levels of congestion, but avoid major increases in street capacities unless necessary to remedy severe traffic congestion on major arterial corridors.
- Policy CIR 1-12: Maintain and improve critical transportation facilities for emergency vehicle access and emergency evacuation needs.

Circulation Goal 2: Proactively support and encourage travel by non-automobile modes by maintaining and expanding safe and efficient pedestrian, bicycle, equestrian, and transit networks.

- Policy CIR 2-1: Establish and maintain a system of interconnected bicycle, pedestrian, and equestrian facilities that facilitate commuter and recreational travel, and that are consistent with the City's parks, trails, and recreation goals and policies in this General Plan and the Contra Costa County Countywide Bicycle and Pedestrian Plan.
- Policy CIR 2-2: Routinely incorporate sidewalks and enhanced pedestrian crossing facilities as part of new street construction, and incorporate bicycle facilities on new collector and arterial streets (including bicycle lanes where appropriate, bicycle route and destination signs, and bicycle detection at signals).
- Policy CIR 2-3: Require development projects to construct on-site sidewalks, paths, and trails in a manner that is consistent with the City's parks, trails, and recreation goals and policies in this General Plan and the Contra Costa County Countywide Bicycle and Pedestrian Plan, and as dictated by the location of transit stops and common pedestrian destinations.
- Policy CIR 2-8: Provide secure bicycle racks in places such as the Downtown, at commercial areas, park and ride transit facilities, schools, multiple unit residential developments, and other locations where there is a concentration of residents, visitors, students, or employees.
- Policy CIR 2-9: Where possible, integrate multi-use path facilities into utility corridor rights-of-way.

Circulation Goal 3: Coordinate circulation facilities with land use and development patterns to create an environment that encourages walking, bicycling, and transit use.

- Policy CIR 3-1: Recognize the role of streets not only as vehicle routes but also as parts of a system of public spaces, with quality landscaping, street trees, and bicycle and pedestrian paths.
- Policy CIR 3-3: Design developments to include features that encourage walking, bicycling, and transit use. Design features shall include bus turnouts, transit shelters and benches, and pedestrian access points between subdivisions and between adjacent related land uses.

- Policy CIR 3-4: Provide an interconnected street network that provides multiple points of access, discouraging cut-through traffic while maintaining neighborhood connectivity.
- Policy CIR 3-9: Design intersections to provide adequate and safe access for all users including pedestrians, bicyclists, and motorists of all ages and abilities.
- Policy CIR 3-10: Require new development to include effective linkages to the surrounding circulation system for all modes of travel, to the extent feasible.

Circulation Goal 4: Ensure that a combination of managed growth and adequate funding mechanisms are in place to complete future improvements on the local and regional circulation networks.

- Policy CIR 4-2: Require new development to contribute its proportional cost of circulation improvements necessary to address cumulative transportation impacts on roadways throughout the City, as well as the bicycle and pedestrian network.

Community Facilities Goal: Ensure the provision of high quality and responsive fire protection services.

- Policy CSF 4-2: Encourage, and work cooperatively with, the East Contra Costa Fire Protection District and providers of emergency medical services to maintain a three to five minute response time for all emergency response calls within Brentwood.

4.14.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for transportation and circulation were derived from the Environmental Checklist in the State CEQA Guidelines Appendix G, as well as the previously certified 2014 General Plan EIR. These significance criteria have been amended or supplemented, as appropriate, to address lead agency requirements and the full range of potential impacts related to this Project. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria.²

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- 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.

² Please note that criteria under Section 15064.3, subdivision (b), of the CEQA Guidelines is not included. Section 15064.3, subdivision (b) relates to the assessment of vehicle miles of travel (VMT) for a project, as compared to local and regional averages. As the City of Brentwood has not adopted formal guidelines related to the analysis of VMT, no VMT assessment for the purposes of assessing transportation impacts is required until July 1, 2020 and any VMT analysis within this EIR is prepared for informational purposes only.

Method of Analysis

Analysis Criteria

For intersections, the following criteria were applied. The criteria listed below apply for intersections in the City of Brentwood, as well as the City of Antioch, Contra Costa County, CCTA Routes of Regional Significance, and Caltrans facilities.

- **Signalized Intersections.** Project-related operational impacts on the signalized study intersections in the City of Brentwood are considered significant if (per GP Policy CIR 1-5):
 1. Project-related traffic causes the LOS rating to deteriorate from LOS D (55-seconds) or better to LOS E or F, or from LOS E to LOS F;
 2. For intersections already operating at an unacceptable LOS without a project, it is considered a significant impact if the project increases the average intersection delay by more than 5 seconds.
- **Unsignalized Intersections.** The following threshold is established in General Plan Policy CIR 1-5:
 1. At unsignalized intersections, levels of service shall be determined for both controlled movements and for the overall intersection. Controlled movements operating at LOS E or LOS F are allowable if the intersection is projected to operate at LOS C or better overall, and/or if the “Peak Hour” signal warrant outlined in the California Manual on Uniform Traffic Control Devices remains unmet. Additional performance measures are established at the regional level as described below.
 2. For unsignalized intersections already operating at an unacceptable LOS without a project, it is considered a significant impact if:
 - Project traffic increases the minor movement delay by more than 30 seconds; and
 - Project traffic results in satisfaction of the peak hour volume traffic signal warrant; or
 - Where the peak hour volume signal warrant is met without project traffic and delay cannot be measured, a project increases traffic by ten or more vehicles per lane on the controlled approach.
- **Freeway System.** Project-related operational impacts on the freeway/highway study segments are considered significant if:
 - The addition of project traffic results in the delay index to exceed 2.5 in either the AM or PM peak hour; or

- For segments where the delay index exceeds 2.5 prior to the addition of project traffic, a project increases the delay index.

Senate Bill 743 – Update to the California Environmental Quality Act (CEQA) Guidelines

California Senate Bill (SB) 743 (Steinberg, 2013) mandates a change in the way that public agencies in California evaluate the transportation-related impacts of Projects under CEQA. The change identifies “vehicle miles traveled” (VMT) as the most appropriate metric to evaluate a Project’s transportation impacts for CEQA purposes, replacing the traditional capacity- or delay-based LOS standards. SB 743 required the State of California Governor’s Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide alternative level of service metrics for transportation impact evaluations. The alternative criteria must encourage greenhouse gas emissions reductions, support the development of multimodal transportation networks, and promote a diversity of land uses.

In December 2018, the State CEQA Guidelines were amended, including Section 15064.3. “*Determining the Significance of Transportation Impacts*,” implementing SB 743. Also, in December 2018, OPR published a *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018)³, which provides advice and recommendations which agencies have the option to use at their discretion in evaluating transportation impacts using the VMT metric. Lead agencies have the option to be governed immediately by the provisions of CEQA Guidelines Section 15064.3 but otherwise those provisions do not go into effect until July 1, 2020. Neither the City of Brentwood nor CCTA has yet elected to be governed by CEQA Guidelines Section 15064.3, nor have they established any standards or thresholds for CEQA transportation evaluation to be conducted using the VMT metric. Nonetheless, a preliminary assessment of VMT generated by the Project is included in Appendix G of this EIR *for informational purposes only*.

Project Assumptions

Trip Generation Estimates

Trip generation refers to the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the daily condition and for the peak one-hour period during the morning and evening peak periods when traffic volumes on the adjacent streets are typically the highest. Project trip generation was estimated using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition) for single-family homes and the potential commercial uses on Balfour Road. For the active adult single-family residences, a two-day trip generation survey was conducted of over 1,700 active adult residences in Brentwood. (See trip generation study in Appendix D to the TIA, which is included as Appendix G to this EIR.)

³ Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. Available at: <http://opr.ca.gov/docs/20190122-743.pdf>. December 2018.

As shown in Table 4.14-6, the Project is expected to generate 14,970 daily vehicle trips, with approximately 748 morning peak hour trips and 1,361 evening peak hour trips, including the trip generating potential of the commercial uses on Balfour Road.

Use	Size	Weekday						
		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Residential Uses								
Age Restricted Single Family Homes ¹	1,920 du	6,990	115	192	307	307	230	537
Single-Family ²	480 du	4,530	89	266	355	299	176	475
General Commercial ³	91,500 sf	3,450	53	33	86	168	181	349
Total Project Trips		14,970	257	491	748	774	587	1,361
<p>1. Based on trip generation study, provided as Appendix D to the TIA. It is noted that the Specific Plan allows multi-family units, all of which must be age-restricted. In no event shall the maximum number of multi-family units exceed 20% of the total maximum number of 2,400 units. There is limited available data related to the trip generating characteristics of age-restricted multi-family buildings without services, with most of the available age-restricted trip generation data reflecting single-family and duplex-style single-family homes without services, or large facilities with varying levels of outside support, including meal preparation and health care. Fehr & Peers conducted a comparison of ITE trip generation rates between non-age restricted single-family homes and apartment homes, which indicates that on average each non-age restricted apartment home generates about 20 percent less daily vehicle activity and 40 percent less peak hour vehicle activity than a non-age restricted single-family home. Fehr & Peers expects that a similar decrease in vehicle trip generation between an age restricted apartment home and age restricted single-family home would occur. However, as limited trip generation data is available for age-restricted apartments, and the provision of age-restricted apartment units would not increase the overall unit count, this TIA conservatively assumes that all age-restricted units are single-family. The overall findings of the TIA would remain valid if age-restricted apartments are constructed in-lieu of age restricted single-family homes.</p> <p>2. ITE land use category 210 – Single-Family Homes (Adj Streets, 7-9A, 4-6P): Daily: (T) = 9.44 (X) AM Peak Hour: T = 0.74 (X); Enter = 25%; Exit = 75% PM Peak Hour: T = 0.99 (X); Enter = 63%; Exit = 37%</p> <p>3. ITE land use category 820 – General Commercial (Adj Streets, 7-9A, 4-6P): Daily: (T) = 37.75 (X) AM Peak Hour: T = 0.94 (X); Enter = 62%; Exit = 38% PM Peak Hour: T = 3.81 (X); Enter = 48%; Exit = 52%</p>								
Source: <i>Trip Generation Manual</i> (10 th Edition), Web Version 2.3, ITE, 2019; Fehr & Peers, 2019.								

Because no specific uses are proposed for the commercial site, the TIA assumes up to 91,500 square feet of general retail space. The commercial uses are expected to be locally serving, such that most trips to/from the proposed retail uses would be from adjacent neighborhoods. However, the Specific Plan allows residential uses within the commercial area, provided that the overall level of residential development within the entire Project site does not exceed 2,400 dwelling units. Although the total number of dwelling units would not exceed 2,400, implementation of residential development in the commercial area would change the overall project traffic loads to Balfour Road with cumulative development. Should residential uses ultimately be constructed in the commercial area, the level of commercial development would need to be reduced to be consistent with the findings of the TIA. Fehr & Peers developed the following conversion from commercial to residential development. For each 10 active adult residences constructed on the commercial area, the commercial square footage would need to

be reduced by 1,750 sf. For each 10 traditional single-family homes constructed in the commercial area, the commercial square footage would need to be reduced by 14,500 sf.

Trip Distribution and Assignment

The Project's trip distribution is shown on Figure 4.14-2. Project trip distribution refers to the directions 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 using the CCTA travel demand model, and the location of complementary land uses. This data was used in combination with anonymized and aggregated location data from Global Positioning Systems (GPS) and mobile devices.

Trip distribution data was collected in 2016 from trips originating within the Summerset neighborhoods (an established adult living development) and existing market-rate neighborhoods adjacent to the Summerset neighborhoods. These neighborhoods are in the City of Brentwood and are reflective of typical travel patterns in the city for the types of land uses proposed as a part of the Project.

The data was representative of typical weekday (Monday through Thursday) and weekend conditions (Saturday and Sunday). Using this data, the percentage of trips that stay in the City of Brentwood and adjacent communities, and the percentage of trips on the regional roadway system, including Vasco Road, Byron Highway, SR-4 west and SR-4 east, was determined.

The data indicates that for residential uses in Brentwood, approximately 70 percent of peak hour trips remain within Brentwood. Of the trips that leave the Brentwood area, approximately 5 percent travel to Livermore and beyond, 5 percent travel to Antioch, 15 percent travel further west of SR-4 to destinations beyond Antioch, 2 percent travel on Byron Highway, and 3 percent travel on SR-4 east. It is expected that project trips would have a similar overall trip distribution pattern even though their routes differ based on their proposed destinations.

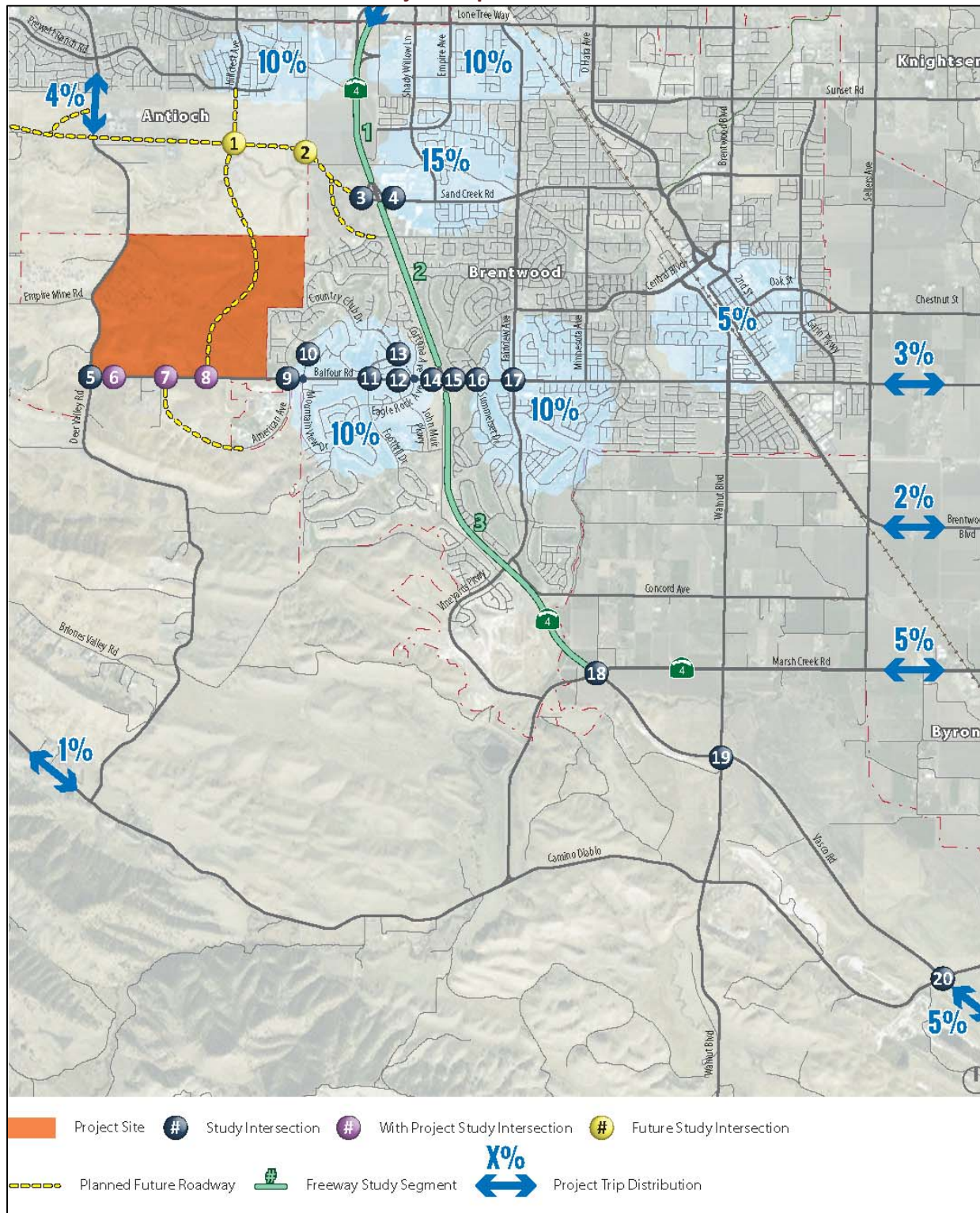
Project trips were then assigned to the roadway network based on the directions of approach and departure for the roadway network for the *Existing Plus Project* and *Near-Term* scenarios (see Figure 6 in Appendix G) and for the roadway network for the Future Conditions scenario (see Figure 7 in Appendix G).

Project Roadway Plan

Project On-Site Roadways

As discussed in Chapter 3, Project Description, primary access to the Project site would be provided from a divided minor arterial roadway north of Balfour Road. This entry road would provide access to the two residential neighborhoods and the Community Recreation Center. Vehicular access to the rest of the Project site and emergency vehicle access would be from a restricted (gated) access that would be provided from the future northerly extension of Hillcrest Avenue in the City of Antioch. From this road would be a series of collector and local streets providing access to the residential neighborhoods.

**Figure 4.14-2
Project Trip Distribution**



Project Off-Site Roadway Improvements

The Project would involve a number of off-site improvements, which are each described in further detail below. The following off-site roadway improvements would be provided as a part of the Project.

American Avenue Extension. Consistent with the General Plan (Figure CIR-1: Circulation Diagram) and as part of the Project's commitment to the city in the Public Benefits and Pre-Annexation Agreement, American Avenue would be extended to the west and north to reconnect to Balfour Road, creating a continuous loop road. The interim design would include a landscaped median and one travel lane, a parking or bike lane, and sidewalk in each direction. The improvements to American Avenue are intended to improve safety for pedestrian, bicycle and vehicular use of these public roadways.

Construction of the American Avenue extension would occur concurrently with construction of Phase 1 and prior to issuance of any building permit in that phase. As this section of roadway is located in unincorporated Contra Costa County, the City of Brentwood and the county would need to enter into an agreement as to ownership and maintenance responsibilities for the newly extended roadway.

Balfour Road. The Project proposes to widen Balfour Road from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection (described above) and improved to a three-lane arterial roadway from the new American Ave intersection with Balfour Road to Deer Valley Road. For purposes of this analysis, all improvements to Balfour Road, as further identified below, are proposed to be completed as a part of the Project, as follows:

- Phase 1: Balfour Road would be widened from two- to four-lanes from the existing American Avenue intersection to the entry point of the Vineyards at Deer Creek and then improved as a two-lane road west to Deer Valley Road. This widening would occur concurrently with other improvements required for the first small-lot final subdivision map within the Project site. Bonds or other financial security for this improvement would be provided to the extent required under the Subdivision Map Act.
- Phase 2: Balfour Road would then be widened from two- to four-lanes from the primary entry into the Project site, west to the new American Avenue intersection (described above). This improvement would occur as traffic demand necessitates, which would be evaluated at each small-lot final subdivision map within the Project site. Bonds or other financial security for this improvement would be provided to the extent required under the Subdivision Map Act.
- Phase 3: Balfour Road would then be improved as a two-lane road from the new western American Avenue intersection west to Deer Valley Road. Phase 3 improvements to Balfour Road are intended to improve safety for pedestrian, bicycle, and vehicular use of these public roadways. These improvements are consistent with the General Plan and the improvements would not preclude this portion of Balfour Road

from being subsequently widened from two- to four-lanes. This improvement would occur as traffic demand necessitates, which would be evaluated at each small-lot final subdivision map within the Project site. Bonds or other financial security for this improvement would be provided to the extent required under the Subdivision Map Act.

Impacts of the Proposed Project

The following discussion of impacts is generally structured as follows:

Impact TR-1: Discussion of project impacts to the local circulation system under the Existing Plus Project scenario.

Impact TR-2: Discussion of project impacts to the State circulation system under the Existing Plus Project scenario.

Impact TR-3: Discussion of project impacts to the local circulation system under the Near-Term Plus Project scenario.

Impacts TR-4: Discussion of project impacts to the State circulation system under the Near-Term Plus Project scenario.

Impact TR-5: Discussion of project impacts to the local circulation system under the Cumulative Plus Project scenario.

Impact TR-6: Discussion of project impacts to the State circulation system under the Cumulative Plus Project scenario.

Impact TR-7: Discussion of project impacts to transit, pedestrian, and bicycle systems.

Impact TR-8: Discussion of project impacts related to substantially increasing hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

Impact TR-9: Discussion of project impacts regarding inadequate emergency access.

Impact TR-1: Would the Project conflict with a program plan, ordinance or policy addressing the local circulation system under the Existing Plus Project scenario? (*less than significant with application of site-specific mitigation measures*)

As noted previously, it is neither planned nor feasible for the Project to be built out immediately. The time to complete buildout of the Project is dependent upon a number of external factors, most notably social and economic, but could extend beyond 20 years. The *Existing Plus Project* scenario isolates the potential impact of the proposed 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.

Intersection Levels of Service - Existing Plus Project

Table 4.14-7, Existing Plus Project: Intersection Levels of Service, indicates that all study area intersections would operate at acceptable levels of service with the addition of project traffic, with the exception of the following:

Intersection 6 (Unsignalized): Balfour Road at Commercial Entrance

- Side-street operates at LOS F during PM Peak; and
- Peak hour signal warrant met

Intersection 10 (Unsignalized): Balfour Road at Mountain View Drive

- Degrades overall intersection operations from LOS A to LOS E during PM Peak

Intersection 11 (Signalized): Balfour Road at Foothill Drive/E. Country Club Drive

- Degrades intersection from LOS D to LOS F during AM Peak
- Degrades intersection from LOS C to LOS E during PM Peak

Intersection 13 (Signalized): Balfour Road at Eagle Rock Way/Cortona Way

- Increases delay at intersection already operating unacceptably by more than 5 seconds

Intersection		Control ¹	Peak Hour	Existing		Existing Plus Project		Significant Impact?
				Delay ^{2,3}	LOS	Delay ^{2,3}	LOS	
1	Sand Creek Rd at Hillcrest Ave	(Future Intersection)						N/A
2	Sand Creek Rd at Heidorn Ranch Rd	(Future Intersection)						N/A
3	Sand Creek Rd at SR-4 Eastbound Ramps	Signal	AM PM	11 6	B A	12 8	B A	No
4	Sand Creek Rd at SR-4 Westbound Ramps	Signal	AM PM	7 7	A A	8 9	A A	No
5	Balfour Rd at Deer Valley Rd	SSSC	AM PM	14 (22) 10 (14)	B (C) A (B)	20 (36) 14 (24)	C (E) B (C)	No
6	Balfour Rd at Commercial Entrance	SSSC	AM PM	(With Project Intersection)		1 (31) 13 (90)	A (D) B (F)	Yes ; side-street operates at LOS F <u>and</u> peak hour signal warrant met
7	Balfour Rd at American Ave Extension	Signal	AM PM	(With Project Intersection)		16 6	B A	No
8	Balfour Rd at Main Project Entry	Signal	AM PM	(With Project Intersection)		14 11	B B	No

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Table 4.14-7: Existing Plus Project: Intersection Levels of Service

Intersection		Control	Peak	Existing		Existing Plus Project		Significant
9	Balfour Rd at American Ave/ W Country Club Dr	Signal	AM PM	58 35	E C	50 40	D D	No; improves LOS to acceptable
10	Balfour Rd at Mountain View Dr ⁴	SSSC	AM PM	1 (36) 4 (107)	A (E) A (F)	5 (168) 41 (>180)	A (F) E (F)	Yes ; intersection average delay worse than LOS C during PM.
11	Balfour Rd at Foothill Dr/E Country Club Dr	Signal	AM PM	49 33	D C	81 62	F E	Yes ; results in LOS E or F
12	Balfour Rd at John Muir Pkwy	Signal	AM PM	22 20	C B	24 26	C C	No
13	Balfour Rd at Eagle Rock Way/Cortona Way	Signal	AM PM	33 68	D E	33 69	D E	Yes ; average delay increases more than 5 seconds
14	Balfour Rd at SR-4 Eastbound Ramps	Signal	AM PM	31 29	C C	47 52	D D	No
15	Balfour Rd at SR-4 Westbound Ramps	Signal	AM PM	28 23	C C	29 23	C C	No
16	Balfour Rd at Summerset Dr	Signal	AM PM	4 5	A A	4 6	A A	No
17	Balfour Rd at Fairview Ave	Signal	AM PM	27 34	C C	29 42	C D	No
18	Marsh Creek Rd/SR-4 at Vasco Rd	Signal	AM PM	21 21	C C	21 26	C C	No
19	Walnut Boulevard at Vasco Rd	Signal	AM PM	19 12	B B	19 14	B B	No
20	Camino Diablo Rd at Vasco Rd	Signal	AM PM	24 27	C C	24 32	C C	No

Notes: **Bold** text indicates potentially unacceptable intersection operations. **Bold Italic (shaded)** indicates potentially significant impact.

1. Signal = Signalized intersection; SSSC = Side-street stop-controlled intersections; traffic on the main street does not stop while traffic on the side-street is controlled by a stop sign.
2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
3. For SSSC intersections, average delay or LOS is listed first followed by the delay or LOS for the worst approach in parentheses.
4. During the morning peak hour around school bell times, signage prohibits the northbound left-turn movement from Mountain View Dr to Balfour Rd

Source: Fehr & Peers, 2019.

Intersection 6 – Balfour Road at Commercial Entrance. The commercial driveway on Balfour Road is forecasted to operate at an overall acceptable service level. However, vehicles turning from the site to Balfour Road could experience LOS F operations during the PM peak hour and the peak hour signal warrant is expected to be satisfied, depending on the ultimate

development that is proposed for the site. Based on the significance criteria set forth in the EIR, this impact would be significant.

Intersection 10 – Mountain View Drive at Balfour Road. Through traffic on Balfour Road at the Mountain View Drive/Balfour Road intersection travels without delay, with delay experienced for vehicles turning from Mountain View Drive (both right-turning and left-turning vehicles) onto Balfour Road, and for vehicles turning left from Balfour Road onto Mountain View Drive. During the morning peak hour, the northbound left-turn movement is prohibited for an hour around the bell times of the nearby schools. Peak hour signal warrants are not met at the intersection in the existing condition even with the addition of Project traffic.

The addition of Project traffic through the intersection would further worsen LOS F conditions for the side-street movement during the PM peak hour, result in LOS F conditions during the morning peak hour, and result in overall LOS E conditions during the PM peak hour. Peak hour signal warrants would not be satisfied with the addition of Project traffic. Based on the significance criteria set forth in this EIR, this impact is significant.

Intersection 11 – Foothill Drive/East Country Club Drive at Balfour Road. The addition of Project-generated vehicle trips would degrade the level of service from LOS D to LOS F during the AM peak hour, and to LOS E conditions during the PM Peak hour. Based on the significance criteria, this is considered a significant impact.

Intersection 13 – Balfour Road at Eagle Rock Way/Cortona Way. The addition of Project-generated vehicle trips would result in LOS E during PM Peak hour and increase the average delay by more than five seconds. Based on the significance criteria, this change is a significant impact.

Conclusion

Implementation of MM TR-1 through MM TR-5 would ensure that the above-listed significant intersection impacts would be **less than significant**, as shown in Table 4.14-8, Existing Plus Project With Mitigation: Intersection Levels of Service, below.

Intersection	Control ¹	Peak Hour	Existing Conditions		Existing Plus Project		Existing Plus Project With Mitigation		
			Delay ²	LOS	Delay ²	LOS	Delay ²	LOS	
6	Balfour Road at Commercial Entrance ³	SSSC/Signal	AM PM	(With Project Intersection)	1 (31) 13 (90)	A (D) B (F)	8 9	A A	
10	Balfour Rd at Mountain View Dr	SSSC	AM PM	1 (36) 4 (107)	A (E) A (F)	5 (168) 41 (> 180)	A (F) E (F)	1 (19) 1 (30)	A (C) A (D)
11	Balfour Rd at Foothill Dr/ E Country Club Dr	Signal	AM PM	49 33	D C	81 62	F E	55 42	D D

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13	Balfour Rd at Eagle Rock Way/ Cortona Way	Signal	AM PM	33 68	D E	33 76	D E	33 53	D D
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Notes: **Bold** text indicates potentially unacceptable intersection operations.

1. Signal = Signalized intersection
2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
3. Mitigated condition shows the level of service with signalization, separate left and right-turn lanes from the site to Balfour Road, a westbound right-turn only lane and an eastbound left-turn lane, with one through lane in each direction on Balfour Road.

Source: Fehr & Peers, 2019.

Mitigation Measures

Please refer to Section 4.8, Greenhouse Gas Emissions, which includes mitigation measures for the reduction of greenhouse gas (GHG) emissions associated with vehicular traffic. MM GHG-5, Transportation Demand Management Plan, requires a Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) plan to reduce mobile GHG emissions for all uses. The TDM plan shall discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The TIA does not quantify potential reductions in traffic generation associated with alternatives to single-occupancy vehicle trips and therefore is a conservative evaluation of traffic.

Focused Traffic Study Requirement to Verify Timing for Improvements. Due to the Project scale and its extended buildout, and the uncertainty over the timing of each Project phase, follow-up traffic studies are the optimal way to establish the need for implementation of individual mitigation measures. MM TR-1 below would require the proponent to conduct focused traffic studies with each phase of development, submit the study to the city and, if standards are met, the Project proponent shall construct physical traffic improvements, as identified in this section of the EIR.

MM TR-1 *Prior to the approval of each tentative tract or parcel map for development within the Project, the Proponent shall have prepared and shall submit to the city for review and approval, a focused traffic study evaluating the effects of the proposed phase of development at the study intersections under Existing Plus Project conditions. This study shall determine if the potential significant intersection impacts will be triggered by that proposed phase of development. If the focused traffic study finds that one or more of the identified significant impacts would occur as a result of that proposed phase of development, then the applicable Mitigation Measure shall be imposed as a condition of approval to the tentative tract map.*

Based on the findings of the focused traffic study, the following mitigation measures are identified to mitigate potentially significant impacts of the Project.

MM TR-2 *Balfour Road at Commercial Entrance. Prior to the issuance of the first building permit for the commercial portion of the Project, the commercial access intersection shall be designed and constructed as a signalized intersection in the ultimate condition of Balfour Road to the satisfaction of*

the City of Brentwood. The improvement shall be completed prior to the issuance of the first building permit for the commercial development area.

MM TR-3 ***Mountain View Drive at Balfour Road.** Prior to the issuance of the first residential building permit, the Project Proponent shall reconstruct the median to prohibit the northbound left-turn from Mountain View Drive to Balfour Road.*

MM TR-4 ***Foothill Drive/East Country Club Drive at Balfour Road.** Prior to the issuance of the building permit for the 1,200th dwelling unit and again prior to issuance of the building permit for the 2,280th dwelling unit (or earlier, if traffic conditions warrant it, subject to the determination of the City Engineer), the Proponent shall engage a licensed transportation engineer to calculate the retiming and coordination of traffic signal timings on Balfour Road between the Project roadway and Fairview Avenue, subject to approval and implementation by the City Engineer. Such retiming and coordination shall achieve acceptable levels of service per city standards. The Project Proponent shall be responsible for all work and costs associated with the effort.*

MM TR-5 ***Balfour Road at Eagle Rock Way/Cortona Way.** Implement MM TR-4.*

Impact TR-2: ***Would the Project conflict with a program plan, ordinance or policy addressing the State circulation system under the Existing Plus Project scenario? (less than significant)***

Freeway Segment Levels of Service - Existing Plus Project

Table 4.14-9, Existing Plus Project: AM Peak Hour Freeway Operations, and Table 4.14-10, Existing Plus Project: PM Peak Hour Freeway Operations, show that under this scenario, while the addition of Project traffic would increase the delay index for some freeway segments, the Project would not cause any segment to exceed the delay index standard. The impact would be **less than significant**.

Segment	Direction	Existing		Existing Plus Project	
		Volume	Delay Index	Volume	Delay Index
South of Sand Creek Rd	Southbound	2,448	1.00	2,518	1.00
	Northbound	2,815	1.01	2,996	1.02
North of Sand Creek Rd	Southbound	2,009	1.00	2,087	1.00
	Northbound	2,014	1.00	2,214	1.00
South of Balfour Rd	Southbound	1,201	1.20	1,251	1.28
	Northbound	940	1.03	966	1.04

Source: Fehr & Peers, 2019.

Table 4.14-10: Existing Plus Project: PM Peak Hour Freeway Operations

Segment	Direction	Existing		Existing Plus Project	
		Volume	Delay Index	Volume	Delay Index
South of Sand Creek Rd	Southbound	3,185	1.03	3,384	1.05
	Northbound	2,932	1.02	3,153	1.03
North of Sand Creek Rd	Southbound	2,038	1.00	2,216	1.00
	Northbound	2,220	1.00	2,464	1.00
South of Balfour Rd	Southbound	1,015	1.05	1,073	1.08
	Northbound	1,431	1.82	1,507	2.24

Source: Fehr & Peers, 2019.

Mitigation Measures

None required.

Cumulative Impact Analysis

The State CEQA Guidelines Section 15130 requires that a project’s cumulative impacts be discussed when “...the incremental effect is cumulatively considerable....” According to the State CEQA Guidelines Section 15065(a)(3), “the term ‘cumulatively considerable’ means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.” Specifically, the State CEQA Guidelines Section 15355 defines cumulative impacts as “...two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.”

Near-Term Without and With Project (2024) Scenario

The *Near-Term* scenario reflects existing traffic plus traffic from approved developments that are expected to be completed and occupied by 2024. To determine forecasted traffic volumes, existing traffic volumes were increased by five percent to account for through traffic growth from developments outside the immediate traffic study area, plus traffic expected to be generated by approved projects in the area (near-term cumulative conditions). The projects included in the *Near-Term* condition are listed in Table 4.14-11, Approved and Pending Projects Summary and depicted on Figure 4.14-3, Approved and Pending Projects. Project trips (full buildout) were then added to the resulting forecasts to form the basis of the *Near-Term With Project* analysis. For the analysis of *Near-Term* conditions, signal timings, peak hour factors, pedestrian and bicycle activity, as well as truck percentages, were unchanged from *Existing Conditions*.

Standard Conditions

This analysis assumes that all standard conditions of approval identified by the General Plan and/or the city’s Municipal Code will be applied to the Project. Where the application of a

standard condition avoids or minimizes a potential impact, that standard condition will be identified in the analysis.

Background Improvements: Near-Term Scenario Assumptions

A number of roadway improvements are conditioned on near-term developments and considered in the near-term forecasts. The following background (non-Project) roadway improvements are assumed in the *Near-Term With and Without Project* scenarios:

- Extension of Hillcrest Avenue from its current terminus to an extension of Sand Creek Road;
- Improvements to Heidorn Ranch Road; and
- Extension of Sand Creek Road from SR-4 in the east to a new terminus by the Dozier-Libbey Medical High School. No direct through travel would be permitted between Deer Valley Road and Hillcrest Avenue. However, vehicles would be able to travel through Prewett Ranch Drive to Hillcrest Avenue to Sand Creek Road to access destinations to the east.

Map Location ¹	Project Name	Size	Land Use	Status
A	Brentwood Country Club (TSM 9360/ DR 14-001)	63 active adult residences	Single Family	Approved
B	Brentwood Country Club (TSM 9486/ DR 18-008)	24 single family homes	Single Family	Approved
C	Merrill Gardens (DR18-003)	121-unit memory care facility	Memory Care Facility	Approved
D	Bridle Gate (TSM 8506/DR17-007)	252 single-family units, 258 multi-family units, commercial; elementary school	Mixed Use	Proposed
E	Catchings Ranch (TSM 9424/ DR 16-002)	24 units	Single Family	Under Construction
F	Cowell Ranch (TSM 9452/ DR17-002)	140 units	Active Adult Attached Homes	Approved
G	Villagio (TSM 9173/DR 0714)	160 units	Single Family	Under Construction
H	The Shops at Fairview (DR 04-34)	30,894 sf remaining on commercial entitlement	General Commercial	Partially Constructed
I	Parkside Villas (TSM 8982)	37 units	Single Family	Approved

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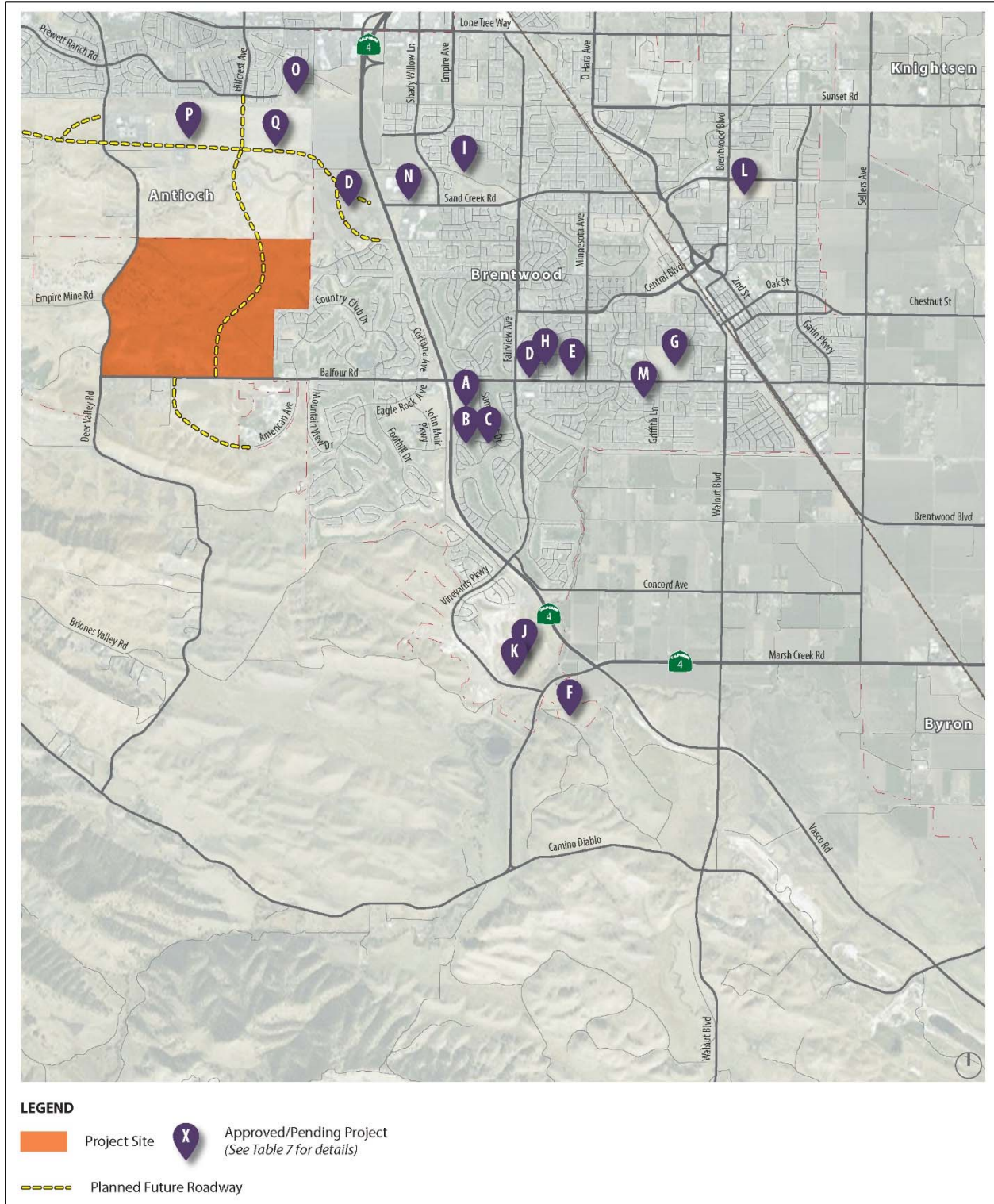
Table 4.14-11: Approved and Pending Projects Summary

Map Location ¹	Project Name	Size	Land Use	Status
J	Pioneer Square (TSM 9451/ DR 16-020)	72 units	Active Adult Attached Homes	Under Construction
K	Trilogy at the Vineyards (TSM 8796/ DR06-02) – 1,600 active adult homes	1,600 units	Active Adult Homes	Under Construction
L	Sciortino Ranch (9356)	326 units	Single Family	Under Construction
M	City Block (DR 05-27)	7,001 sf remaining on commercial entitlement	General Commercial	Partially Constructed
N	Anden Apartments (DR 19-007)	320 apartments	Multi Family	Pending
O	Heidorn Village (City of Antioch)	117 units	Single Family	Approved
P	Aviano (City of Antioch)	533 units	Single Family	Approved
Q	The Promenade, Vineyards at Sand Creek (City of Antioch)	641 units	Single Family	Approved
R	Contra Costa County Community College District	5,000 students	Community College	Under Construction

1. See Figure 4.14-3 of this EIR.

Source: *City of Brentwood Project Status Report* (Dec. 2018) and *City of Antioch Development Project Pipeline* (Feb. 2019).

**Figure 4.14-3
Approved and Pending Projects**



No Project connection to Sand Creek Road from Hillcrest Avenue is assumed because Hillcrest Avenue between Sand Creek Road and the Project site would not be constructed until adjacent development occurs.

Cumulative (2040) Scenario

Forecasts for the cumulative scenario are based on traffic growth trends, as described in the City of Antioch General Plan EIR and the City of Brentwood 2014 General Plan EIR, and supplemented by traffic forecasts for the traffic study area in the most recent CCTA Countywide travel demand model, considering the recently adopted Priority Area One Specific Plan, as well as completion of The Ranch project in Antioch. The scenario reflects conditions at year 2040 with and without full buildout of the Project. The approved projects identified for the *Near-Term* scenario (Table 4.14-11) are included in the cumulative analysis, as well as pending projects in the city and adjacent jurisdictions.

The *Cumulative With and Without Project* scenarios assume no change to pedestrian, bicycle and heavy vehicle volumes from the assumptions of *Existing Conditions*. For intersections within the City of Brentwood, peak hour factors were increased to 0.95 if the existing peak hour factor was less than 0.95, and signal timings were optimized, reflecting that Brentwood routinely adjusts signal timings to better accommodate changing travel patterns within the city. The same signal timings were used for the analysis of without and with Project conditions.

Standard Conditions

Where the application of a City of Brentwood General Plan provision, Municipal Code requirement, or standard condition avoids or minimizes a potential impact, that standard condition will be identified in the analysis.

Background Improvements: Cumulative Conditions Scenario Assumptions

The following background (non-Project) roadway improvements are assumed in the *Cumulative With and Without Project* scenarios:

- SR-4 south of Balfour Road is planned to be widened to provide two travel lanes in each direction;
- Completion of Sand Creek Road extension to Deer Valley Road, with connection to the current terminus of Dallas Ranch Road;
- Completion of additional two lanes along the American Avenue Extension; and
- Extension of Hillcrest Avenue to the northern Project boundary.

Impact TR-3: Would the Project conflict with a program plan, ordinance or policy addressing the local circulation system under the Near-Term Plus Project scenario? (*significant and unavoidable, even with application of site-specific mitigation measures*)

Intersection Levels of Service - Near-Term Conditions

The resulting peak hour intersection levels of service with and without the Project are identified in Table 4.14-12, Near-Term Conditions: Intersection Levels of Service.

Intersection	Control ¹	Peak Hour	Near-Term Without Project		Near-Term With Project		Significant Impact?
			Delay ^{2,3}	LOS	Delay ^{2,3}	LOS	
1 Sand Creek Rd at Hillcrest Ave	Signal	AM PM	36 30	D C	36 30	D C	No
2 Sand Creek Rd at Heidorn Ranch Rd	Signal	AM PM	24 21	C C	24 21	C C	No
3 Sand Creek Rd at SR-4 Eastbound Ramps	Signal	AM PM	38 21	D C	38 23	D C	No
4 Sand Creek Rd at SR-4 Westbound Ramps	Signal	AM PM	12 12	B B	13 12	B B	No
5 Balfour Rd at Deer Valley Rd	SSSC	AM PM	20 (36) 11 (17)	C (E) B (C)	40 (80) 24 (49)	E (F) D (E)	Yes ; intersection average delay degrades to worse than LOS C during AM; and peak hour signal warrant met.
6 Balfour Rd at Commercial Entrance	SSSC	AM PM	(With Project Intersection)		1 (36) 18 (132)	A (E) C (F)	Yes ; side-street operates at LOS F <u>and</u> peak hour signal warrant met.
7 Balfour Rd at American Ave Extension	Signal	AM PM	(With Project Intersection)		17 6	B A	No
8 Balfour Rd at Main Project Entry	Signal	AM PM	(With Project Intersection)		13 14	B B	No
9 Balfour Rd at American Avenue/ W Country Club Dr	Signal	AM PM	61 37	E D	59 48	E D	No; decreases delay as compared to without Project condition.
10 Balfour Rd at Mountain View Dr ⁴	SSSC	AM PM	2 (47) 7 (> 180)	A (E) A (F)	8 (> 180) 81 (> 180)	A (F) F (F)	Yes ; intersection average delay degrades to worse than LOS C during PM (although peak hour signal

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Table 4.14-12: Near-Term Conditions: Intersection Levels of Service

Intersection	Control ¹	Peak Hour	Near-Term Without Project		Near-Term With Project		Significant Impact?	
			Delay ^{2,3}	LOS	Delay ^{2,3}	LOS		
							warrant not met)	
11	Balfour Rd at Foothill Dr/ E Country Club Dr	Signal	AM PM	52 36	D D	92 75	F E	Yes ; results in LOS E or F
12	Balfour Rd at John Muir Pkwy	Signal	AM PM	24 21	C C	27 30	C C	No
13	Balfour Rd at Eagle Rock Way/ Cortona Way	Signal	AM PM	37 74	D E	41 89	D F	Yes ; average delay increase of more than 5 seconds
14	Balfour Rd at SR-4 Eastbound Ramps	Signal	AM PM	31 33	C C	32 71	C E	Yes , results in LOS E operations.
15	Balfour Rd at SR-4 Westbound Ramps	Signal	AM PM	25 22	C C	25 18	C B	No
16	Balfour Rd at Summerset Dr	Signal	AM PM	5 7	A A	5 7	A A	No
17	Balfour Rd at Fairview Ave	Signal	AM PM	33 57	C E	36 75	D E	Yes ; average delay increase of more than 5 seconds
18	Marsh Creek Rd/ SR-4 at Vasco Rd	Signal	AM PM	22 30	C C	23 31	C C	No
19	Walnut Blvd at Vasco Rd	Signal	AM PM	22 26	C C	30 37	C D	No
20	Camino Diablo Rd at Vasco Rd	Signal	AM PM	28 44	C D	28 46	C D	No

Notes: **Bold** text indicates potentially unacceptable intersection operations. **Bold Italic (shaded)** indicates potentially significant impact.

- Signal = Signalized intersection; SSSC = Side-street stop-controlled intersections; traffic on the main street does not stop while traffic on the side-street is controlled by a stop sign.
- Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
- For SSSC intersections, average delay or LOS is listed first followed by the delay or LOS for the worst approach in parentheses.
- During the morning peak hour around school bell times, signage prohibits the northbound left-turn movement from Mountain View Drive to Balfour Road

Source: Fehr & Peers, 2019.

The addition of Project traffic under the Near-Term scenario would worsen or result in deficient operations at the following intersections. These changes would be considered a significant impact.

Intersection 5 (Unsignalized): Balfour Road at Deer Valley Road

- Side-street movement operates at LOS F during AM Peak; and
- Peak hour traffic signal warrant met

Intersection 6 (Unsignalized): Balfour Road at Commercial Entrance

- Side-street movement operates at LOS F during PM Peak; and
- Peak hour traffic signal warrant met

Intersection 10 (Unsignalized): Balfour Road at Mountain View Drive

- Overall intersection operations degrade from LOS A to LOS F in the PM peak hour

Intersection 13 (Signalized): Balfour Road at Eagle Rock Way/Cortona Way

- Increases delay at intersection already operating unacceptably by more than 5 seconds during PM Peak

Intersection 14 (Signalized): Balfour Road at SR-4 Westbound Ramps

- Degrades intersection from LOS C to LOS E during PM Peak

Intersection 17 (Signalized): Balfour Road at Fairview Avenue

- Increases delay at intersection already operating unacceptably by more than 5 seconds

Intersection 5 – Balfour Road at Deer Valley Road. The addition of Project-generated vehicle trips during the AM peak hour would worsen conditions for side-street movements to LOS F. Peak hour signal warrants are also met prior to the addition of Project traffic. This is a significant impact.

Intersection 6 – Balfour Road at Commercial Entrance. The commercial Project driveway on Balfour Road is forecasted to operate at an overall acceptable service level. However, vehicles turning from the site to Balfour Road could experience LOS F operations during the PM peak hour and peak hour signal warrants are expected to be satisfied, depending on the ultimate development that is proposed for the site. This impact is considered significant.

Intersection 10 – Mountain View Drive at Balfour Road. Through traffic on Balfour Road at Mountain View Drive/Balfour Road intersection travels without delay, with delay experienced for vehicles turning from Mountain View Drive (both right-turning and left-turning vehicles) onto Balfour Road, and for vehicles turning left from Balfour Road onto Mountain View Drive. During the AM peak hour, the northbound left-turn movement is prohibited for an hour around the bell times of the near-by schools. Peak hour signal warrants are not met at the intersection under the *Near-Term* scenario even with the addition of Project traffic.

The addition of Project traffic through the intersection would further worsen LOS F conditions for the side-street movement during the PM peak hour, result in LOS F conditions during the

morning peak hour, and result in overall LOS F conditions during the PM peak hour. This impact is significant.

Intersection 11 – Foothill Drive/East Country Club Drive at Balfour Road. The addition of Project-generated vehicle trips would worsen overall level of service from LOS D to LOS F under the *Near-Term With Project* scenario during the AM peak hour, and to LOS E during the PM peak hour. This is a significant impact.

Intersection 13 – Balfour Road at Eagle Rock Way/Cortona Way. The addition of Project-generated vehicle trips would worsen overall LOS E conditions to LOS F during PM Peak hour, and increase average delay by more than 5 seconds. Based on the significance criteria, this is considered a significant impact.

Intersection 14 – Balfour Road at SR-4 Eastbound Ramps. The addition of Project-generated vehicle trips would degrade the intersection from LOS C to LOS E conditions under the *Near-Term With Project* scenario during PM Peak hour. Based on the significance criteria, this is considered a significant impact.

Intersection 17 – Balfour Road at Fairview Avenue. The addition of Project-generated vehicle trips would worsen overall LOS E conditions in the *Near-Term With Project* condition during the PM peak hour, and increase average delay by more than five seconds. Based on the significance criteria, this is considered a significant impact.

Conclusion

Implementation of the below-listed site-specific mitigation measures, would ensure that the above-identified Near-Term with Project impacts would be less-than-significant, as shown in Table 4.14-13, Near Term With Mitigation: Intersection Levels of Service. All of the site-specific mitigation measures are feasible, ensuring project impacts under the Near-Term scenario would be mitigated to a less-than-significant level, with the following two exceptions.

Balfour Road/State Route 4 Eastbound Ramps: The retiming identified by MM TR-12 for the intersection of Balfour Road/State Route 4 Eastbound Ramps involves Caltrans approval. While retiming is generally routine in nature and considered to be reasonably achievable, because such retiming is subject to Caltrans approval, the City of Brentwood cannot legally impose or guarantee the performance of this mitigation measure. Thus, the impact to Balfour Road/State Route 4 Eastbound Ramps intersection is conservatively determined to be ***significant and unavoidable***.

Balfour Road/Deer Valley Road: The signalization and associated improvements identified by MM TR-7 for Balfour Road and Deer Valley Road intersection cannot be legally imposed by the City of Brentwood given this intersection's location within the City of Antioch and Contra Costa County. Thus, the impact to Balfour Road/Deer Valley Road is conservatively determined to be ***significant and unavoidable***.

Table 4.14-13: Near-Term Conditions With Mitigation (2024): Intersection Levels of Service

Intersection	Control ¹	Peak Hour	Near-Term Without Project		Near-Term With Project		Near-Term With Project With Mitigation	
			Delay ²	LOS	Delay ²	LOS	Delay ²	LOS
5 Balfour Rd at Deer Valley Rd	SSSC	AM PM	20 (36) 11 (17)	C (E) B (C)	40 (80) 24 (49)	E (F) D (E)	20 30	B C
6 Balfour Rd at Commercial Entrance	SSSC/ Signal	AM PM	(With Project Intersection)		1 (36) 18 (132)	A (E) C (F)	7 14	A B
10 Balfour Rd at Mountain View Dr	SSSC	AM PM	2 (47) 7 (>180)	A (E) A (F)	8 (>180) 81 (>180)	A (F) F (F)	1 (20) 1 (36)	A (C) A (E)
11 Balfour Rd at Foothill Dr/ E Country Club Dr	Signal	AM PM	52 36	D D	92 75	F E	55 50	D D
13 Balfour Rd at Eagle Rock Way/ Cortona Way	Signal	AM PM	37 74	D E	41 89	D F	41 63	D E
14 Balfour Rd at SR-4 Eastbound Ramps	Signal	AM PM	31 33	C C	32 71	C E	32 43	C D
17 Balfour Rd at Fairview Ave	Signal	AM PM	33 57	C E	36 75	D E	36 52	D D

Notes: **Bold** text indicates potentially unacceptable intersection operations.
 1. Signal = Signalized intersection
 2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
 Source: Fehr & Peers, 2019.

Mitigation Measures

MM TR-6 Implement MM TR-1.

MM TR-7 *Balfour Road at Deer Valley Road. Prior to the issuance of the residential building permit for the 600th dwelling unit, the Project proponent shall make a good faith effort to coordinate with the City of Antioch and Contra Costa County to effectuate the design and construction of the signalization of this intersection in conjunction with other planned improvements, which include the construction of a southbound left-turn lane, as well as separate westbound left and right-turn lanes. If the City of Antioch and/or Contra Costa County are unwilling to issue the approvals or permits required to effectuate the foregoing improvements, proponent shall cause design plans for said improvements to be completed and pay the Project’s fair share of construction costs toward such improvements (payment into the City of Brentwood’s Development Fee Program would account for a portion of this fair share contribution). Prior to the issuance of the residential building permit for the 1,200th dwelling unit, proponent shall design and construct all Balfour Road improvements within City of Brentwood control, including pavement widenings for separate westbound left and right-turn lanes and eastbound lanes, in the ultimate horizontal and vertical alignment to*

accommodate the signalization of the Balfour Road/Deer Valley Road intersection.

MM TR-8 ***Balfour Road at Commercial Entrance. Implement MM TR-2.***

MM TR-9 ***Mountain View Drive at Balfour Road. Implement MM TR-3.***

MM TR-10 ***Foothill Drive/East Country Club Drive at Balfour Road. Implement MM TR-4.***

MM TR-11 ***Balfour Road at Eagle Rock Way/Cortona Way. Implement MM TR-5.***

MM TR-12 ***Balfour Road at State Route 4 Eastbound Ramps. Prior to the issuance of the building permit for the 1,200th dwelling unit, and again prior to issuance of the building permit for the 2,280th dwelling unit (or earlier if, in the judgment of the City Engineer, traffic conditions warrant it), the proponent shall engage a licensed transportation engineer to calculate the retiming and coordination of traffic signal timings on Balfour Road between the Project roadway and Fairview Avenue, including the Balfour Road at SR-4 Eastbound Ramps, subject to approval by the City Engineer and Caltrans. Such retiming and coordination shall achieve acceptable levels of service per city standards.***

MM TR-13 ***Balfour Road at Fairview Avenue: Signal Timing. Prior to issuance of the building permit for the 1,200th dwelling unit, and again prior to issuance of the building permit for the 2,280th dwelling unit (or earlier if, in the judgment of the City Engineer, traffic conditions warrant it), the proponent shall engage a licensed transportation engineer to calculate the retiming and coordination of traffic signal timings on Balfour Road between the Project roadway and Fairview Avenue, subject to approval by the City Engineer. Such retiming and coordination shall achieve acceptable levels of service per city standards.***

Impact TR-4: ***Would the Project conflict with a program plan, ordinance or policy addressing the State circulation system under the Near-Term Plus Project scenario? (significant and unavoidable, even with application of site-specific mitigation measures)***

Freeway Segment Levels of Service – Near Term Without and With Project

Freeway improvements were not assumed in the evaluation of near-term freeway operations. The *Near-Term Without and with Project* analysis results are presented in Table 4.14-14, Near-Term Conditions: AM Peak Hour Freeway Operations, and Table 4.14-15, Near-Term Conditions: PM Peak Hour Freeway Operations, for the AM and PM peak hours, respectively. Under the *Near-Term* scenario, operations of SR-4, between Marsh Creek Road and Balfour Road, during the PM peak hour are expected to degrade beyond the desired standard set by CCTA, and the addition of Project traffic would further degrade operations. Based on the significance criteria

set forth in this EIR, this would be a significant impact. All other freeway segments would continue to operate at acceptable levels of service.

Conclusion

The widening of SR-4, between Balfour Road and Marsh Creek Road, needed to mitigate this impact is included in the East Contra Costa Regional Fee Program. Payment of the East Contra Costa Regional Fee and Financing Authority (ECCRFFA) fee would represent the project's fair share contribution towards the widening of SR 4. However, because this impact occurs under the Near-Term Project scenario, and the timing of the completion of the SR-4 widening improvement may not be commensurate with the project's impact, the impact is considered a short-term **significant and unavoidable** impact.

Table 4.14-14: Near-Term Conditions: AM Peak Hour Freeway Operations

Segment	Direction	Near-Term		Near-Term With Project	
		Volume	Delay Index	Volume	Delay Index
South of Sand Creek Rd	Southbound	2,752	1.01	2,822	1.01
	Northbound	3,343	1.05	3,524	1.07
North of Sand Creek Rd	Southbound	2,401	1.00	2,479	1.00
	Northbound	2,325	1.00	2,525	1.01
South of Balfour Rd	Southbound	1,478	2.06	1,528	2.38
	Northbound	1,109	1.11	1,135	1.13

Source: Fehr & Peers, 2019.

Table 4.14-15: Near-Term Conditions: PM Peak Hour Freeway Operations

Segment	Direction	Near-Term		Near-Term With Project	
		Volume	Delay Index	Volume	Delay Index
South of Sand Creek Rd	Southbound	3,653	1.10	3,852	1.15
	Northbound	3,350	1.05	3,571	1.08
North of Sand Creek Rd	Southbound	2,350	1.00	2,573	1.01
	Northbound	2,663	1.01	2,907	1.02
South of Balfour Rd	Southbound	1,211	1.22	1,269	1.31
	Northbound	1,705	4.32	1,781	5.71

Source: Fehr & Peers, 2019.

Mitigation Measures

MM TR-14 *Prior to the issuance of each building permit, the Project proponent shall pay its fair share towards freeway improvement projects in the area, including the widening of SR-4 between Balfour Road and Marsh Creek Road through the payment of the regional transportation impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA).*

Impact TR-5: Would the Project conflict with a program plan, ordinance or policy addressing the local circulation system under the Cumulative Plus Project scenario? (*significant and unavoidable, even with application of site-specific mitigation measures*)

Intersection Levels of Service – Cumulative Conditions

The resulting peak hour intersection levels of service with and without the Project are identified in Table 4.14-16, Cumulative Conditions: Intersection Levels of Service.

	Intersection	Control ¹	Peak Hour	Cumulative Without Project		Cumulative With Project		Significant Impact?
				Delay ^{2,3}	LOS	Delay ^{2,3}	LOS	
1	Sand Creek Rd at Hillcrest Ave	Signal	AM PM	43 44	D D	45 50	D D	No
2	Sand Creek Rd at Heidorn Ranch Rd	Signal	AM PM	13 23	B C	14 26	B C	No
3	Sand Creek Rd at SR-4 Eastbound Ramps	Signal	AM PM	94 106	F F	94 110	F F	No; average delay increase of less than 5 seconds
4	Sand Creek Rd at SR-4 Westbound Ramps ⁴	Signal	AM PM	133.6 44	F D	138.5 48	F D	No; average delay increase of less than 5 seconds
5	Balfour Rd at Deer Valley Rd	SSSC	AM PM	> 50 (>180) 37 (72)	F (F) E (F)	> 50 (>180) > 50 (>180)	F (F) F (F)	Yes ; minor movement delay by more than 30 seconds and peak hour signal warrant met
6	Balfour Rd at Commercial Entrance	SSSC	AM PM	(With Project Intersection)		1.1 (35) 40 (> 180)	A (D) E (F)	Yes ; intersection average delay worse than LOS C during PM and peak hour signal warrant met
7	Balfour Rd at American Ave Extension	Signal	AM PM	34 9	C A	37 9	D A	No
8	Balfour Rd at Main Project Entry	Signal	AM PM	(With Project Intersection)		9 8	A A	No
9	Balfour Rd at American Ave/ W Country Club Dr	Signal	AM PM	48 32	D C	51 41	D D	No
10	Balfour Rd at Mountain View Dr ⁵	SSSC	AM PM	7 (>180) 4 (85)	A (F) A (F)	17 (>180) 14 (>180)	C (F) B (F)	No; peak hour signal warrant not met

(Continued on next page)

Table 4.14-16: Cumulative Conditions (2040): Intersection Levels of Service

Intersection		Control ¹	Peak Hour	Cumulative Without Project		Cumulative With Project		Significant Impact?
11	Balfour Rd at Foothill Dr/ E Country Club Dr	Signal	AM PM	50 35	D C	55 36	D D	No
12	Balfour Rd at John Muir Pkwy	Signal	AM PM	21 25	C C	21 26	C C	No
13	Balfour Rd at Eagle Rock Way/ Cortona Way	Signal	AM PM	53 39	D D	53 39	D D	No
14	Balfour Rd at SR-4 Eastbound Ramps	Signal	AM PM	37 30	D C	41 30	D C	No
15	Balfour Rd at SR-4 Westbound Ramps	Signal	AM PM	22 28	C C	22 28	C C	No
16	Balfour Rd at Summerset Dr	Signal	AM PM	3 4	A A	3 4	A A	No
17	Balfour Rd at Fairview Ave	Signal	AM PM	36 60	D E	38 70	D E	Yes ; average delay increase of more than 5 seconds
18	Marsh Creek Rd/ SR-4 at Vasco Rd	Signal	AM PM	24 52	C D	24 52	C D	No
19	Walnut Blvd at Vasco Rd	Signal	AM PM	27 93	C F	27 96	C F	No; average delay does not increase by more than 5 seconds
20	Camino Diablo Rd at Vasco Rd	Signal	AM PM	36 134	D F	36 134	C F	No; average delay does not increase by more than 5 seconds

Notes: **Bold** text indicates potentially unacceptable intersection operations. **Bold Italic (shaded)** indicates potentially significant impact.

- Signal = Signalized intersection; SSSC = Side-street stop-controlled intersections; traffic on the main street does not stop while traffic on the side-street is controlled by a stop sign.
- Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
- For SSSC intersections, average delay or LOS is listed first followed by the delay or LOS for the worst approach in parentheses.
- Poor operations at this location are primarily caused by potential levels of development as approved in the Priority Area One Specific Plan. Construction of an additional westbound right-turn only lane from westbound Sand Creek Road to northbound SR-4 would result in acceptable operations at this intersection. Should that improvement, or one of similar effectiveness, be added to the East County Regional Fee program, the proposed project and other projects in eastern Contra Costa County would pay their fair share towards its construction.
- During the morning peak hour around school bell times, signage prohibits the northbound left-turn movement from Mountain View Drive to Balfour Road

Source: Fehr & Peers, 2019.

Intersection Levels of Service With Project

Although the following intersections are projected to operate at a deficient level of service prior to the addition of Project traffic in the cumulative condition, the Project would not increase delay by more than five seconds. Based on the significance criteria, the Project's contribution would be less than significant at these locations:

- Sand Creek Road at SR-4 Eastbound Ramp
- Sand Creek Road at SR-4 Westbound Ramp
- Walnut Boulevard at Vasco Road
- Camino Diablo Road at Vasco Road

With the addition of Project traffic and associated Project road improvements, the level of service would worsen or result in deficient operations at the following intersections. Based on the significance criteria set forth in this EIR, the Project would significantly impact these intersections.

Intersection 5 (Unsignalized): Balfour Road at Deer Valley Road

- Minor movement delay increases by more than 30 seconds; and

Peak hour traffic signal warrant met

Intersection 6 (Unsignalized): Balfour Road at Commercial Entrance

- Intersection average control delay less than LOS C during PM Peak (i.e., LOS F); and
- Peak hour traffic signal warrant met

Intersection 17 (Signalized): Balfour Road at Fairview Avenue

- Increases delay at intersection already operating unacceptably by more than 5 seconds

Intersection 5 – Balfour Road at Deer Valley Road. The intersection is projected to operate at an overall deficient LOS F prior to the addition of project traffic, and the peak hour signal warrant would be satisfied. Addition of Project-generated vehicle trips would increase delay for the side-street movement by more than 30-seconds. This is a significant impact.

Intersection 6 – Balfour Road at Commercial Entrance. The Commercial Project Driveway on Balfour Road is forecast to operate at an overall acceptable service level. However, vehicles turning from the site onto Balfour Road could experience LOS F operations during the PM peak hour, and the peak hour signal warrant is expected to be satisfied, depending on the ultimate development that is proposed for the site. The overall intersection would also operate below LOS C with the Project's incremental traffic. This impact is significant.

Intersection 17 – Balfour Road at Fairview Avenue. The addition of Project vehicle trips would worsen the overall LOS E during PM Peak hour and increase average delay by more than five seconds. This change is a significant impact.

Conclusion

Implementation of MM TR-15 through MM TR-18 would ensure that the above-identified Cumulative with Project impacts would be less than significant, as shown in Table 4.14-17, Cumulative With Project With Mitigation: Intersection Levels of Service. All of the site-specific

mitigation measures are feasible, ensuring the Project’s incremental contribution toward cumulative traffic impacts would be mitigated to a less-than-significant level, with the following exception.

Table 4.14-17: Cumulative With Project With Mitigation (2040): Intersection Levels of Service

Intersection	Control ¹	Peak Hour	Cumulative Without Project		Cumulative With Project		Cumulative With Project Plus Mitigation	
			Delay ²	LOS	Delay ²	LOS	Delay ²	LOS
5 Balfour Rd at Deer Valley Rd	SSSC	AM	> 50 (>180)	F (F)	> 50 (>180)	F (F)	16	B
		PM	37 (72)	E (F)	> 50 (>180)	F (F)	20	B
6 Balfour Road at Commercial Entrance	SSSC	AM	(With Project Intersection)		1.1 (35)	A (D)	8	A
		PM			40 (> 180)	E (F)	11	B
17 Balfour Rd at Fairview Ave	Signal	AM	36	D	38	D	36	D
		PM	60	E	70	E	53	D

Notes: **Bold** text indicates potentially unacceptable intersection operations.
 1. Signal = Signalized intersection
 2. Average intersection delay is calculated for all signalized intersections using the 2010 HCM method for vehicles.
 Source: Fehr & Peers, 2019.

Balfour Road/Deer Valley Road: As noted previously, the signalization and associated improvements identified by MM TR-7 for Balfour Road and Deer Valley Road intersection cannot be legally imposed by the City of Brentwood given this intersection’s location within the City of Antioch and Contra Costa County. Thus, the impact to Balfour Road/Deer Valley Road is conservatively determined to be **significant and unavoidable**.

Mitigation Measures

MM TR-15 *Implement MM TR-1.*

MM TR-16 ***Balfour Road at Deer Valley Road.** Implement MM TR-7.*

MM TR-17 ***Balfour Road at Commercial Entrance.** Implement MM TR-2.*

MM TR-18 ***Balfour Road at Fairview Avenue: Right-of-Way Reallocation.** Prior to the issuance of the building permit for the 1,200th dwelling unit of the Project, the Project proponent shall design and construct improvements to the intersection, including any required signal modifications, to provide dual northbound left-turn lanes, one through lane, and a through-right shared lane, subject to approval of the City Engineer.*

Impact TR-6: Would the Project conflict with a program plan, ordinance or policy addressing the State circulation system under the Cumulative Plus Project scenario? (*less than significant*)

Freeway Segment Levels of Service – Cumulative Conditions

Under this scenario, improvements to SR-4, between Balfour Road and Marsh Creek Road, are planned to increase the number of travel lanes in each direction to two lanes. The *Cumulative Without and with Project* analyses results are presented in Table 4.14-18, Cumulative Conditions (2040): AM Peak Hour Freeway Operations, and Table 4.14-19, Cumulative Conditions (2040): PM Peak Hour Freeway Operations, for the AM and PM peak hours, respectively. With the planned improvements to SR-4, all freeway segments in the traffic study area are forecasted to operate at acceptable levels of service as set forth by the CCTA, even with addition of Project traffic.

Table 4.14-18: Cumulative Conditions (2040): AM Peak Hour Freeway Operations

Segment	Direction	Cumulative Without Project		Cumulative With Project	
		Volume	Delay Index	Volume	Delay Index
South of Sand Creek Rd	Southbound	2,560	1.01	2,601	1.01
	Northbound	3,330	1.05	3,447	1.06
North of Sand Creek Rd	Southbound	2,380	1.00	2,390	1.00
	Northbound	2,560	1.01	2,569	1.01
South of Balfour Rd	Southbound	1,380	1.00	1,430	1.00
	Northbound	1,220	1.00	1,246	1.00

Source: Fehr & Peers, 2019.

Table 4.14-19: Cumulative Conditions (2040): PM Peak Hour Freeway Operations

Segment	Direction	Cumulative Without Project		Cumulative With Project	
		Volume	Delay Index	Volume	Delay Index
South of Sand Creek Road	Southbound	4,110	1.25	4,231	1.31
	Northbound	3,890	1.16	4,054	1.22
North of Sand Creek Road	Southbound	2,820	1.01	2,850	1.01
	Northbound	3,210	1.03	3,273	1.04
South of Balfour Road	Southbound	1,700	1.00	1,758	1.00
	Northbound	2,320	1.00	2,396	1.00

Source: Fehr & Peers, 2019.

Mitigation Measures

None required.

Impact TR-7: Would the Project conflict with a program plan, ordinance or policy addressing the transit, bicycle and pedestrian facilities? (less than significant)

Pedestrian Circulation

Based on the CEQA criteria, the Project would create a significant impact related to the pedestrian system if it conflicts with a program, plan, ordinance or policy addressing the pedestrian circulation system.

For this assessment, the city's General Plan and standard roadway plans were reviewed. As previously discussed, within the study area there are existing sidewalks on Balfour Road, adjacent to existing development (not along the Project frontage); there is a sidewalk on the west side of American Avenue, adjacent to existing development. There are also sidewalks on West Country Club Drive, Foothill Drive, Fairview Avenue, Sand Creek Road, and Hillcrest Avenue, and on portions of John Muir Parkway. There are no existing sidewalks within the study area on Deer Valley Road, Vasco Road, or Marsh Creek Road.

The Project would provide an interconnected network of sidewalks along internal streets and a series of trails in open space. As a part of the Project, sidewalks are proposed on both sides of the divided minor arterial roadway north connecting to Balfour Road, as well as the loop roadway within the site. Sidewalks would be provided on the north side of Balfour Road, along the Project frontage. Sidewalks on public streets constructed as part of the Project would meet current city standards. Sidewalks would also be provided on one side of private streets in most residential neighborhoods.

Multi-use (or shared) paths would be proposed adjacent to arterial and collector roads, with a separated multi-use path along the east side of Deer Valley Road. Multi-use paths would be designed to support multiple recreation and mobility opportunities, such as walking, jogging, bicycling, inline skating and people in wheelchairs. They would be physically separated from motor vehicle traffic and may include a landscaped buffer or barrier.

Pedestrian facilities would not be removed as part of the Project. All on-site sidewalks would be integrated into the overall pedestrian circulation such that no hazardous conditions would occur. Additionally, intersection improvements identified as mitigation in this EIR would not adversely impact existing sidewalks within the study area. No intersections would be widened beyond the already planned cross-sections for these roadways. Development of the Project in accordance with the development standards and design guidelines included in the VDCSP would ensure that the final design of the above-discussed pedestrian facilities that are included in the proposed project would be consistent with the General Plan's policies related to pedestrian mobility, such as Policies CIR 2-2, CIR 2-3, CIR 3-1, CIR 3-3, and CIR 3-9. Therefore, Project impacts to pedestrian facilities would be less than significant.

Bicycle

Based on the CEQA criteria, a project would create a significant impact related to the bicycle system if it conflicts with a program, plan, ordinance or policy addressing the bicycle circulation system.

For this assessment, the city's General Plan and standard roadway plans were reviewed. As previously discussed, within the study area there are existing bicycle facilities on Balfour Road, adjacent to existing development (not along the Project frontage); there is a bike lane on the west side of American Avenue, adjacent to existing development. Additionally, there are bicycle facilities on West Country Club Drive, Fairview Avenue, Sand Creek Road (Class II), and Hillcrest Avenue, and on portions of John Muir Parkway. There are no existing bicycle facilities within the study area on Deer Valley Road, Foothill Drive, Vasco Road, or Marsh Creek Road.

Bicycle circulation would be integrated into the Project through on-street bike lanes and separated off-street bike or multi-use paths. Where provided, bike lanes would be a minimum of five feet in width.

Existing bicycle facilities would not be removed as part of the Project and the Project would not preclude the implementation of planned bicycle improvements. The Project would construct bicycle facilities along Balfour Road, consistent with planned bicycle improvements.⁴ Bicycle detection would also be required at signalized intersections constructed as part of the Project. Additionally, intersection improvements identified as mitigation in this EIR would not adversely impact existing or planned bicycle facilities in the study area. Development of the Project in accordance with the development standards and design guidelines included in the VDCSP, would ensure that the final design of the above-discussed bicycle facilities included in the proposed project would be consistent with the General Plan's policies related to bicycle mobility, such as Policies CIR 2-2, CIR 2-8, CIR 3-3, and CIR 3-9. Therefore, Project impacts would be less than significant.

Transit

Based on the CEQA criteria, the project would create a significant impact related to the transit system if it conflicts with a program, plan, ordinance or policy addressing the transit circulation system.

For this assessment, the city's General Plan, as well as existing transit route information, was reviewed. Eastern Contra Costa Transit Authority (Tri Delta Transit) provides transit service in eastern Contra Costa County, serving the communities of Brentwood, Antioch, Oakley, Concord, Discovery Bay, Bay Point, and Pittsburg. Thirteen routes operate on weekdays, with four routes operating on weekends. Route 385 provides limited school hour service to Heritage High School and Adams Middle School via three stops, as follows: the intersection of Balfour Road and

⁴ For example, see *Contra Costa Countywide Bicycle and Pedestrian Plan*, July 2018, pg. 47, Figure 4-D.

American Avenue, Heritage High School, and Adams Middle School. Limited service is provided to these three stops around school bell times (7:40 AM, 1:10 PM, and 3:20 PM). No transit service is provided further west on Balfour Road, near the Project site. It is expected that some Project residents may desire to use transit. While individuals aged 65 and older are able to access Senior Paratransit services through Tri Delta Transit, and paratransit service would be provided to disabled residents who are not able to independently use fixed-route service, others who live, work or visit the Project site would not have an available transit option.

There are no adopted plans and policies that identify a future transit route along the Project's Balfour Road frontage, with which the proposed Project would be inconsistent. Notwithstanding this lack of planned transit facilities, consistent with General Plan Policy CIR 2-13, the Project proponent will coordinate with Tri Delta Transit, prior to issuance of building permits, regarding the need for transit improvements at the site (e.g., bus stops, bus shelters) and the desire to increase the coverage areas and frequencies of bus service in Brentwood to include the Project site.

The Project proponent is required, through MM GHG-5 of this EIR, to develop a qualifying CTR/TDM plan to reduce mobile GHG emissions for all uses. The TDM plan shall be approved by the City of Brentwood prior to the issuance of building permits and incorporated into the Project's Codes Covenants 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. Among the measures in the TDM plan are: requirements for tentative map improvements that will provide access to public transit, ridesharing opportunities and nonmotorized forms of travel; and requirements for consultation with the local transit service provider on the need to provide infrastructure to connect the Project with transit services.

Additionally, some residents may rely on ride hailing services. As the Project has restricted access, the Project would establish procedures to permit authorized ride hailing services to access passengers.

Conclusion

Based on the above, the Project would not conflict with a program plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities. Thus, a ***less-than-significant*** impact would occur.

Mitigation Measures

None required.

Impact TR-8: Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (significant and unavoidable, even with application of site-specific mitigation measures)

The Project would not introduce incompatible uses to area roadways at completion. However, the Project construction period is expected to span multiple years (20+ years), with site grading and backbone roadway improvements occurring in earlier Project phases. Heavy equipment usage would likely be the highest in the initial Project phases, with material delivery and construction related trips higher in subsequent phases. As such, there is the potential for incompatible uses during some construction phases. The Project would be required to develop and implement a construction management program as part of the city's standard conditions of approval. These measures could include:

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

An increase in hazardous road conditions could occur if the public roadways proposed as part of the Project do not meet City of Brentwood standards. All public roadways proposed as part of the Project would be constructed to City of Brentwood standards.

Deer Valley Road

The Project would add traffic to Deer Valley Road, a rural roadway that does not currently provide shoulders or meet County or City of Antioch design standards. Per the trip distribution estimates for the project, it can be anticipated that around 600 Project vehicles will use Deer Valley Road to travel north on a daily basis. This increase in traffic along Deer Valley Road as a result of the Project could substantially increase hazards on a roadway with known safety issues. The Project could thus result in safety hazards due to increased traffic on Deer Valley Road. Deer Valley Road is under the jurisdiction of the City of Antioch and Contra Costa County; thus, the timing and nature of improvements to Deer Valley Road are not within the City of Brentwood's control. Moreover, while MM TR-19 requires the Project to pay a fair share contribution toward improving this roadway, the timing for securing the remaining funds is

unknown. As a result, this impact is conservatively determined to be significant and unavoidable.

Balfour Road (East)

The Project includes widening of Balfour Road from two lanes (one in each direction) to four lanes (two in each direction) from the existing American Avenue intersection to the Project entrance, and describes the timing of such improvement as occurring in Phase 1, concurrently with other improvements required for the first small-lot final subdivision map within the VDCSP area (see MM TR-20 below). The configuration of this improvement is shown in Figure 4-8 of the VDCSP, and depicts two 12' vehicle travel lanes in each direction (divided by a landscaped median), an 8' bike/local vehicle use lane in each direction, and 10' of meandering sidewalk on the north side of Balfour Road.

The Project likewise proposes to ultimately widen Balfour Road from two- to four-lanes from the Project entrance to the new American Avenue intersection. According to the VDCSP, this work is to be undertaken "as traffic demand necessitates, which will be evaluated at each small-lot final subdivision map" within the Project site. The configuration of this improvement is shown in Figure 4-8 of the VDCSP, and depicts two 12' vehicle travel lanes in each direction (divided by a landscaped median), an 8' bike/local vehicle use lane in each direction, and 10' sidewalk on the north side of Balfour Road.

This existing portion of Balfour Road is an undivided two-lane rural road with a posted 50 mph speed limit and a history of accidents. When American Avenue is extended to meet Balfour Road, this will introduce additional traffic onto this portion of Balfour Road, particularly during the hours of school pick up and drop off, as drivers bypass the existing Balfour Road/American Avenue intersection and utilize this new intersection to access the school sites via the American Avenue extension.

The city has thus determined that, concurrent with the construction of the extension of American Avenue and associated signalization at the intersection of Balfour Road, Balfour Road from the project entry to the new westerly American Avenue intersection shall be improved as an interim two-lane roadway.

Opening a new intersection at the American Avenue extension point without improving this portion of Balfour Road as set forth in MM TR-21 would give rise to significant safety hazards, as some vehicles slow in preparation to turn left onto the extended American Avenue and some maintain their speed as they continue westward on Balfour Road. Implementing the revised configuration generally set out in MM TR-21 will allow for the dedication of a left-turn lane that will offer protection to vehicles making the new left-turning movement off of westbound Balfour Road onto the American Avenue extension. These improvements will alleviate the geometric hazard of Balfour Road between the Project entrance and the new American Avenue intersection, resulting in a less-than-significant impact.

Balfour Road/American Avenue Intersection

With respect to the proposed new intersection at Balfour Road and the new western terminus of American Avenue, the VDCSP suggests that the intersection may be controlled by either a roundabout or traffic signal. Given the volume of traffic at the existing Balfour Road/American Avenue intersection, it is anticipated that approximately 300 daily peak hour vehicle trips, primarily made by drivers dropping students off in the morning and picking them up in the afternoons, will avoid the existing Balfour Road/American Avenue intersection and continue westbound to this new intersection to access the middle school or high school via the American Avenue extension. In addition, the Project may include up to 480 dwelling units that are not age-restricted and could thus include children who may cross Balfour Road on foot or by bicycle to access the middle and high school campuses beyond. Use of a roundabout at this intersection would not be sufficient to protect the variety and number of vehicular, pedestrian, and bicycle users of this new intersection. In light of these considerations, MM TR-21 requires that this intersection be signalized, thereby providing adequate protection of vehicular, bicycle, and pedestrian users. Moreover, such signal shall be built to the configuration of the ultimate build out of Balfour Road. With a traffic signal at this location, the Project's impact to the possible imposition of an increased hazard due to the geometric design feature introduced by the new intersection of Balfour Road and American Avenue is determined to be less-than-significant with implementation of MM TR-21.

Balfour Road (West)

Beyond the intersection of Balfour Road and the new American Avenue extension, the Project proposes to improve Balfour Road west to Deer Valley Road as a two-lane road in the western direction, as shown in Figure 4-9 of the VDCSP. This would include an 8' interim bike lane, a 12' travel lane (existing), addition of a new 12' travel lane, another 8' bicycle/local vehicle use lane on the north side of the roadway, and a 10' meandering sidewalk. For the safety of vehicles, bicyclists and pedestrians, the travel lanes on Balfour Road should be horizontally separated and improved to meet city standards.

The city has determined that, in order to avoid a hazard due to a geometric design feature, Balfour Road along this stretch should be improved with an interim two-lane roadway matching the configuration of Balfour Road, between the Project entry and new American Avenue extension. This will alleviate the geometric hazard of Balfour Road from the new American Avenue intersection west to the intersection with Deer Valley Road. These improvements shall be constructed prior to issuance of the 1,200th residential building permit (halfway through full build out of the Project) or as traffic demand necessitates, as evaluated at each small-lot final subdivision map, whichever occurs first. MM TR-23 thus requires that stretch of Balfour Road from the new American Avenue intersection to Deer Valley Road to be improved as set forth above, resulting in a less-than-significant impact.

Adams Middle School

The remaining safety consideration concerns the interrelation of Adams Middle School drop-off/pick-up traffic and the introduction of eastbound traffic along the extension of American Avenue that would occur with the Project. For example, once American Avenue is extended as part of the Project, parents dropping off/picking up students at Adams Middle School will now encounter traffic on the American Avenue extension, heading eastbound, toward the school. This will make safe school drop-off and pick-up more difficult and potentially hazardous, thus, demonstrating the need for a safe drop-off/pick-up area, off of the roadway.

As noted below, MM TR-24 requires the proponent to install a safe drop-off/pick-up area along American Avenue, proximate to Adams Middle School. This portion of American Avenue is within the City of Brentwood; thus, the city can legally impose this mitigation measure. As a result, the Project's impact to safe school drop-off/pick-up is determined to be less-than-significant with implementation of MM TR-24.

MM TR-25 also requires a safe-routes to school assessment to identify potential modifications to site access and circulation for all travel modes to Adams Middle School and Heritage High School. The Project proponent would be required to implement the measures identified from that study, which will likely include traffic control changes, signing, and striping, to the extent deemed necessary by the City Engineer.

Conclusion

Based on the above, Project impacts to (1) Balfour Road between the existing American Avenue intersection and the Project entrance, (2) Balfour Road between the Project entrance and the new American Avenue intersection, (3) the American Avenue intersection, (4) Balfour Road between the new American Avenue intersection and Deer Valley Road, and (5) student drop-off and pick-up on American Avenue can each be mitigated through the imposition of feasible mitigation measures within the jurisdiction of the City of Brentwood. In addition, MM TR-26 would ensure that roadway facility improvements are consistent with General Plan Policies CIR 2-4 and CIR 3-9. As a result, each of these impacts are determined to be less-than-significant with implementation of MM TR-20 through MM TR-26.

However, the Project could result in safety hazards due to increased traffic on Deer Valley Road. Deer Valley Road is under the jurisdiction of the City of Antioch and Contra Costa County; thus, the timing and nature of improvements to Deer Valley Road are not within the City of Brentwood's control. In addition, while MM TR-19 requires the project to pay a fair share contribution toward improving this roadway, the timing for securing the remaining funds is unknown. As a result, this impact is determined to be ***significant and unavoidable***.

Mitigation Measures

MM TR-19 *The Project shall contribute its fair share to roadway improvements on Deer Valley Road along the Project frontage that result in the roadway meeting*

current design standards through payment of impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA).

- MM TR-20** *Consistent with the Project description and Specific Plan, Balfour Road from the existing American Avenue intersection to the project entry will be constructed as a four-lane roadway concurrently with the first small-lot final subdivision map.*
- MM TR-21** *Concurrent with the construction of the extension of American Avenue and associated signalization at the intersection of Balfour Road, Balfour Road from the Project entry to the new westerly American Avenue intersection shall be improved as an interim two-lane roadway. Consistent with the intent of the Specific Plan to improve safety for pedestrian, bicycle and vehicular use of the roadway, the interim two-lane roadway shall be designed and constructed to meet all current city safety design standards. At minimum, the interim two-lane roadway (one eastbound and one westbound) shall consist of a median, paved vehicle travel lanes, safety buffers, bike lanes, sidewalk (along the northerly side of Balfour Road), and sufficient right-of-way and median width to accommodate future widening to four lanes. In addition, the interim roadway shall include additional paved widening for vehicular turn pockets approaching intersections with sufficient length to accommodate vehicular stacking and deceleration. Said improvements shall be completed to the satisfaction of the City Engineer.*
- MM TR-22** *Consistent with the Specific Plan, Balfour Road, from the Project entry to the new westerly American Avenue intersection, shall be widened from the interim two-lane configuration to four lanes as traffic demand necessitates as evaluated at each small-lot final subdivision map.*
- MM TR-23** *Prior to the issuance of the 1,200th building permit or as traffic demand necessitates as evaluated at each small-lot final subdivision map, whichever occurs first, proponent shall construct the same interim two-lane roadway improvements as detailed in MM TR-21 above from the new westerly American Avenue intersection to Deer Valley Road.*
- MM TR-24** *The proponent shall install a drop-off/pick-up area along that portion of American Avenue within the City of Brentwood municipal limits, proximate to Adams Middle School, designed to protect the safety of users to the satisfaction of the City Engineer.*
- MM TR-25** *As part of the construction of the American Avenue extension, conduct a safe-routes to school assessment to identify potential modifications to site access and circulation for all travel modes to Adams Middle School and Heritage High School. The Project proponent shall implement the measures identified from that study, which, in the determination of the City Engineer, are*

necessary and reasonable to avoid or lessen substantial increases in design hazards. This may include traffic control changes, signing, and striping.

MM TR-26 *Create an accessible circulation network that is consistent with guidelines established by the Americans with Disabilities Act (ADA), allowing mobility-impaired users such as the disabled and elderly to safely and effectively travel within and beyond the city, consistent with General Plan Policy CIR 2-4.*

Impact TR-9: ***Would the Project result in inadequate emergency access? (less than significant with application site-specific mitigation)***

The ECCFPD provides fire suppression, fire prevention, and emergency medical services for the 249-square-mile East Contra Costa area. This area includes the cities of Brentwood and Oakley, as well as the communities of Bethel Island, Byron, Discovery Bay, Knightsen, and Marsh Creek/Morgan Territory. The Project site is within the ECCFPD's Brentwood West service area.

All Project access roads would meet the requirements for fire access roads in the 2016 California Fire Code (CCR Title 24 Part 9), Section 503. Emergency access to the Project in the near-term would be from the Project's main entrance at Balfour Road. In the future, a second emergency access connection to the Project would be provided by the Hillcrest Avenue extension. The Fire Code requires the provision of two separate and approved fire apparatus roads when there are more than 30-dwelling units, unless each dwelling is equipped with an approved automatic sprinkler system. Thus, for an interim period, the possibility exists that inadequate emergency access may be provided to the site, unless other measures are implemented. Other measures could include provision of an on-site temporary emergency vehicle access (EVA), prior to constructing a permanent, secondary EVA.

As noted above, at buildout, access to the residential portion of the site is proposed from two locations – Balfour Road and the Hillcrest Avenue extension. In the near-term, residential access would be limited to one roadway, which may not meet Fire Code standards and thus would be considered a potentially significant impact.

Implementation of MM TR-27 would ensure that potential impacts from related to inadequate emergency access would be ***less than significant***.

Mitigation Measures

MM TR-27 *Prior to approval of Improvement Plans for Phase 1, the plans shall include an on-site temporary emergency vehicle access road (EVA), which would serve as a second EVA for the project, until such time that Hillcrest Avenue is extended to the site's northern boundary. The design of the temporary EVA shall be subject to review and approval by the City of Brentwood and East Contra Costa Fire Protection District.*

4.15 Tribal Cultural Resources

4.15.1 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to tribal cultural resources conditions in the Project area. The current condition and quality of cultural resources was used as the baseline against which to compare potential impacts of the Project. This section of the EIR is closely related to Section 4.5, Cultural Resources, of this EIR. Where appropriate, and to minimize redundancy, cross references to the applicable analysis contained within the Cultural Resources section is provided. Technical on-site information used to prepare this section came from the following resource:

- ECORP Consulting, Inc. 2019. *Cultural Resources Technical Memo Vineyards at Deer Creek, Contra Costa County, California*. February 15, 2019.

Records Searches

Previous Cultural Resources Studies

As noted in Section 4.5, Cultural Resources, of this EIR, a records search for the property was completed on January 22, 2019. The records search included a standard search radius of 0.5-mile from the Project site, including the American Avenue extension. The search found 26 previous cultural resources investigations and ten previously recorded historic-period cultural resources within the search area, consisting of ranch complexes, a rural residence, a structure foundation, a cistern, domestic refuse deposits, and an electrical transmission line and towers. As discussed in Section 4.5, Cultural Resources, of this EIR, two of these historic-period resources are located within the Project site: the structure foundation, P-07-2941, and the electrical transmission line segment P-07-2951.

Summary of Previous Investigations

The records search results indicate that approximately 15 percent of the Project site has been previously surveyed for cultural resources. The map and aerial photo review indicate that there were ranch complexes and rural residences in the vicinity of the Project site. Historic period maps show two structures from the period 1898 to at least 1916 in the Project site. Refer to Section 4.5, Cultural Resources, of this EIR for additional detail regarding previous record search investigations.

Previously Identified Cultural Resources

The records search results indicate that there are two previously recorded cultural resources in the Project site: P-07-2941, a historic period archaeological site, and P-07-2951, a historic period transmission line segment in the Project site.

Native American Contacts

On March 22, 2019, the city transmitted letters to the recommended tribal organizations and individuals identified by the Native American Heritage Commission (NAHC), requesting information or comments regarding Native American cultural resources in the vicinity of the Project site.

4.15.2 Regulatory Setting

State

Senate Bill 18

Senate Bill (SB) 18 (California Government Code Section 65352.3) requires local governments to consult with Native American tribes prior to making certain planning decisions and to provide notice to tribes at certain key points in the planning process. As noted in Section 4.5, Cultural Resources, of this EIR, the SB 18 consultation and noticing requirements apply to the adoption and amendment of general plans and specific plans. The consultation process requires (1) that local governments send the State NAHC information on a proposed project and request contact information for local Native American tribes; (2) that local governments then send information on the project to the tribes that the NAHC has identified and notify them of the opportunity to consult; (3) that the tribes have 90 days to respond on whether they want to consult or not, and (4) that consultation begins if requested by a tribe and there is no statutory limit on the duration of the consultation. If issues arise and consensus on mitigation cannot be reached, SB 18 allows a finding to be made that the suggested mitigation is infeasible.

Assembly Bill 52

On September 25, 2014, Governor Brown signed Assembly Bill (AB) 52, which creates a new category of environmental resources that must be considered under CEQA: “tribal cultural resources.” AB 52 is applicable to projects for which a Notice of Preparation is filed on or after July 2015.

AB 52 adds tribal cultural resources to the categories of cultural resources in CEQA, which had formerly been limited to historic, archaeological, and paleontological resources. Tribal cultural resources are defined as either (1) “sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe” that are included in the State register of historical resources or a local register of historical resources, or that are determined to be eligible for inclusion in the State register; or (2) resources determined by the lead agency, in its discretion, to be significant based on the criteria for listing in the State register.

Recognizing that tribes may have expertise with regard to their tribal history and practices, AB 52 requires lead agencies to provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if they have requested notice of

projects proposed within that area. If the tribe requests consultation within 30 days upon receipt of the notice, the lead agency must consult with the tribe. Consultation may include discussing the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe.

The parties must consult in good faith, and consultation is deemed concluded when either the parties agree on measures to mitigate or avoid a significant effect on a tribal cultural resource (if such a significant effect exists) or when a party concludes that mutual agreement cannot be reached.

Public Resources Code Sections 5097.5

California Public Resources Code Section 5097.5 prohibits excavation or removal of any "vertebrate paleontological site...or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the State or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

Local

City of Brentwood General Plan

The City of Brentwood's General Plan includes Goals and Policies that outline conservation Goals that may relate to tribal cultural resources in the city. Project-relevant General Plan Policies for tribal cultural resources are addressed in this section. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below.

Conservation Goal 6: Preserve and enhance prehistoric, historic, and cultural resources in and around the Brentwood community.

- **Policy COS 6-1:** Protect important historic resources and use these resources to promote a sense of place and history in Brentwood.
- **Policy COS 6-2:** Encourage the voluntary identification, conservation, and reuse of historical structures, properties, and sites with special and recognized historic, architectural, or aesthetic value.
- **Policy COS 6-7:** Review new development projects and work in conjunction with the California Historical Resources Information System to determine whether project areas contain known archaeological resources, either prehistoric and/or historic-era, or have the potential for such resources.

- Policy COS 6-9: Consistent with State, local, and tribal intergovernmental consultation requirements such as SB 18, the City shall consult as necessary with Native American tribes that may be interested in proposed new development and land use policy changes.

4.15.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for tribal cultural resources were derived from the Environmental Checklist in the State CEQA Guidelines Appendix G, as amended effective December 2018, as well as the previously certified General Plan EIR. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria.

- 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 the local register of historical resources as defined in Public Resources Code Section 5020.1(k), or
 - ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Method of Analysis

The city transmitted letters to the recommended tribal organizations and individuals identified by NAHC, requesting information or comments regarding Native American cultural resources in the vicinity of the proposed project property. Responses to the city's request for information were not received prior to publication of this EIR. If the construction activities would demolish or destroy a tribal cultural resource or if they would materially impair the characteristics that make it eligible, the impact is determined to be significant. If a cultural resource is not a tribal cultural resource as defined by the Public Resource Code, there is no potential for impacts and impacts are not analyzed within this Section.

Impacts of the Proposed Project

Impact TCR-1: **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)? *(less than significant with application of site-specific mitigation measures)***
- ii) **A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe? *(less than significant with application of site-specific mitigation measures)***

In compliance with PRC Section 21080.3.1(b), the city has provided formal notification to California Native American tribal representatives that have previously requested notification from the city regarding projects within the geographic area traditionally and culturally affiliated with the tribe. Native American groups may have knowledge about cultural resources in the area and may have concerns about adverse effects from development on tribal cultural resources, as defined in PRC Section 21074.

As noted above, on March 22, 2019, the City of Brentwood transmitted letters to the recommended tribal organizations and individuals identified by NAHC, requesting information or comments regarding Native American cultural resources in the vicinity of the proposed project property.

The city contacted the following tribal representatives:

- North Valley Yokuts Tribe, Katherine Erolinda Perez
- The Ohlone Indian Tribe, Andrew Galvan
- Amah Mutsun Tribal Band of Mission, San Juan Bautista, Irenne Qwierlein
- Ione Band of Miwok Indians, Randy Yonemura
- Indian Canyon Mutsun Band of Costanoan, Ann Marie Sayers
- Muwekma Ohlone Indian Tribe of SF Bay Area, Rosemary Cambra
- Wilton Rancheria, Raymond Hitchcock

As discussed previously in this section of the EIR, as of publication of this Draft EIR, none of the contacted tribes have requested AB 52 consultation with the city. Although tribes have not requested consultation under AB 52, implementation of MM CR-1 through MM CR-6 would ensure that impacts associated with tribal cultural resources and compliance with AB 52 would be less than significant.

With implementation of MM CR-1 through MM CR-6, as discussed in Section 4.5, Cultural Resources, of this EIR, impacts associated with a substantial adverse change in the significance of a tribal cultural resource would be ***less than significant***.

Mitigation Measures

MM TCR-1 *Implement MM CR-1 through MM CR-6.*

Impact TCR-2: **Would the off-site Infrastructure improvements result in impacts to tribal cultural resources? (*less than significant with application of site-specific mitigation measures*)**

Off-site Sewer Pipe Improvements

Alternatives 2 and 3 for the proposed off-site sewer improvements would both involve ground disturbing activity to the east of the Project site boundary. The eastern border of the Project site consists primarily of ruderal grasses, as well as portions of paved roadway. Removal of existing structures would not be required; however, because the cultural report did not evaluate the off-site improvement areas, the potential exists that tribal cultural resources could be discovered during trenching and grading of the area.

Off-site Irrigation Pipe Improvements

The preferred off-site irrigation pipe improvements (Alternative 1) would occur entirely within Balfour Road right-of-way. Installation of the below ground irrigation line would result in temporary ground disturbance. Generally, tribal cultural resources have not been discovered within the Project vicinity. However, because several historical resources have been known to occur within Balfour Road, the potential exists that tribal cultural resources could be discovered during pavement removal and trenching activities associated with installation of the irrigation line.

Off-site Roadway Improvements

American Avenue Extension

Consistent with the General Plan Circulation Diagram, the proposed project would include connection of the existing terminus of American Avenue to Balfour Road. To improve access onto the existing American Avenue from the east, the two existing westbound left-turn lanes would be extended along Balfour Road. The cultural resources report analyzed a portion of the off-site improvement area along American Avenue, and did not result in the discovery of any

tribal cultural resources. However, roadway improvements would involve grading and ground disturbance, which could result in the discovery of unknown tribal cultural resources.

Balfour Road Widening

Consistent with the General Plan Circulation Diagram, Balfour Road would be improved and/or widened from the existing American Avenue intersection west to Deer Valley Road. The cultural resources report included analysis of only a portion of the Balfour Road improvements area. While tribal cultural resources were not discovered within the study area, the improvements would include grading and ground disturbance both in and out of the studied area and, thus, tribal cultural resources could be discovered during construction.

Conclusion

Based on the discussions above, off-site infrastructure improvements could result in the discovery or disturbance of unknown cultural resources. However, with implementation of MM CR-1 through MM CR-6, as discussed in Section 4.5, Cultural Resources, of this EIR, impacts associated with a substantial adverse change in the significance of a tribal cultural resource would be ***less than significant***.

Mitigation Measures

MM TCR-2 *Implement MM CR-1 through MM CR-6.*

Cumulative Impact Analysis

Impact TCR-3 **Would the Project result in cumulative impacts to tribal cultural resources?
(*less than significant with application of site-specific mitigation measures*)**

With respect to tribal cultural resources, the proposed project would not impact any known tribal cultural resources.

Although the Project – in conjunction with the effects of past projects, other current projects, and probable future projects – may result in the disturbance of tribal cultural resources throughout the study area, standard conditions of approval and mitigation measures required for each project would reduce the impacts to less-than-significant levels.

In addition, while some tribal cultural resources may have regional significance, the resources themselves are site-specific, and impacts to them are project-specific. Implementation of the Project-specific mitigation measures set forth in the Cultural Resources section of this EIR (MM CR-1 through MM CR-6) would ensure that any impacts to previously unknown, subsurface tribal cultural resources that are discovered on the Project site during construction activities are reduced to less than significant.

Similar to the proposed project, future development projects would be required to implement project-specific mitigation to ensure any potential impacts to identified tribal cultural resources are reduced to a less-than-significant level. Therefore, given that tribal cultural resource

impacts are generally site-specific and each future project within the City of Brentwood would be required to mitigate such impacts, any potential impacts associated with cumulative buildout would not combine to result in a significant cumulative impact.

Based on the above, the potential for cumulative impacts related to tribal cultural resources, to which the Project might contribute, would be ***less than significant*** with implementation of site-specific mitigation.

Mitigation Measures

MM TCR-3 *Implement MM CR-1 through MM CR-6.*

Utilities and Service Systems

4.16.1 Environmental Setting

This section of the EIR presents information on both public and private utility and service systems within the Project area necessary to serve the Project. Physical impacts related to utilities and service systems are typically associated with population growth within a given area and the potential increase in the demand for a particular service, which may lead to the need for the construction of expanded or new facilities.

In addition to readily available public information from the city and other public agencies, information used to prepare this section came from the following additional technical resources:

- Ennis Consulting, Water Distribution System Analysis – The Vineyards at Deer Creek, April 2019.
- Ennis Consulting, Sewer Collection System Analysis – The Vineyards at Deer Creek, April 2019.
- Balance Hydrologics, Inc., Preliminary Stormwater Control Plan for the Vineyards at Deer Creek Project, March 2019.
- West-Yost Associates, Vineyards at Deer Creek Water Supply Assessment, April 2019.

Based on the previously certified 2014 General Plan EIR and the CEQA Guidelines, this section addresses the need for or expansion of water, wastewater, solid waste, stormwater, and utility systems.

Utilities and Service Systems

Water Supply and Delivery

The City of Brentwood lies in Eastern Contra Costa County and was incorporated in 1948. The incorporated boundary currently totals 14.8 square miles (9,502 acres), with a sphere of influence totaling 17.4 square miles (11,129 acres). The City of Brentwood is responsible for production and delivery of the city's drinking water supply within the city's corporate boundaries.

The city's water supply sources are a combination of treated surface water, ground water, untreated surface water for landscape irrigation, and recycled water. The city also has six water reservoirs, seven water booster pump stations, and 172 miles of water mains within city limits. The city has three pressure zones, the closest being "City Zone 2" located east and adjacent to the Project area on Canmore Court in the Silver Lakes residential neighborhood.

As described in the City of Brentwood Development Fee Program (2018 Update), a new development located within the Contra Costa Water District ("CCWD") Los Vaqueros Service

Area shall contribute to the city's planned water facilities. As a part of the CCWD planning area, funding for city/CCWD future shared facilities within this area is through an additional fee collected by the city and provided to the CCWD pursuant to the "Second Amendatory Agreement between the CCWD and City of Brentwood (July 2009)". The additional fee area is outlined in the "Areas of Additional Fees" Section.

Surface Water Supply

Approximately 60 percent of the city's water supply is derived from treated surface water (City of Brentwood 2015 UWMP). The City of Brentwood obtains raw (untreated) surface water supply from the East Contra Costa Irrigation District (ECCID) through a permanent entitlement agreement. The existing entitlement agreement provides for the purchase of up to 4,823 million gallons per year (MGY) (14,800 acre-feet) of surface water from the San Joaquin River Delta via ECCID's water rights. ECCID has pre-1914 water rights, which are not subject to delivery reductions during water shortages, including regulatory restricted and drought years. Water purchased by the city may only be used by the city and its retail customers within the city limits or within the ECCID service area.

The city treats untreated surface water at two treatment plants: The City of Brentwood Water Treatment Plant (COBWTP) and the Randall Bold Water Treatment Plant (RBWTP) (City of Brentwood General Plan EIR, 2014). The COBWTP was constructed in 2008 and has a current capacity of 16.5 million gallons per day (MGD) with an ultimate capacity of 30 MGD (2014 General Plan EIR). The COBWTP diverts water from Old River and Rock Slough and processes the raw water through flocculation, sedimentation, ozonation, and filtration, as well as disinfection using chloramines (2014 General Plan EIR). The water treatment plant supplies treated water via a booster pump station located near the plant and a large diameter transmission pipe.

The RBWTP is jointly owned by Diablo Water District and CCWD but operated by the latter. The City of Brentwood has purchased a permanent capacity share of 6 MGD as well as the ability to purchase additional treated water from CCWD (2014 General Plan EIR).

The two water treatment facilities are located adjacent to one another approximately 3.0 miles north of the Project site. Residents of the city receive a blend of treated surface water and groundwater.

Groundwater

The city maintains nine permitted wells within its service area, two of which are inactive wells, that contribute 27 percent of the city's total water supply (City of Brentwood 2015 UWMP). The wells are located in the northwestern portion of the newly formed East Contra Costa Subbasin of the Tracy Subbasin of the San Joaquin Groundwater Basin. The Tracy Subbasin is a 539-square mile aquifer with no current legal restrictions related to groundwater production.

A Groundwater Sustainability Plan for the East Contra Costa County portion of the larger Tracy Subbasin was developed and adopted in April 2017. In 2018, the Tracy Subbasin (5-022.15), at

the request of the City of Brentwood, was successfully subdivided (a jurisdictional subdivision) to create a separate and unique basin boundary for the East Contra Costa Subbasin (5-022.19). The newly approved boundary modification separates the subbasin along jurisdictional lines, carving out that portion of the Tracy Subbasin that lies within Contra Costa County. Eastern Contra Costa County has diverse sources of water supplies including surface water and groundwater, which are used for agriculture and municipal/domestic purposes. The new subdivision affects no existing or historic water supply coordination with other local agencies in the subbasin.

According to State of California Sustainable Groundwater Management Act (SGMA) mapping data, the Project site is currently located outside of the regulatory authority of the City of Brentwood Groundwater Sustainability Agency (GSA). This is simply because the GSA follows the existing city limits. In the event that city limits are modified (through annexation, for example) the GSA boundary would also change. This GSA was established by Contra Costa County to regulate groundwater within the eastern portion of the Tracy Subbasin (now the East Contra Costa Subbasin). Other GSAs in the Tracy Subbasin include the City of Antioch GSA, Diablo Water District GSA, East Contra Costa Irrigation District GSA, Discovery Bay Community Services GSA, and Byron Bethany Irrigation District GSA (DWR, 2017).

In the City of Brentwood, the first groundwater well began production in 1987, with the most recent groundwater well coming online in 2006. The total design capacity of all active groundwater wells is 6.63 MGD. However, individual groundwater wells range from 0.36 MGD to 1.44 MGD. As seen in Table 4.16-1, most of the wells are pumping at or near capacity.

Well Number	Start-up Year	Current Actual Capacity (MGD)	Well design Capacity (MGD)	Percentage of capacity use
6	1987	1.13	1.15	98%
7	1987	1.03	1.01	102%
8	1994	1.30	1.44	90%
9	2000	NA	NA	NA
11	1995	NA	NA	NA
12	1997	0.33	0.58	57%
13	1997	0.36	0.36	100%
14	2001	1.60	1.44	111%
15	2006	0.59	0.65	91%
Total		6.34	6.63	

NA: Not Active
Source: 2014 General Plan EIR, 2014; City of Brentwood 2015 Urban Water Management Plan.

As shown below in Table 4.16-2, groundwater pumping in the city has decreased between 2006 and 2015 due to an increase in the use of surface water supplies from the COBWTP and due to an increased availability of recycled water from the Wastewater Treatment Plant (WWTP) (2014 General Plan EIR). According to the California Department of Water Resources (DWR), the

Tracy Subbasin (including the newly formed East Contra Costa Subbasin) is not on the list of critically over-drafted groundwater basins. The expansion of recycled water production capabilities currently being implemented will further reduce reliance on groundwater.

Total Groundwater Pumped	2006	2007	2008	2009	2010	2015
Total Groundwater Pumped	1,886	1,331	1,474	1,235	1,152	828
Groundwater as a percent of total water supply	48%	30%	33%	29%	29%	21%

MGY: Million Gallons per Year
Source: 2014 General Plan EIR; City of Brentwood 2015 Urban Water Management Plan.

For additional information on groundwater, please see Section 4.10, Hydrology and Water Quality, of this EIR.

Non-Potable Water

The city obtains raw water via the Roddy Ranch Pump Station on the ECCID Main Canal, which is routed to the city's non-potable distribution system. This water is used primarily for irrigation purposes, with current users including golf courses, parks and parkways, schools, and commercial landscaped areas. The city purchased 268 million gallons (0.73 MGD average daily use) or 9 percent of the city's total water supply in 2015 (City of Brentwood 2015 UWMP). The city anticipates the purchase of approximately 500 MGY from the ECCID by 2035.

Part of the distribution system for this water is a 20-inch non-potable water line in Balfour Road (Roddy line) that is located along the Project's southern boundary. This pipeline currently serves ECCID water but is planned to be blended with recycled water in the future.

Recycled Water Supplies

Recycled water is a relatively small but important part of the city's water resources. Recycled water makes up approximately four percent (4 percent) of the city's water supply. Recycled water allows the city to conserve potable water, thereby ensuring a reliable water supply for current and future demand. The City of Brentwood WWTP is used for treatment and disposal, or reuse, of wastewater generated in the city's service area. Wastewater is collected by gravity in a series of mains, trunks, and interceptors. Collected wastewater is then transported to the WWTP, which currently has a treatment capacity of 5 MGD but is capable of expanding to 10 MGD in 2.5 MGD increments during peak wet-weather flows. The city is currently implementing an expansion of the recycled water system, including new recycled water storage tanks, booster pumps and an expanded distribution system to increase recycled water availability to users including schools, golf courses, parks, parkways and medians (City of Brentwood, 2018).

Water Supply Reliability and Demand

The city's water system currently serves more than 18,000 connections and all water deliveries are metered. The city has no agricultural deliveries; deliveries to agricultural users are made by

ECCID (2015 UWMP, pg. 4-1). Table 4.16-3 presents the projected water use by water use sector in five-year increments through 2040.

Sector	Projected Water Use					
	2015	2020	2025	2030	2035	2040
Water Use by Sector						
Single Family Residential	1,726	2,556	2,747	2,952	3,171	3,408
Multi- Family Residential	95	140	151	162	174	187
Commercial/Institutional/ Industrial	187	277	298	320	344	369
Landscape (from potable water supply)	564	835	897	964	1,035	1,112
Other	12	17	18	20	21	23
Losses	323	478	513	552	593	637
<i>Subtotal – Projected Demands Potable and Raw Water</i>	2,907	4,303	4,624	4,968	5,338	5,736
Recycled Water Demand	130	206	282	357	433	508
Total Water Demands	3,037	4,509	4,905	5,325	5,771	6,244
Units: MGY= million gallons per year Source: City of Brentwood 2015 UWMP.						

Table 4.16-4 shows the projected surplus of city water between 2020 and 2040. Generally, the city projects water surpluses that range from 4,685 MGY in 2020 to 3,798 MGY in 2040.

	2020	2025	2030	2035	2040
City Supply Total	9,194	10,043	10,043	10,043	10,043
City Demand Total	4,509	4,905	5,325	5,771	6,244
City Surplus Difference (Available Water)	4,685	5,137	4,717	4,272	3,798
MGY = million gallons per year Source: City of Brentwood 2015 UWMP.					

For planning and analysis purposes, the 2014 General Plan EIR assumed 583 potential dwelling units, and approximately 80,000 square feet (sf) of commercial use within SPA 2. The 2017 Water Master Plan (Ennis Consulting) modeled water demand and delivery infrastructure for SPA 2 based on potential land uses provided by the City of Brentwood, and calculated an average day water demand of 0.82 MGD. The city's 2015 UWMP designated the Project area as "Agricultural" consistent with county zoning. As a result, development of the area was assumed in water infrastructure planning, but not factored into supply and demand calculations in the 2015 UWMP.

Although the city has adequate reliable supplies to support current demand and all known future demand through full buildout, water conservation is an important environmental goal of the city. Water savings from codes, standards, ordinances, or transportation and land use plans also are known as “passive savings.” These various factors generally decrease the water use for new and future customers, compared to historical customers. Below is a summary of the applicable State codes and ordinances that could reduce the city’s water demand in the future based on information provided in the DWR 2015 UWMP Guidebook.

Model Water Efficient Landscape Ordinance – Effective on December 1, 2015, this new ordinance is projected to reduce the typical residential outdoor landscape demands for new construction by up to 20 percent from the estimated demand using the prior ordinance provisions. Commercial landscape for new construction may reduce outdoor water demand by up to 35 percent over the prior ordinance.

California Energy Commission Title 20 appliance standards for toilets, urinals, faucets, and showerheads – This standard will impact both new construction and replacement fixtures in existing homes. This savings is included in the CALGreen assumption for new construction described below. Compliance with Title 20 assumes up to five percent reduction in indoor water use of existing homes.

CALGreen Building Code – Requires residential and non-residential water efficiency and conservation measures for new buildings and structures. It is assumed that this code will reduce residential and nonresidential indoor water use by new construction by up to 20 percent.

“The water use projections utilized in the water supply assessment (WSA) do not account for these passive water savings that may be realized from these codes and ordinances...” (2015 UWMP, pg. 4-6).

Based on an Executive Order from the Governor, a statewide mandate to reduce aggregate statewide potable urban water use by 25 percent was adopted on April 1, 2015. In response to the Governor’s Executive Order and the subsequent State Water Resources Control Board (SWRCB) drought regulations, the City Council adopted a resolution at its April 28, 2015 meeting requiring customers to reduce potable water use by 35 percent relative to the amounts they used in 2013. Besides implementing the mandatory restrictions set by the State, the city increased the frequency of its water conservation workshops and disseminated additional information to the public encouraging water conservation. Penalties were levied to those customers that were non-compliant with the mandatory 35 percent reduction. Water use in 2015 reflects water conservation efforts because of the Governor’s Executive Order precipitated by a four-year drought in California (2015 UWMP, pg. 4-7).

The city’s 2014 General Plan tabulated water demand using the city’s average baseline water use of 241 gallons per capita per day (gpcd). However, the 2015 UWMP noted that due to drought conditions and regulatory water conservation measures over the past couple of years, the city’s per capita demand has decreased substantially. Per the 2015 UWMP, while a rebound in per capita water use from drought to pre-drought levels is expected, water use is not likely to increase back to the 241 gpcd baseline. Instead, normal year water demands through 2040 are

projected based on assuming per capita demands will increase back to approximately 90 percent of the 2012 gpcd (2015 UWMP, pg. 4-3). Ninety percent of the 2012 gpcd is calculated to be 194 gpcd.

Global Climate Change

Increasing attention has been paid to the issue of global climate change and its effects on water resources and supplies. Potential impacts and consequences of climate change on California's water resources include reduction of the state's average annual snow pack; changes in the timing, intensity, location, amount, form, and variability of precipitation; long-term changes in watershed vegetation that can change intensity and timing of runoff; sea level rise; increased water temperatures that can affect water quality; and changes in evapotranspiration rates that can result in increased water demands.

Studies prepared by the State indicate that climate change may seriously affect California's water resources because of temperature increases, changes in timing and amount of precipitation, and sea level rise that could adversely affect coastal areas. Simulations conducted by the State predict drier conditions in the future, although at the same time there is continued risk from intense rainfall events that can generate more frequent and/or more extensive runoff. Some recent reports indicate that warming temperatures, combined with changes in rainfall and runoff patterns, will exacerbate the frequency and intensity of droughts. Although average annual precipitation may not change, more intense wet and dry periods also are anticipated. Regions that rely heavily upon surface water could be particularly affected as runoff becomes more variable.

Wastewater

The City of Brentwood provides wastewater collection, treatment and disposal services for approximately 17,204 residential connections and 476 commercial business connections. The city owns and operates its wastewater collection, treatment, and disposal system through approximately 138 miles of sewer mains that convey wastewater to the city's WWTP. The city's WWTP is a tertiary treatment plant that provides recycled water for a variety of landscape (excluding golf courses) and is located in the northeast portion of the city adjacent to Marsh Creek. The WWTP has an average dry weather flow capacity of 5 MGD and was designed to be expandable to an average dry weather flow capacity of 6.4 MGD. Wastewater from the city that is not reused is treated and discharged to Marsh Creek, which drains to Big Break in the Delta. The city's WWTP does not treat wastewater generated outside its service area.

As stated in the 2014 General Plan, as the City of Brentwood continues to develop in the future, there will be an increased need for wastewater conveyance, treatment services and infrastructure. These needs have been addressed in the city's master plans and Capital Improvement Program (CIP) and will require that the city continue to finance and implement phased improvements to specific pump stations, sewer mains, and the WWTP when triggered by growth.

Flows to the WWTP in the 2016 calendar year were 3.8 MGD, about 63 gpcd, which is consistent with flow data from the first three months of 2017. The Wastewater Treatment Plant Phase II Expansion project design is currently underway and is expected to be completed by the end of 2020. The expansion project is designed for 69 gpcd flow, and rated at 6.4 MGD.

In terms of future demands on the existing system, the 2017 Sewer Master Plan (Ennis Consulting) modeled infrastructure for the Project site, identified as SPA 2 in the General Plan. The 2017 Sewer Master Plan calculated an average day sewer generation of 461,000 gallons for the SPA 2 area. This represents conservative planning level assumptions for the Project site for purposes of the city's backbone infrastructure planning. As discussed above, the 2014 General Plan EIR assumed 583 potential dwelling units, and approximately 80,000 square feet of commercial use within SPA 2.

Existing sewer infrastructure is located near the Project site at Balfour Road (existing 12-inch sewer line) and within the adjacent Shadow Lake neighborhood to the east. The city's 2017 Sewer Master Plan identifies several nearly deficient pipelines and cautions that the intensification of land uses above those identified in the General Plan on Balfour Road, west of East County Club Drive, could potentially result in deficient conditions. The Master Plan identified that the existing 12-inch line in Balfour Road is one of the pipelines that would be near the threshold of becoming deficient at General Plan buildout.

Water Softening-Chloride

Groundwater in the City of Brentwood has elevated salinity and total hardness levels from minerals, and residential water softeners are prevalent in the city to control hardness. According to the City of Brentwood website, chloride (sodium chloride or potassium chloride) is added to soften water in the city. This brine is discharged into the sewer system and means the city's WWTP must filter out the salt before discharging into Marsh Creek. Currently the creek has high enough chloride levels to be harmful to aquatic life. The Central Valley RWQCB regulates the amount of chloride that can be present in the WWTP effluent through issuance of a permit. The city's recycled water is currently unable to meet the chloride limit. The city is conducting outreach and education on reducing water softeners as the city has increased the amount of surface water in its water supply. The city implemented a Water Softener Financial Incentive Program to incentivize residents to remove softeners.

As of October 22, 2015, no new brine discharging self-regenerating water softeners are allowed in the city (Muni Code 13.04.022).

Storm Water Facilities

The Project site is undeveloped and currently used for agricultural purposes including dryland grass farming. The existing drainage pattern for runoff at the Project site is conveyed as sheet flow that enters existing swales and natural channels. There is currently no stormwater infrastructure on the site, and the only notable impervious surface is a portion of the Balfour Road right of way. Section 4.10, Hydrology and Water Quality, of this EIR addresses changes in drainage patterns and associated impacts attributable to the Project.

Solid Waste

The City of Brentwood is responsible for all solid waste collection within the city limits. The city owns and operates a Solid Waste Transfer Station located at 2301 Elkins Way, in the northeast portion of the city. The facility at 2301 Elkins Way replaced the original 15-year old transfer station, which was demolished and converted to an overflow parking lot for the Sunset Park Athletic Complex. The new transfer station is permitted and is now active and operational. The transfer station has a permitted capacity to handle 400 tons per day of municipal solid waste (MSW) and in 2012 averaged approximately 155 tons per day. The transfer station is permitted to accommodate up to 200 vehicles, plus 25 transfer trucks, per day. Table 4.16-5 summarizes the city's landfill information.

Landfill	Location	Constructed	Size	Maximum TPD	Maximum TPD Annual Average	Scheduled Closure
Keller Canyon Landfill	Unincorporated Contra Costa County	1992	2,600 ac; 244 ac for waste disposal	3,500*	2,500	2050

ac = acre; TPD = tons per day
 Source: Contra Costa County, 2017.
 *Keller Canyon Landfill is seeking and amended permit to increase maximum daily tonnage to 4,900.

Solid waste collection in the unincorporated areas of Brentwood, outside of the city limits, is handled by a private solid waste collection company. The Public Works Department's Solid Waste Division provides garbage, yard waste, and recycling collection services to residents and businesses within the Brentwood city limits.

All MSW collected by the city is transferred to the transfer station. The MSW delivered to the transfer station is checked for potentially hazardous waste material and transferred onto larger trucks for ultimate disposal at a sanitary landfill or processed elsewhere. The City of Brentwood presently disposes and/or processes MSW (garbage, recycling, and green waste) at the Keller Canyon County Landfill within the City of Pittsburg, operated by Allied Waste Systems Republic Services. On March 11, 2008, by Resolution No. 2008-65, the City Council approved an Agreement with the Keller Canyon Landfill Company for Solid Waste, Green Waste and Recyclable Materials Transport, Processing and Disposal Services and a Guaranty Agreement with Allied Waste Services of North America.

The Keller Canyon Landfill accepts MSW, non-liquid industrial waste, contaminated soils, ash, grit, and sludges. Keller Canyon Landfill is closed to the public. The facility covers 2,600 acres of land; 244 acres are permitted for disposal. The site currently handles 2,500 tons of waste per day, although the permit allows up to 3,500 tons of waste per day to be managed at the facility. According to the CalRecycle Solid Waste Facility Permit (07-AA-0032), as of September 2008, the remaining capacity of the landfill's disposal area is estimated at 60-64 million cubic yards, and the estimated closing date for the landfill is 2050. The groundwater monitoring system at the landfill consists of 24 wells, 19 piezometers and 4 springs which are sampled or measured monthly, quarterly, or annually. The landfill is currently proposing a permit amendment to allow up to 4,900 tons per day.

Dry Utilities

Dry utilities include electrical power, natural gas and telecommunications services. AT&T, Comcast, and Sonic currently provide telecommunication, cable television and Internet services. This includes Sonic's symmetric Gigabit Fiber Internet service that transfers data at the rate of 1000 megabits per second. Utility infrastructure in the immediate Project area is located both above ground on utility poles and below ground in public utility easements.

Pacific Gas and Electric Company (PG&E) provides electrical and natural gas services to existing nearby residential neighborhoods and schools. Electrical infrastructure in the Project area is located above ground on utility poles as well as below ground in adjacent subdivisions. A PG&E gas pipeline traverses the Project site from the southeast at Balfour Road to the northwestern portion of the Project site along Deer Valley Road. Local natural gas pipelines are located below ground typically in the roadway rights of way.

4.16.2 Regulatory Setting

Federal

Water

Federal Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and ground water wells. The SDWA applies to every public water system in the U.S. The SDWA authorizes the U.S. Environmental Protection Agency (USEPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. The USEPA, states, and water systems work together to make sure that these standards are met.

Originally, the SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach ensures the quality of drinking water by protecting it from source to tap.

Wastewater

Clean Water Act

The Federal Water Pollution Control Act of 1972, more commonly known as the Clean Water Act (CWA), regulates the discharge of pollutants into watersheds throughout the U.S. Under the CWA, the USEPA implements pollution control programs and sets wastewater treatment standards.

The CWA (33 United States Code Section 1251, et seq.) is the cornerstone of water quality protection in the U.S. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established pursuant to the CWA to regulate municipal and industrial discharges to surface waters of the U.S. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater 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.

Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant. The NPDES permit applicable to the Project site is issued by the Central Valley Regional Water Quality Control Board (RWQCB).

In California, the Federal requirements are administered by the State Water Resources Control Board (SWRCB) and individual NPDES permits are issued by the California RWQCBs.

The RWQCB has receiving water limitations for the City of Brentwood WWTP for the following to make sure discharge from the WWTP does not affect human health or the environment: bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediments, settleable substances, suspended material, taste and odors, temperature, toxicity, and turbidity (Order R5-2013-0106-01). These receiving water limitations ensure the water leaving the wastewater treatment plant for the creek has limited concentrations of pollutants, biosolids, and other negative objectives.

Solid Waste

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 to address the huge volumes of municipal and industrial solid waste generated nationwide. After several amendments, the Act as it stands today governs the management of solid and hazardous waste and underground storage tanks (USTs). The RCRA is an amendment to the Solid Waste Disposal Act of 1965. The RCRA has been amended several times, most significantly by the Hazardous and Solid Waste Amendments (HSWA) of 1984. The RCRA is a combination of the first solid

waste statutes and all subsequent amendments. The RCRA authorizes the USEPA to regulate waste management activities. The RCRA authorizes states to develop and enforce their own waste management programs, in lieu of the Federal program, if a state's waste management program is substantially equivalent to, consistent with, and no less stringent than the Federal program.

State

Water

California Urban Water Management Planning Act

The Urban Water Management Planning Act of 1983 (California Water Code §§ 10610 et seq.) requires urban water suppliers to develop urban water management plans. While generally aimed at encouraging water suppliers to implement water conservation measures, it also creates long-term planning obligations to meet existing and future needs. In accordance with the CWC, urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year (afy) are required to assess the reliability of its water sources over a 20-year planning horizon and to update the data in the urban water management plans every five years.

Demand management is a critical component of the UWMP process. This was codified in 2009 when the Water Conservation Bill of 2009 (SBX7-7) was passed. SBX7-7 requires a statewide 20 percent reduction in urban per capita water use by December 31, 2020. AB 2067 and SB 1420 also speak to water use reduction strategies. As amended, the Act will require eligible water suppliers to provide a “narrative description” that addresses the nature and extent of each water demand management measure implemented over the last five years, the measures the supplier plans to implement to achieve its water use targets in accordance with SBX7-7. UWMPs consisting of the information and details required by AB 2067 and SB 1420 were due July 1, 2016. The City of Brentwood adopted the updated 2015 UWMP in June 2016.

Senate Bill 610

Senate Bill (SB) 610 amended the Public Resources and Water Codes as they pertain to consultation with water supply agencies and WSAs. SB 610 requires that WSAs be prepared for projects that are subject to CEQA, and propose to construct 500 or more residential units or the equivalent. SB 610 provides that when environmental review of certain large development projects is required, the water agency that is to serve the development must complete a WSA to evaluate water supplies that are or would be available during normal, single-dry, and multiple-dry years during a 20-year projection to meet existing and planned future demands, including the demand associated with a proposed project.

Senate Bill 221

Whereas SB 610 requires a written assessment of water supply availability, SB 221 requires lead agencies to obtain an affirmative written verification of sufficient water supply prior to approval of certain specified subdivision projects. For this purpose, water suppliers may rely on an

UWMP (if the proposed project is accounted for within the UWMP), a WSA prepared for the project, or other acceptable information that constitutes “substantial evidence.” “Sufficient water supply” is defined in SB 221 as the total water supplies available during normal, single-dry and multiple-dry water years within the 20-year (or greater) projection period that are available to meet the projected demand associated with a proposed project, in addition to existing and planned future uses.

The 2014 Sustainable Groundwater Management Act

The SGMA, enacted in October 2014, applies to all groundwater basins in the state. Any local agency that has water supply, water management, or land use responsibilities within a groundwater basin may elect to be a “groundwater sustainability agency” for that basin. Local agencies had until January 1, 2017, to elect to become or form a groundwater sustainability agency.

In the event a basin is not within the management area of a groundwater sustainability agency, the county within which the basin is located will be presumed to be the groundwater sustainability agency for the basin. By enacting the SGMA, the legislature intended to provide local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater within their jurisdictions.

California Model Water Efficient Landscape Ordinance

The Water Conservation in Landscaping Act was enacted in 2006, requiring the California DWR to update the Model Water Efficient Landscape Ordinance (MWELo).¹ In 2009, the Office of Administrative Law (OAL) approved the updated MWELo, which required a retail water supplier or a county to adopt the provisions of the MWELo by January 1, 2010, or enact its own provisions equal to or more restrictive than the MWELo provisions.²

In response to the Governor’s executive order dated April 1, 2015 (EO B-29-15), DWR updated the MWELo and the California Water Commission approved the adoption and incorporation of the updated State standards for MWELo on July 15, 2015.³ The changes included a reduction to 55 percent for the maximum amount of water that may be applied to a landscape for residential projects, which effectively reduces the landscape area that can be planted with high water use plants.

¹ Gov. Code §§ 65591-65599

² California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 27, Sec. 492.4. The MWELo provides the local agency discretion to calculate the landscape water budget assuming a portion of landscape demand is met by precipitation, which would further reduce the outdoor water budget.

³ These updated changes have been incorporated into California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 27, Sec. 490-495.

The MWELO applies to all types of new construction with a landscape area greater than 500 sf (the prior MWELO applied to landscapes greater than 2,500 sf).⁴ For residential projects, the coverage of high water use plants is reduced due to the new 55 percent water maximum and turf is limited.

It is difficult to predict the ultimate impact of the MWELO requirements on future water demand. While the requirement is for development of a landscape design plan that uses plants and features that are estimated to use no more than 55 percent of ETo (evapotranspiration), which is the MWELO's residential landscaping requirement, some provision must be made for the inherent tendency to over-water even with irrigation controllers installed, piecemeal changes in landscape design, and reductions in irrigation efficiency through product use.

Executive Order B-29-15

The Governor declared a drought state of emergency on January 17, 2014, asking Californians to voluntarily reduce water use by 20 percent. On April 1, 2015, the Governor signed an executive order that recognized the possibility of the ongoing drought extending into 2016 and beyond. The order includes a series of statewide measures intended to reduce overall water demand, including updating the State MWELO, replacing 50 million sf of lawns with artificial turf or drought-tolerant landscapes, restricting landscape irrigation, revising water rate structures to encourage conservation, and requiring agricultural suppliers to prepare drought management plans, among several other measures.

Under the order, the SWRCB and California Public Utilities Commission (CPUC) must impose restrictions to achieve a statewide 25 percent reduction in potable urban water usage through February 2016, as compared to the amount of water used in 2013. Water suppliers with higher per capita use shall achieve proportionally greater reductions than suppliers with lower per capita use. On February 2, 2016, based on the Governor's November 2015 Executive Order, the State Water Board approved an updated and extended emergency regulation. The extended regulation continues the conservation structure that has spurred dramatic savings so far and gives greater consideration to some factors that influence water use: climate; population growth; and significant investments in new local, drought-resilient water supplies such as wastewater reuse and desalination. On April 7, 2017, the State ended the drought emergency.

The Water Conservation Act of 2009

California legislation enacted in 2009 as SB 7 of the 7th Special Legislative Session (SB X7-7) instituted a new set of urban water conservation requirements known as "20 percent by 2020." These requirements stipulate that urban water agencies reduce per capita water use within their service areas by 20 percent relative to their use over the previous 10 to 15 years. The City of Brentwood plans to comply with the SB X7-7 requirements through a combination of ongoing water conservation measures and additional recycled water development.

⁴ CCR Tit. 23, Div. 2, Ch. 27, Sec. 490.1.

Per the law as adopted in SB X7-7, the city must establish per capita water use targets using one of four methods. In the 2015 UWMP gpcd analysis, the city selected Method 1, which provides a 2020 target of 193 gpcd (2015 UWMP, pg. 5-1). The resulting water demand projection of 194 gpcd comes close to meeting the city's 2020 water use target of 193 gpcd (refer to Water Supply Reliability and Demand discussion above).

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act) grants the SWRCB and the RWQCBs power to protect surface water and groundwater quality and is the primary vehicle for implementing California's responsibilities under the Federal CWA. The SWRCB is divided into nine regions, each overseen by a RWQCB. The SWRCB is responsible for protecting California's surface waters and groundwater supplies.

Each RWQCB must formulate and adopt a Water Quality Control Plan (Basin Plan) for its region. The Basin Plan must conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State Water Policy. The Basin Plan establishes beneficial uses for surface and groundwater in the region and sets forth narrative and numeric water quality standards to protect those beneficial uses. Basin plans are updated every three years and provide the basis of determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The Porter-Cologne Act also states that an RWQCB may include water discharge prohibitions applicable to particular conditions, areas, or types of waste within its regional plan. The Porter-Cologne Act is also responsible for implementing CWA Sections 401 and 402 and 303(d) to SWRCB and RWQCBs.

Water Quality Orders (SWRCB)

The SWRCB has adopted an NPDES General Permit for construction activities, known as the Construction General Permit (Construction General Permit). The current Construction General Permit (Order No. R2-2009-0074) became effective on July 1, 2010. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) in conjunction with construction activities. The SWPPP must contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list Best Management Practices (BMPs) that the discharger would use to protect storm water runoff and the placement of said BMPs. Additionally, the SWPPP must contain a Construction Site Monitoring Program (CSMP) to demonstrate that the site is in compliance with the Construction General Permit. Depending on the construction site risk level, the CSMP includes varying levels of visual monitoring and water quality sampling and analysis.

Wastewater

Central Valley Regional Water Quality Control Board

The Central Valley RWQCB is the local division of the SWRCB that has oversight authority over the Project with regard to wastewater. SWRCB is a State department that provides a definitive

program of actions designed to preserve and enhance water quality and to protect beneficial uses of water in California. NPDES permits allow the Central Valley RWQCB to collect information on where the waste is disposed, what type of waste is being disposed, and what entity is disposing of the waste. The RWQCB is also charged with conducting inspections of permitted discharges and monitoring permit compliance. For wastewater discharges, the city operates under the Central Valley RWQCB (under Order R5-2013-0106, NPDES Permit No. CA5083313). It should be noted that stormwater discharges from industrial and construction activities in the city are regulated under a separate NPDES permit by the San Francisco Bay RWQCB.

California Water Code Section 13148(e)

California Water Code Section 13148(e) provides for a local wastewater agency to control salinity inputs from residential self-regenerating water softener (SRWS) systems. The local agency may adopt a resolution or ordinance to take actions to control the salinity input. Before a local agency takes action to control salinity input from self-regenerating water softeners, the RWQCB must make a finding that the control of SRWS-caused salinity inputs will contribute to the achievement of water quality objectives. The Central Valley RWQCB finds that the control of residential use of SRWS brine discharges to the discharger's collection system will contribute to the achievement of the water quality objectives.

California's Health and Safety Code Section 116786

Effective January 1, 2004, California's Health and Safety Code section 116786 authorizes California cities to limit or prohibit the installation of residential water softening systems that discharge to the community sewer system, provided the local agency makes all of the required findings and includes them in the ordinance. The ordinance provides cities and communities with a tool to address salinity discharged into the community sewer system from existing residential water softening or conditioning appliances.

Solid Waste

California Integrated Waste Management Act

California's Integrated Waste Management Act of 1989 (AB 939) requires that cities and counties divert 50 percent of all solid waste from landfills as of January 1, 2000, through source reduction, recycling, and composting. AB 939 also establishes a goal for all California counties to provide at least 15 years of ongoing landfill capacity.

To help achieve this goal, the Act requires that each city and county prepare a Source Reduction and Recycling Element to be submitted to the Department of Resources Recycling and Recovery (CalRecycle), a department within the California Natural Resources Agency, which administers programs formerly managed by the State's Integrated Waste Management Board and Division of Recycling.

As part of CalRecycle's Zero Waste Campaign, regulations affect what common household items can be placed in the trash. Household materials — including fluorescent lamps and tubes,

batteries, electronic devices, and thermostats — that contain mercury are no longer permitted in the trash and must be disposed of separately.

In 2007, SB 1016 amended AB 939 to establish a per capita disposal measurement system. The per capita disposal measurement system is based on a jurisdiction's reported total disposal of solid waste divided by a jurisdiction's population. CalRecycle sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CalRecycle with an update of its progress in implementing diversion programs and its current per capita disposal rate.

California Solid Waste Reuse and Recycling Access Act of 1991

The California Solid Waste Reuse and Recycling Access Act requires areas in development programs to be set aside for collecting and loading recyclable materials. The Act requires CalRecycle 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, governing adequate areas in development programs for collection and loading of recyclable materials.

CALGreen Building Code

The California Green Building Standards Code (CALGreen) came into effect for all projects beginning after January 1, 2011. Section 4.408, Construction Waste Reduction Disposal and Recycling, mandates that, in the absence of a more stringent local ordinance, a minimum of 50 percent of non-hazardous construction and demolition debris must be recycled or salvaged. The Code requires the applicant to have a waste management plan for on-site sorting of construction debris.

Local

City of Brentwood General Plan

Project relevant General Plan Policies for utilities and service systems are addressed below. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below. In the impact analyses below, it is assumed that applicable General Plan Policies will be incorporated into the proposed project. The City of Brentwood developed and adopted the General Plan to include goals, policies and actions that, when implemented, will coordinate the provision of utility and service systems as the city grows.

The goals and policies identified below include numerous requirements that would reduce the potential for project specific impacts related to new and expanded utility and service infrastructure through project design, provision of expanded systems and participation in funding programs.

Infrastructure Goal IF 1: Maintain and improve Brentwood's infrastructure to provide high-quality services and protect health and safety.

- **Policy IF 1-1:** Provide adequate public infrastructure (i.e., street, sewer, water, and storm drain) to meet the needs of existing and future development.
- **Policy IF 1-2:** Require development, infrastructure, and long-term planning projects to be consistent with all applicable City infrastructure plans, including the Water Master Plan, the Wastewater Master Plan, and the Capital Improvement Program.
- **Policy IF 1-3:** Require all development projects to mitigate their infrastructure service impacts or demonstrate that the City's infrastructure, public services, and utilities can accommodate the increased demand for services, and that service levels for existing users will not be degraded or impaired.
- **Policy IF 1-4:** Require new development projects to develop comprehensive infrastructure plans for City review and approval as part of an application submittal.
- **Policy IF 1-5:** When appropriate, require development projects to install off-site infrastructure subject to the City's Development Fee Program.
- **Policy IF 1-7:** Require the payment of impact fees for all new development.

Infrastructure Goal IF 2: Provide an adequate, reliable, and safe water supply, storage, and distribution system.

- **Policy IF 2-1:** Ensure the water system and supply is adequate to meet the needs of existing and future development.
- **Policy IF 2-2:** Ensure safe drinking water standards are met throughout the community.
- **Policy IF 2-3:** Continue to implement a comprehensive water strategy that balances the need to supply water to all users served by the City with potable water use reduction measures.
- **Policy IF 2-4:** Pursue additional water supply agreements to supplement the City's existing system.
- **Policy IF 2-5:** Continue efforts to reduce potable water use and increase water conservation.
- **Policy IF 2-6:** Use recycled water for landscaping irrigation within City roadways, parks, and facilities to the greatest extent feasible.

Infrastructure Goal IF 3: Provide adequate wastewater collection and treatment capacity.

- **Policy IF 3-1:** Ensure adequate sewage conveyance and treatment infrastructure to meet existing and future development.
- **Policy IF 3-2:** Maintain the existing wastewater system on a regular basis to increase the lifespan of the system and ensure public safety.

Infrastructure Goal IF 5: Ensure adequate and environmentally responsible waste disposal and recycling services.

- **Policy IF 5-1:** Provide adequate waste disposal, recycling, and reuse services, including programs that improve public access to solid waste collection and recycling facilities.

- Policy IF 5-2: Reduce the amount of waste requiring disposal at landfills and increase recycling and reuse among residents, businesses, and City departments, as set forth in the City's Source Reduction and Recycling Element.
- Policy IF 5-4: Locate waste collection, transfer, and processing facilities in areas that minimize impacts to the surrounding community.
- Policy IF 5-5: Coordinate with Contra Costa County on any future plans to establish new landfill sites within the county in order to minimize potential adverse impacts to the Brentwood community.
- Policy IF 5-6: Participate with Contra Costa County to implement a hazardous materials collection and disposal program.

Economic Development Goal ED 1: Establish and maintain a healthy, balanced approach to economic development that encourages a diversity of businesses which provide employment, services, and goods.

- Policy ED 1-8: Reserve infrastructure capacity, both sewage treatment plant and water supply, for future targeted employment-generating uses.

Conservation and Open Space Goal 9: Promote conservation of energy and other natural resources.

- Policy COS 9-6: Continue to require new development to incorporate water efficient fixtures into design and construction.
- Policy COS 9-7: Promote the use of reclaimed water and other non-potable water sources.
- Policy COS 9-8: Encourage large-scale developments and golf course developments to incorporate dual water systems.
- Policy COS 9-9: Encourage and support the use of drought tolerant and regionally native plants in landscaping.

Water

Contra Costa Clean Water Program

To comply with the Federal CWA, Contra Costa County, its 19 incorporated cities, and the Contra Costa County Flood Control and Water Conservation District have joined together to form the Contra Costa Clean Water Program (CCCWP). The CCCWP strives to eliminate stormwater pollution through public education, inspection and enforcement activities, and industrial outreach. The CCCWP is dedicated to maintaining a healthy environment in Contra Costa's creeks, rivers, the Delta, and the Bay.

City of Brentwood Municipal Code

Chapter 14.01 of the city's Municipal Code, General Rules and Regulations for the Construction and Use of the Water System, seeks to establish rules and regulations to govern the general operation of the city's water system to provide an efficient and economical water supply.

Section 14.01.510 prohibits waste of potable water by washing driveways, sidewalks, and other hardscaped surface; serving of drinking water without request in eating or drinking establishments, failure to correct a malfunctioning device or supply line, discharging swimming pool or spa water off property rather than a public sanitary sewer, etc. The ordinance prevents waste or unreasonable use of water; maximize the efficient use of water; and ensure a reliable and sustainable minimum supply of water for public health, safety, and welfare. Additionally, Municipal Code 13.04.022.B (Prohibited Activities) prohibits brine discharging SRWS systems. In the impact analyses below, it is assumed applicable Municipal Code sections will be implemented as part of the Project.

City of Brentwood Water Master Plan (2017)

The 2017 Water Master Plan updated the 2006 plan and water system model. The purpose of the 2017 water model update was to conduct an existing system water model simulation, to determine immediate capital improvement needs, to analyze a future system build out to the limits of the city's General Plan and to evaluate the locations and costs for all future water system requirements.

Wastewater

City of Brentwood Wastewater Collection System Master Plan (2010)

The city's 2010 Wastewater Collection System Master Plan includes a description and maps of the city's wastewater collection system, system-wide flow projections, hydraulic models of system flows, an analysis of the system's capacity, a summary of system capacity improvements that are needed, and a summary of the current related Capital Improvement Project schedule and costs for wastewater system improvements.

City of Brentwood Sewer System Management Plan (2013)

The SWRCB implemented Order No. 2006-0003-DWQ in May 2016. This order requires any municipality that owns or operates a sanitary sewer system greater than 1.0 mile in length and that collects and/or conveys untreated or partially treated wastewater to publicly owned treatment plants in California is required to comply with its terms. This order requires the development and implementation of a system-specific Sanitary Sewer Management Plan (SSMP). The city's SSMP facilitates the overall management of the City of Brentwood's sewer system.

City of Brentwood Sewer Master Plan (2017)

The goal of the Sewer Master Plan is to determine if any deficiencies exist in the current sewer collection system and then to ascertain which facilities should be constructed as mitigation. The second goal of this master plan is to model the ultimate boundaries of the city's General Plan and then determine which facilities will be required to service future growth in the years to come. The City of Brentwood last updated its Sewer Master Plan in 2010. The 2010 report (compiled by CDM Engineers) was an update of a previous Sewer Master Plan conducted by RBF Engineering in 2006. The 2010 Sewer Master Plan was based upon a computerized sewer model with new demand allocations for the 'buildout' of the city sewer system, up to the limits

of the 2006 General Plan. The 2017 plan provides an update to the 2010 plan and includes updates to the city's population, average daily flows, flow rates, and master planning for all existing and future sewer facilities.

City of Brentwood Municipal Code

Title 13 of the city's Municipal Code covers Sewer System-Rules and Regulations (Chapter 13.04) and Recycled Water Regulations (Chapter 13.06). The sewer chapter includes rules and regulations on sewer use, reports and permits, accidental discharge, sewer connections, monitoring and inspection, enforcement, and the Grease, Oil, and Sand Interceptor Program. Recycled Water Regulations seek to establish rules and regulations that govern the general safe and orderly development and operation of recycled water facilities and systems.

Solid Waste

City of Brentwood Municipal Code

Chapter 8.40 of the Brentwood Municipal Code, Construction and Demolition Debris Recycling, contains specific requirements related to applicable thresholds for projects covered by the ordinance and the requirements for the preparation, submission, and implementation of project-specific waste management plans (WMPs). Any construction, demolition, and renovation projects within the city, the total costs of which are, or are projected to be, greater than or equal to \$75,000 or which involve construction and demolition ("covered projects") shall comply with Section 8.40.020(A).

Chapter 8.16, Solid Waste, is related to the regulating of solid waste handling in order to protect public health, safety, and welfare and to meet the city's obligations under the California Integrated Waste Management Act of 1989. The Section discusses obligations related to AB 939 and AB 341.

4.16.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The following significance criteria for utilities and service systems were derived from the 2014 General Plan EIR, as supplemented by 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.

Please note that this section addresses stormwater control facilities only in the context of construction impacts. The hydraulic function of planned facilities is addressed in Section 4.10, Hydrology and Water Quality, of this EIR.

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

- Require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage facilities or dry utilities, the construction or relocation of which could cause significant environmental effects.
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.
- 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.
- 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.
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Method of Analysis

The methodologies used for the Water Distribution System Analysis, Sewer Collection System Analysis, Preliminary Stormwater Control Plan, and WSA prepared for the proposed project are described in the following sections. The results of each technical report were evaluated within the context of the standards of significance listed above. It should be noted that issues related to off-site infrastructure improvements are evaluated within Impact UTIL-2 together with on-site impacts.

Water Distribution System Analysis and Sewer Collection System Analysis

The Water Distribution System Analysis and Sewer Collection System Analysis prepared for the proposed project by Ennis Consulting evaluated the water and wastewater system demands estimated for the proposed project and evaluated the existing infrastructure in the Project area. In order to calculate water demand, Ennis Consulting applied the water duties from the 2017 Water Master Plan to each respective land use included in the Project. For both water and sewer analyses, Ennis Consulting compared demands associated with the Project with demands estimated to occur under buildout of the Project site per the site's current General Plan land use designations.

Preliminary Stormwater Control Plan

This Preliminary Stormwater Control Plan evaluated the hydrologic setting of the Project area, including factors affecting runoff generation; drainage patterns; and local stream channels that will convey runoff to the ultimate receiving waters of the greater Marsh Creek system. Hydrologic and hydraulic modeling was conducted to assess the anticipated magnitude and timing of peak flow rates for both pre- and post-Project conditions, as well as modeling to characterize the magnitude and duration of low flow rates as part of the hydromodification control measures that would be implemented with the Project. The results of the modeling were evaluated within the context of applicable regulatory criteria related development of stormwater controls.

Water Supply Assessment

The WSA prepared for the proposed project evaluates the adequacy of the city's total projected water supplies, including existing water supplies and future planned water supplies, to meet the city's existing and projected future water demands, including those future water demands associated with the Project. Anticipated supplies and demands were evaluated under all relevant hydrologic conditions (Normal Years, Single Dry Years, and Multiple Dry Years). For the proposed unrestricted single-family residential units, the city's Low-Density Residential water use factor of 590 gallons per day (gpd) per dwelling unit (DU) was assumed. For the active adult single-family and multi-family residential units, the city's Low-Density Residential and Medium-Density Residential water use factors, respectively, were adjusted to account for the lower average number of persons per household in active adult households than in average city households. For the community clubhouse and commercial and civic area, the city's Commercial water use factor of 2,000 gpd/acre was assumed. Non-potable water was assumed to be used for all of the Project's irrigation demands, with the exception of irrigation demand for the single-family residential units. Projected irrigation demands were calculated using the methodology outlined in the city's WELO.

Impacts of the Proposed Project

Impact UTIL-1: Does the project have the potential to exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (*less than significant*)

The Central Valley RWQCB has oversight authority over the Project, and the city's NPDES permit for wastewater. The RWQCB is also charged with conducting inspections of permitted discharges and monitoring NPDES permit compliance. According to the City of Brentwood WWTP waste discharge permit, issued by the Central Valley RWQCB and adopted July 26, 2013, the WWTP is designed to process an average dry weather flow of 5.0 MGD (Order R5-2013-0106-01 ["Order"]). The Order was amended on October 9, 2014 and April 17, 2015. The WWTP is currently being upgraded for an expansion of the flow capacity from an average dry weather discharge flow of 5.0 MGD to 6.4 MGD of tertiary treated municipal wastewater to Marsh Creek, a water of the United States, within the legal boundary of the Sacramento-San Joaquin Delta. The RWQCB on April 5, 2019 adopted Order R5-2019-0029 (NPDES Permit NO. CA0082660), conditionally allowing an average dry weather flow of 6.4 MGD. The recently adopted Order includes specific effluent limitations that must be met by the city, and detailed monitoring and reporting requirements to demonstrate to the RWQCB that the city is meeting all effluent limitations set forth in their NPDES Permit.

The Project would connect to the city's wastewater infrastructure system. Specifically, the Project's wastewater would be discharged via pipelines from the Project site to the WWTP. The city is responsible for maintenance and operation of city wastewater pipelines, the WWTP, and the discharge pipeline from the WWTP to Marsh Creek.

Because all Project wastewater would be treated at the City's WWTP, and the city's WWTP, and the city's WWTP, including the expansion project, is designed to ensure compliance with all

applicable treatment requirements of the RWQCB as set forth in the Order, potential impacts associated with exceedances of the RWQCB's wastewater treatment requirements would be ***less than significant***.

Mitigation Measures

None required.

Impact UTIL-2: **Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage systems or dry utilities, the construction or relocation of which could cause significant environmental effects? (*less than significant with application of site-specific mitigation measures*)**

In general, and as identified in the 2014 General Plan EIR, new infrastructure systems are typically planned and constructed on site at the project-specific level, and the environmental impacts of constructing and operating those systems are typically tied to the first phases of project construction. This would be the case with the Project.

Impacts associated with construction activities involving installation of utilities may include air quality, drainage, and noise, and impacts associated with operation include traffic, noise, air quality, hazards and land stability/erosion. However, impacts associated with construction of utilities are included within the envelope of construction activities and are addressed in other relevant sections of this EIR. Other impacts that may occur include short-term direct visual impacts, potential direct impacts on a variety of biological and wetland resources, loss of trees and loss of habitat. Additionally, air quality emissions of particulate matter, greenhouse gases, oxides of nitrogen and reactive organic gases may be generated during construction. Where potentially significant or significant impacts are identified, this EIR identifies site-specific mitigation measures to reduce impacts to a less-than-significant level wherever feasible.

Water

Potable Water

Potable water service would consist of a series of 8-inch to 24-inch water lines located in two "project zones" (Zone 2 and Zone 3). Except for the hilltop estate residential households, project land uses would be served by project Zone 2 via a new 3 million-gallon water tank (Reservoir 2.4). To serve the hilltop estate residents located in project Zone 3 (above elevation 220), a hydropneumatic pump station would be constructed adjacent to the water tank (Pump Station 3.4) to provide sufficient pressure to serve project Zone 3.

All infrastructure would be constructed in phases. As identified in "Water Distribution System Analysis – The Vineyards at Deer Creek" Technical Memorandum prepared by Ennis Consulting, dated April 26, 2019, the phasing of the Project could trigger the need for specific infrastructure improvements – or accelerate previously planned improvements – at various stages of development.

New 8-inch water lines would extend from the existing 8-inch line located at the south end of Canmore Court and Waterville Drive, just east of the Project area. The existing 20-inch line in Balfour Road would be extended westward along the entire length of Balfour Road to Deer Valley Road. A minimum 16-inch line would extend from the new Balfour Road line at the Project entry. New Zone 3 water lines would also be installed in Balfour Road from Pump Station 3.4 southerly to the extension of American Avenue.

As documented in the 2017 Water Master Plan, the existing water distribution system currently lacks adequate interconnection between and across Zone 2, primarily in conveying water between the southern region around Reservoir 2.3 and the more middle/northern region around Reservoir 2.1. The near-term solution to this lack of interconnection would be the construction of a 16-inch water distribution main within the future John Muir Parkway to Foothill Drive (approximately 700 linear feet). According to the City of Brentwood, this main is planned for construction within the next 3 to 5 years, regardless of the status of the Project. For this reason, all water modeling for the Project assumes that this water main would be in place. However, if Project construction moves ahead of this separate city Public Works project, this “gap” in pressure zone interconnection would be a potentially significant impact to be mitigated by the Project.

A second issue regarding the lack of Zone 2 interconnection is the location of Pump Station 2.3 and the resulting behavior of Reservoir 2.3 (Ennis Consulting, 2019). In simplified terms, the operation and performance of the existing pump stations and reservoirs within the water system could be strained by progressive phases of Project development.

The Project is proposed to develop in up to five phases, with the following potential effects on the existing water system (Ennis Consulting, 2019):

- **Phase 1:** No significant impacts would occur as Zone 2 can accommodate this development phase.
- **Phase 2:** As part of Phase 2 improvements, a 12-inch water line would extend through Rolling Hills Park from an existing 12-inch line located on Waterville Drive. The Phase 2 analysis shows that the existing Zone 2 system can accommodate this development phase. However, the analysis shows that Pump Stations 2.1 and 2.2 would be running nearly full time at maximum demand with buildout of this phase.
- **Phase 3:** At this phase of development pumping capacity and reservoir function of existing facilities begin to be compromised without system improvements. At the midpoint of Phase 3, the off-site Pump Station 2.4 would need to be constructed and operational. This pump station would be located next to the city’s existing Reservoir 1.3 adjacent to St. Regis Street.
- **Phases 4 and 5:** Under Project buildout, without new Pump Station 2.4, the existing reservoirs could not be adequately filled and existing pump stations would run continuously. At the midpoint of Phase 4, the on-site Reservoir 2.4 and Pump Station 3.4 will need to be constructed and operational.

It should be noted that Pump Stations 2.4 and 3.4 and the reservoir are improvements already identified in the City of Brentwood's fee program and Water Master Plan prepared by Ennis Consulting dated June 1, 2017. Nonetheless, due to the potential effects on the water system due to the Project during the phases described above, MM UTIL-1 shall be implemented.

Non-Potable Water Alternatives

As noted previously, the Project would utilize approximately 0.08 MGD of non-potable water for irrigation of agricultural crops (e.g. vineyards and olive groves). This water source may also be used to irrigate landscaping along roadway, in the recreation centers, and parks and open space, and other landscaped common areas.

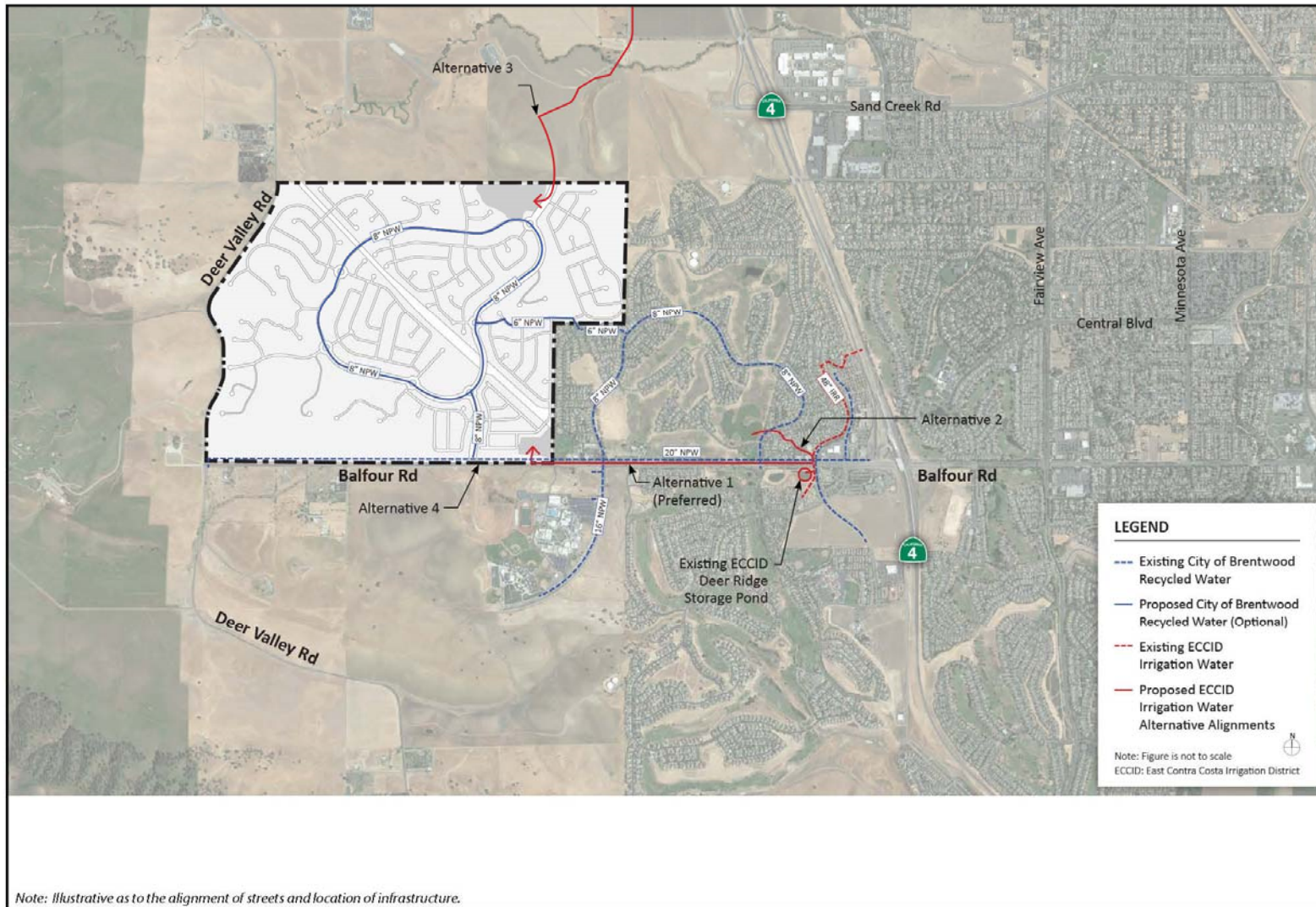
As shown in Figure 4.16-1, there are four options being considered to bring ECCID water to the Project site. These options include:

- **Alternative 1** would require a new turnout and pump station from the 48-inch ECCID pipe at the intersection of John Muir Parkway and Balfour Road. A new line would be constructed west on Balfour Road to the Project area from this location.
- **Alternative 2** would utilize the existing ECCID water facilities for either Shadow Lakes or Deer Ridge golf course. This would include utilization of the existing basins and/or modifications to the existing pumping facilities. A new line would be constructed west on Balfour Road to the Project area.
- **Alternative 3** would require a new pump station at the end of the ECCID irrigation pipe adjacent to Heirdorn Ranch Road. The ECCID water would then be directed south through the City of Antioch and into the northeast basin.
- **Alternative 4** would utilize the City of Brentwood raw water accessed from a 20-inch line (the Roddy line) located in Balfour Road. In the future, the city intends to blend this line with recycled water.

Alternative 1 is the Project proponent's preferred option for the Project at this time, and is therefore assumed for purposes of analysis in this EIR. Alternative 1 would require the construction of approximately 1,500 linear feet of pipeline from the intersection of John Muir Parkway and Balfour Road, westward to the Project site to deliver ECCID water.

Because irrigation water would be utilized during the dry months, it is anticipated that for any alternative, the ECCID irrigation water would be stored in the respective basin, which during these months would typically be at or near empty. Just before the rainy season (generally November to March), the basin would gradually be drawn down to allow capacity for storm events. Within the Project site, it is anticipated that the irrigation water system, including all underground pipes and storage tanks, would be owned and operated by a Homeowners Association (HOA), or other entity. Potential environmental effects associated with Project off-site improvements, including extension of a new irrigation water line, are evaluated throughout each technical section of this EIR. Where necessary, mitigation is provided to reduce identified impacts to the maximum extent feasible.

**Figure 4.16-1
 Non-Potable Water Delivery Alternatives**



Source: Carlson, Barbee & Gibson, Inc.

Should other options as described above be pursued instead of the preferred Alternative 1 as analyzed herein, additional or supplemental environmental review may be required, as the potential effects of those alternatives are too speculative to predict at this time.

Wastewater

Implementation of the Project would result in the construction and operation of up to 1,920 age-restricted housing units, 480 non-age restricted housing units, commercial and public facilities, and result in an incremental increase of wastewater generation.

Based on the Sewer Collection System Analysis (Ennis 2019), the Project's land uses would generate an average daily inflow of 381,000 gallons of wastewater per day (gpd) (see Table 4.16-6 below). By comparison, the SPA 2 land use assumptions in the 2014 General Plan EIR assumed 583 dwelling units and approximately 80,000 sf of commercial use. Based on General Plan assumptions, SPA 2 would generate approximately 84,958 gpd. However, the city's Sewer Master Plan (2017) conservatively planned the sewer system for much higher density on the Project site. The city's Sewer Master Plan conservatively modeled an average day wastewater demand of 461,000 gpd.

Land Use	Acres	Sewer Generation Rate (gpd/acre)	Average Day Inflow (MGD)
Public Facility	15	800	0.012
Commercial	20	1500	0.030
Residential	555	611	0.339
Total	590	n/a	MGD = 0.381 gpm = 265

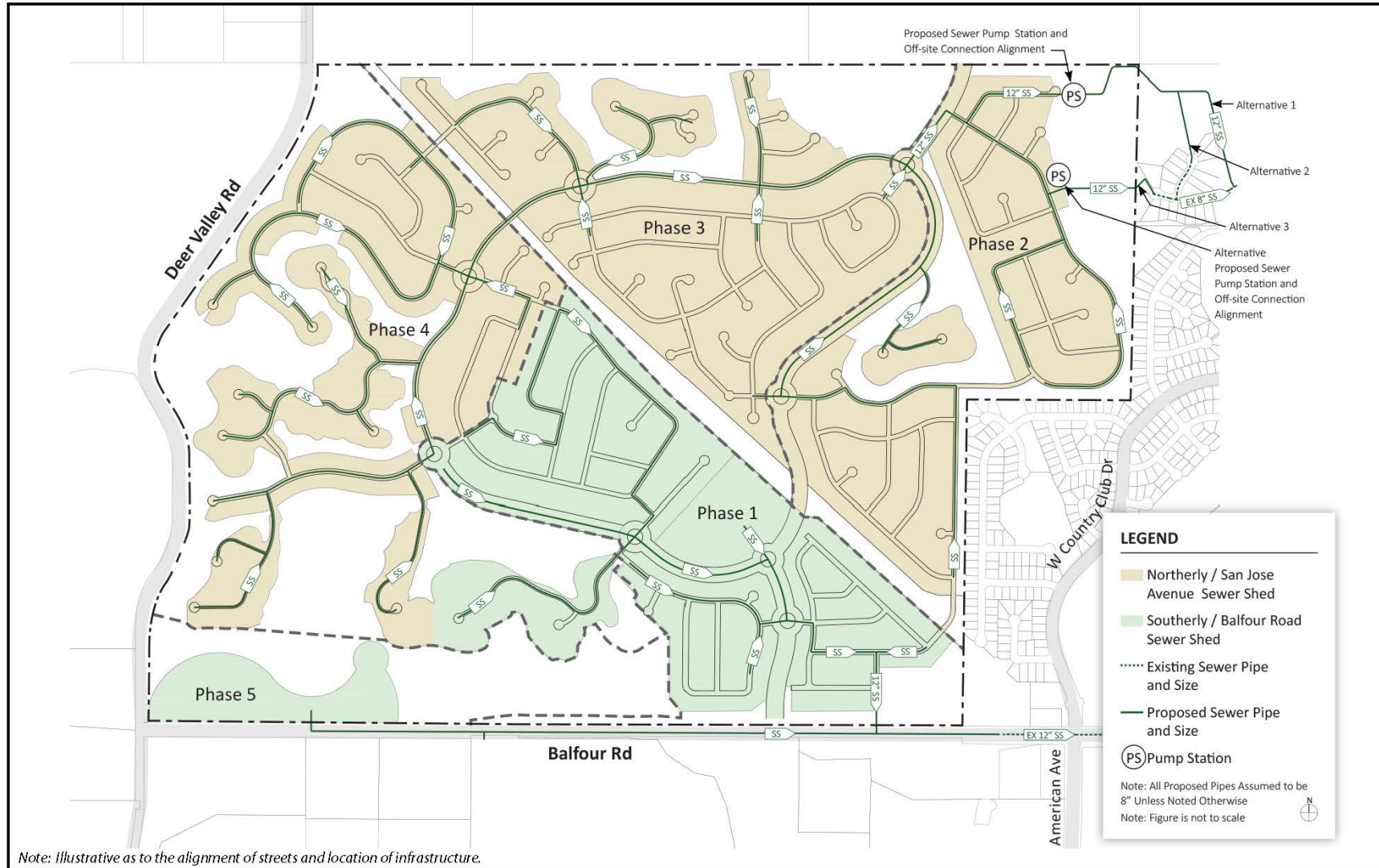
MGD = million gallons per day
gpm = gallons per minute
Source: Ennis Consulting 2019

The Project's sanitary sewer system would be constructed in up to five phases, flowing to two sewer sheds (northern and southern). As shown in Figure 4.16-2, the Project area would consist of a network of 12- and 8-inch sanitary sewer lines located in two project zones. The on-site sanitary sewer mains would collect wastewater that would flow south and east. Connections to existing sanitary sewer lines would occur at Balfour Road and St. Regis Avenue in the Shadow Creek neighborhood. The Project's proposed sewer plan would split the sewer flows between the Balfour Road sewer trunk and the San Jose Avenue sewer trunk.

At full Project buildout, the sewer analysis concludes that the San Jose trunk would be sufficient to accommodate the flows from the northern portion of the Project and that no new master plan improvements are required to be constructed. All downstream lines were also analyzed, and no deficiencies were identified other than those described herein.

As part of the Project, either the existing 8-inch line in St. Regis Avenue would be upgraded to 12 inches or a parallel line would be constructed to ensure sufficient capacity along St. Regis Avenue to the San Jose Avenue sewer main. This off-site improvement would result in temporary construction-related impacts in the immediate vicinity along St. Regis Avenue.

**Figure 4.16-2
 Existing and Proposed Sanitary Sewer**



source: Carlson, Barbee & Gibson, Inc, 2019

The wastewater impact from the Project would negatively impact the capacity of the existing 12-inch sewer pipe in Balfour Road at full build out (Ennis 2019). At that time, a new wastewater line would be necessary to ensure adequate flow performance. MM UTIL-11 thus requires the Project proponent to install a wastewater line parallel to the existing line in Balfour Road from West Country Club Drive to Ranchwood Drive at such time as an additional line is necessary to ensure sufficient sewer capacity, as demonstrated by future sewer analyses.

Wastewater originating from the Project site would be collected and treated at the city’s existing WWTP. As noted above under the Environmental Setting, the WWTP currently maintains a treatment capacity of 5 MGD and will soon be expanded to accommodate up to 6.4 MGD. According to the city’s 2017 Sewer Master Plan, at full build out of the General Plan, the future average daily flow into the city WWTP could increase to approximately 6.9 MGD with a population of 92,500, as addressed in the cumulative impact analysis below. Table 4.16-7 summarizes the Project’s wastewater generation compared to existing WWTP capacity.

Average Treatment	Existing Capacity	Remaining Existing Capacity	Proposed Project Wastewater Generation	Average Daily Flow with Full Build out of General Plan ¹
3.8 MGD	5 MGD	1.03 MGD	0.381MGD	6.9 MGD

¹ Estimates include reserve capacity. Programmed expansion to 6.4 MGD may accommodate all growth under the General Plan planning horizon.
 MGD = million gallons per day
 Source: City of Brentwood Sewer Master Plan, 2017.

The sanitary sewer capacity calculations prepared by Ennis Consulting (2019), along with the conclusions from the city 2017 Sewer Master Plan, indicate that there is sufficient capacity for the Project’s wastewater in the treatment system.

Off-site Sewer Improvements

As mentioned above, the proposed project would include a new pump station and associated improvements within the northeastern portion of the site and along Balfour Road. Three alternatives for the pump station and improvements have been considered. The first two sewer alternatives would involve a pump station located near the northeastern-most cul-de-sac within the project site. For Alternative 1, a 12-inch sewer line would extend east from the pump station, then follow adjacent to an existing gas line easement south, and connect to the existing eight-inch line within St. Regis Avenue, west of the intersection with Capilano Drive. For Alternative 2, a 12-inch sewer line would extend east from the pump station, then cut south to the cul-de-sac of Copperfield Court, where the line would connect to an existing eight-inch line. Alternative 3 would involve a pump station located farther south within the northeastern portion of the site. A 12-inch sewer line would connect the pump station to the existing eight-inch line within the westernmost terminus of St. Regis Avenue. For all sewer alternatives, a portion of the existing eight-inch sewer line within St. Regis Avenue is proposed to be upsized to 12 inches to the San Jose Avenue force main, or a parallel line would be required, in order to ensure sufficient capacity.

The city has determined that because Alternative 1 would require extension of sewer lines through a gas pipeline easement, potentially resulting in safety risks, the alternative has been dismissed from further consideration. Potential environmental effects associated with Project off-site improvements, including the Alternative 2 and Alternative 3 sewer improvements, are evaluated throughout each technical section of this EIR. Where necessary, mitigation is provided to reduce identified impacts to the maximum extent feasible.

Overall, due to the potential effects on the wastewater system as a result of the Project, MM UTIL-1 shall be implemented.

Stormwater Facilities

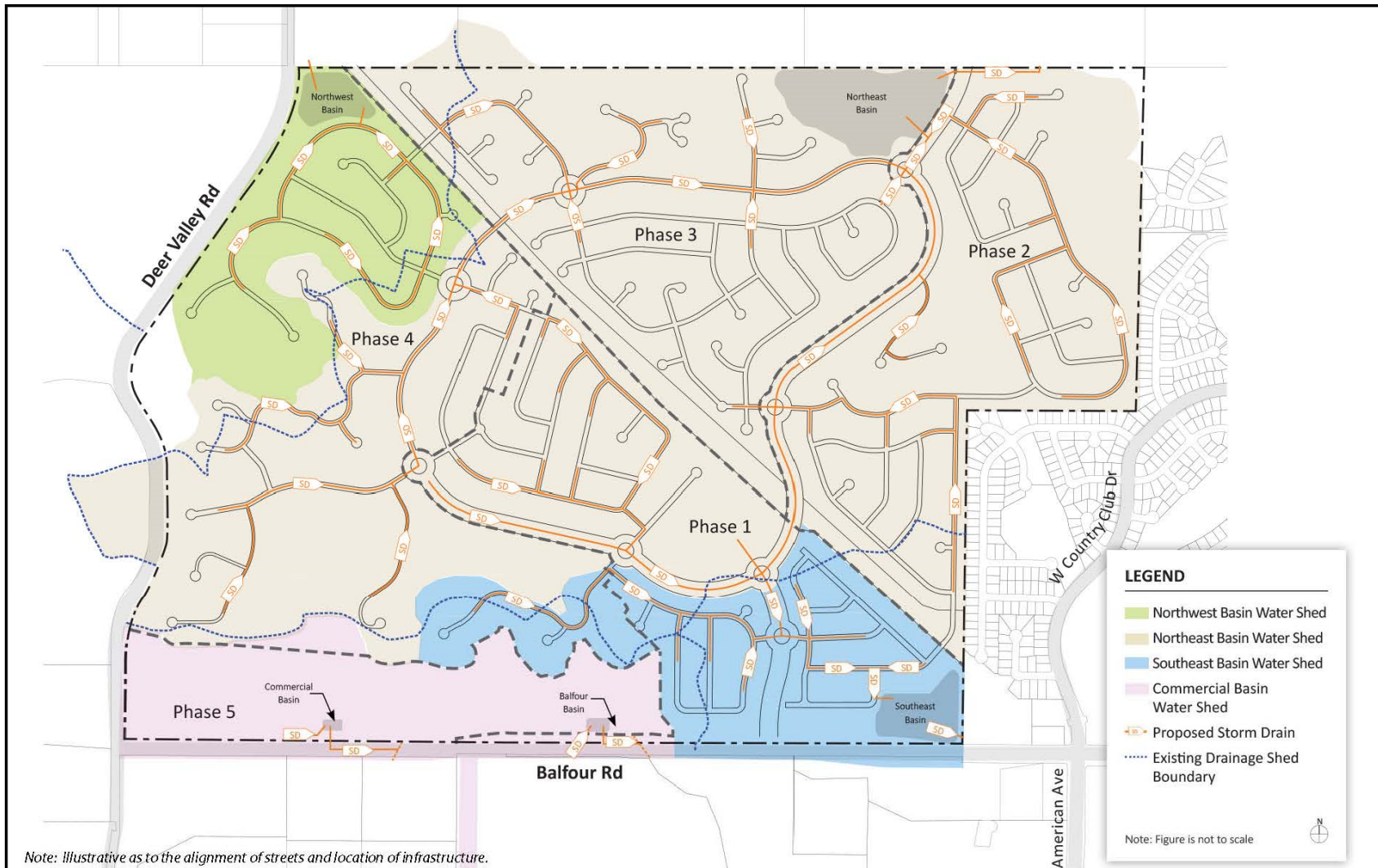
As shown in Figure 4.16-3, on-site drainage from the new impervious surfaces (driveways, parking areas, and building rooftops) have been conceptually designed to convey stormwater via gravity through underground stormwater pipes to various detention basins. The basins would be designed to detain and percolate stormwater on site, and ultimately discharge off site to existing channels and creeks to the north and south. The Project site is divided into five topographic drainage sheds, which dictate the size and location of the basins. No quantified stormwater flow assumptions were made for SPA 2 in the 2014 General Plan EIR, which assumed 583 dwelling units and approximately 80,000 sf of commercial use.

The primary objective of stormwater management requirements is to avoid impairment of downstream receiving waters by implementing measures including site design, source control and treatment control. While there would be an expansion of existing stormwater drainage facilities to accommodate the new community, the Preliminary Stormwater Control Plan for the Vineyards at Deer Creek Project, dated March 2019 and prepared by Balance Hydrologics, Inc., illustrates that the Project has been preliminarily designed to address stormwater flows including water quality management, hydromodification management, and peak flow control on site. All drainage sheds and discharge points generally remain intact and no new downstream capacity is required based on the hydrologic modeling conducted for post-project stormwater flows. All necessary stormwater facilities would be constructed with each phase of development. Notwithstanding this, as noted in Section 4.10, Hydrology and Water Quality, MM HYD-1 through MM HYD-3 would be necessary to ensure that the final drainage system design is to the satisfaction of the city and Contra Costa County Flood Control and Water Conservation District.

Construction impacts associated with stormwater drainage facilities necessary to serve the project are evaluated throughout this EIR. Please see Section 4.10 of this EIR regarding changes to drainage patterns and water quality protection measures.

Notwithstanding this, as noted in Section 4.10, Hydrology and Water Quality, MM HYD-1 through MM HYD-3 would be necessary to ensure that the final drainage system design is to the satisfaction of the City and Contra Costa County Flood Control and Water Conservation District.

**Figure 4.16-3
Preliminary Master Storm Drain Phasing**



Source: Carlson, Barbee & Gibson, Inc, 2019

Dry Utilities

Dry utilities include electrical power, natural gas and telecommunications services. AT&T, Comcast, and Sonic currently provide telecommunication, cable television and Internet services. This includes Sonic's symmetric Gigabit Fiber Internet service that transfers data at the rate of 1000 megabits per second. Utility infrastructure in the immediate Project area is located both above ground on utility poles and below ground in public utility easements. The Brentwood Municipal Code requires all existing above ground utilities within the Project and along Balfour Road and Deer Valley Road frontages to be undergrounded.

Pacific Gas and Electric Company (PG&E) provides electrical and natural gas services to existing nearby residential neighborhoods. Electrical infrastructure in the Project area is located above ground on utility poles as well as below ground in adjacent subdivisions. A PG&E gas pipeline traverses the property from the southeast at Balfour Road to the northwestern portion of the Project site along Deer Valley Road. Local natural gas pipelines are located below ground typically in the roadway rights of way.

The Project is located immediately adjacent to the existing Shadow Lakes community, which is serviced by the dry utility systems providers described above. Letters were sent to service providers requesting identification of any unique specific constraints to extending existing services and dry utilities to and throughout the Project and no responses were received. These services would be installed with the various phases of the Project and would be undergrounded in the new street system. As these systems will be extended from existing infrastructure adjacent to the site and on-site installation will occur underground with development phasing, the environmental impacts of these systems are no more severe than the construction of related project improvements as identified elsewhere in this EIR, resulting in less-than-significant impacts. Similar extensions and impacts would be expected with the SPA 2 development assumptions of the 2014 General Plan EIR, as the same systems would be required to service the Project site.

Conclusion

Implementation of MMs UTIL-1 through -2 would reduce impacts associated with water system operations to less-than-significant levels. For example, these mitigation measures require construction of water system improvements identified in the city's Water Master Plan as development occurs. MM UTIL-1 requires the Project to construct a new wastewater line parallel to the existing line in Balfour Road, from West Country Club Drive to Ranchwood Drive, at such time that the improvement is warranted, as determined by the mechanism set forth in said mitigation measure. As discussed above, the evaluation conducted by Ennis Consulting (2019) demonstrates that adequate capacity exists within the city's wastewater treatment system to accommodate the increased demand generated by the Project.

MM UTIL-2 requires implementation of MM HYD-1 through MM HYD-3 from the Hydrology and Water Quality section, which would ensure that on-site drainage infrastructure would be adequate to provide sufficient capacity without the need for additional downstream capacity, as well as sufficient water quality BMPs. Dry utilities would be provided on-site during Project

implementation and would not be substantially different than the dry utilities anticipated for the site by the 2014 General Plan EIR. The Project would include the provision of off-site utility infrastructure; however, the potential impacts of such infrastructure have been analyzed throughout this EIR and mitigated to the maximum extent feasible. Overall, a **less-than-significant** impact would occur following implementation of MM UTIL-1 and MM UTIL-2.

Mitigation Measures

MM UTIL-1

The Project shall construct water system improvements identified below to ensure acceptable water system capacity and operations to the satisfaction of the City Engineer. With regard to the first three improvements listed below, prior to each phase of development, the Project Proponent shall commission and submit to the City a water system analysis to verify the need for the identified improvement. At such time as any future water system analysis determines that a new phase of development will necessitate the identified improvement(s), the Project Proponent shall design and construct said improvement(s) prior to the issuance of the first building permit for that phase.

- *The Proponent shall design and construct off-site Pump Station 2.4.*
- *The Proponent shall design and construct Reservoir 2.4 (3 million gallon).*
- *The Proponent shall design and construct Pump Station 3.4.*
- *The Proponent shall design and construct a 16-inch water transmission line from John Muir Parkway to Foothill Drive consistent with the city's 2017 Water Master Plan. This improvement shall be in place and operational prior to the issuance of the first building permit.*
- *Unless otherwise needed to provide water to the Project, the Proponent shall incorporate the design of all water improvements in Balfour Road as part of the roadway construction plans. This includes both Zone 2 and Zone 3 improvements.*
- *Prior to each phase of development, Proponent shall commission and submit to the city a sewer analysis to evaluate the wastewater impact of the development proposed within that phase. At such time as any future sewer analysis determines that a new phase of development will cause the flow performance of the existing 12" sewer pipe beneath Balfour Road from West Country Club Drive to Ranchwood Drive to exceed available capacity, Proponent shall design and construct a new parallel wastewater line of sufficient size to accommodate such overage and to the satisfaction of the City Engineer. Construction of said facility shall be completed prior to the*

issuance of any building permits within the development phase analyzed in the analysis.

MM UTIL-2 *Implement MM HYD-1 through MM HYD-3.*

Impact UTIL-3: **Would the 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*)**

As shown in the Environmental Setting, the City of Brentwood is forecast to have a total water supply of 9,194 MGY in 2020, increasing to 10,043 MGY by 2040. On those same planning year horizons, the city projects a total water demand of 4,509 MGY in 2020 and 6,244 MGY in 2040, respectively. These forecasts equate to a water surplus of 4,685 MGY in 2020 and 3,798 MGY in 2040, utilizing the 2015 UWMP. These forecasts remain constant for single and multiple dry years (City of Brentwood 2015 UWMP).

According to Ennis Consultants (2019), the 2015 UWMP assumed agricultural use for the SPA 2 acreage based on county zoning. Thus, there is no water demand forecast for the Project in the 2015 UWMP. However, in 2017, the city's Water Master Plan was prepared, which assumed conservative development of SPA 2, with an average day demand of 0.82 MGD. The 2014 General Plan EIR, by comparison, assumed 583 dwelling units and approximately 80,000 sf of commercial use.

According to the WSA prepared by West Yost Associates (April 2019), the Project's average daily potable water demand would be 0.94 MGD, or 342 MGY. Water for agricultural irrigation is not included in this calculation, as it is assumed that non-potable irrigation water would be derived from surface water through ECCID. Non-potable water demand is projected to average 0.08 MGD, bringing total water use to 1.02 MGD, 371 MGY, or 1,140 acre feet per year (afy). The land uses for SPA 2 as assumed in the 2014 General Plan EIR, using the same water demand factors, would result in a demand of 0.35 MGD, or 127 MGY, roughly a third of the water demand of the Project. Projected water demands for the Project are shown in Table 4.16-8.

While the water supply assessment (West Yost 2019) calculated a total project demand of 1.02 MGD, Ennis (2019) prepared a second demand calculation using a per unit "water duty" or water demand factor of 590 gallons per day for purposes of water system design engineering. Using this conservative water duty, which includes reserve capacity and does not distinguish between age restricted or multi-family housing, this alternative method estimates a total Project water demand (average day demand) of 1.47 MGD. This represents a worst-case scenario for water demand for master planning purposes.

Compared to the 2014 General Plan EIR development assumptions, the Project would have a higher water demand, regardless of the calculation method applied. However, given the UWMP year 2020 and 2040 projected water surpluses of 4,685 MGY in 2020 and 3,798 MGY in 2040, the Project's anticipated water would be accommodated by planned city supplies. The Project would utilize less than 14 percent of the city's projected water surplus in those planning years.

The city has sufficient water supplies to meet the demand of the Project, resulting in impacts that are less than significant.

Mitigation Measures

None required.

Land Use	Total Water Demand^(a)	Potable Water Demand^(b)	Non-Potable Water Demand^(c)
Single-Family Residential, Unrestricted ^(d)	317	317	0
Single-Family Residential, Active Adult ^(d)	443	443	0
Multi-Family Residential, Active Adult ^(e)	119	103	16
Community Clubhouse ^(e)	34	31	3
Commercial and Civic Area ^(e)	45	41	4
Agricultural and Open Space ^(f)	57	0	57
Detention Basins	0	0	0
Natural Open Space	0	0	0
Subtotal	1,014	934	80
Losses ^(g)	126	117	9
Grand Total	1,140	1,051	89

a) Based on water use factors presented in Table 2-2 of the WSA prepared for the Project.

b) Potable water demand = total water demand - non-potable water demand.

c) Non-potable water assumed to be used for irrigation purposes for all proposed land use types, except for single-family residential land use types.

d) Single-family residential land use types assumed to use potable water for irrigation, and therefore no non-potable demands are projected.

e) Irrigation unit demand is based on the *City of Brentwood Water Efficient Landscape Ordinance* (City of Brentwood, 2017).

f) Irrigation unit demand is a typical water use factor for vineyards (presented in Table 2-2 of the WSA prepared for the Project).

g) Losses are assumed to be 12.5 percent of water use. Based on the *City of Brentwood 2015 UWMP*, Table 4-1.

Source: West Yost Associates, 2019

Impact UTIL-4: Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (*less than significant*)

As discussed previously in Impact UTIL-2, the Project would generate 0.381 MGD of wastewater. The analysis shows the existing wastewater treatment capacity of the city's wastewater treatment facility to be sufficient, as remaining capacity is more than 1.0 MGD.

According to the Sewer Master Plan, the WWTP has a current average treatment of 3.8 MGD and a 5 MGD capacity, and the WWTP will soon be expanded to a treatment capacity of 6.4 MGD to accommodate planned future growth. Thus, the existing capacity and planned expansion of the WWTP is sufficient to serve the Project, and a ***less-than-significant*** impact would result.

Mitigation Measures

None required.

Impact UTIL-5: Would the 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*)

The City of Brentwood maintains a solid waste transfer station, where waste is sorted before being transported to the Keller Canyon Landfill in Pittsburg. The Brentwood Transfer Station is currently at 40 percent of its permitted capacity. The Keller Canyon Landfill accepts MSW, non-liquid industrial waste, contaminated soils, ash, grit, and sludges. The landfill currently handles 2,500 tons of waste per day, although the facility's permit allows management of up to 3,500 tons of waste per day. According to the CalRecycle Solid Waste Facility Permit (07-AA-0032), as of September 2008, the remaining capacity of Keller Canyon Landfill is estimated to be between 60 and 64 million cubic yards, with a projected closing date of 2050.

Short-Term Construction

Site preparation (vegetation removal and grading activities) and construction activities would generate typical construction debris, including wood, paper, glass, metals, cardboard, and green waste. Non-salvaged construction and demolition waste would result in an incremental and intermittent increase in solid waste disposal at the Keller Canyon Landfill.

According to the EPA's (2003) "Construction and Demolition Amounts," the overall waste generation rate of residential construction is expected to be 4.39 pounds of waste per square foot constructed. Using the EPA waste generation rates and the overall building square footage of approximately 4.8 million sf (2,400 units x 2,000 sf per unit for purposes of estimation), the Project is estimated to generate approximately 10,536 tons of solid waste during Project construction. Application of the California Building Code requirements will divert a minimum of 50 percent of the construction waste from the landfill, which results in a total estimated construction solid waste generation of approximately 5,268 tons.

The Keller Canyon Landfill has approximately 2,500 tons per day of intake capacity; therefore, the landfill would support a temporary increase in solid waste during construction of the Project over time, in multiple phases. Recycling of construction debris would reduce the potential amount of waste disposed of at the Keller Canyon Landfill and would contribute to the recycling goals set forth by the city, the California Building Code, and AB 939. Construction activities would be required to comply with all Federal, State, and local statutes and regulations

related to solid waste. As a result, impacts associated with short-term solid waste would be less than significant.

Long-Term Operation

According to the City of Brentwood Solid Waste Division, the current transfer station and the capacity at the landfill are sufficient to meet the buildout needs of the city, its Sphere of Influence, and its Planning Areas per the current General Plan adopted in 2014.

The Project would increase solid waste generation and decrease available capacity of both the Brentwood Transfer Station and the Keller Canyon Landfill over time. Table 4.16-9 shows the Project is estimated to generate approximately 2,814 tons/year. This is approximately four times the waste generation that would be estimated for the land use assumptions in the 2014 General Plan EIR for SPA 2.

Units	Estimated Persons ^a	Solid Waste Generation Rate	Solid Waste Generation
1,920 age-restricted	2,880	3.5 lbs/person/day	10,080 lbs/day
480 non-age-restricted	1,526	3.5 lbs/person/day	5,341 lbs/day
	Total	2,814 tons/year	

^a Average household size 1.5 person per household for senior project and 3.18 persons per household based on the Water Supply Assessment, West-Yost, March 2019.

The city's annual increase in solid waste generation is within the permitted capacity of the Solid Waste Transfer Station and does not exceed the daily permitted capacity of the landfill. The additional solid waste generated by the Project would not exceed the capacity of this infrastructure.

While there is adequate permitted landfill capacity to accommodate future growth, the 2014 General Plan includes Policies and Actions to further reduce the Project's impact on solid waste services. As the Project would not exceed the permitted capacity of the landfill and solid waste infrastructure, impacts would be ***less than significant***.

Mitigation Measures

None required.

Impact UTIL- 6: Would the project comply with Federal, State, and local management and reduction statutes and regulations related to solid waste? (*less than significant*)

As discussed previously under Impact UTIL-5, the Keller Canyon Landfill has a daily maximum intake load of 2,500 tons per day. The remaining disposal capacity is 205 million cubic yards, as of February 29, 2008, which is the most current published data (CalRecycle, 2018).

As identified in Table 4.16-9, the Project would generate approximately 15,421 pounds of solid waste per day (2,814 tons/year). The estimated refuse generation of the project is based on an average of 3.5 pounds/person/day (CalRecycle, 2018).

The Keller Canyon Landfill has capacity in excess of the required 15-year threshold established by the California Department of Resources Recycling and Recovery (CalRecycle). Based on the remaining capacity of the transfer station and landfill, and the long-term planning programs required to meet CalRecycle requirements, there would be adequate waste disposal capacity within the permitted County's landfill system to meet the needs of the Project. Solid waste services would be provided to the Project without significantly impacting existing and planned development within the city and county. As a result, impacts associated with solid waste compliance would be ***less than significant***.

Mitigation Measures

None required.

Cumulative Impact Analysis

Impact UTIL-7: Would implementation of the project, in combination with past, present, and reasonably foreseeable projects, result in significant cumulative impacts with respect to utilities and service systems? (*less than significant with application of site-specific mitigation measures*)

Water

The future water supply available to the city is assured and reliable under normal, single-dry years, and multiple-dry years by ECCID's pre-1914 water rights, the permanent surface water entitlement held by the city, and based on historical conditions of the groundwater aquifer. The city can reliably expect water from the surface water and groundwater well sources under all but catastrophic conditions. As discussed above under Environmental Setting, the treatment capacity of both WTPs are also capable of meeting current and all projected demands.

Based on the findings of the WSA and 2015 UWMP, the city's long-term water supplies are forecast to exceed long-term demand. City water customers, including the Project, are not anticipated to experience reductions in supply due to the State reducing water diversions on water rights holders. The city's existing entitlements would allow for all diversions necessary to supply the Project during single-dry or multiple-dry years.

According to the WSA (West-Yost and Associates 2019) and the Water Distribution System Analysis (Ennis Consulting 2019), the added flow rates from the Project would add to the existing operational parameters within Zone 2 (2017). Ennis (2019) determined that the Project's net increase in water demand (above what was anticipated for SPA 2 in the city's 2017 Water Master Plan), on top of the overall future demand associated with General Plan buildout, would not result in substantial impacts to the city's water system. The project's incremental increase in cumulative maximum day demand can be satisfied by pumping from Zone 1 and

Zone 2. The key component in adding this pumping capacity is Pump Station 2.4; MM UTIL-1 requires the project to construct this pump station. Therefore, after implementation of all Water Master Plan improvements, as required by the site-specific mitigation measures in this section, build out of the Project and the City of Brentwood's General Plan would not result in impacts associated with water system improvements.

Given the existing available water supply, city surplus, and the water supply needs of the Project — together with related past, present, and reasonably foreseeable future projects under the General Plan — the Project would not result in the need for new or expanded water entitlements or off-site distribution facilities that could result in significant environmental impacts. The Project's incremental effect would not be cumulatively considerable with respect to water supply and therefore impacts would be less than significant.

Wastewater

The Project, together with other development in the General Plan planning area assumed under the General Plan, would result in increased wastewater flows and demands upon the conveyance system and WWTP.

Wastewater and non-potable water facilities that are necessary to serve new development through build-out of the city are identified in the "City of Brentwood Sewer Master Plan (August 2017)" and the "Recycled Water Feasibility Study (2013)", including facilities that are necessary to meet the California SWRCB regulatory requirements. Facility costs and timing are outlined in the city's Capital Improvement Program. New development, including the Project, is required to pay Wastewater fees as part of the city's existing Development Fee Program.

The 2017 Sewer Master Plan identifies a potential average daily flow rate of 6.9 MGD at General Plan buildout. This engineering estimate was calculated for master planning purposes and contains excess reserve capacity in the calculations (Ennis Consulting, 2019). According to the City of Brentwood, the WWTP was designed and built to allow the city to expand to an average dry weather flow of up to 10 MGD for city growth. The current expansion plans will bring the plant's capacity to 6.4 MGD. The Project will pay its fair share toward future WWTP expansion through payment of the city's impact fees. According to CEQA Section 15130(a)(3), paying a "fair share fee" is permissible as effective mitigation for cumulative impacts if the fees are part of a reasonable plan of actual mitigation that the relevant agency commits itself to implementing. The city has determined that a development impact fee is needed in order to finance public improvements to wastewater infrastructure and to pay for the development's fair share of the construction costs of these improvements.

The city must also periodically review and update the Wastewater Master Plan, and as growth continues to occur within the General Plan area, the city will identify necessary system upgrades and capacity enhancements to meet growth, prior to the approval of new development.

As previously noted, Ennis (2019) recommends that a parallel 12-inch sewer main be constructed in Balfour Road, from West Country Club Drive to Ranchwood Road, in order to accommodate future growth. The Project's wastewater flows, when combined with other General Plan growth west of Country Club Drive, could exceed the flow performance of this facility. The Project is, however, required to upsize or construct a parallel pipe to adequately mitigate this potential cumulative impact.

Stormwater

As discussed above, implementation of the Project would require stormwater facilities to serve the Project, the construction of which would be addressed through the development of each phase of the Project. MM UTIL-2 requires implementation of MMs HYD-1 through HYD-3 of Section 44.10, Hydrology and Water Quality, of this EIR, to ensure that the final drainage system design is to the satisfaction of the city and Contra Costa County Flood Control and Water Conservation District. As a result, the Project would not, in combination with other cumulative projects, result in cumulatively considerable impacts with respect to the construction of stormwater drainage facilities. The cumulative impact with respect to the city's stormwater system would be less than significant with mitigation.

Solid Waste

The Keller Canyon Landfill is projected to have sufficient capacity to serve current and future needs until its scheduled closure in 2050. The generation of solid waste from the Project, when combined with other projects developed consistent with the city's General Plan, will not exceed the capacity of this solid waste infrastructure. Thus, the Project's contribution and use of existing landfill capacity would be less than significant.

All handling and disposal of solid waste and recyclable materials associated with cumulative development would occur in compliance with applicable State and local regulations. Similarly, other planned projects would be expected to comply with State and local waste reduction policies. Thus, the Project would not be expected to combine with impacts from past, present, or reasonably foreseeable projects and result in a cumulative impact on area landfills. The cumulative impact with respect to solid waste would be less than significant.

Conclusion

As demonstrated for each utility system above, the Project represents an intensification in density compared to the land use assumptions of the 2014 General Plan EIR for SPA 2. However, with implementation of MMs UTIL-1 through MM UTIL-2 of this section, for each system, the Project's cumulative contribution would be ***less-than-cumulatively-considerable***. For example, MM UTIL-1 requires the Project to construct needed Water Master Plan improvements, as well as a parallel sewer pipe in Balfour Road, at such time the pipe is needed. MM UTIL-2 requires implementation of hydrology mitigation measures, ensuring that sufficient water detention and treatment BMPs are incorporated into the Project.

Mitigation Measures

MM UTIL-3: *Implement MM UTIL-1 and MM UTIL-2.*

5 Alternatives to the Project

5.1 Introduction

The State CEQA Guidelines Section 15126.6 mandates that an EIR include a comparative evaluation of the proposed project with a range of reasonable alternatives to the Project, which would feasibly attain most of the basic objectives of the Project while simultaneously avoiding or substantially lessening any of the significant effects of the Project. Pursuant to Section 15126.6 (f)(1) of the State CEQA Guidelines, “[a]mong 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 (projects with a regionally significant impact should consider the regional context), 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).” Although these factors do not present a strict limit on the scope of reasonable alternatives to be considered, they help establish the context in which “the rule of reason” is measured against when determining an appropriate range of alternatives sufficient to establish and foster meaningful public participation and informed decision-making. (See *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553; *Save Our Residential Environment v. City of West Hollywood* (1992) 9 Cal.App.4th 1745, 1753, fn. 1.)

5.2 Project Objectives

The Project applicant has identified the following project objectives:

- To implement the city’s General Plan Policies by preparing a specific plan for the area designated as SPA 2 to facilitate the comprehensive planning of this area and to ensure both high quality development and integration of development with the provision of infrastructure.
- To implement the city’s General Plan Policies that support and encourage the annexation of SPA 2, prioritizing the placement of SPA 2 within the Brentwood’s planned expansion boundary.
- To develop a residential community of up to 2,400 dwelling units, which would predominantly be restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law (age-restricted).
- To establish a community that provides for the social, recreational, and housing needs of seniors who share common interests and lifestyles that would enable residents to remain in the Brentwood community and continue their involvement in its social fabric over time.
- To provide diverse housing by allowing multi-family units within the Project, provided that they are age-restricted.

- To provide a mixture of residential unit types appropriate to the projected active-adult and non-age restricted housing needs of the City of Brentwood and the greater East Contra Costa region.
- To develop a project of sufficient capacity to allow the developer to commit to extend American Avenue from the current terminus north and west to create a loop road that connects to Balfour Road, even though the Project's impacts do not necessitate the extension. The extension will help to reduce traffic and parking congestion at Heritage High School and Adams Middle School.
- To provide for the widening of Balfour Road from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection.
- To develop a community that would generate substantial funding available for the improvement of the surrounding roadway network, including future safety improvements to Deer Valley Road.
- To create a community with high-quality architectural and landscape design and site planning, resulting in a distinctive identity and strong sense of place.
- To provide opportunity for space for commercial/civic uses that supports both community-based activities and services and supports the agricultural values of the region.
- To promote a long-term financially viable project that provides for the creation of new jobs, recreational opportunities, and expanded housing opportunities.
- To incorporate flexibility for location of land uses to ensure the Project is responsive to site conditions and market trends.
- To retain flexibility to build the Project in phases that respond to market conditions.
- To enhance vehicular, bicycle, and pedestrian circulation and access within the Project site, allowing for future connections to the area surrounding the Project site.
- To maximize the potential for energy conservation through building and landscape designs and orientations which recognize the climatic conditions in the area.
- To provide for and enhance agricultural activities within the Project site that contribute to the protection of the rural character and agricultural economy of East Contra Costa County.
- To integrate the natural and built environments to minimize the disruption of natural features and blend with the site's existing landforms, trees, and drainage courses.
- To locate new employment-generating development within close proximity to the State Route 4/Balfour Road interchange.

CEQA Requirements for Alternatives

“An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.” (CEQA Guidelines Section 15126.6(a))

To comply with this requirement, the City of Brentwood evaluated possible alternatives based on the following factors:

- Does the alternative accomplish the basic project objectives?
- Is the alternative potentially feasible (from economic, environmental, legal, social, and technological standpoints)?
- Does the alternative avoid or substantially lessen any significant effects of the proposed project?
- Is the alternative reasonable and realistic?

Significant and Unavoidable Impacts of the Project

As noted in Sections 4.1 through 4.16 of this EIR, most of the potentially significant impacts identified can be mitigated to a less-than-significant level through implementation of feasible mitigation measures. However, significant and unavoidable impacts related to aesthetics, agricultural resources, air quality, land use and population, noise, and transportation and circulation would occur as a result of implementation of the Project.

5.3 Selection of Alternatives

An EIR must examine a range of alternatives that are “potentially feasible.” (CEQA Guidelines Section 15126.6(a); *City of Long Beach v. Los Angeles Unified School District* (2009) 176 Cal.App.4th 889, 920.) Among the factors that may be taken into account include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or other regulatory limitations, jurisdictional boundaries, and a proponent’s control over alternative sites in determining the range of alternatives to be evaluated in the EIR (CEQA Guidelines Section 15126.6(f)(1)). The potential feasibility of alternatives considers the following factors:

- **Economic Feasibility.** Would the additional cost of the alternative or lost profits that would result from the alternative make it impractical? Alternatives that are capable of eliminating or reducing significant environmental effects even though they may be more costly must be considered (CEQA Guidelines Section 15126.6(b)). However, if the additional costs of implementing an alternative or lost profitability associated with an

alternative are sufficiently severe, then these factors may render the alternative economically infeasible.

- **Legal Feasibility.** Are there legal constraints to implementing the alternative? For example, constructing the proposed project on an alternative site may not be legally feasible if the applicant does not own the site or applicable land use regulations or property restrictions prohibit the proposed project. For example, the proposed project may not be legally permissible in wilderness areas, wilderness study areas, restricted military bases, airports, and Indian reservations or on property that is not zoned to allow such a use. Any potential legal constraints affecting an alternative are identified based on a review of applicable local, State, and Federal laws, regulations, plans, and policies.
- **Social Feasibility.** Would the alternative cause significant damage to the socioeconomic structure of the community and be inconsistent with important community values and needs? Similar to the environmental feasibility addressed below, this subject is primarily considered in regard to significant environmental effects.
- **Technological Feasibility.** Is the alternative feasible from a technological perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome?

No Project Alternative

In addition to studying a reasonable range of alternatives based on the criteria set forth above, CEQA requires the EIR to analyze a “no project” alternative. Consideration of the No Project Alternative is required by Section 15126.6(e) of the CEQA Guidelines. The analysis of the No Project Alternative must discuss the existing conditions at the time the Notice of Preparation was published (April 2, 2019), as well as: “what would be reasonably expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services” (CEQA Guidelines Section 15126.6 (e)(2)). The requirements also specify that: “If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this ‘no project’ consequence should be discussed” (CEQA Guidelines Section 15126.6 (e)(3)(B)).

Alternatives

Based on the purpose of the alternatives analysis as described above, and as prescribed in Section 15126.6 of the State CEQA Guidelines, the following alternatives were selected by the City of Brentwood for evaluation in the EIR:

- Alternative 1: No Project / No Development Alternative
- Alternative 2: Reduced Density (1,195 Residential Units) Alternative
- Alternative 3: Reduced Density (583 Residential Units) Alternative

Table 5-1, Comparison of Alternative Project Impacts to the Project, presents a comparison of the alternative project impacts with those of the proposed project.

Table 5-1: Comparison of Alternatives Project Impacts to the Project

Resource Topic	Proposed Project (Significance of Impact Before Mitigation / After Mitigation)	Alternative 1: No Project / No Development Alternative (Significance of Impact)	Alternative 2: Reduced Density (1,195 Residential Units) Alternative (Significance of Impact)	Alternative 3: Reduced Density (583 Residential Units) Alternative (Significance of Impact)
Aesthetics	S / SU	Reduced Impacts (N)	Similar Impacts (SU)	Reduced Impacts (SU)
Agricultural and Forest Resources	S / SU	Reduced Impacts (N)	Similar Impacts (SU)	Similar Impacts (SU)
Air Quality	S / SU	Reduced Impacts (N)	Reduced Impacts (SU)	Reduced Impacts (LTS)
Biological Resources	S / LTS	Reduced Impacts (N)	Similar Impacts (LTS)	Reduced Impacts (LTS)
Cultural Resources	S / LTS	Reduced Impacts (N)	Greater Impacts (LTS)	Reduced Impacts (LTS)
Energy	S / LTS	Reduced Impacts (N)	Reduced Impacts (LTS)	Reduced Impacts (LTS)
Geology, Soils, and Minerals	S / LTS	Reduced Impacts (N)	Similar Impacts (LTS)	Reduced Impacts (LTS)
Greenhouse Gas Emissions	S / LTS	Reduced Impacts (N)	Similar Impacts (LTS)	Reduced Impacts (LTS)
Hazards, Hazardous Materials, and Wildfire	S / LTS	Reduced Impacts (N)	Similar Impacts (LTS)	Similar Impacts (LTS)
Hydrology and Water Quality	S / LTS	Reduced Impacts (N)	Similar Impacts (LTS)	Reduced Impacts (LTS)
Land Use and Population	S / SU	Reduced Impacts (N)	Similar Impacts (SU)	Reduced Impacts (LTS)
Noise and Vibration	S / SU	Reduced Impacts (N)	Similar Impacts (SU)	Reduced Impacts (LTS)
Public Services and Recreation	LTS / N/A	Reduced Impacts (N)	Reduced Impacts (LTS)	Reduced Impacts (LTS)
Transportation and Circulation	S / SU	Reduced Impacts (N)	Reduced Impacts (SU)	Reduced Impacts (LTS)
Tribal Cultural Resources	S / LTS	Reduced Impacts (N)	Greater Impacts (LTS)	Reduced Impacts (LTS)
Utilities and Service Systems	S / LTS	Reduced Impacts (N)	Reduced Impacts (LTS)	Reduced Impacts (LTS)

N= No impact
 LTS = Less-than-significant impact
 S= Significant impact
SU= Significant and unavoidable impact
 N/A = Not Applicable

Alternative 1: No Project / No Development Alternative

This alternative assumes that the Voter Initiative is not successful and discretionary actions related to the Project are not approved by lead or responsible agencies. Under these circumstances, the site would be managed as it is today, with limited dryland farming and limited agricultural use.

This alternative would fulfill the following proposed project objectives:

- To integrate the natural and built environments to minimize the disruption of natural features and blend with the site's existing landforms, trees, and drainage courses.
- To provide for and enhance agricultural activities within the Project site that contribute to the protection of the rural character and agricultural economy of East Contra Costa County.

However, Alternative 1 would not meet most of the Project objectives. Notably, Alternative 1 would not meet the following Project objectives:

- To implement the city's General Plan Policies by preparing a specific plan for the area designated as SPA 2 to facilitate the comprehensive planning of this area and to ensure both high quality development and integration of development with the provision of infrastructure.
- To implement the city's General Plan Policies that support and encourage the annexation of SPA 2, prioritizing the placement of SPA 2 within the Brentwood's planned expansion boundary.
- To develop a residential community of up to 2,400 dwelling units, which would predominantly be restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law (age-restricted).
- To develop a project of sufficient capacity to allow the developer to commit to extend American Avenue from the current terminus north and west to create a loop road that connects to Balfour Road.
- To establish a community that provides for the social, recreational, and housing needs of seniors who share common interests and lifestyles that would enable residents to remain in the Brentwood community and continue their involvement in its social fabric over time.
- To create a community with high-quality architectural and landscape design and site planning, resulting in a distinctive identity and strong sense of place.
- To provide a mixture of residential unit types appropriate to the projected active-adult and non-age restricted housing needs of the City of Brentwood and the greater East Contra Costa region.

- To provide opportunity for space for commercial/civic uses that supports both community-based activities and services and supports the agricultural values of the region.
- To integrate the natural and built environments to minimize the disruption of natural features and blend with the site's existing landforms, trees, and drainage courses.
- To promote a long-term financially viable project that provides for the creation of new jobs, recreational opportunities, and expanded housing opportunities.
- To maximize the potential for energy conservation through building and landscape designs and orientations which recognize the climatic conditions in the area.
- To locate new employment-generating development within close proximity to the State Route 4/Balfour Road interchange.
- To provide for the widening of Balfour Road from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection.
- To develop a community that would generate substantial funding available for the improvement of the surrounding roadway network, including future safety improvements to Deer Valley Road.

Aesthetic and Visual Resources

As discussed in Section 4.1, the proposed project would have a significant and unavoidable impact related to aesthetic and visual resources.

Under the Alternative 1 scenario, the existing land uses would continue and the aesthetic character of the site would not change. The Project site would remain as undeveloped agricultural land with limited dryland farming and limited agricultural use. The existing viewsheds would remain unchanged. Because Alternative 1 would not involve development of the Project site, no new sources of lighting would be provided. None of the improvements associated with the Project such as on-site landscape and/or open space amenities, American Avenue extension or other improvements would occur under this alternative. Because no change would occur to the Project area, there would be no resulting aesthetic impact from Alternative 1.

Alternative 1 would avoid the significant and unavoidable aesthetic impacts of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Agricultural and Forest Resources

As discussed in Section 4.2, the proposed project would have significant and unavoidable impacts to agricultural lands.

With no development under Alternative 1, the Project site would not convert land currently zoned for agriculture to non-agricultural uses, and limited dryland farming – an agricultural use

– would be assumed to continue. The significant and unavoidable impacts associated with the proposed project’s agricultural conversion would therefore not occur and Alternative 1 would have no agricultural impact.

Alternative 1 would avoid the significant and unavoidable agricultural impact of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Air Quality

As discussed in Section 4.3, the proposed project would result in significant and unavoidable impacts to air quality, despite the implementation of mitigation.

Because there would be no development under this alternative, no construction-related emissions would occur. Alternative 1 would have no construction air quality impacts, and construction air quality impacts would be reduced compared to the Project.

Operation of the proposed project would generate area source and energy source emissions mainly as a result of vehicle trip generation and building operations. Alternative 1 would not include any development, and would not result in any emissions associated with vehicle trip generation and building operations. Alternative 1 would have no operational air quality impacts, and operational air quality impacts would therefore be reduced compared to the Project.

Similar to the proposed project, there would be no emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation or result in a cumulatively considerable net increase of any criteria pollutant for which the region is in nonattainment. No impacts to air quality would occur under Alternative 1.

Alternative 1 would avoid the potentially significant air quality impacts of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Biological Resources

As discussed in Section 4.4, the proposed project would have potentially significant biological impacts that would be mitigated to a less-than-significant level.

Because no development would occur under this alternative, no impacts to biological resources would result. Turf areas, trees, and other vegetation and water features on site that currently could be used for nesting by migratory birds protected under the Migratory Bird Treaty Act (MBTA) would remain because no existing vegetation would be removed. None of the mitigation measures identified for the project would be required for Alternative 1. No biological impacts would occur under Alternative 1.

Alternative 1 would avoid the potentially significant biological impacts of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Cultural Resources

As discussed in Section 4.5, the proposed project would have potentially significant cultural impacts that would be mitigated to a less-than-significant level.

Under Alternative 1, the Project site would remain in its current condition and would therefore avoid potential impacts to cultural resources. No construction or grading activities would occur and the potential to discover and impact previously undisturbed cultural resources, including archaeological, paleontological, and tribal resources, would not occur. No cultural resources impacts would occur under Alternative 1.

Alternative 1 would avoid the potentially significant cultural resources impacts of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Energy Conservation

As discussed in Chapter 4.6, the proposed project would have potentially significant energy impacts that would be mitigated to a less-than-significant level.

Under Alternative 1, there would be no construction activities or associated construction equipment operations. Additionally, Alternative 1 would not involve development of age-restricted housing communities, commercial and recreational uses, or open space land uses. Therefore, there would be no short-term energy uses associated with construction activities or long-term energy consumption of electricity, natural gas, and water associated with operations of the land uses assumed as a part of the proposed project. No energy impacts would occur under Alternative 1.

Alternative 1 would avoid the potentially significant energy impacts of the proposed project and the overall degree of impact would be lessened with this alternative as compared to the Project.

Geology, Soils, and Minerals

As discussed in Section 4.7, the proposed project would have potentially significant geology and soils impacts that would be mitigated to a less-than-significant level.

Under Alternative 1, no development would occur on the Project site. Therefore, the potential to expose additional people or structures to potentially significant adverse effects of seismic ground shaking, ground failure, landslides, expansive soils, or other unstable geologic hazards would not occur. No soil erosion or loss of topsoil would occur since the Project site would remain in its existing condition. No geology and soils impacts would occur under Alternative 1.

Because no development would occur on the Project site under Alternative 1, mineral extraction could continue to occur within the Project site. Therefore, no impacts would occur related to mineral resources under Alternative 1.

Alternative 1 would avoid the potentially significant geology and soils impacts of the proposed project and the overall degree of impact would be lessened with this alternative as compared to the Project.

Greenhouse Gas Emissions

As discussed in Section 4.8, the proposed project would have potentially significant greenhouse gas impacts that would be mitigated to a less-than-significant level.

Under Alternative 1, there would be no construction activities or associated construction equipment operations or development of age-restricted housing communities or open space land uses. Therefore, there would be no short-term greenhouse gas emissions from construction activities. Additionally, there would be no long-term greenhouse gas emissions from vehicles or the consumption of electricity, natural gas, and water associated with operation of the land uses assumed as a part of the proposed project. This alternative would not generate additional greenhouse gas emissions, and no additional greenhouse gas impacts would occur.

Alternative 1 would avoid the potentially significant greenhouse gas impacts of the proposed project and the overall degree of impact would be lessened with this alternative as compared to the Project.

Hazards, Hazardous Materials, and Wildfire

As discussed in Section 4.9, the proposed project would have potentially significant hazards and hazardous materials impacts that would be mitigated to a less-than-significant level.

The Project would involve primarily residential uses and open space, and therefore would not generate or transport substantial amounts of hazardous materials. Under Alternative 1, current open space uses on the Project site would continue. This alternative would not include development and, therefore, no hazards associated with the accidental disturbance of buried oil and natural gas pipelines would occur. Under the no development scenario, no new residential neighborhoods would be exposed to the wildland/urban interface. Under Alternative 1, no hazards and hazardous materials impacts would occur.

Alternative 1 would avoid the potentially significant hazards and hazardous materials impacts of the proposed project and the overall degree of impact would be lessened with this alternative as compared to the Project.

Hydrology and Water Quality

As discussed in Section 4.10, the proposed project would have potentially significant hydrology impacts that would be mitigated to a less-than-significant level.

Alternative 1 assumes no development would occur on the Project site. Because there would be no excavation, grading or addition of impervious surfaces, the existing on-site drainage pattern and runoff quantities and quality would remain the same. As with the proposed project, this alternative would not deplete groundwater supplies. Under Alternative 1, no hydrology impacts would occur.

Alternative 1 would avoid the potentially significant hydrology impacts of the proposed project and the overall degree of impact would be lessened with this alternative as compared to the Project.

Land Use and Population

As discussed in Section 4.11, the proposed project would have a significant and unavoidable impact on land use and population.

Under Alternative 1, the Project site would remain in its present condition. As with the proposed project, this alternative would not physically divide an established community through the introduction of either physical or community barriers. Under this alternative, the proposed housing community would not be developed. Therefore, Alternative 1 would not introduce new sources of population. Alternative 1 would not create any new jobs; involve the development of additional housing; or cause increases in the resident population of the city.

This alternative assumes that the Voter Initiative is not successful and discretionary actions related to the Project are not approved by lead or responsible agency; therefore, the Project site would not be annexed to the City of Brentwood under this alternative. Given this alternative would not entail annexation, the property would continue to be outside of the City of Brentwood Urban Limit Line (ULL) and Sphere of Influence (SOI). The Project area is currently located in unincorporated Contra Costa County and is zoned A-4 Agricultural Preserve District under Title 8 of the county Municipal Code. Under Alternative 1, existing uses would continue consistent with existing county zoning and there would be no land use impact.

Alternative 1 would avoid the land use and population impacts of the proposed project, and the overall degree of impact would be lessened with this alternative as compared to the Project.

Noise and Vibration

As discussed in Section 4.12, the proposed project would have a significant and unavoidable noise impact that would remain significant after implementation of mitigation.

With Alternative 1, there would be no construction activities or associated construction equipment operations or development. Therefore, there would be no construction noise impacts. Alternative 1 would not introduce new sensitive receptors, and would therefore not result in temporary exposure of persons to or generation of noise levels in excess of standards. Likewise, there would be no development under this alternative and, therefore, no new operational noise beyond the existing noise environment. Therefore, Alternative 1 would have no noise impacts.

Alternative 1 would avoid the significant and unavoidable noise impact of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Public Services and Recreation

As discussed in Section 4.13, the proposed project would have less-than-significant public services and recreation impacts.

The public services evaluated in this EIR are fire protection, police protection, schools, libraries, and parks. Because Alternative 1 would not involve new development, there would be no new population on the site and no new associated public services required. No impacts to public services (or construction of related facilities) would occur and no payment of development impact fees would be necessary. Under this alternative, there would be no increase in demand for recreational facilities or services because there would be no increase in the residential population. However, this alternative would not provide for the development of additional open space and other recreational amenities which are included in the project. Because no development would occur on the Project site, there would be no physical impacts associated with construction of recreational and open space facilities. Alternative 1 would result in no impacts to public services and recreation.

Alternative 1 would avoid the less-than-significant public services and recreation impact of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Transportation and Circulation

As discussed in Section 4.14, the proposed project would have significant and unavoidable transportation and circulation impacts that would remain significant after implementation of mitigation.

This alternative would maintain the site in its existing condition and would not generate any new vehicle trips. Comparatively, the proposed project would generate an estimated 14,970 daily trips. Alternative 1 would result in no impacts to transportation and circulation.

Alternative 1 would avoid the significant and unavoidable transportation impact of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Tribal Cultural Resources

As discussed in Section 4.15, the proposed project would have a potentially significant impact on tribal cultural resources that would be mitigated to a less-than-significant level.

Under Alternative 1, the Project site would remain in its current condition. No construction or grading activities would occur. Therefore, the potential to discover and impact previously

undisturbed tribal cultural resources, including sites, features, place, cultural landscape would not occur. Alternative 1 would result in no impacts to tribal cultural resources.

Alternative 1 would avoid the less-than-significant tribal cultural resources impact of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Utilities and Service Systems

As discussed in Section 4.16, the proposed project would have potentially significant utilities and service systems impacts that would be mitigated to a less-than-significant level.

This Draft EIR evaluates potential impacts on the following: wastewater facilities, water supply, stormwater facilities, and solid waste. Because Alternative 1 would not involve the generation of any new residents or associated land uses, there would be no additional demands on these services and the existing infrastructure capacity would be sufficient. Because this alternative would not provide new facilities or infrastructure, there would be no physical impacts associated with the construction and operation of these facilities. Alternative 1 would result in no impacts to utilities and service systems.

Alternative 1 would avoid the less-than-significant utilities and service systems impact of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Alternative 2: Reduced Density (1,195 Residential Units) Alternative

This Alternative assumes that the current Voter Initiative is not successful and the Special Planning Area SPA 2 is planned and developed under the SPA Planning Process as defined in the Brentwood General Plan. Similar to the current Voter Initiative, this alternative assumes that SPA 2 would ultimately be the subject of a Specific Plan adopted by the city, an ULL adjustment, an SOI amendment, annexation into the City of Brentwood and all other discretionary actions necessary to implement development. Entitlements would be granted, and the appropriate boundary reorganization would occur.

Alternative 2 is intended to meet most of the basic project objectives, while also serving to minimize or eliminate one or more potentially significant impact that would occur with implementation of the proposed project.

Under Alternative 2, SPA 2 would be developed assuming approximately 50 percent of the Project site would be Ranchette Estate (RE - 1.0 du/acre) and approximately 50 percent would be Residential Very Low Density (R-VLD 3.0 du/acre). Total dwelling unit count is assumed to be 1,195 non-age-restricted-units. The alternative also assumes 20 acres of local serving General Commercial providing goods and services to the immediate area consistent with the SPA 2 definition. Alternative 2 also includes 200 acres of open space, which is slightly less than the minimum 225 acres proposed for the Project. Despite the reduction in open space area, the 200 acres of open space reflects a “significant area” of open space, also consistent with the SPA

definition in the General Plan. Under Alternative 2, backbone roadway and utility infrastructure improvements would be required similar to the proposed project in order to service the low-density development areas because this alternative would not include any multi-family uses and would therefore cover approximately the same area as the proposed project. Interim improvements to Balfour Road would still be required. Specifically, Alternative 2 would include one lane in each direction with bike lanes on both sides and sidewalks along the north side of Balfour from the existing American Avenue intersection to the project entrance.

Table 5-2 provides a comparison of the development scenarios for the Project and Alternative 2.

	Proposed Project	Alternative 2
Residential Unit Count	2,400	1,195
<i>Age-Restricted Units</i>	<i>1,920</i>	<i>N/A</i>
<i>Non-Age-Restricted Units</i>	<i>480</i>	<i>1,195</i>
Ranchette Estate – 295 acres (1.0 du/ac)	N/A	295 du
Residential Very Low Density – 300 acres (3.0 du/ac)	N/A	900 du
Open Space	225 ac	200 ac
Max. Residential Density (units/gross acre)	3.0	1.5
Commercial/Civic Use (acres)	20	20

Alternative 2 would achieve the following basic project objectives:

- To implement the city’s General Plan Policies by preparing a specific plan for the area designated as SPA 2 to facilitate the comprehensive planning of this area and to ensure both high quality development and integration of development with the provision of infrastructure.
- To implement the city’s General Plan Policies that support and encourage the annexation of SPA 2, prioritizing the placement of SPA 2 within the Brentwood’s planned expansion boundary.
- To create a community with high-quality architectural and landscape design and site planning, resulting in a distinctive identity and strong sense of place.
- To provide opportunity for space for commercial/civic uses that supports both community-based activities and services and supports the agricultural values of the region.
- To integrate the natural and built environments to minimize the disruption of natural features and blend with the site’s existing landforms, trees, and drainage courses.

- To maximize the potential for energy conservation through building and landscape designs and orientations which recognize the climatic conditions in the area.
- To provide for and enhance agricultural activities within the Project site that contribute to the protection of the rural character and agricultural economy of East Contra Costa County.
- To locate new employment-generating development within close proximity to the State Route 4/Balfour Road interchange.

The following project objectives would not be achieved by Alternative 2:

- To develop a residential community of up to 2,400 dwelling units, which would predominantly be restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law (age-restricted).
- To develop a project of sufficient capacity to allow the developer to commit to extend American Avenue from the current terminus north and west to create a loop road that connects to Balfour Road.
- To establish a community that provides for the social, recreational, and housing needs of seniors who share common interests and lifestyles that would enable residents to remain in the Brentwood community and continue their involvement in its social fabric over time.
- To provide a mixture of residential unit types appropriate to the projected active-adult and non-age restricted housing needs of the City of Brentwood and the greater East Contra Costa region.

Aesthetic and Visual Resources

As discussed in Section 4.1, the proposed project would have a significant and unavoidable impact related to aesthetic and visual resources.

The existing local development pattern is characterized primarily by agricultural uses and scattered low intensity residential development, and generally has lower levels of ambient nighttime lighting and daytime glare. With Alternative 2, the visual appearance of the site would change with the introduction of all improvements, creating the feel and appearance of a low-density residential community with a significant open space component. Similar to the Project, this alternative would affect scenic vistas with the introduction of higher density residential housing (than currently exists in the surrounding community) in areas dominated by existing open space. Compared to the proposed project, this alternative would introduce development at a lower density, but in a more sprawling development pattern. This alternative would also not include the vineyard and olive grove components that help enhance the Project's appearance from surrounding viewpoints. Under this alternative, future development plans would be required to go through the city's design review process to ensure that they are complementary with surrounding land uses and that they comply with the city's Zoning Ordinance.

As with the proposed project, Alternative 2 would generate additional sources of light and glare via additional vehicle trips, lighting from residential and commercial uses, security lighting, and street lights. Compared to the proposed project, this alternative would generate 51 percent fewer residential units, no change in commercial area, and no community recreation uses. With this reduction in overall land use intensity, it is reasonable to predict that Alternative 2 would have a lesser degree of impact from additional sources of light and glare. As with the proposed project, mitigation would be required to reduce light and glare impacts to a less-than-significant level.

Although Alternative 2 would have 51 percent fewer housing units and a different physical post-project appearance, the overall project footprint would be similar. Aesthetic and visual impacts would be expected to be similar to the Project and would remain significant and unavoidable.

Agricultural and Forest Resources

As discussed in Section 4.2, the conversion agricultural land to non-agricultural uses was identified as a significant and unavoidable impact of the Project.

Alternative 2 would result in 1,195 residential units and 200 acres of open space, over a development area roughly the same as the Project. It is also assumed that Alternative 2 would not include the introduction of irrigated agriculture within the Project site. Although the residential density would be reduced by 51 percent, this alternative would require similar site coverage and infrastructure improvements and would also result in the conversion of agricultural land. Impacts would remain similar and unavoidable.

Air Quality

As discussed in Section 4.3, the proposed project would result in significant and unavoidable impacts to air quality, despite the implementation of mitigation.

Under Alternative 2, the number of residential units would decrease by approximately 51 percent compared to the proposed project, while commercial use would be the same as the proposed project. Because Alternative 2 would not require 80 percent of the proposed units to be age-restricted, per-unit trip generation rates would be higher than the Project. Thus, while the AM and PM peak hour trips associated with the Project site would decrease with the reduced size of Alternative 2, the decrease would be substantially less than 51 percent.

Reducing trips would result in a reduction of mobile source emissions, which accounts for a substantial portion of the air pollutant emissions associated with the Project. However, because Alternative 2 would include a larger overall development area and would not be required to include age-restricted units, energy use associated with each individual residential home would be increased relative to the project. Thus, while the Alternative may result in fewer area source and energy source emissions, the significant and unavoidable operational air quality impact identified for the proposed project would likely remain under Alternative 2.

Construction-related emissions associated with this alternative would be similar to those of the proposed project, which are anticipated to exceed the Bay Area Air Quality Management District (BAAQMD) thresholds. Mitigation measures identified in Section 4.3 of this Draft EIR would reduce potential impacts associated construction emissions for both Alternative 2 and the proposed project to a less-than-significant level. Sources of odor would not be significant under either scenario.

Alternative 2 and the Project would both result in potentially significant air quality impacts related to construction activity that could be effectively mitigated. With regard to operations, because Alternative 2 would include a reduced number of overall residential units, the Alternative would result in fewer operational emissions relative to the proposed project. Therefore, impacts related to air quality would be less under Alternative 2. However, as noted above, because Alternative 2 would not be required to include age-restricted units, impacts would remain significant and unavoidable.

Biological Resources

As discussed in Section 4.4, the proposed project would have potentially significant biological impacts with respect to habitat and wetlands that would be mitigated to a less-than-significant level.

Implementation of Alternative 2 would also be expected to potentially disturb biological resources that have the potential to occur on the Project site. Although Alternative 2 would have a 51 percent reduction in dwelling units, the overall project footprint and ratio of neighborhoods to open space would be similar to the Project. Like the proposed project, this alternative would be implemented in accordance with the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan's (HCP/NCCP) conditions. Like the proposed project, this alternative would prepare and obtain concurrence from the Corps via confirmation of a Preliminary Jurisdictional Determination (PJD) or Administrative Jurisdictional Determination (AJD), as appropriate, and the applicant under Alternative 3 would obtain appropriate permits from the Corps and RWQCB for any project impacts to seasonal wetlands and other waters (waters of the U.S. and State respectively).

Alternative 2 and the Project would both result in potentially significant biological impacts that could be effectively mitigated. Biological impacts would be similar considering the similarities in open space and levels of disturbance necessary during construction.

Cultural Resources

As discussed in Section 4.5, the proposed project would have potentially significant cultural resource impacts associated with the potential disturbance of previously unidentified resources that would be mitigated to a less-than-significant level.

Both Alternative 2 and the proposed project would include varying levels of ground disturbance within the Project site, and therefore each has the potential to impact previously discovered and undiscovered cultural resources through site preparation (e.g., vegetation removal, grading

and filling), development of utility infrastructure, or subsurface construction associated with any of the proposed elements. As shown in Table 5-2, Alternative 2 would designate 25 fewer acres for open space, which would result in development over a greater portion of the Project site. Development over a greater portion of the Project site would result in a slightly increased potential for impacts related to cultural resources to occur under Alternative 2. Despite the small increase in disturbance area, mitigation measures identified in Section 4.5 of this Draft EIR would reduce potential cultural resources impacts associated with both Alternative 2 and the Project to a less-than-significant level.

Compared to the proposed project, potential impacts and overall degree of impact would be slightly greater with Alternative 2, due to the increased development area.

Energy Conservation

As discussed in Chapter 4.6, the proposed project would have potentially significant energy impacts that would be mitigated to a less-than-significant level.

Under Alternative 2, residential development would decrease by approximately 51 percent compared to the proposed project, while commercial use would be the same as the proposed project. This decrease in intensity would result in decreased short-term energy uses associated with construction activities and long-term energy consumption of electricity, natural gas, and water associated with operations of the land uses assumed under this alternative.

Both Alternative 2 and the Project would result in potentially significant impacts and would require implementation of mitigation measures. However, Alternative 2 would have a slightly lesser degree of impact due to the alternative's reduced intensity and energy consumption.

Geology, Soils, and Minerals

As discussed in Section 4.7, the proposed project would have potentially significant geologic hazard and soils impacts that could be mitigated to a less-than-significant level.

Alternative 2 would reduce the amount of residential on the Project site, which would slightly reduce the amount of people and buildings that would be exposed to potential adverse impacts from seismic events compared to the proposed project. No significant geologic hazards are anticipated to occur on-site, with the exception of potentially expansive soils, which are present in the Project area. As previously discussed in Section 4.7 of this Draft EIR, implementation of feasible mitigation measures would reduce expansive soils potential to a less-than-significant level.

Because Alternative 2 would involve development of residences within the Project site, potential impacts related to mineral resources are anticipated to be similar as compared to the Project.

Compared to the proposed project, the potential impacts of Alternative 2 are similar.

Greenhouse Gas Emissions

As discussed in Section 4.8, the proposed project would have potentially significant impacts related to greenhouse gas emissions that could be mitigated to a less-than-significant level.

Exercising its own discretion as lead agency, for the purposes of this analysis, the City of Brentwood is employing the quantitative threshold of net zero by the year 2045 and the qualitative threshold of consistency with applicable plans designed to reduce GHG emissions. Compared to the Project's estimated GHG emissions of 13,585 MTCO_{2e} per year, considering mitigations, the reduction in project intensity that would occur under Alternative 2 would reduce the overall GHG emissions.

However, in order for the proposed project and Alternative 2 to achieve net zero GHG emissions, Mitigation Measure GHG-7 requires a GHG Reduction Plan to offset the Project-related incremental increase of GHG emissions that exceed the threshold. Mitigation Measure GHG-7 provides the option to construct on-site or fund off-site carbon sequestration projects or purchase of carbon credits to offset Project annual emissions. Involvement in at least one of these actions can be sufficient to offset the Project's GHG emissions. Therefore, implementation of Alternative 2 and the proposed project would both result in GHG emissions that are less than significant.

Compared to the proposed project, the overall degree of impact would be similar with this alternative.

Hazards, Hazardous Materials, and Wildfire

As discussed in Section 4.9, the proposed project would have potentially significant hazards and hazardous materials impacts that could be mitigated to a less-than-significant level.

As previously stated, both Alternative 2 and the proposed project would be developed within a similar project footprint and would be developed with similar land uses, although Alternative 2 would be developed with 51 percent fewer housing units and the same amount of commercial use as the proposed project. Therefore, implementation of both Alternative 2 and the proposed project would be subject to the same existing potential environmental hazards located on-site, including underground natural gas and oil pipelines. Similar to the proposed project, this alternative would not impair or physically interfere with an adopted emergency response or evacuation plan and no revisions to the city's adopted Emergency Operations Plan (EOP) would be required.

It is also anticipated that similar hazardous materials would be utilized during both construction and operation of both alternatives (e.g., household cleaners, paints, pesticides, petroleum, oil, lubricants, thinners, fertilizers, and solvents). As identified in Section 4.9 of this Draft EIR, with the implementation of mitigation measures, impacts associated with hazards and hazardous materials would be less than significant. Compared to the proposed project, the overall degree of impact to hazardous materials would be unchanged with this alternative.

In terms of risk of wildland fire on the urban/open space interface, Alternative 2 would expose fewer residents and homes to risk of wildfire. However, Alternative 2 would not benefit from the areas of irrigated agriculture that are part of the Project, which could serve as a controlled land use buffer to adjacent open space areas. In addition, the Project site consists of rolling hills and valleys, but does not include any steep slopes, which would exacerbate the spread of wildfires. With implementation of mitigation measures identified in Section 4.9, impacts of Alternative 2 and the proposed project associated with wildfire risk would be reduced to a less-than-significant level.

Compared to the proposed project, the overall degree of impact would be similar with this alternative.

Hydrology and Water Quality

As discussed in Section 4.10, the proposed project would have potentially significant hydrology and water quality impacts associated with impervious surface and changes in drainage patterns that could be mitigated to a less-than-significant level.

Alternative 2 would result in development of the Project site at a reduced intensity than that of the proposed project, and the amount of impervious surface would be expected to be less with a large lot rural residential development pattern. However, both Alternative 2 and the proposed project would need to install storm water bioretention areas and new storm drain systems to mitigate for the changes in site drainage, and similar mitigation would be required to reduce potential water quality impacts associated with construction to a level considered less-than-significant consistent with existing permit requirements.

With implementation of the mitigation measures identified in Section 4.10, impacts associated with both Alternative 2 and the proposed project would be less than significant. Compared to the proposed project, drainage and hydrology impacts would be similar with Alternative 2.

Land Use and Population

As discussed in Section 4.11, the proposed project would have a significant and unavoidable impact on land use and population.

Alternative 2 and the proposed project would both comply with the General Plan requirement to prepare a Specific Plan (though under this Alternative, Planned Development Zoning could also be pursued). Discretionary approvals such as subdivision maps, rezoning, or design review would follow the Specific Plan or Planned Development process. Adherence to the city's design guidelines or Specific Plan design guidelines would reduce impacts to a less-than-significant level by ensuring that this alternative is compatible with height, bulk and mass of surrounding single-family residential land uses. Alternative 2 would include 51 percent fewer residential units than the proposed project. The General Plan establishes that SPA 2 should include a significant area of protected open space, and Alternative 2 would allow for 200 acres of protected open space.

Neither the proposed project nor this alternative would physically divide an established community through the introduction of either physical or community barriers. Both the proposed project and Alternative 2 would entail development of new roadways within the Project site to create new connections to existing communities.

Alternative 2 would construct 1,195 residential dwelling units. The remainder of the Project site would allow for 20 acres of commercial use and 200 acres of open space use, as SPA is intended to protect significant areas of open space, hillsides and habitat areas. However, because Alternative 2 would not be age restricted, the Alternative 2 population would only be reduced by only 583 people compared to the Project (3,824 for Alternative 2 and 4,407 for the proposed project), based on the persons per household rate of 3.2 from the General Plan EIR. The General Plan EIR assumed a population growth of 1,877 people for the Project site. Because the estimated population growth associated with implementation of Alternative 2 would continue to exceed the city's anticipated future population for the Project site, Alternative 2 would be considered to result in similar impacts as compared to the proposed project.

Despite the small reduction in the estimated population for the Project site under Alternative 2, compared to the Project, land use and population impacts would be similar and would remain significant and unavoidable.

Noise and Vibration

As discussed in Section 4.12, the proposed project would have a significant and unavoidable noise impact caused by mobile noise sources that would remain significant after implementation of mitigation measures.

Alternative 2 would be expected to result in a shorter construction duration due to the reduction in the intensity of proposed development. However, construction-related activities and methods under this alternative would be similar to those of the Project, thereby resulting in similar short-term impacts related to construction noise.

Operational traffic noise of the proposed project would be significant and unavoidable on Balfour Road between Foothill Drive and John Muir Parkway. Typically, feasible mitigation measures for off-site roadway noise impacts include repairing the roads with rubberized asphalt and/or developing sound walls or attenuation barriers to minimize noise impacts. The Project applicant would pay transportation impact fees (TIF) and property taxes that could be used for such improvements if those improvements were added to the city's Capital Improvement Plan (CIP).

It should be noted that this Project impact is from a 1.5 dBA increase, which is significant for existing noise levels above 65 dBA per General Plan Policy N 1.7. The noise level increase would result in a significant and unavoidable impact in the Near-Term (Opening Year). This impact is consistent with the conclusion in the 2014 General Plan EIR, which also found that traffic noise impacts would be significant and unavoidable.

Alternative 2 would construct approximately 51 percent fewer residential units and the same commercial square footage than the proposed project. However, in the absence of age restricted residential development, the trip generation would be expected to be only slightly lower than the Project as analyzed. For this reason, Alternative 2 could result in a similar significant and unavoidable effect due to traffic noise.

Therefore, Alternative 2 would also result in a significant and unavoidable noise impact from operational traffic. Compared to the proposed project, the overall degree of impact would be similar with this alternative.

Public Services and Recreation

As discussed in Section 4.13, the proposed project would have less-than-significant public services and recreation impacts.

Alternative 2 would include 51 percent fewer residential units and the same amount of commercial space, as compared to the proposed project, thus decreasing the need for public services when compared to the proposed project. Similar to the proposed project, Alternative 2 would involve new development, and would therefore increase the demand for fire protection, police protection, schools, libraries, and parks. However, similar to the proposed project, this alternative would not necessitate the construction of new facilities, except for parks, and would be required to comply with the city's General Plan policies aimed at maintaining service standards for police protection, schools, libraries, and parks, and would be required to pay development fees that support the city's infrastructure needs identified in the city's General Plan. This alternative would not include any community recreation uses.

Alternative 2 would result in a less-than-significant public services and recreation impact, similar to the proposed project, but the overall degree of impact would be lessened with this alternative as compared to the Project.

Transportation and Circulation

As discussed in Section 4.14, the proposed project would have significant and unavoidable transportation and circulation impacts that would remain significant after implementation of mitigation.

Under Alternative 2, construction-related transportation impacts would be slightly less than the Project, because the construction timeline would be shorter due to this alternative's reduced size. Implementation of Alternative 2 would result in a reduction in overall trips generated by operation of the proposed project, as Alternative 2 would reduce the number of residential units by approximately 51 percent. However, operation of Alternative 2 could still exacerbate existing traffic delays and would result in potentially significant impacts.

As identified in Section 4.13 of this Draft EIR, mitigation would be required for those intersections that currently operate at unacceptable LOS and along roadway segments where increased travel times would occur during construction and operation. However, application of

applicable mitigations to Alternative 2 would not reduce the potentially significant impact to less than significant, and the transportation impact under Alternative 2 would remain significant and unavoidable.

Alternative 2 would not avoid the significant and unavoidable transportation impact of the proposed project; however, the overall degree of impact would be lessened with this alternative as compared to the Project.

Tribal Cultural Resources

As discussed in Section 4.15, the proposed project would have a potentially significant impact on tribal cultural resources that would be mitigated to a less-than-significant level.

Although Alternative 2 would include 51 percent fewer residential units and the same amount of commercial space, Alternative 2 would involve a reduction in on-site open space by 25 acres due to an overall increase in the development footprint on the site. As such, under Alternative 2, the Project site would result in greater ground disturbance than the proposed project and would therefore have an increased potential to impact tribal cultural resources.

Following implementation of mitigation, Alternative 2 would result in a less-than-significant tribal cultural resource impact, similar to the proposed project, but the overall degree of impact would be greater with this alternative as compared to the Project.

Utilities and Service Systems

As discussed in Section 4.16, the proposed project would have potentially significant utilities and service systems impacts that would be mitigated to a less-than-significant level.

Alternative 2 would include 51 percent fewer residential units and the same amount of commercial space, as compared to the proposed project, thus decreasing the capacity demands on the city's existing utilities and service systems infrastructure, as compared to the proposed project. However, portions of the city's water supply and sewer systems are in need of expansion and/or upgrades to support future buildout under the city's General Plan and are already programmed.

The development included in Alternative 2 and the proposed project was not entirely accounted for in the General Plan buildout scenario, and the additional development associated with Alternative 2 and the proposed project could cause these systems to become deficient. With implementation of the mitigation measures identified in Section 4.16 of this Draft EIR, impacts associated with water supply, sewer, and wastewater treatment facilities under Alternative 2 and the proposed project would be reduced to a less than-significant level.

Alternative 2 would result in a less-than-significant utilities and service systems impact, similar to the proposed project, but the overall degree of impact would be lessened with this alternative as compared to the Project.

Alternative 3: Reduced Density (583 Residential Units) Alternative

This Alternative assumes that the current Voter Initiative is not successful and SPA 2 is planned and developed at some future time under the SPA Planning Process as defined in the Brentwood General Plan. Similar to the current Voter Initiative, this alternative assumes that SPA 2 would ultimately be the subject of a Specific Plan adopted by the city, ULL adjustment, SOI amendment, annexation to the City of Brentwood and all other discretionary actions necessary to implement development. Entitlements would be granted, and the appropriate boundary reorganization would occur.

Consistent with the land uses anticipated in the General Plan and the density analyzed in the General Plan EIR, Alternative 3 would include the development of 583 single-family residential units, as well as 80,000 sf of commercial development within the Project site. It should be noted that a greater number of single-family residences could be permitted under Alternative 3 if age-restricted units are provided; however, provision of such age-restricted units would not be required. Because Alternative 3 would include development of fewer residential units, a greater proportion of the Project site would remain as undeveloped open space, with a total of 407 acres being designated open space. Under Alternative 3, open space within the Project site would be retained primarily along the western portions of the Project site, adjacent to existing East Bay Regional Parks District (EBRPD) landbank areas to the west of Deer Valley Road. Open space within the Project site would be maintained as grassland, and would not be used for agricultural purposes.

Alternative 3 is intended to meet most of the basic project objectives, while also serving to minimize or eliminate one or more potentially significant impact that would occur with implementation of the proposed project.

Under Alternative 3, backbone roadway and utility infrastructure improvements would be required in order to service the low-density development areas. Per the General Plan EIR, development of the Project site under Alternative 3 would result in 1,877 new residents.

Table 5-3 provides a comparison of the development scenarios for the Project and Alternative 3.

	Proposed Project	Alternative 3
Residential Unit Count	2,400	583
<i>Age-Restricted Units</i>	1,920	0
<i>Non-Age-Restricted Units</i>	480	583
Ranchette Estate – (0.75 du/ac)	N/A	N/A
Residential Very Low Density – 388 acres (1.5 du/ac)	N/A	583 du
Open Space	225 ac	407 ac
Max. Residential Density (units/gross acre)	3.0	0.72
Commercial/Civic Use (acres)	20	20

(Continued on next page)

This alternative would fulfill the following proposed project objectives:

- To implement the city's General Plan Policies by preparing a specific plan for the area designated as SPA 2 to facilitate the comprehensive planning of this area and to ensure both high quality development and integration of development with the provision of infrastructure.
- To implement the city's General Plan Policies that support and encourage the annexation of SPA 2, prioritizing the placement of SPA 2 within the Brentwood's planned expansion boundary.
- To establish a community that provides for the social, recreational, and housing needs of seniors who share common interests and lifestyles that would enable residents to remain in the Brentwood community and continue their involvement in its social fabric over time.
- To create a community with high-quality architectural and landscape design and site planning, resulting in a distinctive identity and strong sense of place.
- To provide opportunity for space for commercial/civic uses that supports both community-based activities and services and supports the agricultural values of the region.
- To integrate the natural and built environments to minimize the disruption of natural features and blend with the site's existing landforms, trees, and drainage courses.
- To maximize the potential for energy conservation through building and landscape designs and orientations which recognize the climatic conditions in the area.
- To locate new employment-generating development within close proximity to the State Route 4/Balfour Road interchange.

However, Alternative 3 would not meet all the Project objectives. Notably, Alternative 3 would not meet the following Project objectives:

- To develop a residential community of up to 2,400 dwelling units, which would predominantly be restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law (age-restricted).
- To develop a project of sufficient capacity to allow the developer to commit to extend American Avenue from the current terminus north and west to create a loop road that connects to Balfour Road.
- To promote a long-term financially viable project that provides for the creation of new jobs, recreational opportunities, and expanded housing opportunities.
- To provide for the widening of Balfour Road from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection.

- To develop a community that would generate substantial funding available for the improvement of the surrounding roadway network, including future safety improvements to Deer Valley Road.
- To provide a mixture of residential unit types appropriate to the projected active-adult and non-age restricted housing needs of the City of Brentwood and the greater East Contra Costa region.
- To provide for and enhance agricultural activities within the Project site that contribute to the protection of the rural character and agricultural economy of East Contra Costa County.

Aesthetic and Visual Resources

As discussed in Section 4.1, the proposed project would have a significant and unavoidable impact related to aesthetic and visual resources.

This alternative could affect scenic vistas with the introduction of low density residential land uses and commercial uses on a Project site that is presently undeveloped, and consists of grasslands and dryland agricultural uses. Compared to the proposed project, this alternative would introduce development at a smaller scale and intensity, with less landform alteration, and would therefore result in lesser impacts to scenic vistas and rural character. Under this alternative, future development plans would be required to go through the city's design review process to ensure that they are complementary with surrounding land uses and that they comply with the city's Zoning Ordinance.

The General Plan EIR concluded that buildout of the Project site under the growth assumptions used in the General Plan EIR would contribute to significant and unavoidable impacts related to scenic resources and visual character. Considering the conclusion of the General Plan EIR, and similar to the proposed project, Alternative 3 would be anticipated to result in significant and unavoidable impacts related to scenic resources and visual character. Nevertheless, because Alternative 3 would develop a reduced area of the Project site, and an additional 182 acres of the site would be preserved as open space, impacts related to scenic resources and visual character would likely be reduced as compared to the Project.

Existing conditions near the fringes of the city Planning Area such, as the SPA 2 site, generally have lower levels of ambient nighttime lighting and daytime glare. As with the proposed project, Alternative 3 would generate additional sources of light and glare via additional vehicle trips, lighting from residential uses, security lighting, and street lights. However, as compared to the proposed project, this alternative would generate fewer vehicle trips and residential units and would therefore have a reduced impact from additional sources of light and glare. If approved, future development under this alternative could introduce light and glare to existing surrounding neighborhoods. As with the proposed project, mitigation would be required to reduce impacts to a less-than-significant level. Mitigation measures identified in Section 4.1 of this Draft EIR would reduce potential impacts associated with aesthetics, as well as new light and glare for both Alternative 3 and the proposed project to a less-than-significant level.

Alternative 3 would have significant and unavoidable aesthetics impacts, similar to the proposed project, but the overall degree of impact would be lessened with this alternative as compared to the Project.

Agricultural and Forest Resources

As discussed in Section 4.2, the proposed project would have significant and unavoidable impacts to agricultural lands.

Although Alternative 3 would result in future development of 1,817 fewer residential units within the Project site, the portions of the site not developed for residential or commercial uses would be retained as non-agricultural open space. Therefore, Alternative 3 would convert areas that are zoned as agricultural lands to non-agricultural uses and, Alternative 3 would result in a significant and unavoidable impact to agricultural lands.

Alternative 3 would not avoid the significant and unavoidable agricultural impact of the proposed project, and the overall degree of impact would be similar with this alternative as compared to the Project.

Air Quality

As discussed in Section 4.3, the proposed project would result in significant and unavoidable impacts to air quality, despite the implementation of mitigation.

Compared to the proposed project, Alternative 3 would reduce the number of residential units by 1,817. The AM and PM peak hour trips associated with the Project site would decrease due to the reduced size of Alternative 3; however, because Alternative 3 would not require the units to be age-restricted, per-unit vehicle trip generation rates would be higher compared to the Project. Reducing the amount of development would also result in fewer operational area source and energy source emissions, and this alternative would result in a general reduction in operational emissions associated with the lower unit count. The reduced unit count would likely be sufficient to reduce operational emissions related to implementation of Alternative 3 to a less-than-significant level, thus eliminating the significant and unavoidable impact identified for the proposed project.

Due to the reduced intensity of Alternative 3, as compared to the Project, construction-related emissions associated with this alternative would be slightly less than those of the proposed project. Construction-related emissions for the proposed project are anticipated to exceed the BAAQMD thresholds; however, mitigation measures identified in Section 4.3 of this Draft EIR would reduce potential impacts associated construction emissions for the proposed project to a less-than-significant level. With implementation of these mitigation measures, air quality emissions of Alternative 3 would also be less than significant.

Alternative 3 would avoid the significant and unavoidable impact related to operational emissions, and the overall degree of impact related to air quality would be reduced as compared to the Project.

Biological Resources

As discussed in Section 4.4, the proposed project would have potentially significant biological impacts that would be mitigated to a less-than-significant level.

Implementation of Alternative 3 could potentially disturb biological resources that have the potential to occur on the Project site. However, the area disturbed under Alternative 3 would be reduced as compared to the Project. Moreover, agricultural activities would not be conducted within the open space areas of the Project site under Alternative 3, increasing the viability of such areas as habitat. Considering that Alternative 3 would result in a reduced disturbance area and would maintain a greater portion of the Project site as open space, Alternative 3 would result in fewer potential impacts related to special-status species impacts during construction, disruption of wildlife movement corridors, and habitat loss. Nevertheless, mitigation measures identified in Section 4.4 of this Draft EIR would continue to be required. With implementation of these mitigation measures, any potential biological impacts of Alternative 3 would also be less than significant. Like the proposed project, this alternative would be implemented in accordance with the HCP/NCCP conditions. Furthermore, similar to the proposed project, this alternative would prepare and obtain concurrence from the Corps via confirmation of a PJD or AJD, as appropriate, and the applicant under Alternative 3 would obtain appropriate permits from the Corps and RWQCB for any project impacts to seasonal wetlands and other waters (waters of the U.S. and State respectively).

Alternative 3 would result in a less-than-significant biological impact, and the overall degree of impacts to biological resources would be reduced as compared to the Project.

Cultural Resources

As discussed in Section 4.5, the proposed project would have potentially significant cultural impacts that would be mitigated to a less-than-significant level.

Both Alternative 3 and the proposed project would include varying levels of ground disturbance within the Project site, and therefore each has the potential to impact previously discovered and undiscovered cultural resources through site preparation (e.g., vegetation removal, grading and filling), development of utility infrastructure, or subsurface construction associated with any of the proposed elements. However, Alternative 3 would include development over a smaller portion of the Project site, and, consequently, would have a reduced potential for disturbing cultural resources. Although the area disturbed during construction activity under Alternative 3 would be reduced, mitigation measures identified in Section 4.5 of this Draft EIR would continue to be required to reduce potential cultural resources impacts associated with both Alternative 3 and the Project to a less-than-significant level.

Alternative 3 would result in a less-than-significant cultural impact, and the overall degree of impact would be reduced with this alternative as compared to the Project.

Energy Conservation

As discussed in Chapter 4.6, the proposed project would potentially significant energy impacts that would be mitigated to a less-than-significant level.

Compared to the proposed project, Alternative 3 would reduce the number of residential units by 1,817 units. This decrease in residential development would result in decreased short-term energy uses associated with construction activities and long-term energy consumption of electricity, natural gas, and water associated with operations of the land uses assumed under this alternative. However, Alternative 3 would still increase energy consumption over existing conditions, and would result in a potentially energy impact for which mitigation would be required.

Alternative 3 would result in a potentially significant energy impact, similar to the proposed project, but the overall degree of impact would be lessened with this alternative as compared to the Project.

Geology, Soils, and Minerals

As discussed in Section 4.7, the proposed project would have potentially significant geology and soils impacts that would be mitigated to a less-than-significant level.

Compared to the proposed project, Alternative 3 would reduce the number of residential units by 1,817 units. This reduction in development would reduce the amount of people and buildings that would be exposed to potential adverse impacts from seismic events compared to the proposed project. No significant geologic hazards are anticipated to occur on-site, with the exception of potentially expansive soils. As previously discussed in Section 4.7 of this Draft EIR, implementation of mitigation measures would reduce the potential impacts of the Project associated with expansive soils to a less-than-significant level.

Although Alternative 3 would involve development over a smaller area of the Project site, because Alternative 3 would include residential development and the remaining open space areas would be maintained as undeveloped grassland, implementation of Alternative 3 would preclude future use of the site for mineral resource extraction, and impacts would be similar as compared to the Project.

Alternative 3 would result in a less-than-significant impact to geology, soils, and minerals, similar to the proposed project, but the overall degree of impact would be lessened with this alternative as compared to the Project.

Greenhouse Gas Emissions

As discussed in Section 4.8, the proposed project would have potentially significant greenhouse gas impacts that would be mitigated to a less-than-significant level.

Exercising its own discretion as lead agency, for the purposes of this analysis, the City of Brentwood is employing the quantitative threshold of net zero by the year 2045 and the

qualitative threshold of consistency with applicable plans designed to reduce GHG emissions. The Project would generate an estimated 13,585 MTCO₂e per year (mitigated). Compared to the proposed project, Alternative 3 would reduce the number of residential units by 1,817 units. The reduction in development intensity that would occur under Alternative 3 would reduce the overall GHG emissions proportionally, during both construction and operations. However, Alternative 3 would generate some greenhouse gas emissions during construction and operations and would therefore have a potentially significant greenhouse gas impact if not mitigated.

Mitigation measures identified in Section 4.8 of this Draft EIR would reduce potential GHG emissions impacts associated with both Alternative 3 and the Project to a less-than-significant level. Among other mitigations, Alternative 3 would assume implementation of Mitigation Measure GHG-7, which requires a GHG Reduction Plan to offset the Project-related incremental increase of GHG emissions, which exceed the city's threshold. Mitigation Measure GHG-7 provides the option to construct on-site or fund off-site carbon sequestration projects or purchase of carbon credits to offset project annual emissions. Involvement in at least one of these actions would be sufficient to offset the Project's GHG emissions. Therefore, implementation of Alternative 3 and the proposed project would result in GHG emissions that are less than significant.

Alternative 3 would result in a less-than-significant GHG impact, similar to the proposed project, but the overall degree of impact would be lessened with this alternative as compared to the Project.

Hazards, Hazardous Materials, and Wildfire

As discussed in Section 4.9, the proposed project would have potentially significant hazards and hazardous materials impacts that would be mitigated to a less-than-significant level.

Both Alternative 3 and the proposed project would be subject to the same existing potential environmental hazards located on-site, including underground natural gas and oil pipelines. Alternative 3 would include development of 1,817 fewer units and involve development over a smaller footprint. Because Alternative 3 would involve development over a smaller portion of the project site, Alternative 3 would have a reduced potential to impact environmental hazards as the proposed project. Similar to the proposed project, this alternative would not impair or physically interfere with an adopted emergency response or evacuation plan and no revisions to the city's adopted EOP would be required.

Similar to the proposed project, it is anticipated that similar hazardous materials would be utilized during both construction and operation of the alternative (e.g., household cleaners, paints, pesticides, petroleum, oil, lubricants, thinners, fertilizers, and solvents). As such, Alternative 3 would result in potentially significant impacts related to hazardous materials if not mitigated.

As identified in Section 4.9 of this Draft EIR, with the implementation of mitigation measures, impacts associated with hazards and hazardous materials used during construction and operation would be less than significant. Alternative 3 would incorporate all appropriate mitigation measures and any potential hazards and hazardous materials impacts would be reduced to a less-than-significant level.

As discussed in Section 4.9, prevailing wind is traveling away from the Project area towards undeveloped areas to the southwest. In the event of a wildfire that may occur in undeveloped adjacent areas to the Project site, wind is more likely to be traveling away from the Project site and thereby, reducing the impact to the Project site from the uncontrolled spread of wildfire. In addition, the Project site consists of rolling hills and valleys, but does not include any steep slopes, which would exacerbate the spread of wildfires. Development under Alternative 3 would be focused on the eastern portions of the Project site, in order to maintain open space on the western portion of the site. The separation of open space from developed portions of the Project site would reduce the mixing of wildlands within developed areas. As such, with consideration of all General Plan Policies, the proposed project would have a less-than-significant wildfire impact. Similarly, Alternative 3 would result in a less-than-significant wildfire impact.

Alternative 3 would result in a less-than-significant hazards, hazardous materials, and wildfire impacts, similar to the proposed project, and the overall degree of impacts would be similar with this alternative as compared to the Project.

Hydrology and Water Quality

As discussed in Section 4.10, the proposed project would have potentially significant hydrology and water quality impacts that would be mitigated to a less-than-significant level.

Alternative 3 would result in development of the Project site at a reduced scale and intensity than that of the proposed project. While this alternative would involve a 1,817 reduction in residential units, as compared to the proposed project. The reduction in residential units would allow for a reduction in the disturbance footprint for this alternative. Considering that fewer units would be developed within the Project site over a smaller development footprint, Alternative 3 would be anticipated to result in the creation of less impervious surfaces within the Project site, and impacts related to increased runoff would be reduced under Alternative 3 as compared to the Project.

Despite the anticipated reduction in total impervious areas within the site under Alternative 3, both Alternative 3 and the proposed project would result in an increase of impervious surface area on-site, as compared to existing conditions, and would have potentially significant hydrology and water quality impacts. Both Alternative 3 and the proposed project would require implementation of mitigation measures included in Section 4.10 to reduce impacts to a less-than-significant level. The mitigation measures included in Section 4.10 require that future development be designed in compliance with the standards in the East Contra Costa County MS4 Permit, and that a final Water Quality Management Plan be submitted to the City

Engineer. With implementation of the mitigation measures identified in Section 4.10, impacts associated with both Alternative 3 and the proposed project would be less than significant.

Alternative 3 would result in a less-than-significant hydrology and water quality impacts, similar to the proposed project, but, because Alternative 3 would involve development of a smaller area within the site, the overall degree of impacts would be reduced with this alternative as compared to the Project.

Land Use and Population

As discussed in Section 4.11, the proposed project would have a significant and unavoidable impact on land use and population.

Alternative 3 and the proposed project would both comply with the General Plan requirement to prepare a Specific Plan (though under this Alternative, Planned Development Zoning could also be pursued). Discretionary approvals such as subdivision maps, rezoning, or design review would follow the Specific Plan or Planned Development process. Adherence to the city's design guidelines or Specific Plan design guidelines would reduce impacts to a less-than-significant level by ensuring that this alternative is compatible with height, bulk and mass of surrounding single-family residential land uses. Alternative 3 would include 1,817 fewer residential units than the proposed project. The General Plan establishes that SPA 2 should include a significant area of protected open space, and Alternative 3 would allow for 407 acres of protected open space.

Neither the proposed project nor this alternative would physically divide an established community through the introduction of either physical or community barriers. Both the proposed project and Alternative 3 would entail development of new roadways within the Project site to create new connections to existing communities.

Alternative 3 would construct 583 residential dwelling units. The remainder of the Project site would allow for 20 acres of commercial use and 407 acres of open space use, as SPA is intended to protect significant areas of open space, hillsides and habitat areas. Development of Alternative 3 is anticipated to support 1,877 residents, which is consistent with the population estimate for the site analyzed in the General Plan EIR. Considering that development of Alternative 3 would be consistent with the growth estimates analyzed in the General Plan EIR, Alternative 3 would not be considered a substantial increase in population beyond the growth that has been previously anticipated for the Project site. Consequently, Alternative 3 would not result in the significant and unavoidable impacts related to land use and population as are anticipated for the proposed project, and, overall, impacts would be reduced under Alternative 3.

Noise and Vibration

As discussed in Section 4.12, the proposed project would have a significant and unavoidable noise impact that would remain significant after implementation of mitigation.

Alternative 3 would result in a shorter construction duration due to the reduction in the number of proposed structures. However, construction-related activities and methods under this alternative would be similar to those of the Project, thereby resulting in similar short-term impacts related to construction noise. Both Alternative 3 and the proposed project would have less-than-significant construction noise impacts, although Alternative 3 would lessen the degree of this impact, due to the reduction in the total number of residential units being constructed on site.

Operational traffic noise of the proposed project would be significant and unavoidable on Balfour Road between Foothill Drive and John Muir Parkway due to a 1.5 dBA noise increase. The Project applicant would pay TIF and property taxes that could be used for necessary noise-reducing improvements if those improvements were added to the city's CIP. However, even with implementation of the mitigation measures identified in Section 4.12, the Project's operational noise impact would remain significant and unavoidable.

Alternative 3 would include 1,817 fewer residential units than the proposed project, and would therefore result in proportionally less operational traffic and associated noise. Such a reduction in development would minimize the operational traffic noise on Balfour Road between Foothill Drive and John Muir Parkway by at least 0.3 dBA, which would ensure operational noise in this location would not exceed the General Plan Policy N 1.7 threshold. As such, Alternative 3 would have less-than-significant operational noise impacts and would not require mitigation. Additionally, because buildout of the Project site under Alternative 3 has been previously analyzed under the General Plan EIR, noise related impacts of Alternative 3 have been previously analyzed in the General Plan EIR, and Alternative 3 would not result in any impacts not previously anticipated in the General Plan EIR.

Alternative 3 would avoid the significant and unavoidable noise impact of the proposed project; therefore, the overall degree of impact would be lessened with this alternative as compared to the Project.

Public Services and Recreation

As discussed in Section 4.13, the proposed project would have less-than-significant public services and recreation impacts.

Alternative 3 would include 1,817 fewer residential units than the proposed project, thus decreasing the need for public services compared to the proposed project. Similar to the proposed project, Alternative 3 would involve new development, and would therefore increase the demand for fire protection, police protection, schools, libraries, and parks. However, similar to the proposed project, this alternative would not necessitate the construction of new facilities, except for parks, would be required to comply with the city's General Plan policies aimed at maintaining service standards for police protection, schools, libraries, and parks, and would be required to pay development fees that support the city's infrastructure needs identified in the city's General Plan. New parks would be constructed as part of Alternative 3, per General Plan Policy CSF 2-3. Impacts on these services would be less-than-significant for

both the proposed project and Alternative 3. Additionally, buildout of the Project site under Alternative 3 has been previously analyzed under the General Plan EIR; thus, any additional public services and recreational facilities needed to serve the Project site would have been anticipated in the General Plan EIR, and potential impacts of such facilities analyzed therein.

Alternative 3 would result in a less-than-significant public services and recreation impact, similar to the proposed project, but the overall degree of impact would be lessened with this alternative as compared to the Project.

Transportation and Circulation

As discussed in Section 4.14, the proposed project would have significant and unavoidable transportation and circulation impacts that would remain significant after implementation of mitigation.

Under Alternative 3, construction-related transportation impacts would be slightly less than the Project, because the construction timeline would be shorter due to this alternative's reduced size. Implementation of Alternative 3 has been previously anticipated by the General Plan EIR, and potential impacts related to Transportation and Circulation have been analyzed therein. According to the General Plan EIR, with implementation of the policies and actions contained in the General Plan, buildout of the city's General Plan, including the Project site under Alternative 3, would result in less-than-significant impacts related to transportation and circulation. Consequently, while Alternative 3 would result in increased vehicle trips in the Project area, such trips have been previously anticipated by the General Plan EIR, and Alternative 3 would not result in any significant impacts related to Transportation and Circulation.

Considering the above, Alternative 3 would avoid the significant and unavoidable transportation impacts of the proposed project, and would result in reduced impacts compared to the Project.

Tribal Cultural Resources

As discussed in Section 4.15, the proposed project would have a potentially significant impact on tribal cultural resources that would be mitigated to a less-than-significant level.

This alternative would include development of 1,817 fewer residential units, as compared to the proposed project, and the disturbance footprint for this alternative would be 182 acres smaller than that of the proposed project. Considering that Alternative 3 would include development and disturbance of a reduced portion of the Project site, Alternative 3 would result in a reduction of potential impacts related to tribal cultural resources as compared to the proposed project. Nevertheless, mitigation would continue to be required to reduce such potential impacts to a less-than-significant level.

Utilities and Service Systems

As discussed in Section 4.16, the proposed project would have potentially significant utilities and service systems impacts that would be mitigated to a less-than-significant level.

Alternative 3 would include 1,817 fewer residential units than the proposed Project, thus decreasing the capacity demands on the city's existing utilities and service systems infrastructure, as compared to the proposed project. However, portions of the city's water supply and sewer systems are in need of expansion and/or upgrades to support future buildout under the city's General Plan and are already programmed.

Unlike the proposed project, the development included in Alternative 3 was entirely accounted for in the General Plan buildout scenario. Nevertheless, buildout of Alternative 3 is anticipated to require some improvements to the city's utility infrastructure. Although such improvements have been previously anticipated for the Project area, mitigation, similar to that imposed on the proposed project by this EIR, would likely continue to be necessary to reduce potential impacts related to utilities to a less-than-significant level. With implementation of the mitigation measures identified in Section 4.16 of this Draft EIR, impacts associated with water supply, sewer, and wastewater treatment facilities under Alternative 3 and the proposed project would be reduced to a less than-significant level.

Alternative 3 would result in a less-than-significant utilities and service systems impact, similar to the proposed project, but the overall degree of impact would be lessened with this alternative as compared to the Project.

Potential to Eliminate Significant Environmental Effects

A key CEQA requirement for an alternative is that it must have the potential to "avoid or substantially lessen any of the significant effects of the project" (CEQA Guidelines Section 15126.6(a)). If an alternative is identified that clearly does not have the potential to provide an overall environmental advantage as compared to the proposed project, it is usually eliminated from further consideration. The environmental effects of the proposed project for significant and unavoidable impacts and significant impacts that can be mitigated are summarized in the Executive Summary, Impact Summary Table. The alternatives considered above were determined to have the potential to avoid or substantially lessen significant effects of the project. Specifically, alternatives were considered that could avoid or lessen the significant and unavoidable noise impact of the proposed project. The following section discusses alternatives that were preliminarily considered, but ultimately rejected from further consideration.

Alternatives Considered but Rejected

An off-site alternative was considered but has been rejected from consideration for the following reasons:

- Purchase of another (alternative) site for the purpose of developing an age-restricted housing community would be infeasible as there are no other available sites in the Planning Area that could support the Project.

The Project Applicant considered the following conceptual design alternatives prior to advancing the proposal through the Voter Initiative process.

Alternative A – No Age-Restricted Housing

Alternative A considered utilizing the Project site to develop single-family, market-rate, non-age-restricted housing. Under this alternative, the Project site would develop single-family housing, similar in size and scale to the existing homes in neighboring communities. Under this alternative, approximately 2,000 new single-family homes at a density of approximately 3 dwelling units per acre were considered. Preliminary review of this alternative demonstrated that the resulting development would have generated substantial traffic impacts throughout the planning area and surrounding roadway network since daily traffic peak times would be higher than the proposed project, which includes 80 percent age-restricted housing. This early conceptual alternative would have led to the loss of the existing open space and agricultural land a potentially greater impact to public view corridors. Unlike the proposed project, Alternative A would have also resulted in potentially significant impacts to the local schools, libraries, and parks due to the increased number of families with school age children. Because traffic, open space, agricultural land, aesthetics, and public facilities impacts were considered to be of greater magnitude than those that would have been realized under the proposed project, and because this alternative failed to meet most of the basic Project objectives as outlined above, this preliminary alternative was rejected from further consideration.

Alternative B – Development Under the Contra Costa County General Plan and Zoning Code Alternative

This alternative assumed that the Voter Initiative was not successful and/or the Project was not approved by the lead or responsible land use agencies. No entitlements would be granted, and no boundary reorganization would occur. This alternative was similar to the No Project alternative, but instead of no development, the primary assumption was that the approximately 815 acres would have been developed under the maximum intensity allowed by the county General Plan and Municipal Code.

The county General Plan designation for the Project area is Agricultural Lands (AL). The purpose of the AL designation is to preserve and protect lands capable of and generally used for the production of food, fiber, and plant materials. The title is intended to be descriptive of the extensive agricultural uses that take place in these areas, but the land use title or description shall not be used to exclude or limit other types of agricultural, open space, or non-urban uses such as landfills. The maximum allowable density in this designation is 1 dwelling unit per 5 acres.

Uses that are allowed in the Agricultural Lands designation include all land dependent and non-land dependent agricultural production and related activities. In addition, the following uses may be allowed by issuance of a land use permit, which shall include conditions of approval that mitigate the impacts of the use upon nearby agricultural operations through establishment of buffer areas and other techniques:

- Facilities for processing agricultural products produced in the county, such as dairies, rendering plants, and feed mills;

- Commercial agricultural support services which are ancillary to the agricultural use of a parcel, such as veterinarians, feed stores, and equipment repair and welding; and
- Small-scale visitor serving uses including small tasting rooms, stands for the sale of products grown or processed on the property, guest or dude ranches, horse training and boarding ranches, improved campgrounds, and bed and breakfast inns of five or fewer bedrooms which are on lots of 20 acres or more, extensive recreational facilities, and private retreats.

The Project area is currently located in unincorporated Contra Costa County and is zoned A-4 Agricultural Preserve District under Title 8 of the County Code. The A-4 Agricultural Preserve District zoning allows a density of one unit per 40 acres as a conditional land use. Other conditional and allowable land uses include farmworker housing, various forms of agriculture (wineries, livestock, dairy, apiaries, general farming, farm markets and similar). Under County zoning, this alternative assumed a maximum of 20 residential lots with single family homes and associated infrastructure, as well as continued agriculture use. This alternative assumed no commercial uses.

Preliminary review of this alternative determined that this alternative would have similar impacts to Alternative 1, No Project Alternative, but it would not meet the primary Project objectives and would not be economically feasible. Accordingly, the alternative was rejected from further consideration.

Environmentally Superior Alternative

CEQA Guidelines Section 15126(e)(2) requires that the environmentally superior alternative be identified. If the environmentally superior alternative is the No Project Alternative, the EIR shall identify an environmentally superior alternative among the development alternatives.

In comparison to the alternatives analyzed, the No Project Alternative would be the environmentally superior alternative because it would eliminate all of the project's significant and unavoidable impacts, would require no mitigation, and would reduce all of the project's significant impacts. However, in accordance with CEQA Guidelines Section 15126(e)(2), Alternative 3 was identified as the environmentally superior alternative among the development alternatives.

As summarized in Table 5-1, Alternative 3 reduces several impacts due to the reduced development intensity and increased amount of on-site open space associated with this alternative, which accounts for a reduction in aesthetics, air quality, biological resources, cultural resources, energy, geology, soils, and minerals, GHG, hydrology and water quality, land use and population, noise, public services and recreation, traffic, tribal cultural resources, and utilities and public services impacts. Notably, Alternative 3 would avoid the significant and unavoidable Project impacts related to air quality, land use and population, noise, and transportation and circulation.

While Alternative 3 meets many of the overall Project objectives identified in Chapter 3 of this Draft EIR, this alternative would not meet the following project objectives:

- To develop a residential community of up to 2,400 dwelling units, which would predominantly be restricted to seniors age 55 and over and qualified permanent residents living with those seniors, as permitted by State law (age-restricted).
- To develop a project of sufficient capacity to allow the developer to commit to extend American Avenue from the current terminus north and west to create a loop road that connects to Balfour Road.
- To promote a long-term financially viable project that provides for the creation of new jobs, recreational opportunities, and expanded housing opportunities.
- To provide for the widening of Balfour Road from two to four lanes from the existing eastern American Avenue intersection west to the new western American Avenue intersection.
- To develop a community that would generate substantial funding available for the improvement of the surrounding roadway network, including future safety improvements to Deer Valley Road.
- To provide a mixture of residential unit types appropriate to the projected active-adult and non-age restricted housing needs of the City of Brentwood and the greater East Contra Costa region.
- To provide for and enhance agricultural activities within the Project site that contribute to the protection of the rural character and agricultural economy of East Contra Costa County.

6 Other CEQA Required Topics

The California Environmental Quality Act (CEQA) Guidelines Section 15126 requires an Environmental Impact Report (EIR) to describe the broader effects of a project in relationship to the surrounding environment, in addition to detailed technical analysis of a project's impacts on the environment. The topics covered in this chapter address this requirement and discuss mandatory findings of significance regarding cumulative impacts pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15065(a), significant and unavoidable project impacts, growth inducement associated with the proposed project pursuant to CEQA Guidelines Section 15126.2, and significant irreversible changes associated with the proposed project.

6.1 Growth-Inducing Effects

Section 15126.2(e) of the State CEQA Guidelines requires that an EIR discuss the 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. Typical growth inducing factors might involve construction of new housing. A project can have indirect growth-inducement potential if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand.

Section 15126.2(e) also states that the lead agency is not to assume that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. However, it should be noted that growth beyond planned levels or rates or exceeding population projections can be detrimental if it is not supported by adequate public services. Should a proposed project induce growth beyond planned levels or rates or exceed reliable population projections, it could indirectly cause additional adverse impacts on the environment and public services beyond those identified, mitigated, or acknowledged in local planning documents. This growth inducement analysis evaluates the consistency of the growth caused or induced by the Project as compared to the growth envisioned for Brentwood in the city's General Plan and certified 2014 General Plan EIR.

Typically, growth-inducing impacts result from the provision of urban services and the extension of infrastructure (including roadways, sewers, or water service) into an undeveloped area. Growth-inducing impacts can also result from substantial population increase, if the added population may impose new burdens on existing community service facilities, such as increasing the demand for service and utilities infrastructure and creating the need to expand or extend services, which may induce further growth.

Growth Assumed Under General Plan

As previously noted, the Project site is located in an area designated by the City of Brentwood General Plan as Special Planning Area 2 (SPA 2). Within SPA 2, the Land Use Element potentially allows for an increase in the overall residential density in order to accommodate the development of age-restricted housing units. In addition to residential uses, the General Plan envisions limited areas of local-serving General Commercial in the buildout scenario for SPA 2. The 2014 General Plan EIR evaluated a total combined buildout growth within the city limits and the Planning Area that could yield up to 13,614 new housing units, 12,891,067 square feet of new non-residential uses, and new population growth of up to 39,058 persons.

According to the “Planning Area Buildout” analysis contained in the General Plan EIR, a total of 583 dwelling units were assumed for SPA 2 (see Table 2.0-2: “City Limits and Planning Area Population Potential” of the General Plan EIR). Based on Table 2.0-2 of the city’s General Plan EIR, the General Plan EIR anticipated an approximate population for SPA 2 of around 1,877 persons.

Growth Associated with Project

Implementation of the Project would require General Plan amendments (included within the voter Initiative) to modify the Urban Limit Line (ULL) and make conforming text amendments to the General Plan, including modifying the designation of the Project site to SPA 2 / VDCSP, as well as to make amendments to various General Plan maps and figures to be consistent with the ULL modification and conforming General Plan text amendments, adoption of the Specific Plan, and pre-zoning (refer to Chapter 3, Project Description, for further detail). The Initiative would amend the General Plan so that residential uses within the Project site may include a mix of residential densities, provided that the overall density of the Project site does not exceed three dwelling units per gross acre, for a total of no more than 2,400 residential units. Development within the Project site would also include community recreation and open space uses, and commercial/civic uses.

Generally, the Project could be considered consistent with the city’s growth management strategy, as follows. General Plan Policy LU 1.9 supports and encourages the annexation of SPA 2 into the city, and Action LU 1e, prioritizes placement of SPA 2 within Brentwood’s planned expansion boundary. Implementation of the Project would provide, improve and maintain public facilities and infrastructure by extending infrastructure to serve the area identified in the General Plan as an area suitable for future growth. Implementation of the Specific Plan is anticipated to be developed in phases over time. Specific requirements regarding timing and sizing of infrastructure will be determined by the city during subdivision map approval and as needed to serve each phase of development.

Notwithstanding the above, the amount of proposed growth on the Project site is greater than that which was evaluated for SPA 2 in the General Plan EIR. Of the 2,400 residential units, at least 80 percent (1,920 units) would be active-adult age restricted, and no more than 20 percent (480 units) would be non-age restricted. The Project would add a maximum residential

population estimated at approximately 4,407 persons.¹ This residential population estimate is based on the proposed number of residential units multiplied by an estimated average household size for the Project, which is 1.5 persons per household for a senior project and 3.18 persons per household for non-age restricted housing.² As shown in Table 2.0-2 of the city's 2014 General Plan EIR, the city's population growth estimates are based largely on residential land uses. Approximately 1.46 percent of the projected increase in the population of the city and Planning Area at buildout of the General Plan is attributed to only general commercial uses. Based on the population increase assumed for general commercial uses in the General Plan EIR, the commercial uses in the Project site could contribute an additional 30 persons. Thus, the commercial component of the Project is not expected to generate a notable increase in population. The total (residential and commercial) population associated with the proposed project is estimated to be 4,437 persons.

The proposed project population estimate of 4,437 would appear to be a 138 percent increase over the population estimate generally assumed as a baseline for SPA 2 in the General Plan EIR. However, the General Plan description for SPA 2 specifically provides that, "An increase in the overall residential density within SPA 2 may be allowed in order to accommodate the development of age-restricted housing units." Thus, while no quantitative buildout assumptions were made in the General Plan or the General Plan EIR with regard to age-restricted housing, the policy statement in the General Plan does acknowledge the possibility of additional density associated with age-restricted housing. Here, eighty (80) percent of the proposed Project would be age-restricted; thus, at least some proposed increase in population attributable to the Project's age-restricted units was contemplated in the General Plan. Though the technical analysis performed in the GP EIR was based on 583 units for SPA 2, per Table 2.0-2, and thus yielded a smaller population estimate of 1,877 persons, the SPA 2 land use designation does explicitly anticipate the possibility of additional development to accommodate age-restricted housing. Such additional age-restricted housing development would require environmental analysis beyond that which was completed for the 2014 General Plan update. This Environmental Impact Report provides that further analysis; to the extent the effects of population growth translate to additional burdens on infrastructure systems (including transportation, water, sewer, public services, and so forth), these matters have been evaluated throughout the technical sections of this EIR. As a result of these factors, the proposed project is conservatively deemed to have a significant impact related to inducing substantial unplanned population growth in an area.

To better accommodate access to the Specific Plan area and improve safety in the western part of the city, the Project would include the construction of two significant off-site roadway improvements. These include the completion of American Avenue consisting of its extension west and north to Balfour Road and the improvement of certain portions of Balfour Road from

¹ The Initiative includes proposed language to modify the General Plan thereby limiting the average gross density across the area covered by the VDCSP to up to three dwelling units per acre. The multi-family residences would be age restricted and in no event would the maximum number of age restricted multi-family exceed 20 percent of the total 2,400 units.

² West-Yost Associates. 2019. *Vineyards at Deer Creek Water Supply Assessment (Draft)*. April 2019.

its existing intersection with American Avenue to Deer Valley Road. The extension of American Avenue and widening of Balfour Road are contemplated in the General Plan and thus would not extend services beyond those contemplated in the General Plan or the 2014 General Plan EIR.

In conclusion, implementation of the proposed project would generate additional unplanned population growth that would be considered growth-inducing.

6.2 Cumulative Impacts

An EIR is required to examine cumulative impacts. California Code of Regulations Section 15130(a)(1), defines a cumulative impact as consisting “of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.” The analysis of cumulative impacts need not provide the same level of detail as that for project-specific impacts, but it shall “reflect the severity of the impacts and their likelihood of occurrence” (California Code of Regulations Section 15130(b)).

CEQA Guidelines Section 15065 states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has potential environmental effects that are individually limited but cumulatively considerable. As defined in CEQA Guidelines Section 15065(a)(3), cumulatively considerable means “that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”

The cumulative impacts analysis in an EIR must analyze either a list of past, present, and probable future projects or a summary of projections contained in an adopted general plan or related planning document. The analysis of cumulative impacts for the proposed project included consideration of general growth trends as described in the City of Antioch General Plan and the City of Brentwood General Plan, as well as a list of reasonably foreseeable future projects; the list of reasonably foreseeable future projects is provided in Section 4.14, Transportation & Circulation. Cumulative impacts related to each environmental topic are discussed in Section 4.1 through Section 4.16.

As described in Section 4.1 through Section 4.16, either there would be no cumulative impacts, cumulative impacts would be less than significant, or the project would have a less than cumulatively considerable contribution (either with or without mitigation) to significant cumulative impacts in the areas of biological resources; cultural resources; energy conservation; geology, soils, and minerals; greenhouse gas emissions; hazards, hazardous materials, and wildfire; hydrology and water quality; noise and vibration; public services and recreation; tribal cultural resources; and utilities and service systems. However, Sections 4.1, 4.2, 4.3, 4.11, 4.12, and 4.14 did identify significant and unavoidable cumulative impacts related to aesthetics and visual resources; agricultural and forest resources; air quality; land use and population; noise and vibration; and transportation and circulation, respectively, to which the project’s contribution would be cumulatively considerable, as detailed below.

6.3 Significant Irreversible Effects

Section 15126.2(c) of the State CEQA Guidelines requires an EIR to discuss the significant irreversible environmental changes that would result from implementation of a proposed project. Examples include: primary or secondary impacts of the project that would generally commit future generations to similar uses (e.g., highway improvements that would provide access to a previously inaccessible area); uses of nonrenewable resources during the initial and continued phases of the project (because a large commitment of such resources make removal or nonuse thereafter unlikely); and/or irreversible damage that could result from any potential environmental accidents associated with the project.

Changes in Land Use Which Commit Future Generations

Implementation of the proposed project would result in the conversion of approximately 815 acres of undeveloped land to residential, commercial/civic, recreational, and agricultural/parks and open space use. Currently this land is used for agricultural purposes including dryland grass farming and limited seasonal cattle grazing. Development of the proposed project would constitute a long-term commitment to these uses, as it is unlikely that circumstances would arise that would justify the return of the land to its original or prior condition.

This Project would directly impact and convert approximately 590 acres of non-prime farmland with buildout of the Project. The Project would partially mitigate the loss of local agricultural resources by incorporating a minimum of 225 acres of open area, a portion of which would be used for irrigated agriculture. As noted in Chapter 3, Project Description, the planned agricultural program that would be incorporated within the open space area would create farmland and establish permanent agricultural areas in Brentwood for agricultural use. The Project would be consistent with the city's General Plan Policies and Actions, specifically Policy COS 2-3, which supports and encourages programs that create or establish permanent agricultural areas in Brentwood. As noted in Section 4.2, Agricultural and Forest Resources, the Project would be subject to the Brentwood Agricultural Preservation Program. Compliance with this requirement, in combination with the enhancement of on-site agriculture, would partially mitigate the Project-specific impacts. Nonetheless, this impact is significant and unavoidable.

Consumption of Non-Renewable Resources

The EIR is required to consider whether "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 non-use thereafter unlikely" (CEQA Guidelines Section 15126.2(d)). "Nonrenewable resource" refers to the physical features of the natural environment, such as land, waterways, etc. This may include current or future uses of non-renewable resources and secondary or growth-inducing impacts that commit future generations to similar uses. According to the CEQA Guidelines, irretrievable commitments of resources should be evaluated to ensure that such current consumption is justified.

A variety of resources, including land, energy, water, construction materials, and human resources would be irretrievably committed for the Project's initial construction, infrastructure installation, and connection to existing utilities and its continued maintenance. Construction of the proposed project would require the commitment of a variety of other non-renewable or slowly renewable natural resources such as lumber and other forest products, sand and gravel, asphalt, petrochemicals, and metals.

Additionally, a variety of resources would be committed to the ongoing maintenance and life of the proposed project. An increase in the intensity of land use of the Project site would result in an increase in area traffic over existing conditions. Fossil fuels are the principal source of energy and the Project would increase consumption of available supplies, including gasoline. These energy resource demands relate to initial project construction, project operation, and on-going maintenance, as well as the transport of people and goods to and from the Project site. Site-specific mitigation measures, as identified in Section 4.3, Air Quality, Section 4.6, Energy Conservation, Section 4.8, Greenhouse Gas Emissions, and Section 4.14, Transportation & Circulation, have been identified that require the Project to reduce or avoid consumption of non-renewable resources.

Irreversible Damage from Environmental Accidents

The proposed project does not propose any land uses which could generate hazardous emissions or that would involve the handling of hazardous materials, substances, or waste in significant quantities that would have an impact to surrounding uses. The types of hazardous materials that would be routinely handled (e.g., household cleaners, paints, pesticides, petroleum, oil, lubricants, thinners, fertilizers, solvents, aerosols, corrosives, fuels, and heating oils) are similar to those that typically occur in residential and commercial land uses. Accidental spills of fuel, paints, or other construction-related materials might occur during construction. However, these types of accidents would be limited because site development would be implemented and overseen by experienced construction workers. Such potential spills would not result in irreversible environmental changes. The proposed project may include storage of hazardous materials, such as cleaning products and other products, which would not be regarded as sufficient to create a significant hazard to the public. All hazardous materials would be subject to existing State and local storage, handling, and disposal regulations that limit the potential exposure to workers and the public. Although not anticipated, if a facility is proposed that has a threshold quantity of a regulated substance greater than as specified by the applicable health and safety code, then the facility would be required to prepare and implement a Hazardous Materials Risk Management Plan (RMP) for that facility. All uses and facilities, including commercial uses, are required to comply with all applicable Federal, State, and regional regulations regarding hazardous material generation and usage on the site. Specific regulations are discussed in Section 4.9, Hazards, Hazardous Materials, and Wildfire. To minimize potential impacts associated with the accidental release of hazardous materials (known or unknown) into the environment during construction, MM HAZ-1 through MM HAZ-7 described in Section 4.9, Hazards, Hazardous Materials, and Wildfire would be implemented. With implementation of these mitigation measures, impacts associated with the accidental

release of hazardous materials or pipeline releases would be reduced to a less-than-significant level.

6.4 Significant and Unavoidable Impacts

Section 15162(b) of the CEQA Guidelines requires an EIR to discuss the significant environmental effects of a proposed project that cannot be avoided if the proposed project is implemented, including those which can be mitigated, but not reduced to a less-than-significant level. These impacts are referred to as “significant and unavoidable impacts” of the project.

The proposed project would result in significant and unavoidable project-level impacts and cumulatively considerable contributions to significant and unavoidable cumulative impacts related to agricultural and forestry resources; noise; and transportation and circulation. No other environmental topics discussed in Section 4.1 through Section 4.16 would result in significant and unavoidable environmental effects. These significant and unavoidable impacts are listed below. More information on these impacts is found in Section 4.1 through Section 4.16 of this EIR.

- **Impact AES-3: Would the project substantially degrade the existing visual character or quality of the site and its surroundings?**
- **Impact AES-6: Would the project create long-term changes in the visual character of the region associated with cumulative development of the proposed project in combination with future buildout in the City of Brentwood?**
- **Impact AG-3: Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?**
- **Impact AG-4: Would the off-site infrastructure improvements result in any impacts related to conversion of Farmland or other agricultural land to non-agricultural use?**
- **Impact AG-5: Would the Project result in cumulative impacts related to conversion of Farmland or other agricultural land to non-agricultural use?**
- **Impact AQ-1: Would the project result in a considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard or conflict with or obstruct implementation of the applicable air quality plan?**
- **Impact AQ-4: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?**
- **Impact LU-3: Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

- **Impact LU-6:** Would the project create long-term changes in the land use and population associated with cumulative development of the proposed project in combination with future buildout in the City of Brentwood?
- **Impact NOI-2:** During project operations, would the project result in a substantial 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?
- **Impact TR-3:** Would the Project conflict with a program plan, ordinance or policy addressing the local circulation system under the Near-Term Plus Project scenario?
- **Impact TR-4:** Would the Project conflict with a program plan, ordinance or policy addressing the State circulation system under the Near-Term Plus Project scenario?
- **Impact TR-5:** Would the Project conflict with a program plan, ordinance or policy addressing the local circulation system under the Cumulative Plus Project scenario?
- **Impact TR-8:** Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

7 EIR Preparers and Acronyms

7.1 EIR Preparers

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7.2 Lead Agency

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City Attorney's Office

- Damien Brower, City Attorney
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7.3 Acronyms

A

AAI	All Appropriate Inquires
AAQS	Ambient Air Quality Standards
AB ##	Assembly Bill ##
ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
AD	After Death
ADT	average daily trip
afy	acre-feet / year
AJD	Administrative Jurisdictional Determination
AOSPP	Agricultural and Open Space Preservation Policy
APCD	Air Pollution Control District
APE	Area of Potential Effects
AQMP	Air Quality Management Plan
AQP	Air Quality Plan
ASTM	American Society for Testing and Materials

ATCM	Airborne Toxic Control Measures
AUL	Activity and use limitations
AWSC	all-way stop-controlled

B

BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BenMAP	Benefits Mapping and Analysis Program
bhp	brake horse power
BMPs	Best Management Practices
BP	before present
BTU	british thermal unit
BUSD	Brentwood Unified School District

C

CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalGREEN	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
Cal EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CAMx	Comprehensive Air-quality Model with extensions
CAPCOA	California Air Pollution Control Officer's Association
CARB	California Air Resource Board
CARE	Community Air Risk Evaluation
CASGEM	California Statewide Groundwater Elevation Monitoring
CASQA	California Stormwater Quality Association
CAP	Climate Action Plan
CAT	Climate Action Team
CBC	California Building Code
CC&Rs	Codes, Covenants & Restrictions
CCAA	California Clean Air Act
CCCCWP	Contra Costa County Clean Water Program
CCCDEH	Contra Costa County Department of Environmental Health
CCCFCDD	Contra Costa County Flood Control and Water Conservation District
CCCSPD	Contra Costa County Fire Protection District
CCOS	Central California Ozone Study
CCR	California Code of Regulations
CCTA	Contra Costa Transportation Authority
CCTS	Central California Taxonomic System

CCWD	Contra Costa Water District
CDE	California Department of Education
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFCs	chlorofluorocarbons
CFCP	California Farmland Conservancy Program
CFD	Community Facilities District
CFR	Code of Federal Regulations
CFS	cubic feet per second
CGS	California Geological Survey
CIP	Capital Improvement Program
CKH Act	Cortese-Knox Hertzberg Local Government Reorganization Act of 2000
CMAQ	Community Multiscale Air Quality
CMBS	centimeters below surface
CMP	Congestion Management Plan
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
COBWTP	City of Brentwood Water Treatment Plant
CPP	Clean Power Plan
CPUC	California Public Utilities Commission
CH ₄	Methane
CO	Carbon Monoxide
Corps	U.S. Army Corps of Engineers
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalents
CRC	California resources Corporation
CRHR	California Register of Historical Resources
CSMP	Construction Site Monitoring Program
CSFM	California State Fire Marshal
CTR	Commute Trip Reduction
CUPA	Certified Unified Program Agencies
CWA	Clean Water Act

D

dB	decibel
dba	A-weighted decibel
DA	Development Agreement
DHS	Department of Health Services
DMA	Drainage Management Area
DMG	California Division of Mines and Geology
DOC	California Department of Conservation
DOE	Department of Energy
DOF	Department of Finance
DOGGR	California Department of Oil, Gas, and Geothermal Resources
DOT	Department of Transportation
DPM	Diesel Particulate Matter
DPS	District Population Segment
DTSC	Department of Toxic Substances Control
DU	dwelling unit
DWR	California Department of Water Resources

E

EBRPD	East Bay Regional Park District
ECCCHC	East Contra Costa County Habitat Conservancy
ECCHCP	East Contra Costa Habitat Conservation Plan
ECCID	East Contra Costa Irrigation District
ECCFPD	East Contra Costa Fire Protection District
ECCRFFA	East Contra Costa Regional Fee and Financing Authority
EDR	Environmental Data Resources
EIA	Energy Information Administration
EIR	Environmental Impact Report
EMFAC	Emission Factors
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-To-Know Act
ESA	Endangered Species Act
ESAs	Environmental Site Assessments
ETo	evapotranspiration
EVA	Emergency Vehicle Access

F

fc	foot-candle
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act

FHSZ	Fire Hazard Severity Zone
FICON	Federal Interagency Committee on Noise
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
FRPP	Farm and Ranch Lands Protection Program
FTA	Federal Transit Administration
FHWA	Federal Highway Administration

G

GHG	greenhouse gas(es)
GHAD	Geologic Hazard Abatement District
GIS	Geographic Information System(s)
GMP	Growth Management Plan
gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
GPS	Global Positioning System
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWh	gigawatt hours
GWP	Global Warming Potential

H

HAP	Hazardous Air Pollutant
HCFC	hydrochlorofluorocarbon
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HCPA	Habitat Conservation Plan Association
HDM	Highway Demand Manual
HET	high efficiency toilet
HFC	hydrofluorocarbon
HMBP	Hazardous Materials Business Plan
HOA	Homeowners Association
hp	horsepower
HSWA	Hazardous and Solid Waste Act
HVAC	heating, ventilation, and air conditioning
HVL	Highly volatile liquid
HSC	California Health and Safety Code
Hz	Hertz

I

IBC	International Building Code
IC	Institutional controls
IFC	International Fire Code
IFD	Infrastructure Financing District
IMP	Integrated Management Practices
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
ITE	Institute of Transportation Engineers

K

kBTU	thousand British Thermal Units
km	kilometer
KVP	Key Viewpoint
kWh	Kilowatt hour

L

LAFCo	Local Agency Formation Commission
LEV	Low Emission Vehicle
Ldn	Average Day-Night Noise Level
LED	Low Emitting Diode
LEDPA	least environmentally damaging practicable alternative
Leq	Equivalent Continuous Noise Level
LID	Low Impact Development
LLD	Lighting and Landscape District
LOS	level of service
LRA	Local Responsibility Area
LSV	Lower Sacramento Valley
LTF	Local Transportation Fund
LTS	less than significant
LUHSD	Liberty Union High School District
LUVs	Local Use Vehicles

M

m	meter
M&A	Monk & Associates
MBTA	Migratory Bird Treaty Act
MEI	Maximally Exposed Individual
MGD	million gallons per day
MGY	million gallons per year
M _L	Richter Magnitude

mm/yr	millimeters per year
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MRZ	Mineral Resource Zone
MSAT	Mobile source air toxic
MTCO _{2e}	metric tons of CO ₂ equivalents
MMT	million metric tons
MPG	miles per gallon
MPH	miles per hour
MPO	Metropolitan Planning Organization
MRP	Municipal Regional Permit
MSL	mean sea level
MSW	municipal solid waste
MT	metric tons
MTC	Metropolitan Transportation Commission
M _w	Moment Magnitude
MWELO	Model Water Efficient Landscape Ordinance
MWh	Megawatt Hours

N

NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NACTO	National Association of City Transportation Officials
NB	Northbound
NCCP	Natural Communities Conservation Plan
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NEV	Neighborhood Electric Vehicle
NF ₃	Nitrogen Trifluoride
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NI	No Impact
NMFS	National Marine Fisheries Service
NOP	Notice of Preparation
N ₂ O	Nitric oxide
NO _x	Oxides of Nitrogen
NO ₂	Nitrogen dioxide
NPDES	National Pollutant Discharge and Elimination System
NPMS	National Pipeline Mapping System

NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
NWIC	Northwest Information Center
NWP	Nationwide Permit

O

OAL	Office of Administrative Law
OEHHA	State Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OHWM	Ordinary High Water Mark
OPR	California Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
O ₃	Ozone

P

PA	Programmatic Agreement
PAED	Project Approval and Environmental Document
Pb	Lead
PCB	polychlorinated biphenyls
PD	Planned Development
PFC	perfluorocarbon
PG&E	Pacific Gas & Electric
PGM	photochemical grid model
PHMSA	Pipeline and Hazardous Materials Safety Administration
PJD	Preliminary Jurisdictional Determination
PM _{2.5}	Particulate Matter, less than 2.5 microns in diameter
PM ₁₀	Particulate Matter, less than 10 microns in diameter
ppm	parts per million
PRC	Public Resources Code
PPV	peak particle velocity
PSR	Project Study Report

R

RBWTP	Randall-Bold Water Treatment Plant
RCRA	Resource Conservation and Recovery Act
REAP	Rain Event Action Plan
REA	Registered Environmental Assessor
REC	recognized environmental condition
RFS	Renewable Portfolio Standard

RGP	Regional General Permit
RHNA	Regional Housing Needs Allocation
RMP	Risk Management Plan
RMS	root mean square
ROG	Reactive Organic Gas
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board

S

S	Significant
SAB	State Allocation Board
SB	Southbound
SB ##	Senate Bill ##
SBAA	Streambed Alteration Agreement
SCAQMD	South Coast Air Quality Management District
SCRAM	Support Center for Regulatory Atmospheric Modeling
SCS	Sustainable Communities Strategy
SCH	State Clearinghouse
SDWA	Safe Drinking Water Act
SEMS	Standardized Emergency Management Systems
sf	square feet
SF ₆	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFHA	Special Flood Hazard Area
SGMA	Sustainable Groundwater Management Act of 2014
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMOKE	Sparse Matrix Operating Kernel Emissions
SOI	Sphere of Influence
SOP	Standard Operating Procedures
SO _x	Oxides of Sulfur
SO ₂	Sulfur Dioxide
SP	service population
SPA	Special Planning Area
SPCC	Spill Prevention and Countermeasures
SPF	Semi-Public Facility
SR	State Route
SRA	State Responsibility Area
SRWS	self-regenerating water softener
SSMP	Sanitary Sewer Master Plan
SSSC	side-street stop-controlled
STA	State Transit Assistance

STAA	Surface Transportation Assistance Act
SU	Significant and Unavoidable
SVP	Society of Vertebrate Paleontology
SWRCB	State Water Resources Control Board
SWCV	solid waste collection vehicle
SWPPP	Stormwater Pollution Prevention Plan

T

TAC	Toxic Air Contaminant
TDA	Transportation Development Act
TDS	Total Dissolved Solids
TDM	Transportation Demand Management
TDT	Tri-Delta Transit
TIA	Transportation Impact Analysis
TIF	transportation impact fee
TMDL	Total Maximum Daily Load
TPH	trace levels of petroleum hydrocarbons
ToP	Top-of-Bank
tpy	tons per year
TSP	Total Suspected Particulate

U

UBC	Uniform Building Code
ULL	Urban Limit Line
USACE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan

V

VDCSP	Vineyards at Deer Creek Specific Plan
Vdb	vibration decibels
VMT	Vehicle Miles Traveled
VOC	volatile organic compound
v/c	volume-to-capacity ratio

W

WAEEP	Williamson Act Easement Exchange Program
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WBWG	Western Bat Working Group
WDRs	Waste Discharge Requirements
WEAP	Worker Environmental Awareness Program
WMP	Water Management Plan
WSA	Water Supply Assessment
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

Z

ZNE	Zero Net Energy
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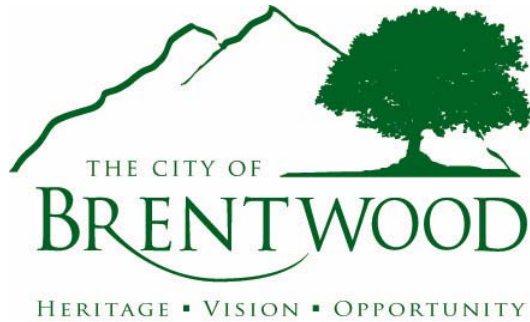
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Appendix A



Notice of Preparation Vineyards at Deer Creek Environmental Impact Report

Date: April 2, 2019

To: State Clearinghouse
State Responsible Agencies
State Trustee Agencies
Other Public Agencies
Organization and Interested Persons

Lead Agency City of Brentwood
Community Development Department
150 City Park Way
Brentwood, CA 94513
Attn: Mr. Erik Nolthenius, Planning Manager

Summary

The City of Brentwood, as lead agency, has determined that an Environmental Impact Report (EIR) is required to evaluate the physical environmental effects of the proposed Vineyards at Deer Creek Project (“Project” or “proposed project”). This programmatic EIR will address the environmental impacts associated with the adoption and implementation of the proposed project. Information regarding the project description, project location, public outreach process, and topics to be addressed in the Draft EIR is provided below.

The City has prepared this Notice of Preparation (NOP) to provide Responsible Agencies, Trustee Agencies, and other Interested Organizations and Persons with a description of the Project and to identify potential environmental effects pursuant to CEQA requirements.

Project Location

The approximately 815-acre Project site is located southwest of the City of Brentwood, in unincorporated Contra Costa County; north of Balfour Road, east of Deer Valley Road, and west of the westerly City limits.

Project Description Summary

The Vineyards at Deer Creek (the Project) is a proposed residential community of up to 2,400 residential units within Special Planning Area (SPA) 2 of the Brentwood General Plan, at least 80% (1,920 units+/-) of which will be age-restricted active adult and a maximum of 20% (480 units+/-) will be un-restricted market-rate housing. The Project site is currently located outside of the City of Brentwood’s city limit lines, Sphere of Influence (SOI), and Urban Limit Line (ULL). Thus, the entitlements include requests for annexation, rezoning, SOI Amendment, and ULL Amendment (by voter initiative pursuant to Measures J

and L). The average gross density across the Project site would be three dwelling units per acre, which is beyond the scope of the General Plan land use designation for SPA 2, thus requiring an amendment to the General Plan. Each of the six residential neighborhoods may have a neighborhood recreation center. A centrally-located community recreation center will serve as the focal point to the community and include a variety of indoor and outdoor recreation amenities. Located adjacent to Balfour Road and Deer Valley Road, an approximately 20-acre commercial/civic area is envisioned for civic events and functions. Integrated throughout the Specific Plan area will be approximately 225 acres of permanently established agricultural and open space land use areas. These areas will include extensive areas of vineyards, olive groves, and open space, reinforcing the characteristics of a Mediterranean environment. To improve traffic circulation and safety, off-site roadway improvements include, but are not limited to, widening Balfour Road from two to four lanes and extending American Avenue west and north to Balfour Road.

For further details, please see the Detailed Project Description attached.

Public Review and Comment Period

Further notice is hereby given that the City invites comments on the scope and content of the EIR in response to this NOP. Pursuant to Section 15082 of the CEQA Guidelines, this NOP will be circulated for a 30-day review period. At a minimum, responses to this NOP should focus on the potentially significant environmental effects that the proposed project may have on the physical environment and that should be addressed in the Project EIR, ways in which those effects might be minimized, and potential alternatives to the proposed project that should be addressed in the EIR. In your response, please include your name, the name of your agency or organization (if applicable), and contact information.

Comments regarding the scope and content of the environmental review to be conducted for the proposed project should be sent to the City in writing by 5:00 p.m. on May 1, 2019. Please send your written comments to:

Lead Agency Contact:

Erik Nolthenius, Planning Manager
City of Brentwood
Community Development Department
150 City Park Way
Brentwood, CA 94513
(925) 516-5137
enolthenius@brentwood.ca.gov

Scoping Meeting: The City will conduct a scoping meeting on April 23, 2019, beginning at 3:00 PM, located at the Brentwood Community Center (upstairs conference room), 35 Oak Street, Brentwood, California, at which agencies, organizations, and the public will have an opportunity to submit verbal comment. However, all comments must also be submitted in writing in the manner described above.

EIR Process: Following the close of the NOP comment period, a Draft EIR will be prepared that will consider all applicable environmental topic areas in Appendix G of the CEQA Guidelines and take into consideration NOP comments. In accordance with Sections 15105(a) and 15087 of the CEQA Guidelines, the Draft EIR will be released for public review and comment for the required 45-day review period. Following the close of the 45-day public review period, the City will prepare a Final EIR that will include responses to all substantive comments received on the Draft EIR. The Draft EIR and Final EIR will be considered by the Planning Commission and City Council in making the decision to certify the EIR and to approve or deny the Project.

Detailed Project Description

The following section includes a detailed description of the Project, including project location, existing and adjacent land uses, General Plan land use designations, and detailed descriptions of the Project's components.

Project Location

The approximately 815-acre Project site is located southwest of the City of Brentwood, in unincorporated Contra Costa County, north of Balfour Road, east of Deer Valley Road, and west of the westerly City limits in Contra Costa County (see Figure 1, Regional Location Map and Figure 2, Project Vicinity Map). The City of Antioch city limits are located along the northern boundary of the Project site, as well as the southwestern portion of the Project site. The Project site is currently located outside of the City of Brentwood's city limit lines, Sphere of Influence (SOI), and Urban Limit Line (ULL). The Project site is identified as the following assessor's parcel numbers (APNs): 019-120-002 (approximately 160 acres); 019-120-007 (approximately 80 acres); 019-120-008 (approximately 307 acres); and a portion of 057-060-008 (approximately 270 acres).

Existing and Adjacent Land Uses and Setting

As can be generally seen in Figure 2, Project Vicinity Map, the Project site is undeveloped. The site is currently used for agricultural purposes, including dry grass farming and limited seasonal cattle grazing. An existing easement traverses the center of the site in a southeast to northwest trending manner. The easement contains three pipelines, including a 24-inch crude oil pipeline maintained by Chevron, an 18-inch multi-purpose/refined oil product pipeline maintained by Kinder Morgan, and a 26-inch abandoned Pacific Gas and Electric natural gas pipeline. Adjacent land uses include the single-family Shadow Lakes residential neighborhood to the east and agricultural and open space to the north, west, and south. Areas to the north and south of the site are planned for residential development per the City of Brentwood's General Plan. Heritage High School and Adams Middle School are located southeast of the Project site and are accessed from American Avenue. The Deer Ridge residential neighborhood is located farther southeast from the project site, as well as the Trilogy development.

General Plan Land Use Designation

The Project site is located in an area designated in the City of Brentwood General Plan as Special Planning Area (SPA) 2. The General Plan envisions the future development for SPA 2 as the following:

"SPA 2 should include a significant area of protected open space, with open space protection prioritized for hillsides, sensitive natural habitat, and areas of exceptional

scenic beauty. Residential uses may include Ranchette Estate and Very Low Density Residential. An increase in the overall residential density within SPA 2 may be allowed in order to accommodate the development of age-restricted housing units. Limited areas of local-serving General Commercial may also be allowed within SPA 2". (Brentwood General Plan, page 9-10)

According to the General Plan EIR, 583 residential units and 79,899.9 square feet of non-residential uses were assumed for the approximately 815-acre SPA 2 area.

1992 Memorandum of Understanding

The Project site is currently unincorporated and located outside the spheres of influence of both the City of Brentwood and the City of Antioch. In 1992, the cities of Antioch and Brentwood adopted a Memorandum of Understanding (MOU), which expires in October 2022, that recognizes the mutual interest of the two cities in resolving boundary issues, including the SPA 2 property. Along with several development standards (open space buffers, ridgeline protection, grading, visual, tree protection, circulation, etc.), the MOU stipulates that neither City shall file to change its SOI or to annex within the boundary line of the other City. If the City were to proceed with the Project, the MOU would be terminated by the Brentwood City Council.

Project Components

The Project is a residential community supporting both an age-restricted active-adult community and market (unrestricted) residential development set among an agriculturally-themed landscape of vineyards and olive groves. Figure 3, Land Use Exhibit, illustrates the proposed land uses. Table 1, Land Use Summary, identifies the acreages proposed for each land use category. All numbers are rounded to the nearest whole number.

Table 1: Land Use Summary

Land Use	Gross Acres ¹
Residential ²	± 555
Community Recreation Center	± 15
Commercial / Civic	± 20
Open Space	± 225 ³
Total	+/- 815

Notes:

1. Gross acres inclusive of roadways, and other miscellaneous areas; rounded to the nearest whole number.
2. Includes stormwater basins.
3. Consistent with the General Plan, open space includes agricultural (a minimum of 50% of which will be permanently agricultural crops), parks, permanent open space, and other similar uses, as well as waterways.

The Project includes a maximum of 2,400 total residential units, at least 80% (1,920 units+/-) of which will be active adult households and a maximum of 20% (480 units+/-) of which will be unrestricted to market-rate households. This results in an average gross density of three dwelling units per acre, which is beyond the scope of the General Plan land use designation for SPA 2, thus requiring an amendment to the General Plan. The City of Brentwood General Plan amendment would include a modification to the Land Use Map

from “Special Planning Area (SPA) 2” to “SPA 2/Vineyards at Deer Creek Specific Plan Area” (SPA 2/VDCSP), as well as additional conforming text amendments to the General Plan. The housing types will include a combination of single-family attached and detached, and multi-family residential units. An amendment to the City of Brentwood Zoning Code (Title 17 of the Municipal Code) would also be required, in part, to add the Vineyards at Deer Creek zoning district, as well as an amendment to the Zoning Map to designate the Specific Plan area as the VDCSP district.

The Project envisions six residential neighborhoods, each with a neighborhood recreation center. A centrally-located community recreation center will serve as the focal point of the community and will include a main clubhouse and a variety of recreation amenities such as a multi-purpose room for community events, a fitness center, an indoor pool, locker rooms, a restaurant, a health spa, and space for various informal recreation activities (e.g., library, craft room, pool table). Outdoor recreation amenities may include a separate outdoor pool, tennis/pickleball courts, bocce ball courts, barbecues, informal gardens and seating areas.

An approximately 20-acre commercial/civic area, located within the portion of the Project site adjacent to Balfour Road and Deer Valley Road, is envisioned for civic events and functions. Uses of this area may include an outdoor amphitheater, winery, a “farm to table” restaurant/bar, and a wine barn for tastings, weddings, and other community events. In support of the agrarian theme for the Specific Plan area, this sub-area may also include a commercial nursery (up to 5,000 square feet of building area), an indoor community greenhouse, and outdoor community garden plots.

The Project site will include approximately 225 acres of permanently established agricultural and open space land use areas. These areas will include extensive areas of vineyards, olive groves, and open space, reinforcing the characteristics of a Mediterranean environment. They will also include space for a series of stormwater detention basins designed to mitigate impacts to water quality and regulate off-site flows during storm events. As shown in Figure 3, Land Use Exhibit, a lineal open space area is proposed along the center of the site in a northwest to southeast trending manner, consistent with the location of the pipeline easement.

Project Phasing

The Project is anticipated to be developed over approximately 20 to 25 years and in a phased approach. The conceptual sequence and location of the anticipated phases are shown in Figure 4, Conceptual Phasing Plan. As shown in the figure, a total of five phases are conceptually anticipated. The phases are anticipated to begin in the south-central portion of the site and would be built out in a counterclockwise order. Phase 1 would be located north of Balfour Road, within the south-central area of the Project site. Phase 1 is anticipated to include residential land uses, as well as the proposed community recreation center. Phases 2, 3, and 4 would include residential and open space land uses. Phase 5 would be located in the southwestern portion of the Project site and would include the commercial/civic area land use along Balfour Road. The phases described above are only conceptual at this time, with details to be determined by the developer(s) in response to market conditions, availability of financing, and other factors.

As the Project is implemented over time, the project developer(s) shall include reasonable provisions to secure and maintain the undeveloped land prior to development as part of the Project. All or any portion of the existing infrastructure is permitted to remain in place and continue in use while the development allowed under the Specific Plan is constructed. Any future development would be responsible for the

construction of both private and public infrastructure, within the Specific Plan area and in relevant circumstances (e.g. water, sewer, stormwater) in adjacent off-site areas. As each phase with infrastructure is built, the constructed public infrastructure would be dedicated to the City of Brentwood upon its acceptance.

Specific Plan Contents

The proposed Vineyards at Deer Creek Specific Plan will include the following chapters:

- Introduction;
- Context and Setting;
- Land Use Plan and Development Standards;
- Circulation and Mobility;
- Infrastructure and Public Services;
- Design Guidelines;
- Resource Management; and
- Implementation, Administration and Financing.

Further details regarding the Specific Plan contents, including the proposed Land Use Plan, circulation and mobility, infrastructure, and resource management are provided below.

Land Use Plan

As set forth in the Land Use Plan and Development Standards chapter of the Specific Plan, a description of the four land use designations that apply within the Specific Plan area is presented below.

Residential (VDC-R)

The purpose of the Residential (VDC-R) land use designation is to allow for the development of a maximum of 2,400 residential units. Of the total number of units, at least 80% will be active-adult age-restricted, and a maximum of 20% will be non-age restricted.

The multi-family units shall only be age-restricted and may be rental or ownership, assisted living, or other forms of senior care facilities. Multi-family residential could not be located on hilltops or ridgelines. Furthermore, along the eastern boundary of the Specific Plan area there shall be a 100-foot minimum landscaped buffer and adjacent uses shall be limited to single-family residential units.

The residential units will be developed on approximately 555 acres within the 815-acre Specific Plan area, for a maximum gross density of three dwelling units per acre for the entire Specific Plan area.

With buildout of the Specific Plan area expected to take 20 to 25 years, the final household types, specific densities, and lot locations within the Specific Plan area will be determined based on site conditions and market trends. The housing types are envisioned to include a combination of single-family attached and detached, and multi-family residential units.

The Specific Plan contemplates that each residential neighborhood may include a smaller private neighborhood recreation center, with denser housing types (e.g., multi-family or attached residential)

located adjacent to such neighborhood social areas. This could work to create a clustered focal point for each neighborhood.

The approximate gross acreage for residential development also includes acreage for water storage tanks, roads, and utility services, as well as a series of stormwater detention basins designed to mitigate impacts to water quality and regulate off-site flows during storm events.

Community Recreation (VDC-CR)

The purpose of the Community Recreation (VDC-CR) land use designation is to allow for the development of an approximately 15-acre centrally located Community Recreation Center. The Community Recreation Center will serve as the focal recreation point for the community, used predominantly for recreational, social, cultural, and educational purposes and may include other minor supporting uses or activities.

Indoor amenities may include a multi-purpose room for community events, post office, a fitness center, an indoor pool, locker rooms, a restaurant, a health spa, demonstration kitchen, and space for various informal recreation activities (e.g. library, craft room, pool table). Outdoor recreation amenities may include features such as a separate outdoor pool, tennis/pickleball courts, bocce ball courts, barbecues, informal gardens, parks, trails, dog park, and putting greens.

The Community Recreation Center is anticipated to be linked to the rest of the Specific Plan area through pedestrian, bicycle, and local use vehicle (e.g., golf cart) accessible connections.

As determined by future development, some portions of the Community Recreation Center may be open to the public, while other areas will be restricted to the exclusive private use by the members of the homeowner's association(s) and their guests.

The Specific Plan allows for development of additional smaller private neighborhood recreation centers associated with different neighborhoods. These smaller private areas could include amenities such as an outdoor swimming pool and patio area associated with a small community building with bathrooms for small private events.

Depending on market trends and to allow a degree of flexibility, the Specific Plan allows for development of one Community Recreation Center, or a series of neighborhood recreation centers or a combination of the two. The final constructed mix of amenity uses will be market-driven. While being recreation focused, the ultimate indoor and outdoor offerings of the Community Recreation Center will be refined based on the mix of housing types, evolving market trends, and programing requirements.

Commercial/Civic (VDC-CC)

The purpose of the Commercial/Civic (VDC-CC) land use designation is to allow for the development of community-based and agriculturally-themed neighborhood commercial, agricultural and farm-to-table uses, and civic land uses. The Commercial/Civic (VDC-CC) land use designation shall be located on approximately 20 acres in the southwestern corner of the Specific Plan area, off of Balfour Road.

As a focal point of the area, the Specific Plan allows for an outdoor amphitheater to host anything from concerts and performances to community events, set against the backdrop of the hillside vineyards. The site could also include a winery, a restaurant with bar, and a wine barn for tastings, weddings, and other

community events. In support of the agrarian theme of the Specific Plan area, the VDC-CC area may also include a commercial nursery, an indoor community greenhouse, and/or outdoor community garden plots.

Open Space (VDC-OS)

The purpose of the Open Space (VDC-OS) land use designation is to allow for a minimum of 225 acres of open space, a portion of which will be permanent agricultural crops, such as vineyards and olive groves, to the greatest extent feasible, reinforcing the characteristics of a Mediterranean environment.

Land in this designation would remain as open space in perpetuity. Uses may include permanent agricultural crops, natural areas, formal or informal parkland, low-impact (permeable and semi-permeable) trails, and waterways. Other uses may include those that support the maintenance and preservation of the open space uses, including barns, maintenance buildings, irrigation facilities, and gravel or improved access roads, as well as underground and above-ground utilities.

The open space is anticipated to ultimately be owned and maintained by a homeowner's association(s), or a similar entity, which is expected to use a third-party organization(s) to conduct the farming (e.g., cultivation, pruning, irrigation, harvesting) and related operations on-site.

Open space in the Specific Plan would include areas along existing utility easements and areas surrounding the existing oak trees. Where feasible, existing oak trees that are in good health would be retained, and those in poor health or posing a potential risk will be replaced on-site.

Circulation and Mobility

The conceptual locations of all streets to be constructed within the Specific Plan area are shown in Figure 5, Street Network and Hierarchy. As presented in the Circulation and Mobility chapter of the Specific Plan and shown in the figure, primary access to the Specific Plan area will be via a four-lane divided minor arterial roadway north from Balfour Road. Vehicular access to the rest of the Specific Plan area would be via an internal restricted (gated) road, which consists of both a two-lane divided minor arterial road and two-lane collector loop road. A series of collector and local streets providing access to the residential neighborhoods radiate from the loop road. A number of roundabouts are proposed along the main loop road, providing access the residential neighborhood areas. Roadways would transect the lineal open space area at four locations. The individual neighborhoods are designed to facilitate pedestrians, bicyclists, and local use vehicle drivers throughout the Specific Plan area.

Secondary controlled and emergency vehicle access would be provided from Hillcrest Avenue upon completion of the northerly section of the Project site.

Pedestrian Network

The Specific Plan emphasizes pedestrian circulation by providing an interconnected network of sidewalks along internal streets and a series of trails in open space. Pedestrian connections would be provided throughout residential neighborhoods and to open space and recreation centers. Sidewalks would be a minimum of four feet in width.

Bicycle Circulation

Bicycle circulation would be integrated throughout the Specific Plan area through on-street bike lanes and separated off-street bike or multi-use paths. Where bike lanes are not provided (such as along local roads), bicyclists and slower-moving vehicles would share the road.

Multi-Use Paths

Multi-use (or shared) paths are envisioned adjacent to arterial and collector roads. A separated multi-use path is also envisioned along the east side of Deer Valley Road. Multi-use paths would be designed to support multiple recreation and mobility opportunities, such as walking, jogging, bicycling, inline skating and people in wheelchairs. They would be physically separated from motor vehicle traffic and may include a landscaped buffer or barrier.

Infrastructure

The proposed infrastructure improvements presented in the Infrastructure and Public Services chapter of the Specific Plan are discussed in further detail below.

Water

The Project's connections to the existing off-site potable water supply infrastructure is shown in Figure 6, Existing and Proposed Potable Water. As shown in the figure, the Project would include at least three new connections, an on-site pump station, and a three million-gallon storage tank.

The first connection to existing infrastructure, which would occur during Phase 1, would be at the southern portion of the site, along Balfour Road. A 20-inch potable water line is currently located along Balfour Road and is stubbed near the site's southeastern corner. The proposed project would include extending the existing 20-inch line along Balfour Road west to Deer Valley Road. The Project would connect to the new 20-inch line at three locations.

The second connection, which would also occur during Phase 1, would be to the existing eight-inch potable water line at the City Park located at the south end of Canmore Court, at the southeastern border of the site.

The third connection, which would occur as part of Phase 2, would be to an existing 12-inch line through Rolling Hills Park from an existing 12-inch line located on Waterville Drive, within the Shadow Creek residential neighborhood to the east of the site.

In addition to potable water supply, the Project would connect to existing non-potable water infrastructure in the vicinity of the site (see Figure 7, Existing and Proposed Irrigation and Recycled Water). The Project would use irrigation water from the East Contra Costa Irrigation District (ECCID) and would involve construction of new infrastructure to access such water through one of the four alternatives shown in Figure 7. The four alternatives include the following:

- **Alternative 1 (Preferred)** would require a new turnout and pump station from the 48-inch ECCID pipe at the intersection of John Muir Parkway and Balfour Road. A new line would be constructed west on Balfour Road to the Specific Plan area.

- **Alternative 2** would use the existing ECCID water facilities for either Shadow Lakes or Deer Ridge golf course, which would include use of the existing basins and/or modifications to the existing pumping facilities. A new line would be constructed west on Balfour Road to the Specific Plan area.
- **Alternative 3** would require a new pump station at the end of the ECCID irrigation pipe adjacent to Heidorn Ranch Road. The ECCID water would then be directed south through the City of Antioch and into the northeast basin.
- **Alternative 4** would use the City of Brentwood untreated water accessed from a 20-inch line (the Roddy line) located in Balfour Road. In the future, the City intends to blend this line with recycled water.

In addition, the Project may include use of recycled water provided from the City of Brentwood. As shown in Figure 7, an existing 20-inch untreated water line runs from the Roddy Ranch Pump Station on Fairview Avenue, west along Balfour Road. Ultimately, the City of Brentwood will connect their recycled water system to the Roddy Ranch Pump Station and blend the untreated and recycled water together. Even with ECCID service to the Specific Plan area, a future developer may also choose to connect to the existing non-potable water lines. Options for connection include tying into the existing 20-inch line within Balfour Road. In addition, a connection could be made to the existing six-inch non-potable line located within Canmore Court of the Shadow Creek residential neighborhood to the east. The recycled water lines would provide alternate irrigation options for landscape areas.

Additional looped water connections may be implemented during the detailed design of individual phases, if the need arises.

Sewer

The Project site would be split into two sewer sheds, as shown in Figure 8, Existing and Proposed Sanitary Sewer. The northerly sewer shed, which would predominantly include Phases 2 through 4, would involve a series of new eight-inch sewer lines that would ultimately flow to a new pump station in the northeastern corner of the site. A new 12-inch sewer line would connect the pump station to an existing line within the Shadow Creek residential neighborhood to the east of the site. Please see the discussion under the Off-Site Improvements section below for further details regarding the potential alternatives for the pump station location and associated off-site improvements. The southerly sewer shed would predominantly consist of Phases 1 and 5. The existing 12-inch sewer main within Balfour Road, which is stubbed at the project's southeastern corner, would be extended along the project's frontage. The new internal sewer system within the southerly sewer shed would connect to the extended 12-inch main at two points.

Drainage

The proposed storm drainage system for the Project is shown in Figure 9, Existing and Proposed Stormwater Conveyance. As shown in the figure, a total of four water sheds and five stormwater basins would be included in the proposed project. The on-site drainage system would allow for gravity flow through underground stormwater pipes to the stormwater basins, which would collect and detain runoff, provide water quality treatment, and manage peak flows leaving the Specific Plan area. The majority of the Project site would drain to the Northeast Basin, which is anticipated to drain to an existing drainage channel to the north of the site. The southernmost portions of the Phase 1 and Phase 4 areas would drain

to the Southeast Basin, which would eventually discharge into an existing 30-inch storm drain line within Balfour Road that drains to Deer Creek downstream of the Deer Creek Reservoir. It should be noted that upon development of Phase 1, prior to development of any other phases, it is anticipated that all stormwater would flow to the Southeast Basin in the interim. The northernmost portion of the Phase 4 area would drain to the Northwest Basin, which is anticipated to drain to a proposed outfall to Horse Valley Creek. The Phase 5 area would drain to two basins (the Balfour Basin and Commercial Basin), both of which would eventually discharge into existing drainage facilities in Balfour Road to a new outfall to Deer Creek, tentatively to be co-located with replacement of the undersized, upstream culvert on Deer Creek. The ability of existing drainage facilities to accommodate the project's impact to runoff and water quality will be evaluated in the EIR, as well as any needed onsite and offsite improvement upgrades.

Resource Management

The Specific Plan provides for an integrated resource management concept. The approach is to combine the various man-made and natural elements of the site in a comprehensive management strategy. The elements include maintaining the existing drainage patterns, preservation of the existing oak woodlands, improving agricultural quality, mitigating for habitat protection, conserving water use, and incorporating standards to improve stormwater management. The Resource Management chapter of the Specific Plan addresses sustainable uses and protection of natural resources that would be preserved by implementation of the Specific Plan. Resource management policies and mitigation programs described in the chapter address:

- Open Space;
- Tree Preservation;
- Habitat Protection;
- Stormwater Management (described above); and
- Geological Hazard Abatement District Formation.

Details regarding a few of these programs are described below.

Open Space Preservation

The Project includes approximately 225 acres of open space. As discussed above, a portion of the proposed 225 acres of open space would be permanent agricultural crops, such as vineyards and olive groves. Although existing dryland farming practices would cease, the intent of the planned agricultural program is to create farmland of higher value and production and serve to maintain the economic integrity of the Specific Plan area for agricultural use. Such land would be owned and managed by a homeowner's association(s) and would use a third-party organization(s) to conduct the farming and open space management practices (i.e., weed abatement, mowing, pest control).

The agricultural areas would be located predominantly on steeper slopes and are strategically planned throughout the property, particularly around the Project's perimeter, where they would serve as both a land use buffer to adjacent properties and enhance aesthetics.

To provide a framework for the development and management of agriculture and open space land, the Specific Plan includes an Open Space (VDC-OS) land use designation to preserve and manage open space within the Specific Plan area in perpetuity.

Habitat Protection

The Specific Plan area is located within the boundaries of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCHCP/NCCP). The ECCHCP/NCCP provides a framework to protect natural resources in eastern Contra Costa County, while improving and streamlining the environmental permitting process for impacts on endangered species. The Specific Plan has an opportunity to participate in the Plan to mitigate its impacts on protected species and resources.

Pursuant to the City of Brentwood Municipal Code, future development activity would be subject to either: 1) A development fee imposed upon and collected for each acre of land permanently disturbed; or 2) A dedication of land in lieu of some or all of the development fee that would otherwise be imposed upon a development project. Any offer of dedication may be considered for acceptance only if the land dedication is considered by the Community Development Director to be consistent with the ECCHCP/NCCP and implementing agreement.

Geological Hazard Abatement District Formation

As part of the Specific Plan, any future development may propose to create a Geological Hazard Abatement District (GHAD) to provide for long-term monitoring and maintenance of open-space slopes, in-tract slopes, drainages, stormwater detention and treatment improvements, and other improvements as appropriate and permitted under applicable law, and to respond to slope maintenance issues in a timely and efficient manner. Should a future applicant decide to form a GHAD, a "Plan of Control" would have to be prepared that describes the geologic hazards and includes a plan for the prevention, mitigation, abatement, or control of the identified hazards. The Plan of Control is prepared by a Certified Engineering Geologist and would need to be adopted by the GHAD Board of Directors (along with other relevant resolutions) and would set forth the activities to be undertaken by the GHAD and the priorities thereof.

Off-Site Improvements

The proposed project would involve a number of off-site improvements, which are each described in further detail below. Location and nature of intersection improvements (e.g., signalization, roundabouts), as well as the ability of existing off-site infrastructure to mitigation the project's impacts, will be further evaluated in detail in the EIR.

Roadways

To improve traffic circulation and safety, off-site roadway improvements include widening Balfour Road from two to four lanes and extending American Avenue west and north to connect to Balfour Road. A number of safety improvements along Deer Valley Road are also proposed. The improvements are shown in Figure 10, Anticipated Off-site Roadway Improvements.

American Avenue

Currently, American Avenue contains two travel lanes in each direction, and a bike lane and sidewalk on the western side, and dead ends at Adams Middle School. Consistent with the General Plan Circulation Diagram, the Project would include connecting the existing terminus of American

Avenue to Balfour Road, as shown in Figure 11, American Avenue Interim Improvements. The interim American Avenue improvements would include a landscaped median and one travel lane, a parking or bike lane, lighting, and sidewalk in each direction. The interim improvements would occur concurrently with Phase 1 and prior to issuance of any building permit in that phase. Although the American Avenue extension would initially include two lanes, the roadway would accommodate an ultimate buildout of four lanes (to be completed by others). To improve access onto the existing American Avenue from the east, the two-existing westbound left-turn lanes would be extended along Balfour Road. To assure completion of the American Avenue improvements, bonds or other improvement security for the American Avenue extension would be provided in accordance with the requirements of the Subdivision Map Act.

Balfour Road

Consistent with the General Plan Circulation Diagram, Balfour Road would be widened from two to four lanes from the existing American Avenue intersection, west to the new American Avenue intersection (described above), and a three-lane arterial roadway from the new American Avenue intersection with Balfour Road to Deer Valley Road. Improvements to Balfour Road would be completed in at least two phases, as follows:

- **Phase 1:** Balfour Road will be widened from two to four lanes from the existing American Avenue intersection to the new American Ave intersection with Balfour Road, including a new traffic signal at this intersection. The widening shall occur concurrently with other improvements required for the Phase 1 small-lot final subdivision map within the Specific Plan area and prior to issuance of the first building permit for that subdivision. Bonds or other financial security for the Phase 1 improvement would be provided to the extent required under the Subdivision Map Act.
- **Phase 2:** Balfour Road will be improved as a three-lane roadway with two lanes westbound, a bike lane, a landscaped median, parkway landscaping, curb, gutter and sidewalk and a lane in eastbound from the new western American Avenue intersection to Deer Valley Road. The widening shall occur concurrently with other improvements required for the phase 2 and prior to issuance of the first building permit for that phase. The improvements are consistent with the General Plan Circulation Diagram and allows for the future widening of the roadway to four lanes by others. Bonds or other financial security for the improvement would be provided to the extent required under the Subdivision Map Act.

Deer Valley Road

Under existing conditions, Deer Valley Road current contains a travel lane and gravel shoulder in each direction. Public safety concerns associated with the current configuration of Deer Valley Road shall be improved through major roadway geometric changes (e.g., to improve proper sight distance both vertical and horizontal alignment clearances), and signage. The East Contra Costa Regional Fee Program anticipate that Deer Valley Road would undergo various roadway improvements to improve roadway safety conditions.

Water

As shown in Figure 6, the proposed project would include extending the existing 16-inch water line within American Avenue along the proposed American Avenue extension and connecting to the proposed 20-inch line within Balfour Road. As part of Phase 1, the project includes working to complete the installation of the 16-inch water line connection from the end of Foothill Drive to John Muir Parkway. In addition, as part of Phase 3, a new off-site pump station would need to be constructed and operational, which would be located next to the City's existing Reservoir 1.3, adjacent to St. Regis Avenue.

Sewer

As mentioned above, the proposed project would include a new pump station and associated improvements within the northeastern portion of the site. Three alternatives for the pump station and improvements are being considered. The sewer alternatives are shown in Figure 8. The first two sewer alternatives would involve a pump station located near the northeastern-most cul-de-sac within the project site. For Alternative 1, a 12-inch sewer line would extend east from the pump station, then follow adjacent to an existing gas line easement south, and connect to the existing eight-inch line within St. Regis Avenue, west of the intersection with Capilano Drive. For Alternative 2, a 12-inch sewer line would extend east from the pump station, then cut south to the cul-de-sac of Copperfield Court, where the line would connect to an existing eight-inch line. Alternative 3 would involve a pump station located farther south within the northeastern portion of the site. A 12-inch sewer line would connect the pump station to the existing eight-inch line within the westernmost terminus of St. Regis Avenue. For all sewer alternatives, a portion of the existing eight-inch sewer line within St. Regis Avenue is proposed to be upsized to 12 inches to the San Jose Avenue force main, or a parallel line would be required, in order to ensure sufficient capacity.

Project Approvals

At present, the Project site is not located within the City of Brentwood's city limit lines, SOI or ULL. As such, future development would require the following actions or approvals:

- Revision or termination of the MOU with the City of Antioch;
- Pre-annexation agreement between City and landowner;
- Urban Limit Line Amendment (by voter initiative pursuant to Measures J and L);
- General Plan amendment (possibly by voter initiative);
- Specific Plan (possibly by voter initiative);
- Pre-zoning (possibly by voter initiative);
- SOI expansion and annexation approval by Contra Costa Local Agency Formation Commission (LAFCo);
- Development Agreement between City and landowner;
- Annexation to the ECCID approval by Contra Costa LAFCo; and
- Subsequent discretionary approvals by City may include but are not limited to subdivision map(s), design review, and conditional use permits.

The Project also may require concurrent or subsequent discretionary approvals or permits from other federal, state, and regional agencies including:

- Federal regulatory agencies with jurisdiction over the project, which may include the United States Fish and Wildlife Service and the United States Army Corps of Engineers; and
- Other state and regional agencies, which may include: the Contra Costa County LAFCo, Contra Costa County Flood Control and Water Conservation District (CCCFCD), Contra Costa Transportation Authority (CCTA), Contra Costa Water District (CCWD), California Department of Fish and Wildlife (CDFW), San Francisco Bay Regional Water Quality Control Board (SFWQCB), Bay Area Air Quality Management District (BAAQMD), California Department of Transportation (Caltrans), ECCID, East Contra Costa Fire Protection District (ECCFPD) and the East Contra Costa County Habitat Conservancy (ECCCHC).

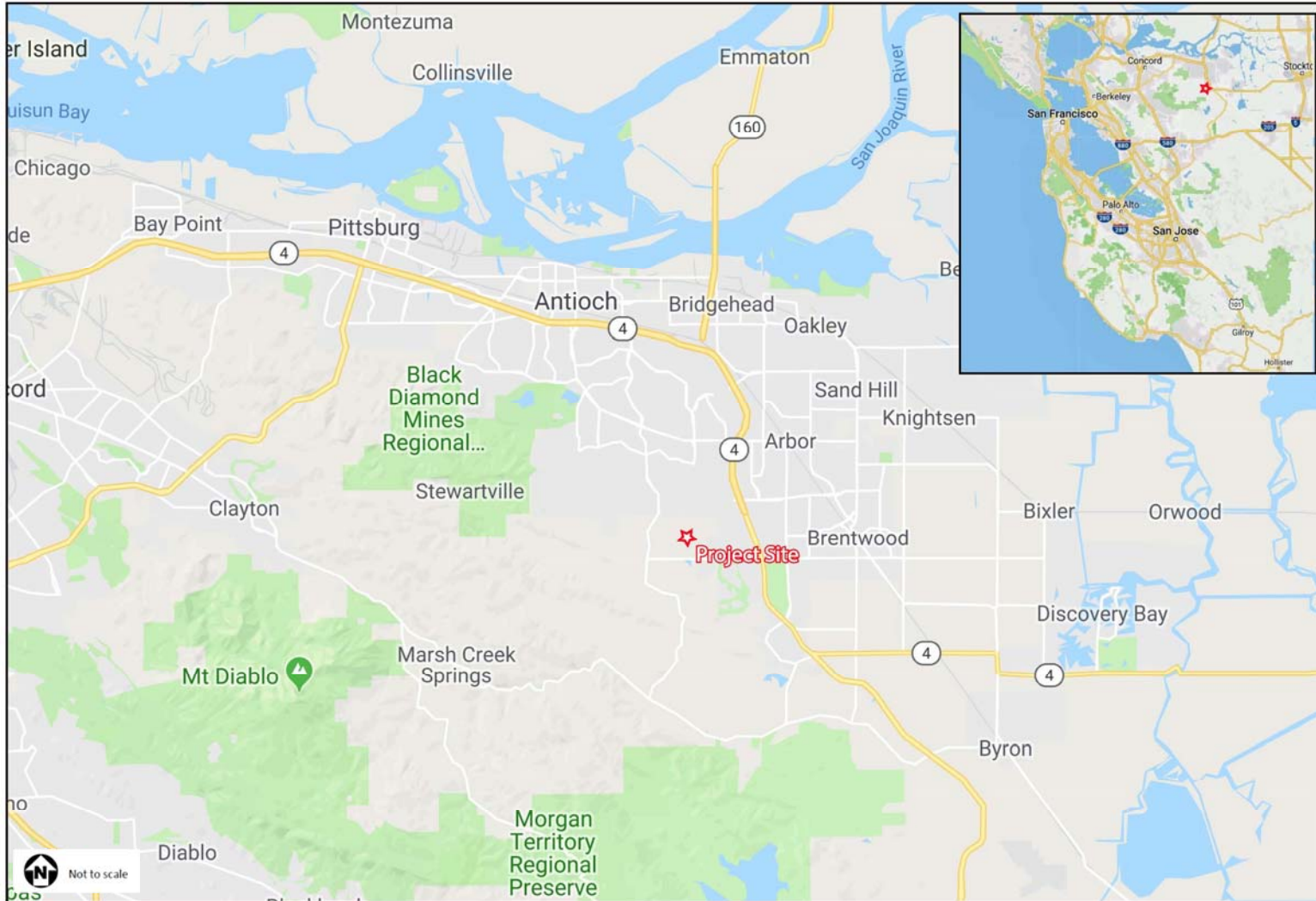
Environmental Factors Potentially Affected

The EIR will include a summary of the analysis and conclusions, project description, description of the existing environmental setting, and potential environmental impacts and feasible mitigation measures needed to mitigate any significant impacts. Consistent with the Appendix G of the CEQA Guidelines, the following environmental factors will be considered in relation to this Project:

- Aesthetics
- Air Quality
- Agricultural Resources
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfires
- Energy
- Project Alternatives
- Cumulative Impacts
- Environmental consequences, including: (a) any significant environmental effects that cannot be avoided if the project is implemented; (b) any significant irreversible and irretrievable commitments to resources; (c) growth-inducing impacts of the proposed project; (d) effect found not to be significant; and (e) cumulative impacts.

CEQA allows environmental issues for which there is no likelihood of a significant impact to be “scoped out,” and not analyzed further in the EIR. An initial evaluation of the project has determined that it would not have an effect on mineral resources. Therefore, this issue will not be analyzed in detail in the EIR, although the basis for this determination would be discussed.

Figure 1
Regional Location Map



Source: Kimley-Horn and Associates, 2019

Figure 2
Project Vicinity Map

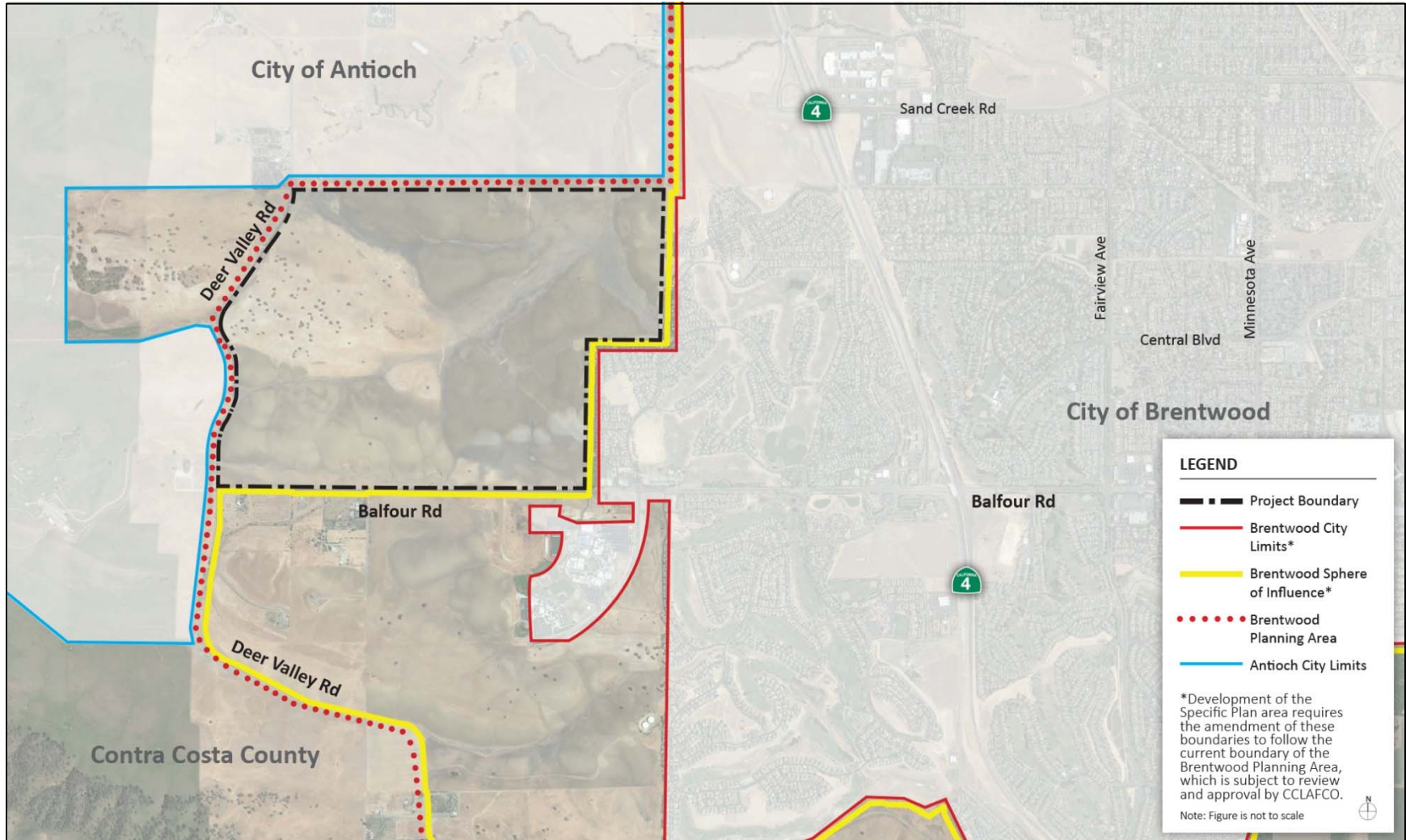
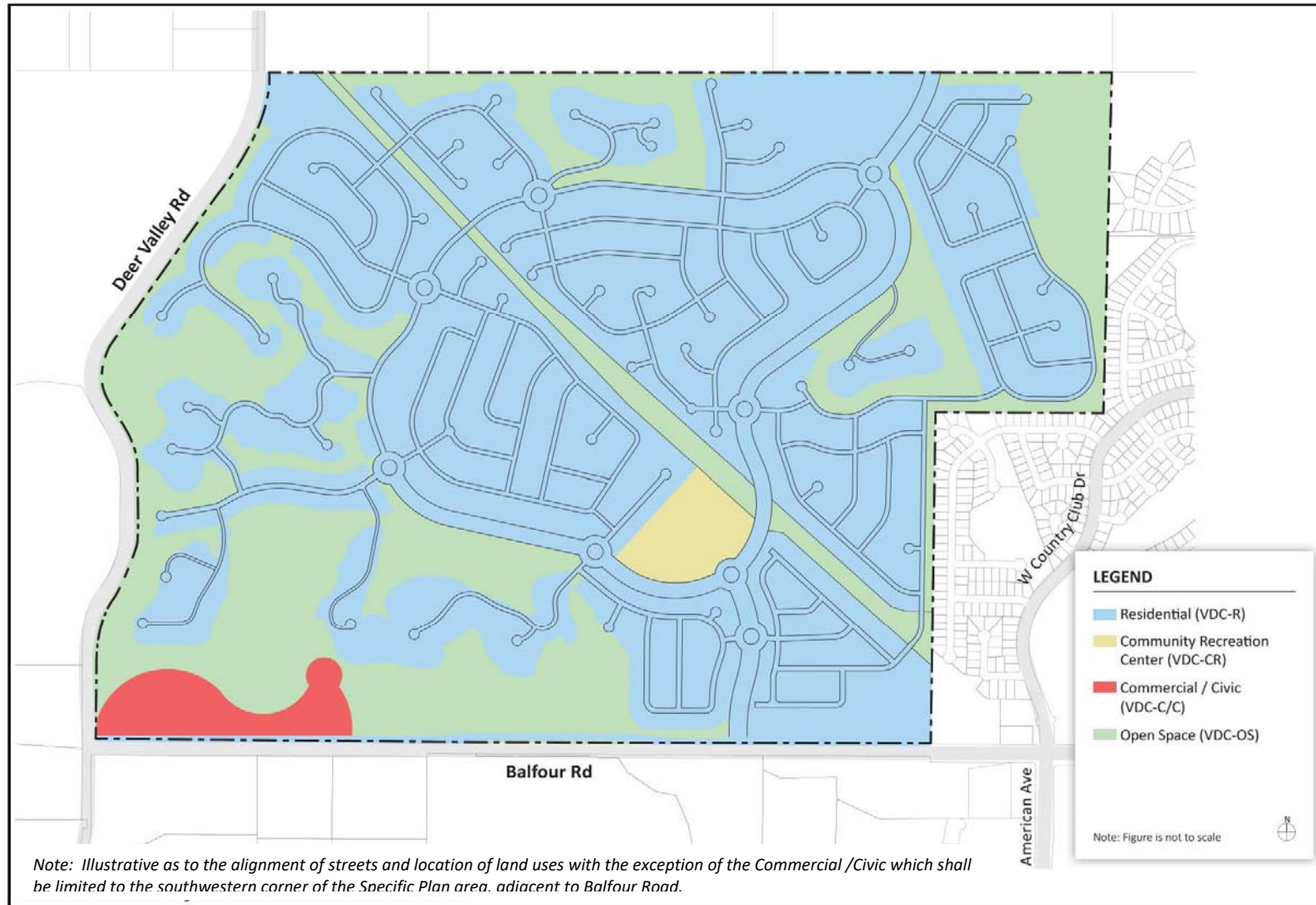
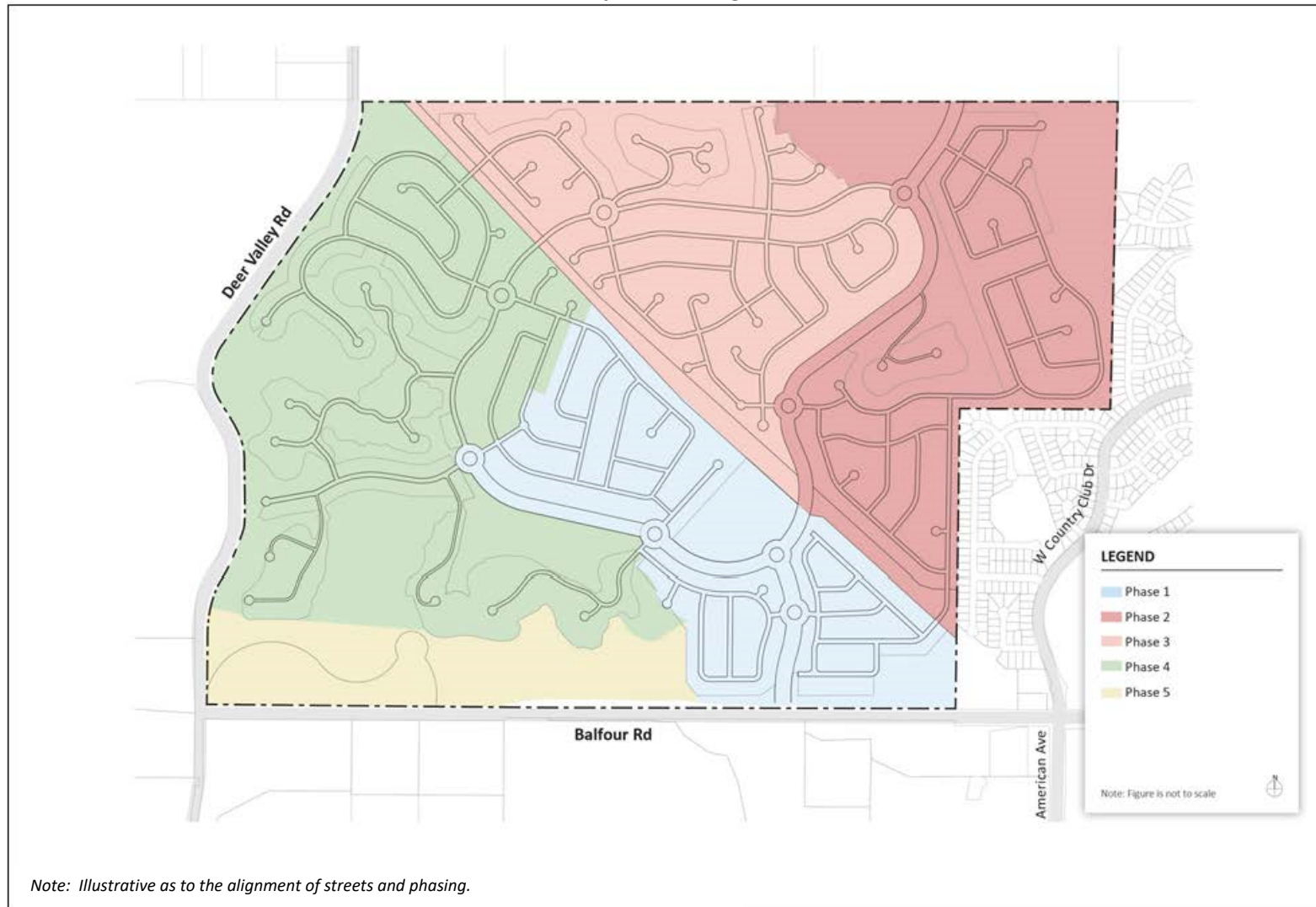


Figure 3
Land Use Exhibit



Source: Carlson, Barbee & Gibson, Inc, 2019

Figure 4
Conceptual Phasing Plan



Source: Carlson, Barbee & Gibson, Inc., 2019

Figure 5
Street Network and Hierarchy

Note: Illustrative as to the placement of streets. Specific placement and design of conceptual cross-sections to be determined during subdivision map approval.

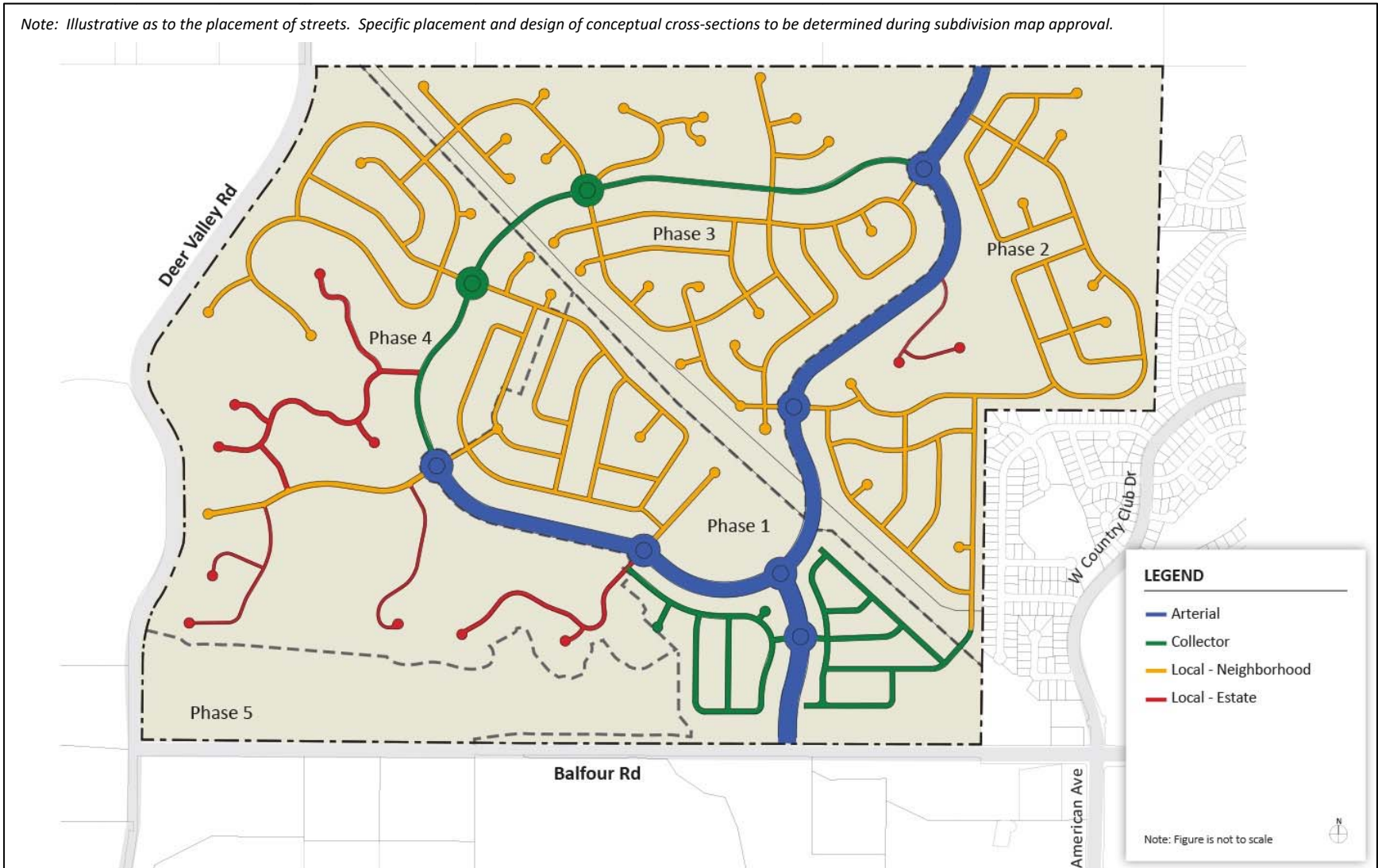


Figure 6
Existing and Proposed Potable Water

Note: Illustrative as to the alignment of streets and location of infrastructure.

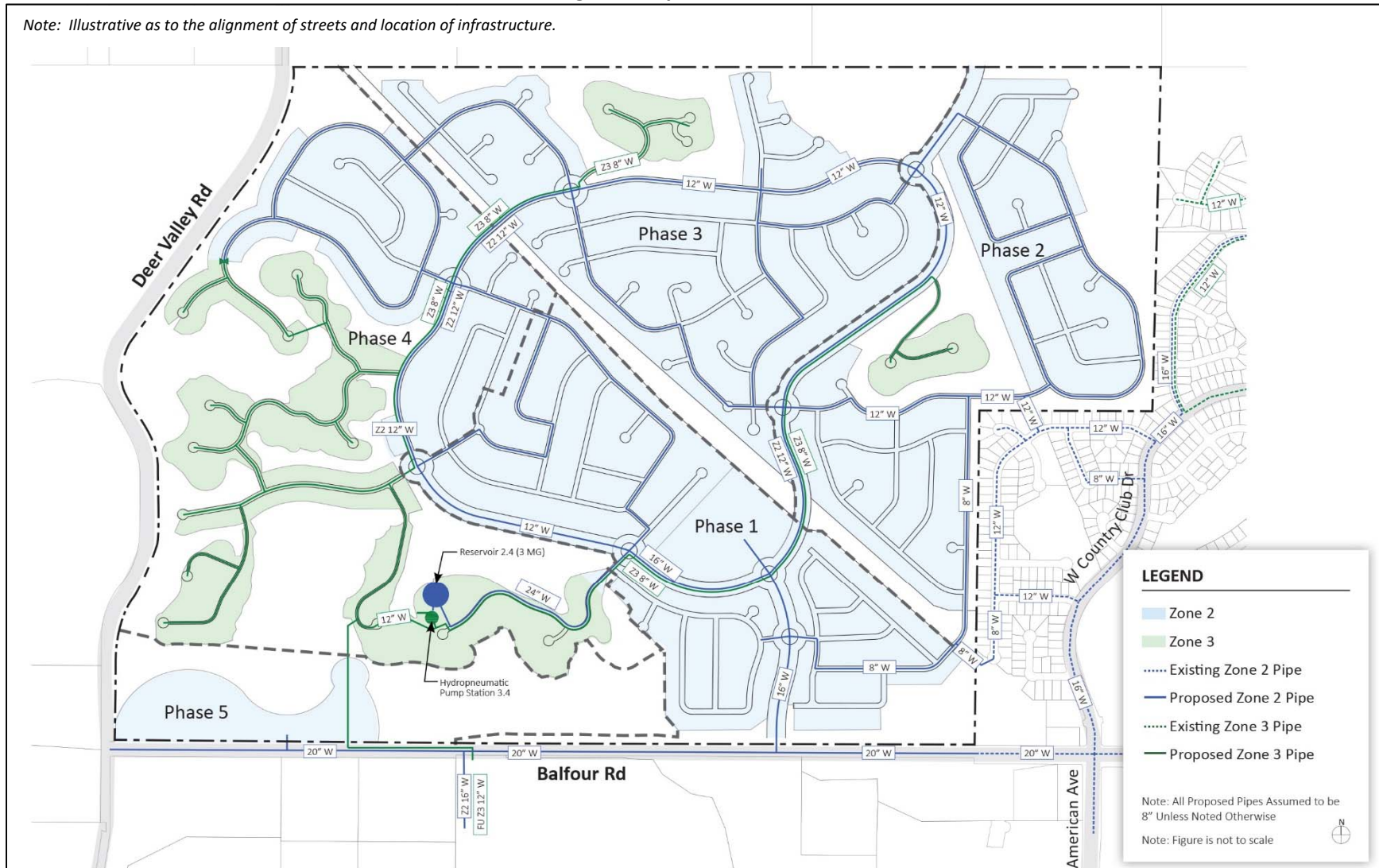
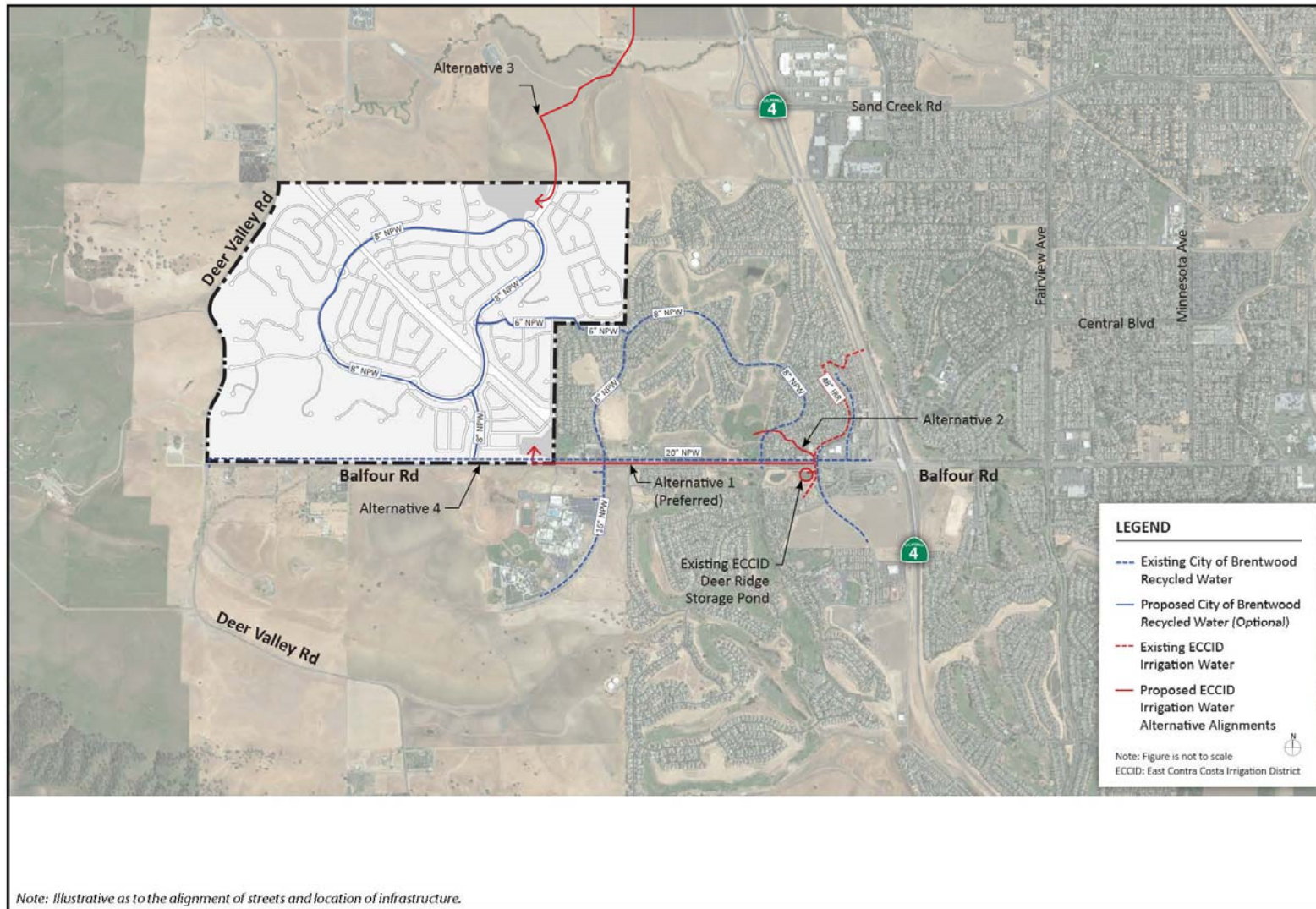


Figure 7
Existing and Proposed Irrigation and Recycled Water



Source: Carlson, Barbee & Gibson, Inc.

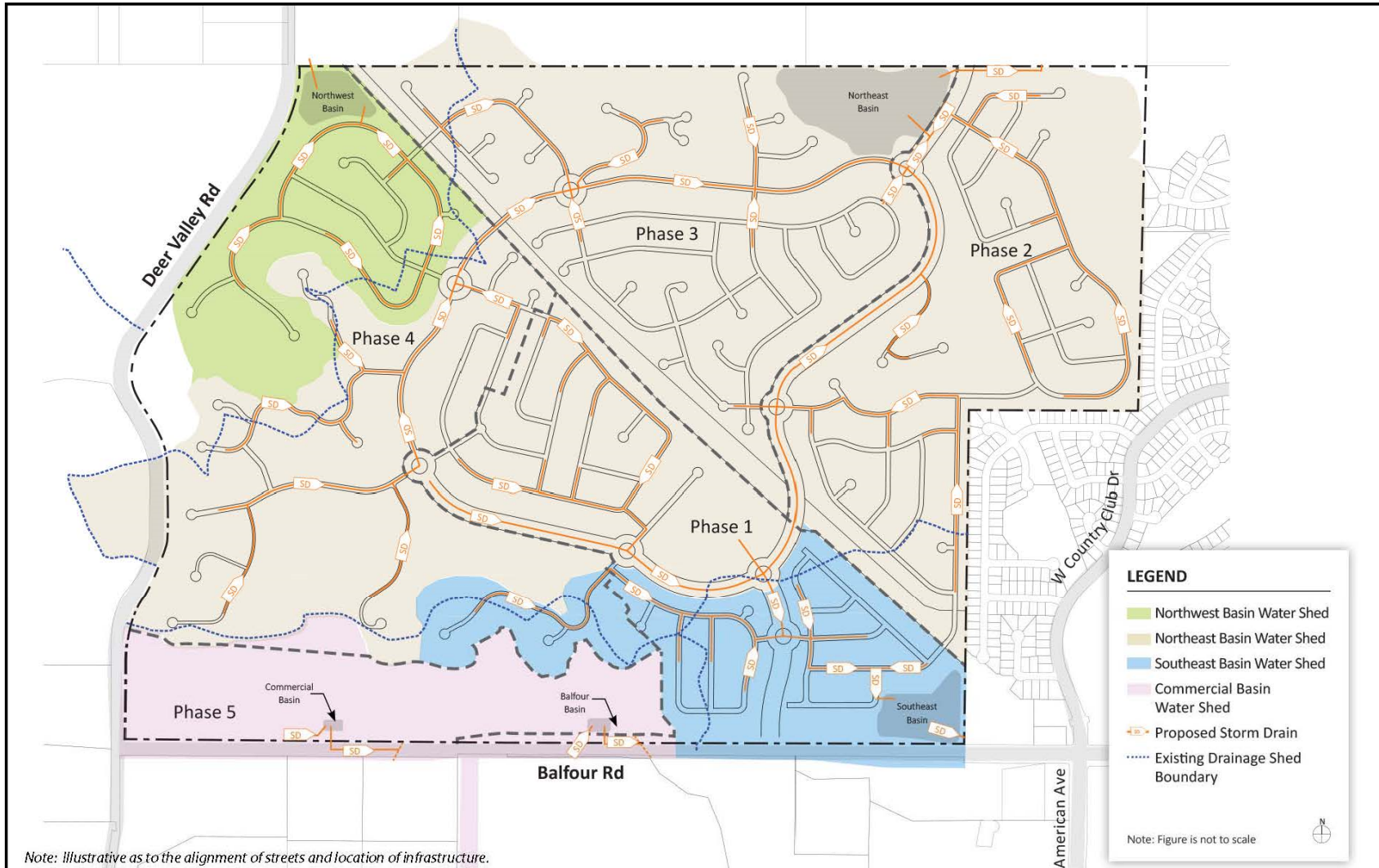
Figure 8
Existing and Proposed Sanitary Sewer



Note: Illustrative as to the alignment of streets and location of infrastructure.

Source: Carlson, Barbee & Gibson, Inc, 2019

Figure 9
Existing and Proposed Stormwater Conveyance



Source: Carlson, Barbee & Gibson, Inc, 2019

Figure 10
Anticipated Off-site Roadway Improvements

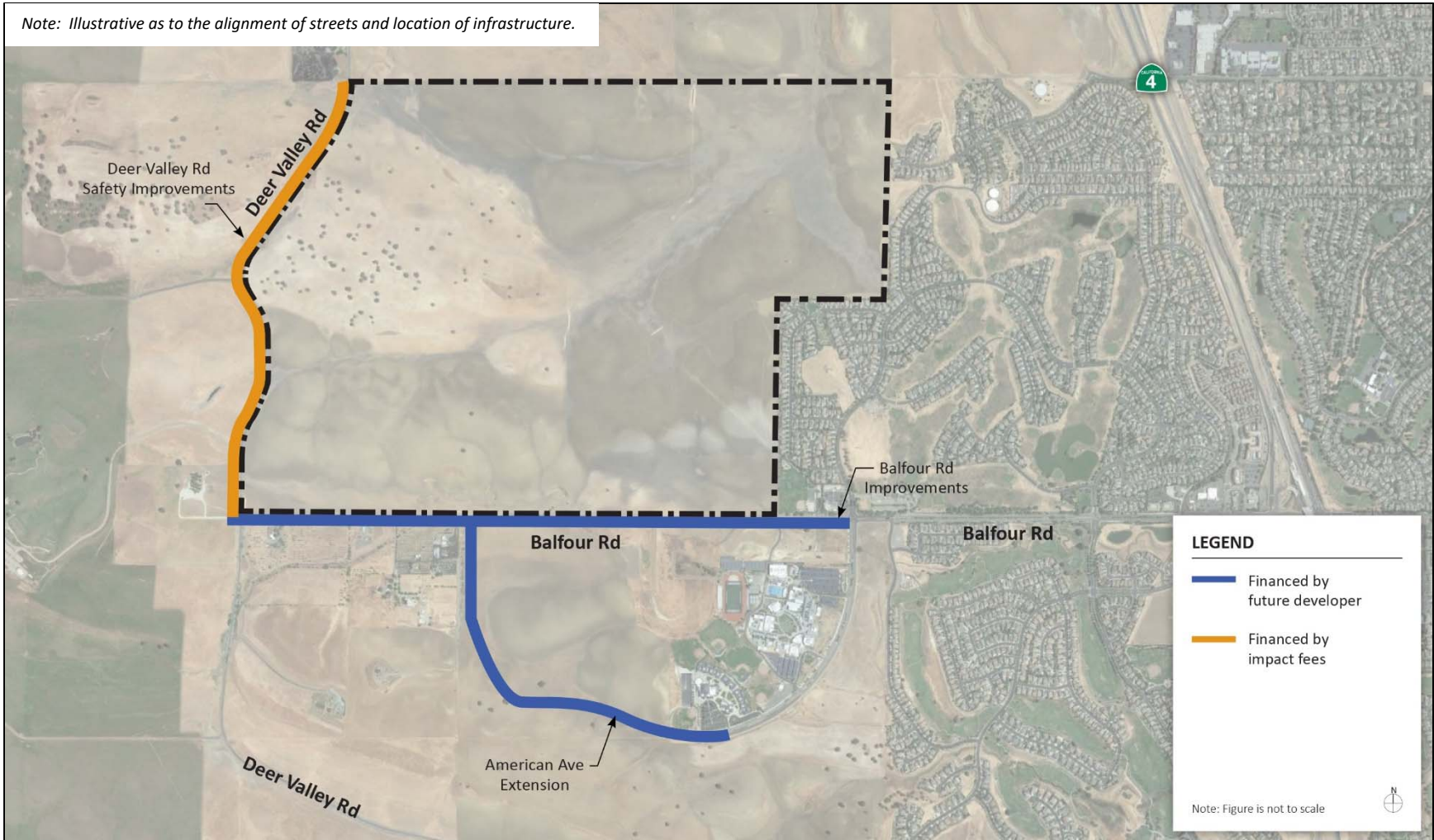


Figure 11
American Avenue Interim Improvements



Source: CBG, 2019



155 Mason Circle
Concord, CA 94520
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fax (925) 685-0266
www.contracostamosquito.com

April 16, 2019

Erik Nolthenius
City of Brentwood
Community Development Department
150 City Park Way
Brentwood, CA 94513

Re: Vineyards at Deer Creek Environmental Impact Report Notice of Preparation

Dear Mr. Nolthenius,

Thank you for the opportunity to express the position of the Contra Costa Mosquito & Vector Control District (the District) regarding the Vineyards at Deer Creek EIR Notice of Preparation for the proposed project located in the City of Brentwood, CA.

As a bit of background, the District is tasked with reducing the risk of diseases spread through vectors in Contra Costa County by controlling them in a responsible, environmentally-conscious manner. A “vector” means any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates. Under the California Health and Safety Code, property owners retain the responsibility to ensure that the structure(s), device(s), other project elements, and all additional facets of their property do not breed or harbor vectors, or otherwise create a nuisance. Owners are required to take measures to abate any nuisance caused by activities undertaken and/or the structure(s), device(s), or other feature(s) on their property. Failure by the property owner to properly address a nuisance may lead to abatement by the Contra Costa Mosquito & Vector Control District and civil penalties of up to \$1,000 per day pursuant to California Health & Safety Code §2060-2067.

Potential impacts to human health by disease vectors is not properly addressed under CEQA—an oversight that has created problems for mosquito abatement and vector control agencies throughout the state. All mosquitoes require water to complete their life cycle. Projects that construct impervious surface, alter water flow or drainage, introduce irrigation, contain water conveyance or treatment elements, produce mitigation wetlands or ponds, etc. have the potential to produce standing water and vector breeding habitat, creating a potential health hazard for area citizens, pets, and wildlife. Vector species that may breed in such locales have the ability to not only affect nearby individuals, but potentially spread disease viruses to persons and other animals several miles away. As the majority of the residences in the proposed project are designated for “active adult” use, public health concerns are elevated as individuals over age 60 are at highest risk for getting severely ill if infected West Nile virus—a disease virus spread by mosquitoes. This project’s introduction of stormwater catchments and drain lines, treatment basins, increased runoff, and various residential vector habitats can increase vector production and public health threats if not properly implemented and maintained.

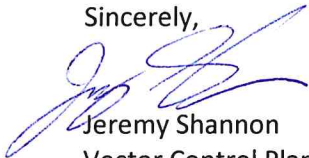
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Addressing these concerns in the environmental review and project planning phases can not only better protect public health and reduce the need for pesticide applications for vector control efforts, but avoid costly retrofits and fines for property owners in the future. Attached to this letter is a white paper produced by the Mosquito and Vector Control Association of California that provides a tool for governments and agencies to manage, analyze, and address the impacts of vector production inherent to certain projects that require CEQA review. Please don't hesitate to contact me should you have any questions or need anything further.

Sincerely,

A handwritten signature in blue ink, appearing to read 'J. Shannon', is written over the typed name.

Jeremy Shannon
Vector Control Planner

925-771-6119

jshannon@contracostamosquito.com



According to the Mosquito and Vector Control Association of California (MVCAC), the state's leading advocate for mosquito and vector control, new development projects that do not take into account vector breeding potential have created an increased threat to public health.

Public health experts believe that much more can be done to prevent mosquitoes, which are responsible for an estimated 725,000 deaths worldwide each year. There are a number of factors that play a role in this devastating figure, however, urbanization itself has become a significant risk factor as populations rise and infrastructure designed to accommodate dense populations is built. Current California Environmental Quality Act (CEQA) Statutes and Guidelines neglect to directly address vector and mosquito threats.

While many local governments have done a good job improvising from existing CEQA guidelines and other planning tools to begin to address this issue, a significant gap exists between state regulations and the resources that most local planning agencies need to address vector issues in the planning process. To address this concern, MVCAC has developed the enclosed white paper, "How Better Planning and Use of the California Environmental Quality Act Can Prevent Mosquitoes and Vector-Borne Disease," that discusses the benefits for developers, natural resources and public health when adding vector control considerations to local government project planning and design.

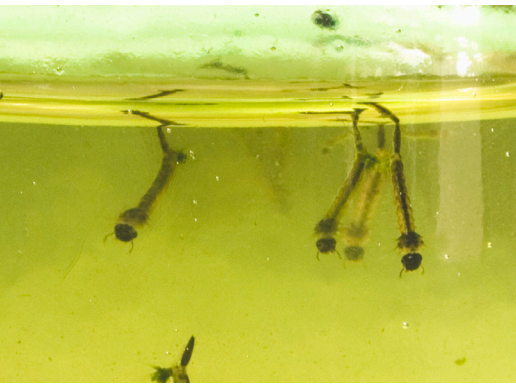
MVCAC's White Paper presents a number of case studies that identify problems and recommended solutions specific to the local planning and CEQA review process and is intended to be a tool for local governments and other lead agencies to manage, analyze, and address the impacts of mosquito and vector breeding inherent in certain types of projects.

We encourage you to read this white paper to learn more about local proactive measures and best practices that can be employed to further protect public health. If you have any questions or comments, please let me know.

Sincerely,

Bob Achermann, Executive Director
Mosquito and Vector Control Association of California (MVCAC)
Phone: 916-440-0826
Email: mvcac@mvcac.org

How Better Planning and Use of the California Environmental Quality Act Can Prevent Mosquitoes and Vector-Borne Diseases



Benefits for Developers, Natural Resources and Public Health

August 2014



Worldwide, the dramatic rise in the incidence of emerging and resurging vector-borne disease has been associated with ecological and climate change that favors increased vector densities (vectors are animals that can carry a disease agent from one person or animal to another, like mosquitoes transmitting malaria or West Nile virus). Urbanization itself has become a risk factor as populations rise and infrastructure designed to accommodate dense populations is built. International travel and global commerce daily connects disparate regions of the world providing avenues for introductions of new vector species and emerging vector-borne disease. Today, mosquitoes alone are responsible for an estimated 725,000 deaths worldwide each year.

California is not immune from these changes. In fact, recent introductions of new vector-borne diseases and invasive mosquito species have altered the public health landscape such that the 'status quo' must change. Development projects which affect the movement, collection, or management of water that do not account for vector breeding potential will negatively impact public health, and owners/managers of these projects are accountable.



California is home to one of the most extensive mosquito and vector control networks in the United States. Mosquito abatement and vector control districts are charged in Sections 2000-2067 of the California Health and Safety Code (HSC) with managing and controlling populations of mosquitoes and other vectors to protect residents from nuisance and disease. Historically, these districts have worked behind the scenes to manage vector populations as required; but as this White Paper documents, this approach is no longer sustainable nor is it in the best interest of the environment.

Proactive design and maintenance can dramatically reduce the risk of vector production and vector-borne disease transmission, improve water quality and habitat benefits, and result in more sustainable development in the long run. In California, significant mosquito and vector breeding habitat exists today which can be attributed to a correctable oversight in the California Environmental Quality Act (CEQA). Too often, the potential impacts on public health are overlooked in project planning stages and are not recognized in local General Plans, site Specific Plans, or other planning documents. According to Sections 2060-2067 of the HSC, property owners are ultimately responsible for the abatement of a public nuisance and may be held liable for all costs necessary to abate the nuisance, prevent its recurrence, and civil penalties of up to \$1000 per day that the nuisance exists.

This White Paper is a tool for local governments and other lead agencies to manage, analyze, and address the impacts of mosquito and vector breeding inherent in certain types of projects subject to CEQA analysis. In this regard, consulting local vector control agencies on the front-end of planning and project approval is recommended to save time, resources, and improve the health of Californians.

Mosquito abatement and vector control districts use Integrated Vector Management (IVM) programs to implement the most environmentally-sound and economically feasible methods to control mosquitoes and other vectors. IVM programs incorporate education, physical control and source reduction, biological and chemical control, and favor integrated planning efforts to manage vector populations and disease risk.

The Mosquito and Vector Control Association of California (MVCAC) recommends that policy-makers, planning officials, and project proponents incorporate relevant considerations from the Best Management Practices for Mosquito Control publication into the planning and review process. This BMP guidance was developed by the California Department of Public Health in collaboration with MVCAC to reduce the spread of diseases and reduce the need to use pesticides. A copy of the most recent update (July 2012) can be viewed here: <http://www.cdph.ca.gov/HealthInfo/discond/Documents/BMPforMosquitoControl07-12.pdf>.

Issue:

Current CEQA Statutes and Guidelines neglect to specifically address public health pests or provide protections from mosquitoes and other important public health vectors. In some instances, this has led to an avoidable proliferation of project sites that breed mosquitoes and expose Californians, domestic animals, pets, and wildlife to disease risks including the dangerous West Nile virus and emerging threats such as dengue and chikungunya viruses. Some sites also provide harborage for other vectors and nuisance pests, including flies and rodents. ***This oversight has resulted in projects that fail to meet the design or land use objectives necessary for compliance with Sections 2000-2067 of the HSC.***

Section 2060 Article 5 (b) of the HSC states:

The person or agency claiming ownership or title, or right to property or who controls the diversion, delivery, conveyance, or flow of water shall be responsible for the abatement of a public nuisance that is caused by, or as a result of, that property or the diversion, delivery, conveyance, or control of that water.

A public nuisance is in the HSC Section 2002 is defined as:

(j) *“Public nuisance” means any of the following:*

- (1) Any property, excluding water that has been artificially altered from its natural condition so that it now supports the development, attraction, or harborage of vectors. The presence of vectors in their developmental stages on a property is prima facie evidence that the property is a public nuisance.*
- (2) Any water that is a breeding place for vectors. The presence of vectors in their developmental stages in the water is prima facie evidence that the water is a public nuisance.*
- (3) Any activity that supports the development, attraction, or harborage of vectors, or that facilitates the introduction or spread of vectors.*

As a result, these non-compliant projects needlessly put the public, sensitive wildlife, water quality, and other resources at greater risk. Managing vectors from these sites has resulted in increased pesticide use, liability for project proponents, costly retrofits, fines to property owners, and disproportionate burden to taxpayers.

For example, countless stormwater BMPs have been designed and installed over the last 20 years to manage stormwater discharges without applying basic knowledge of vector ecology. Many poorly designed or inadequately maintained mitigation sites have unintentionally become significant sources of mosquito production, adversely impacting communities, businesses and recreational open spaces. These have also disrupted the balance and diversity of natural environments. Had these projects considered the long-term implications of mosquito production in the planning, design, and maintenance objectives at the onset, these deleterious impacts would have been largely avoided at little or no cost to the project proponent.

Solution:

Inclusion of appropriate language and considerations in local General Plans, local CEQA guidelines and planning guidelines will assist project planners to minimize or avoid mosquito and vector production in CEQA approved projects. This is increasingly essential in light of tightened pesticide regulations, the encroachment of development into wetlands and wildlands, on-site water retention required by Low Impact Development standards (LID) and grey-water recycling and water conservation efforts.

Discussion:

Under existing California law, property or water rights owners are responsible for public nuisances they create and are subject to abatement, including control costs and fines. Fortunately, Best Management practices (BMPs) have been developed to reduce or prevent vector production and harborage. It is also recognized that climate change may further enhance the spread of vectors and increase the outbreak of vector-borne diseases. With proactive planning and incorporation of BMPs into local planning guidelines, the entitlement process, and CEQA, abatement costs are avoided and public health is protected.

The failure to properly address this critical concern within the CEQA Statutes and Guidelines has resulted in the following problems:

Case Studies



Problem 1

Increased urbanization brings mosquitoes closer to where people live and work. Hardscape environments force everyday urban runoff to pool and stagnate in structures designed to convey storm flows and filter out pollutants. Many of these systems are old and in disrepair, especially gutters, retention basins and underground storm drain systems (USDS). Urban runoff from landscape and agriculture irrigation occurs year-round and increases in warmer months. These discharges stagnate and create favorable mosquito breeding conditions. The dispersal of blood-feeding mosquitoes from these sites into the surrounding urban environment increases the risk factor for humans, domestic animals, and wildlife for infection with diseases like West Nile virus.

For example: one northern California city utilizes natural streams and created detention facilities to accommodate pulse storm flows as well as upstream seasonal agricultural drainage and urban runoff. High beaver populations coupled with limited maintenance has allowed dense vegetation to create blockages allowing water to stagnate and breed mosquitoes near heavily used walking paths and residential properties. Each new housing project located along these stream corridors further impacts the drainage issues and contributes additional non-storm flows to the system already at full capacity.

Solution:

When new or redevelopment projects undergo a CEQA review, consideration should be given to the project's potential to produce mosquitoes or other vectors in 1) stormwater treatment/conveyance structures, 2) year-round runoff flows from the project, 3) any other features (like ornamental lakes or creeks) designed to hold or convey water, and 4) cumulative impacts of projects on current or potential vector-borne disease risks in the area.

The HSC establishes that property and water rights owners are responsible for conditions that support a “public nuisance.” Therefore, it is imperative to evaluate the potential of a proposed project to create or prevent such a nuisance. Under most circumstances production of mosquitoes, other vectors, and nuisance pests can be avoided or minimized through proper planning and design or maintenance elements. *The CEQA review process should require the project proponent to examine the potential that water holding or conveyance features may create a public nuisance and then seek the advice of vector control professionals as necessary and mitigate for any significant impacts.*

Problem 2

Under the National Pollution Discharge Elimination System (NPDES) permits, storm water BMPs and Low Impact Development (LID) features are mandated to improve water quality. Most often, these features are designed to capture and retain or infiltrate stormwater. Certain BMPs, like vortex separators, media filter chambers, treatment wetlands, underground storage tanks, and rain barrels hold water for extended periods, creating ideal mosquito breeding conditions, especially if not regularly maintained. Maintenance schedules rarely include recommendations to limit vector breeding. The sheer number of these features, lack of location data, lack of public awareness, and the proliferation of year-round runoff has created a complex and increasing challenge for public health mosquito and vector control programs. The few inches of highly organic water standing in these systems can produce thousands of mosquitoes every week.

Solution:

Few Multiple Separate Stormwater Sewer System (MS4) permits have requirements that address mosquito and vector production from these systems and, in those that do, the language and requirements are quite variable. *The State Water Board and regional water boards should seek state-wide consistency in addressing this issue.* Here is a link to an MS4 permit that got it right: http://www.waterboards.ca.gov/coloradriver/board_decisions/adopted_orders/orders/2013/0011cv_ms4.pdf

Problem 3

State and federal resource management agencies require project proponents to mitigate project impacts to natural resources like wetlands, riparian creeks, or sensitive species. This mitigation is often in the form of a 2:1 ratio for habitat creation. Wetland/habitat mitigation sites are commonly incorporated as aesthetic elements into housing developments and commercial complexes.

Created wetlands/riparian features often have poor water quality and low species diversity since they are typically fed by urban runoff flows directed from the development. This creates ideal mosquito breeding habitat, often in close proximity to where people live and work. Conflicting resource agency management objectives often result in sites that are frequently not maintained and become filled in with sediment, invasive vegetation, and pestiferous mosquitoes. These conditions make mosquito inspection and treatment difficult and may require the property owner to acquire resource agency permits to have maintenance work performed, so that access and treatments can be effective. Consequently, when effective non-chemical control options such as water management or vegetation reduction cannot be—or are not—used, more frequent pesticide applications may be required to protect public health from mosquitoes and mosquito-borne diseases.

Solution:

If the potential for mosquito and vector production were addressed in the CEQA Statutes and Guidelines, project planners could effectively articulate what vector production avoidance measures would be incorporated into the site design and prescribe long-term maintenance measures. This consideration at the onset of the project is highly cost-effective for the project proponent and/or property owner who otherwise has to pay for expensive remediation and large scale maintenance costs that could have been “designed out” of the project.

Problem 4

Mosquito abatement and vector control programs often do not have discretionary approval or permitting authority, and are not routinely made aware of impending new projects within their jurisdictions by city/county planning or permitting departments. New sources of vectors are typically discovered after a complaint is filed by a member of the public, allowing vector populations to grow unchecked and requiring additional labor and often multiple pesticide applications.

Solution:

Having location and type data on potential new sources would allow mosquito control agencies to keep the sites under surveillance for mosquito production and proactively prevent breeding problems. This is another element that can be addressed by local planning guidelines as project planners would be made aware of these needs and directed to resources like the California Department of Public Health document, titled “Best Management Practices for Mosquito Control in California,” a manual of cost-effective IVM guidelines and design parameters. Consulting vector control agencies when projects have certain features like holding water would also help address this problem.

Problem 5

Public health mosquito and vector control agencies often do not have safe access to sites for inspection and possible treatment. Some project sites have paths and access roads that are used for multiple purposes, but most do not. Routine maintenance and access to creek banks and flooded areas specifically for vector control often are not analyzed under CEQA or are not included in the management plans, thus complicating the local District's efforts for safe and permissive access especially during fire season.

Solution:

Access to properties could be readily planned into a project and integrated with its objectives. This is especially critical for large, vegetated water features. This can also be addressed at the local planning level as project proponents would be made aware of these needs and directed to resources like the California Department of Public Health document, titled "Best Management Practices for Mosquito Control in California," a manual of cost-effective IVM guidelines and design parameters.

Problem 6

Poorly designed projects often breed mosquitoes and other vectors. After installation, pesticide applications are often needed because of design flaws, lack of planning, lack of maintenance, etc. Even with planning, changes in projects can result in the need for coordination from mosquito control professionals.

For example, a sanitation district in southern California constructed wastewater treatment wetlands to treat primary treated wastewater prior to discharging it to a local river. The local mosquito control district consulted on the Initial Study and Mitigated Negative Declaration and entered into a Memorandum of Understanding with the sanitation district to prevent and control mosquito and midge (fly) breeding. The mosquito control district provides the sanitation district with information on its control efforts and coordinates on water flow strategies, vegetation management, and biological resources. In return, the sanitation district provides access to the wetlands, manages vegetation, allows for a chicken flock to be kept for disease surveillance on the property, maintains sprinklers at the edges of the ponds for spraying at dawn and dusk to reduce egg-laying by mosquitoes, and reimburses the mosquito control district for chemical products and supplies used to control mosquitoes in the wetlands. In order to reduce mosquito breeding, the sanitation district even switched to secondary treatment, using the wetlands to provide tertiary treatment of the water, which removes more bio solids and thus provides cleaner water. But poor design could not be overcome and the project has experienced ongoing mosquito activity at unacceptable levels. All of these measures were implemented post design of the project and thus were aimed at mitigation, not prevention.

In 2013, the mosquito control district used \$22,068.03 of chemical products and supplies; the sanitation district spent another \$100,000 on vegetation management. The wetlands require weekly treatments from March through November to control the mosquitoes and protect the residents from West Nile virus. The wetlands have also become a wild bird sanctuary which requires additional consideration for control product selection and use on the property. While this wild bird sanctuary is an attractive feature, it further complicates the application of chemicals to control mosquito populations.

Solution:

The IVM approach was not followed in the example above. As previously discussed, the IVM approach looks at all available options to manage mosquito and vector populations, and integrates the most effective options to protect public health. A key component of an effective IVM program is to prevent or minimize the need for ongoing control efforts, which reduces the amount of pesticide that is applied. Today, less pesticide would be used if more existing projects had considered mosquito and vector control issues during the design phase. Had this approach been taken in the design phase of the wetlands project in this example by reducing or eliminating features and conditions that would likely result in vector problem, there would have been a substantial savings of time, money and energy and a public health benefit of less mosquitos and reduced need for chemical usage. For example, designing the wetlands with consideration for how far land-based larval mosquito pesticide application equipment can effectively treat mosquitoes would have increased the efficacy of those applications, allowing for better protection of people and wildlife.

Problem 7

In neighborhoods with higher density residential and/or commercial property use, the activities of a redevelopment or construction project may disturb structures, debris and vegetation that have significant rodent populations. These rodent vectors disperse to the surrounding properties or buildings, to the disadvantage of the owner/occupants. There have been significant rodent infestations of neighborhoods caused when large rodent populations are dispersed from old buildings and/or neglected properties that are demolished or cleared.

Solution:

It would be appropriate for the cost of de-populating a vacant property of rodents prior to demolition to be borne by the property owners, saving the neighbors from the consequences of rodent dispersal. In projects where CEQA analysis is necessary, a vermin assessment and abatement plan should be considered and then applied when and where appropriate. Consulting vector control agencies when projects have rodent-dispersing potential would also help address this problem, as the agency could assess the site and propose a best management solution.

Problem 8

The Centers for Disease Control and Prevention reported that 2012 was the deadliest year on record, in the United States, for West Nile virus, reaching 286 fatalities and 5,674 reported infections; 51% of these patients had the neuroinvasive form of the disease, and many will endure long-lasting or permanent neurological impairment as a consequence of their illness. According to a 2006 study that examined the cost-effectiveness of a West Nile virus vaccine, the estimated baseline cost of a neuroinvasive disease was \$27,500, and for each infection that resulted in a long-term disability, the cost averaged \$210,000. The cost associated with each West Nile virus infection includes health care, lost wages, loss of productivity, and other significant economic ramifications.

Solution:

Reducing the number of potential mosquito and vector breeding sources through cost-effective planning measures may reduce the number of human disease cases and reduce healthcare and other cost burdens both public and private.



Needed Action

The inclusion of mosquito and vector control considerations as a preventive planning measure in the CEQA Statutes and Guidelines, specifically in Appendix G – Environmental Checklist Form will address the aforementioned problems with state-wide consistency. This will also help to synchronize multiple state resource agency objectives, better protect Californians from vectors and vector-borne diseases, reduce costs for project proponents and property owners, and save taxpayer resources.

Below is an example of mosquito and vector related questions that should be considered in a project's CEQA analysis. These can be included as a stand-alone addition to a lead agency's Initial Study Checklist or modified to fit under an existing section of the checklist like Public Services, Biological Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, or Mandatory Findings of Significance depending on the nature of the project:

Vector Control — The analysis for a project must consider evidence of potential environmental impacts, even if such impacts are not specifically listed on the Appendix G checklist. [State CEQA Guidelines, § 15063(f)] To determine whether Public Health & Safety may be significantly impacted, lead agencies should refer to the California Health & Safety Code § 2000-2093 for definitions and liabilities associated with the creation of habitat conducive to vector production and to guidance provided by the local mosquito and vector control districts/agencies in their determination of environmental impacts.

Would the project:

a) Increase the potential exposure of the public to disease vectors (e.g., mosquitoes, flies, ticks, and rats)?

b) Increase potential mosquito/vector breeding habitat (i.e., areas of prolonged standing/ponded water like wetlands or stormwater treatment control BMPs and LID features)?

Having these public health vector control considerations added to lead agency CEQA environmental checklists would be an important first step in ensuring that vector issues are appropriately addressed early in the project planning process in environmental documents. This has been done successfully by the County of San Diego, Department of Planning and Land Use, since 2007. When enacted it translates into preventive planning, compatible design, and effective long-term maintenance that avoids or reduces vectors. Beyond the important benefit to public health, it also results in a substantial cost savings to taxpayers and reduces pesticide applications into the environment.

The MVCAC believes that taking these proactive measures will correct a pervasive planning oversight and better ensure protection of the environment and the public health for the citizens of California.

A Short History of Mosquito Control in California – How It Began

The first recorded mosquito control efforts in California were under the direction of University of California professors and employed against the salt marsh mosquitoes of the San Francisco Bay marshlands at San Rafael (1904) and at Burlingame (1905). The devastating effects of malaria in California's Central Valley in 1908 led to an education and demonstration program on malaria and anopheline mosquito control conducted by professor William B. Herms of the University of California, Berkeley, and sponsored by the Southern Pacific Railway. The first organized anti-malaria program was undertaken at Penryn in the Sacramento Valley in 1910, and later the same year an anti-malaria program was started in nearby Oroville.



Abatement Agencies

Enabling legislation for the creation of organized mosquito control agencies was passed May 29, 1915, when the State Legislature approved the Mosquito Abatement Act. Legislation authorizing the creation of pest abatement districts was passed in 1935, but only a few such districts have been formed for mosquito control. In pest abatement districts, the powers and legal bases are very similar to mosquito abatement districts, but the former provide for abatement of “any plant, animal, insect, fish, or other matter or material” as deemed a pest.

Role of the State Department of Public Health

The State Department of Public Health (Department of Health Services) created a Bureau of Vector Control (Environmental Management Branch) in 1946. The Branch was staffed with experts who assisted in the formation of many new mosquito abatement districts. The Branch also provided a number of technical services including disease surveillance and research studies throughout California. Today, CDPH, Infectious Diseases Branch, Vector-Borne Disease Section continues this mission of providing technical assistance and research that promotes vector-borne disease prevention.

Status of Mosquito Abatement and Vector Control Agencies

As of 2012, there were 82 organized mosquito and vector control agencies; these agencies had a combined operating budget totaling 75.8 million dollars. They provide control measures against mosquitoes, chaoborids (phantom midges), chironomids (non-biting midges), yellow jackets, black flies, red imported fire ants, rodents, and other pests and vectors for 37.3 million California residents. The state association that represents these agencies is the Mosquito and Vector Control Association of California (MVCAC). MVCAC is the leading advocate for mosquito and vector control in the California Legislature, among regulatory agencies and for the general public.

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
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April 16, 2019

Erik Nolthenius
City of Brentwood
150 City Park Way
Brentwood, CA 94513

RE: SCH# 2019049008 Vineyards at Deer Creek Project, Contra Costa County

Dear Mr. Nolthenius:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
 - a. A brief description of the project.
 - b. The lead agency contact information.
 - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
 - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
 - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
 - a. Alternatives to the project.
 - b. Recommended mitigation measures.
 - c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
 - a. Type of environmental review necessary.
 - b. Significance of the tribal cultural resources.
 - c. Significance of the project's impacts on tribal cultural resources.
 - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
 - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
 - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
 - a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).
8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).
9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).
10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
 - a. Avoidance and preservation of the resources in place, including, but not limited to:
 - i. Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i. Protecting the cultural character and integrity of the resource.
 - ii. Protecting the traditional use of the resource.
 - iii. Protecting the confidentiality of the resource.
 - c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
 - e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
 - f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).
11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
 - a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
 - b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. **Tribal Consultation:** If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. **No Statutory Time Limit on SB 18 Tribal Consultation.** There is no statutory time limit on SB 18 tribal consultation.
3. **Confidentiality:** Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. **Conclusion of SB 18 Tribal Consultation:** Consultation should be concluded at the point in which:
 - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
 - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
 - a. If part or all of the APE has been previously surveyed for cultural resources.
 - b. If any known cultural resources have already been recorded on or adjacent to the APE.
 - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
 - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
 - b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
 - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
 - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
 - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subs. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Gayle.Totton@nahc.ca.gov.

Sincerely,



for

Gayle Totton
Associate Governmental Program Analyst

cc: State Clearinghouse



Jared Blumenfeld
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D.
Acting Director
700 Heinz Avenue
Berkeley, California 94710-2721



Gavin Newsom
Governor

April 17, 2019

Mr. Erik Nolthenius, Planning Manager
City of Brentwood
Community Development Department
150 City Park Way
Brentwood, California 94513
Enolthenius@brentwood.ca.gov

Vineyards at Deer Creek Project, SCH# 2019049008

Dear Mr. Nolthenius:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for the Vineyards at Deer Creek Project, SCH# 2019049008 (Project). As you may be aware, the California Department of Toxic Substances Control (DTSC) oversees the cleanup of sites where hazardous substances have been released pursuant to the California Health and Safety Code, Division 20, Chapter 6.8. As a potential Responsible Agency, DTSC is submitting comments to ensure that the environmental documentation prepared for this project to address the California Environmental Quality Act (CEQA) adequately addresses any required remediation activities which may be required to address any hazardous substances release.

DTSC staff reviewed the NOP. According to section on Existing and Adjacent Land Uses and Setting, the Project would be located on land that is currently used for agricultural purposes, including dry grass farming and limited seasonal cattle grazing. The NOP does not include any information on the potential presence of agricultural chemicals or other hazardous substances in soil or other media at the project location. We strongly recommend that a full historical assessment of past uses be done for the project area. Based on that information, sampling should be conducted to determine whether there is an issue which will need to be addressed in the CEQA compliance document. If hazardous substances have been released, they will need to be addressed as part of this project.

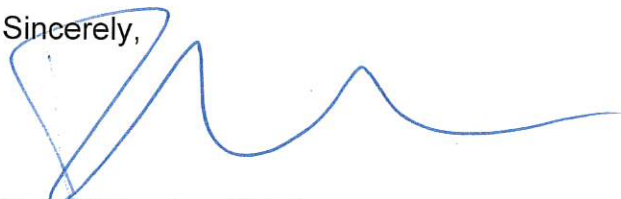
Mr. Erik Nolthenius
April 17, 2019
Page 2

For example, if remediation activities such as soil excavation are required to remove contaminated media from the project area, the CEQA document should include: (1) an assessment of air impacts and health impacts associated with the removal activities; (2) identification of any applicable local standards which may be exceeded by the removal activities, including dust levels and noise; (3) transportation impacts from the removal and other remediation activities; and (4) risk of upset should be there an accident in the project area.

Should remediation be necessary in the project area, DTSC and the Regional Water Quality Control Boards (Regional Boards) signed a Memorandum of Agreement, March 1, 2005 (MOA) aimed to avoid duplication of efforts among the agencies in the regulatory oversight of investigation and cleanup activities at brownfield sites. Under the MOA, anyone requesting oversight from DTSC or a Regional Board must submit an application to initiate the process to assign the appropriate oversight agency. The completed application and site information may be submitted to either DTSC or the Regional Board office for your geographical area. The application is available at <http://www.calepa.ca.gov/brownfields/MOA/application.pdf>.

Please contact me at (510) 540-3772 or by email at Daniel.Murphy@dtsc.ca.gov if you have any questions or would like to schedule a meeting. Thank you in advance for your cooperation in this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Daniel Murphy', with a large, stylized flourish extending to the right.

Daniel Murphy, Chief
Contra Costa and Solano County Unit
Brownfields and Environmental Restoration Program
Berkeley Office

cc: Governor's Office of Planning and Research
State Clearinghouse
State.clearinghouse@opr.ca.gov

Dave Kereazis
Hazardous Waste Management Program
Permitting Division-CEQA Unit
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

Central Valley Regional Water Quality Control Board

24 April 2019

Erik Nolthenius
City of Brentwood
150 City Park Way
Brentwood, CA 94513

CERTIFIED MAIL
7010 3090 0000 5044 7398

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, VINEYARDS AT DEER CREEK PROJECT, SCH#2019049008, CONTRA COSTA COUNTY

Pursuant to the State Clearinghouse's 2 April 2019 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the Vineyards at Deer Creek Project, located in Contra Costa County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

KARL E. LONGLEY ScD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:

http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:

https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits¹

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

¹ Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

For more information on the Water Quality Certification, visit the Central Valley Water Board website at:

https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:

https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/regulatory_information/for_growers/coalition_groups/ or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.
2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100.** Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 11-100 acres are currently \$1,277 + \$8.53/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order.

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit


If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A

complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:

<https://www.waterboards.ca.gov/centralvalley/help/permit/>

If you have questions regarding these comments, please contact me at (916) 464-4812 or Jordan.Hensley@waterboards.ca.gov.



Jordan Hensley
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento



April 24, 2019

State Clearinghouse

State.Clearinghouse@opr.ca.gov

PO Box 3044

Sacramento, CA 95812-3044

CEQA Project: **SCH #2019049008**

Lead Agency: **City of Brentwood**

Project Title: **Vineyards at Deer Creek Project**

The Division of Oil, Gas, and Geothermal Resources (Division) oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. Our regulatory program emphasizes the wise development of oil, natural gas, and geothermal resources in the state through sound engineering practices that protect the environment, prevent pollution, and ensure public safety. Northern California is known for its rich gas fields. Division staff have reviewed the documents depicting the proposed project.

The approximately 815-acre Vineyards at Deer Creek Project site (Project) is located southwest of the City of Brentwood, in unincorporated Contra Costa County; north of Balfour Road, east of Deer Valley Road, and west of the westerly City limits. The Project is a proposed residential community of up to 2,400 residential units. The Project site is currently located outside of the City of Brentwood's city limit lines. A centrally-located community recreation center will serve as the focal point to the community and include a variety of indoor and outdoor recreation amenities. Located adjacent to Balfour Road and Deer Valley Road, an approximately 20-acre commercial/civic area is envisioned for civic events and functions. Approximately 225 acres of permanently established agricultural and open space land use areas will be included. These areas will include extensive areas of vineyards, olive groves, and open space.

The attached map shows locations of seven (7) known abandoned wells, two (2) active gas-producing wells, and two abandoned former injector wells within the Project area. Based on the Project map supplied, several of the wells appear to be located in roadways or in areas projected to be open space.

These could be impacted by construction of roadways if excavation were to exceed 5 feet.

However, four (4) wells near the northwest corner of the proposed development are located in areas which appear to be within or adjacent to areas designated as residential parcels. These include two active gas-producing wells and two permitted wells for which the permits were cancelled. Note that the Division has not verified the actual location of the wells nor does it make specific statements regarding the adequacy of abandonment procedures with respect to current standards. Most wells were cut off five (5) or more feet below grade at the time of abandonment.

For future reference, you can review wells located on private and public land at the Division's website: <https://maps.conservation.ca.gov/doggr/wellfinder/#close>.

The local permitting agencies and property owner should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil and gas wells. These issues are non-exhaustively identified in the following comments and are provided by the Division for consideration by the local permitting agency, in conjunction with the property owner and/or developer, on a parcel-by-parcel or well-by-well basis. As stated above, the Division provides the above well review information solely to facilitate decisions made by the local permitting agency regarding potential development near a gas well.

- 1.** It is recommended that access to a well located on the property be maintained in the event re-abandonment of the well becomes necessary in the future. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access. This includes, but is not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, and decking.
- 2.** Nothing guarantees that a well abandoned to current standards will not start leaking oil, gas, and/or water in the future. It always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. The Division acknowledges that wells abandoned to current standards have a lower probability of leaking oil, gas, and/or water in the future, but makes no guarantees as to the adequacy of this well's abandonment or the potential need for future re-abandonment.
- 3.** Based on comments **1** and **2** above, the Division makes the following general recommendations:
 - a.** Maintain physical access to any gas well encountered.

b. Ensure that the abandonment of gas wells is to current standards.

If the local permitting agency, property owner, and/or developer chooses not to follow recommendation “**b**” for a well located on the development site property, the Division believes that the importance of following recommendation “**a**” for the well located on the subject property increases. If recommendation “**a**” cannot be followed for the well located on the subject property, then the Division advises the local permitting agency, property owner, and/or developer to consider any and all alternatives to proposed construction or development on the site (see comment **4** below).

- 4.** Sections 3208 and 3255(a)(3) of the Public Resources Code give the Division the authority to order the re-abandonment of any well that is hazardous, or that poses a danger to life, health, or natural resources. Responsibility for re-abandonment costs for any well may be affected by the choices made by the local permitting agency, property owner, and/or developer in considering the general recommendations set forth in this letter. (Cal. Public Res. Code, § 3208.1.)
- 5.** Maintaining sufficient access to a gas well may be generally described as maintaining “rig access” to the well. Rig access allows a well servicing rig and associated necessary equipment to reach the well from a public street or access way, solely over the parcel on which the well is located. A well servicing rig, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well without disturbing the integrity of surrounding infrastructure.
- 6.** If, during the course of development of this proposed project, any unknown well(s) is/are discovered, the Division should be notified immediately so that the newly-discovered well(s) can be incorporated into the records and investigated. The Division recommends that any wells found in the course of this project, and any pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property. This is to ensure that present and future property owners are aware of (1) the wells located on the property, and (2) potentially significant issues associated with any improvements near oil or gas wells.

No well work may be performed on any oil or gas well without written approval from the Division in the form of an appropriate permit. This includes, but is not limited to, mitigating leaking fluids or gas from abandoned wells, modifications to well casings, and/or any other re-abandonment work. (NOTE: The Division regulates the depth of any well below final grade (depth below the surface of the ground). Title 14, Section

CEQA Project: SCH # 2019049008


Lead Agency: City of Brentwood

Project Title: Vineyards at Deer Creek Project

1723.5 of the California Code of Regulations states that all well casings shall be cut off at least 5 feet but no more than 10 feet below grade. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this grade regulation, a permit from the Division is required before work can start.)

Sincerely,

DocuSigned by:

Charlene L Wardlow

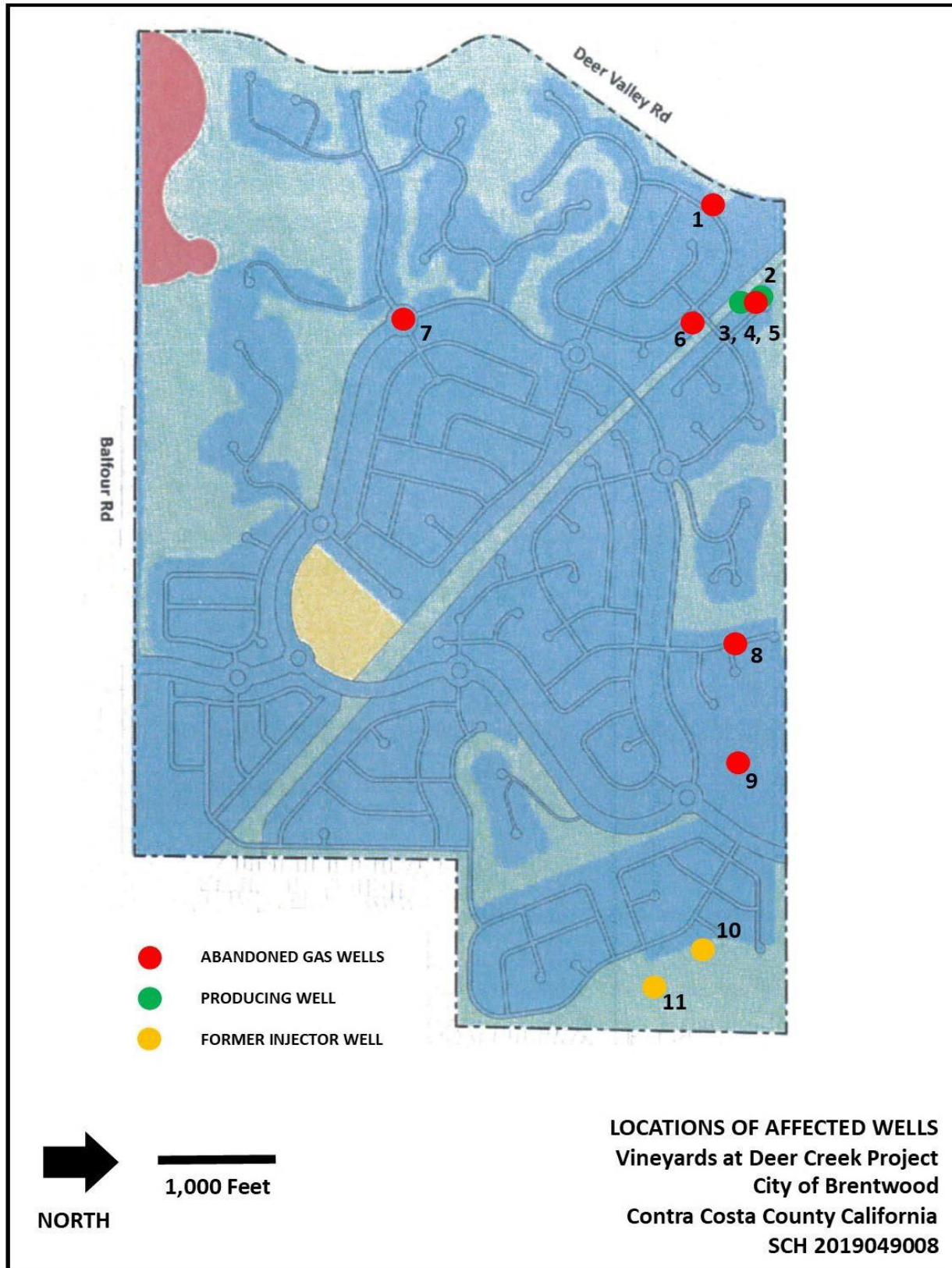
067E7BD5EA114A7
Charlene L Wardlow

Northern District Deputy

Attachments: Map
Well locations

cc: Erik Nolthenius

enolthenius@brentwood.ca.gov



Well locations

Wells Located Within the Vineyards at Deer Creek Project Area										
API Number	Map Number	Well Name	Operator Name	Total Depth	Well Plug Date	Well Type	Latitude			
0401320268	1	Ginochio #1	Venturini Associates Inc.	4337	1990	Gas	37.938083			
0401320385	2	Venturini-Ginochio # 4	Temporary Energy, LLC	4500	Active	Gas (2019)	37.939119			
0401320382	3	Venturini-Ginochio #3	Orchard Exploration & Production			Cancelled	37.939077			
0401320384	4	Venturini-Ginochio #3	Temporary Energy, LLC	4600	Active	Gas (2018)	37.939077			
0401320383	5	Venturini-Ginochio #3	Orchard Exploration & Production			Cancelled	37.939075			
0401320271	6	Venturini-Ginochio #2	Venturini Associates Inc.	4300	1993	Oil	37.938883			
0401300025	7	Ginochio #85-17	Occidental Petroleum Corporation	4483	1963	Dry Hole	37.931433			
0401300037	8	Ginochio #1-13	Occidental Petroleum Corporation	4535	1992	Oil, Gas	37.938503			
0401300042	9	Ginocio-Schellenberger #21-16	Shell Western E&P Inc.	4780	1963	Dry Hole	37.938543			
0401300040	10	Ginocio-Schellenberger #2-16	Occidental Petroleum Corporation	4746	1993	Injector	37.937933			
0401300043	11	Ginocio-Schellenberger #22-16	Occidental Petroleum Corporation	4500	1991	oil, gas to injector	37.936843			



Notice of Preparation Vineyards at Deer Creek Environmental Impact Report

Date: April 2, 2019

To: State Clearinghouse
State Responsible Agencies
State Trustee Agencies
Other Public Agencies
Organization and Interested Persons

Lead Agency City of Brentwood
Community Development Department
150 City Park Way
Brentwood, CA 94513
Attn: Mr. Erik Nolthenius, Planning Manager

Summary

The City of Brentwood, as lead agency, has determined that an Environmental Impact Report (EIR) is required to evaluate the physical environmental effects of the proposed Vineyards at Deer Creek Project ("Project" or "proposed project"). This programmatic EIR will address the environmental impacts associated with the adoption and implementation of the proposed project. Information regarding the project description, project location, public outreach process, and topics to be addressed in the Draft EIR is provided below.

The City has prepared this Notice of Preparation (NOP) to provide Responsible Agencies, Trustee Agencies, and other Interested Organizations and Persons with a description of the Project and to identify potential environmental effects pursuant to CEQA requirements.

Project Location

The approximately 815-acre Project site is located southwest of the City of Brentwood, in unincorporated Contra Costa County; north of Balfour Road, east of Deer Valley Road, and west of the westerly City limits.

Project Description Summary

The Vineyards at Deer Creek (the Project) is a proposed residential community of up to 2,400 residential units within Special Planning Area (SPA) 2 of the Brentwood General Plan, at least 80% (1,920 units+/-) of which will be age-restricted active adult and a maximum of 20% (480 units+/-) will be un-restricted market-rate housing. The Project site is currently located outside of the City of Brentwood's city limit lines, Sphere of Influence (SOI), and Urban Limit Line (ULL). Thus, the entitlements include requests for annexation, rezoning, SOI Amendment, and ULL Amendment (by voter initiative pursuant to Measures J

and L). The average gross density across the Project site would be three dwelling units per acre, which is beyond the scope of the General Plan land use designation for SPA 2, thus requiring an amendment to the General Plan. Each of the six residential neighborhoods may have a neighborhood recreation center. A centrally-located community recreation center will serve as the focal point to the community and include a variety of indoor and outdoor recreation amenities. Located adjacent to Balfour Road and Deer Valley Road, an approximately 20-acre commercial/civic area is envisioned for civic events and functions. Integrated throughout the Specific Plan area will be approximately 225 acres of permanently established agricultural and open space land use areas. These areas will include extensive areas of vineyards, olive groves, and open space, reinforcing the characteristics of a Mediterranean environment. To improve traffic circulation and safety, off-site roadway improvements include, but are not limited to, widening Balfour Road from two to four lanes and extending American Avenue west and north to Balfour Road.

For further details, please see the Detailed Project Description attached.

Public Review and Comment Period

Further notice is hereby given that the City invites comments on the scope and content of the EIR in response to this NOP. Pursuant to Section 15082 of the CEQA Guidelines, this NOP will be circulated for a 30-day review period. At a minimum, responses to this NOP should focus on the potentially significant environmental effects that the proposed project may have on the physical environment and that should be addressed in the Project EIR, ways in which those effects might be minimized, and potential alternatives to the proposed project that should be addressed in the EIR. In your response, please include your name, the name of your agency or organization (if applicable), and contact information.

Comments regarding the scope and content of the environmental review to be conducted for the proposed project should be sent to the City in writing by 5:00 p.m. on May 1, 2019. Please send your written comments to:

Lead Agency Contact:

Erik Nolthenius, Planning Manager
City of Brentwood
Community Development Department
150 City Park Way
Brentwood, CA 94513
(925) 516-5137
enolthenius@brentwood.ca.gov

Scoping Meeting: The City will conduct a scoping meeting on April 23, 2019, beginning at 3:00 PM, located at the Brentwood Community Center (upstairs conference room), 35 Oak Street, Brentwood, California, at which agencies, organizations, and the public will have an opportunity to submit verbal comment. However, all comments must also be submitted in writing in the manner described above.

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

5001 Blum Road
Martinez, California 94553
(925) 646-4980
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

**RECEIVED****MAY - 1 2019**

CITY OF BRENTWOOD
COMMUNITY DEVELOPMENT DEPT

April 29, 2019

File No.: 320.15370

Erik Nolthenius
City of Brentwood
150 City Park Way
Brentwood CA 94513

Dear Mr. Nolthenius,

The Contra Costa Area Office of the California Highway Patrol recently received a "Notice of Preparation" environmental document for the proposed Vineyards at Deer Creek Project- State Clearing House (SCH) #2019049008. After our review, we have concerns with the potential impact this project could have on traffic congestion and service delivery.

Our concerns relate to the proposed construction of up to 2,400 high density residential units on 555 acres with an additional 20 acres of commercial space and 20 acres of Community recreation space. This project is located in close proximity to State Route 4 (SR-4) which serves as an artery for the City of Brentwood and the greater region for vehicles traveling to and from the central Bay Area. This location consists of a single lane of travel in both the eastbound and westbound direction. SR-4 increases to just two lanes of travel in each direction just west of Balfour Rd, and remains a single lane in each direction east of Balfour Rd. This current configuration appears to not have the capacity to accommodate the expected increase in vehicular traffic. Additionally, SR-4 already experiences a significant amount of collisions due, in large part, to congested traffic. The Contra Costa Area would strongly recommend this project incorporate infrastructure improvements which would increase the vehicular volume capacity of SR-4. Without substantial infrastructure upgrades this project could have a negative impact on our operations due to the increased traffic congestion; which could lead to a potential increase in traffic collisions, increased response times, delays in emergency services; and a negative impact to the safe movement of people, services, and commerce within our jurisdiction. Should you have any questions or need any additional information, please feel free to contact Lieutenant Knopf, of this command, directly at (925) 646-4980.

Sincerely,

A handwritten signature in blue ink, appearing to read "D. G. Seaman".

D. G. SEAMAN, Captain
Commander





Lou Ann Teixeira
Executive Officer

MEMBERS

Candace Andersen
County Member

Donald A. Blubaugh
Public Member

Tom Butt
City Member

Igor Skaredoff
Special District Member

Federal Glover
County Member

Michael R. McGill
Special District Member

Rob Schroder
City Member

ALTERNATE MEMBERS

Diane Burgis
County Member

Stanley Caldwell
Special District Member

Charles R. Lewis, IV
Public Member

Sean Wright
City Member

April 30, 2019

Erik Nolthenius, Planning Manager
City of Brentwood Community Development Department
150 City Park Way
Brentwood, CA 94513

SUBJECT: Notice of Preparation –Vineyards at Deer Creek Project

Dear Mr. Nolthenius:

Thank you for sending the Contra Costa Local Agency Formation Commission (LAFCO) the Notice of Preparation (NOP) for the Vineyards at Deer Creek project. We understand that the project proposes a new residential community of up to 2,400 residential units within Special Planning Area (SPA) 2 of the Brentwood General Plan. The project site is located outside and to the west of the City of Brentwood's city limit lines, outside the City's current Sphere of Influence (SOI), and outside the City's and County of Contra Costa Urban Limit Line (ULL). The project will require LAFCO approval of an SOI amendment and annexation to the City of Brentwood and annexation to the East Contra Costa Irrigation District (ECCID) for non-potable water service in addition to approvals required from other agencies. As the City prepares to commence work on an Environmental Impact Report (EIR) for this project, we offer the general and specific comments and questions below.

General Comments

As a Responsible Agency pursuant to the CEQA, LAFCO will need to rely on the City's EIR in consideration of the boundary changes required for the project.

LAFCO is an independent, regulatory agency with discretion to approve, wholly, partially or conditionally, or disapprove, changes of organization or reorganizations. In accordance with the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (CKH), LAFCO is required to consider a variety of factors when evaluating a proposal, including, but not limited to, the proposal's potential impacts on agricultural land and open space, provision of municipal services and infrastructure to the project site, timely and available supply of water, fair share of regional housing, consistency with regional plans, and various other factors.

The factors relating to boundary and SOI changes are contained in Government Code sections 56668 and 56425, respectively. Including an assessment of these factors in the City's environmental document will facilitate LAFCO's review and the LAFCO process. Deficiencies in the environmental document as required by LAFCO may result in the need for additional CEQA compliance work. Given that LAFCO's approvals will be a fundamental part of the entitlements required for this project, the EIR should specifically 1) reference the LAFCO action(s) in the Project Description (i.e., SOI amendments, annexations), 2) list LAFCO as Other Public Agencies Whose Approval is Required, and 3) most importantly, the LAFCO action(s) and relevant factors should be adequately evaluated in the environmental document.

For example, given that the project will convert agricultural land to an urban use, the EIR should include reference to and provide a full analysis of impacts resulting from the conversion of agricultural, prime agricultural and/or open space land to urban uses, using the definitions contained in the CKH as well as those contained in CEQA.

Also, it is important to note that LAFCO primarily relies on "**project**" level environmental documents. We note that the City will prepare a programmatic level EIR for this project. Without the adequate level of project detail and adequate responses to LAFCO's specific comments, LAFCO may be unable to rely on the City's EIR for the needed SOI and boundary changes.

Specific Comments

1. **Agricultural Resources** – We note that the project site includes lands designated for, and currently in, agricultural use. The CKH contains its own definitions of *agricultural lands* (Gov. Code §56016) and *prime agricultural land* (Gov. Code §56064) – see below.

56016. "Agricultural lands" means land currently used for the purpose of producing an agricultural commodity for commercial purposes, land left fallow under a crop rotational program, or land enrolled in an agricultural subsidy or set-aside program.

56064. "Prime agricultural land" means an area of land, whether a single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:

- (a) Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.
- (b) Land that qualifies for rating 80 through 100 Storie Index Rating.
- (c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.
- (d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars (\$400) per acre.

- (e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars (\$400) per acre for three of the previous five calendar years.

Included among the factors LAFCO must consider in its review of a boundary change proposal is the effect of a proposal on agricultural land [Gov. Code §56668(e)]. In order for LAFCO to rely on the City's environmental document, the document should specifically evaluate whether the lands that will be converted to residential or other non-agricultural uses fall within the definitions cited above; and if so, the appropriate analysis and mitigation measures relating to the loss of agricultural lands and/or prime agricultural lands should be provided in the CEQA document.

As there has historically been active grazing on the property, an analysis and possibly mitigation measures are needed for LAFCO to consider related boundary change proposals in conjunction with the project.

The NOP notes that the project will permanently preserve 225± acres of the total project site as active agricultural and/or open space uses pursuant to a recorded open space easement or similar legal mechanism. LAFCO will take these actions into consideration when evaluating the future annexation proposal.

In November 2016, following a 16-month process involving extensive outreach and education, Contra Costa LAFCO adopted an Agricultural & Open Space Preservation Policy (AOSPP). The purpose of the policy is to: 1) provide guidance to the applicant on how to assess the impacts on prime agricultural, agricultural and open space lands of applications submitted to LAFCO, and enable the applicant to explain how the applicant intends to mitigate those impacts; 2) provide a framework for LAFCO to evaluate and process, in a consistent manner, applications before LAFCO that involve or impact prime agricultural, agricultural and/or open space lands; and 3) explain to the public how LAFCO will evaluate and assess applications that affect prime agricultural, agricultural and/or open space lands.

The City's EIR should include a discussion of the LAFCO AOSPP and an evaluation of the how the project's consistency with applicable policies and provisions.

2. **Air Quality and Greenhouse Gas Emissions (GHG)** - In its review of a proposal, LAFCO is mandated to consider a regional transportation plan adopted pursuant to Section 65080 [Gov. Code §56668(g)]. Further, the commission may consider the regional growth goals and policies on a regional or subregional basis (Gov. Code §56668.5). Accordingly, in our consideration of the boundary changes required for this project we will look at the project's consistency with the regional transportation and other regional plans, such as Plan Bay Area.

Plan Bay Area directs future development to infill areas within the existing urban footprint and focuses most of the growth in Priority Development Areas (PDAs). PDAs include infill areas that are served by transit and are located close to other amenities, allowing for improved transit, bicycle and pedestrian access, thereby reducing the amount of transportation related GHG generated. Plan Bay Area supports infill development in established communities and protects agricultural and open space lands. The Plan assumes that all urban growth boundaries are held

fixed through the year 2040 and no sprawl-style development is expected to occur on the regions' open space or agricultural lands.

Priority Conservation Areas (PCAs), also a component of Plan Bay Area, are open spaces that provide agricultural, natural resource, scenic, recreational, and/or ecological values and ecosystem functions. These areas are identified through consensus by local jurisdictions and park/open space districts as lands in need of protection due to pressure from urban development or other factors.

The proposed Vineyards at Deer Creek development project is not within either a PDA or a PCA. The project does not focus growth within the urbanized area of Brentwood, and extends the urban footprint into an undeveloped area, outside the ULL, and predominately used for grazing. As such, this proposal would not appear to minimize GHG emissions. The goals and strategies contained in Plan Bay Area encourage compact development in existing downtowns, main streets and neighborhoods with transit access, and discourage urban edge development in open space and/or agricultural lands.

The EIR should include discussion regarding the relationship of the project to Plan Bay Area.

- 3. Land Use, Population and Housing** – Included among the factors LAFCO must consider in its review of a boundary change proposal are land use and likelihood of significant growth [Gov. Code §56668(a)]; impacts to adjacent areas [Gov. Code §56668(c)]; planned, orderly, efficient patterns of urban development [Gov. Code §56668(d)]; the project's consistency with the city's general plan [Gov. Code §56668(h)]; the extent to which the project will affect the city in achieving its respective share of the regional housing needs [Gov. Code §56668(m)]; and information relating to existing land use designations [Gov. Code §56668(o)]. We anticipate the EIR will fully address these issues so as to enable LAFCO to rely on the City's environmental analysis in anticipation of proposed future SOI and boundary changes associated with the project.

Also, as noted in the City's General Plan, "the area should include a significant area of protected open space, with open space protection for hillsides, sensitive natural habitat, and areas of exceptional scenic beauty."

Further, the project area is subject to an agreement between the cities of Brentwood and Antioch *for the purpose of resolving boundary questions and to implement an open space buffer between the two communities*. The MOU contains various development standards (open space buffers, ridgeline protection, grading, visual, tree protection, circulation, etc.), and other stipulations pertaining to SOI and boundary changes. We ask that the City of Brentwood keep LAFCO staff apprised of the status of the MOU.

- 4. SOI, Boundaries and Islands** – In March 2019, Contra Costa LAFCO released its second round "City Services" Municipal Services Review (MSR) covering all 19 cities and four community services districts. The MSR culminates in updating the SOIs of each local agency covered in the report. As noted in the MSR, the City of Brentwood is not requesting any changes to its existing SOI; and the MSR consultants are recommending no changes to Brentwood's existing SOI. Should the City wish to submit any amendments or comments to

the Draft MSR, LAFCO will consider comments up to and including the June 12, 2019 LAFCO public hearing.

The MSR also includes information regarding availability of vacant and underutilized land within city boundaries and SOIs and potential for infill development versus urban sprawl.

Further, the MSR includes a discussion of trends affecting cities in Contra Costa County including growth and population, jobs-housing balance, and aging infrastructure (e.g. roads). There was considerable public comment at the April 25th EIR scoping meeting regarding the project impacts to roads and streets.

Regarding Brentwood's boundaries, there are two islands within the City's SOI, both of which are located at the far northeast edge of the City. One of the islands is less than 150 acres and can be annexed through an expedited LAFCO process. Please be aware that LAFCO can condition the annexation of one area (e.g., Vineyards at Deer Creek) on annexation of another area (e.g., island area).

Discussion of these matters in the EIR is essential in consideration of any future SOI and/or boundary changes.

- 5. Public Services** - Included among the factors LAFCO must consider in its review of a boundary change proposal is the need, cost and adequacy of public services [Gov. Code §56668(b)] including fire, police, parks & recreation and other municipal services.

The project site is located within the service boundary of the East Contra Costa Fire Protection District (ECCFPD). In 2016, Contra Costa LAFCO completed its second round MSR covering fire and emergency medical services (EMS). The MSR focused on updating data from the first round MSR (2009); review of automatic and mutual aid agreements; and concentration on the two most distressed fire districts including ECCFPD.

We learned the following from the 2016 MSR: ECCFPD continues to suffer from a financial structural deficit, in that they receive the lowest share of property tax revenue as compared to the other fire service providers; East Contra Costa County is expected to grow and increase demand on fire/EMS services; ECCFPD, as with most other Contra Costa County fire services providers, is unable to meet national and state fire response times; and the District's ISO ratings impact homeowners insurance rates and impact property owners' ability to obtain homeowners insurance in some areas.

ECCFPD currently operates with three fire stations as compared to eight stations in 2010, and the number of calls and medical incidents continues to increase.

The 2016 MSR included several recommendations including the following: 1) ECCFPD should pursue new funding sources including a voter approved special tax; 2) land use agencies (i.e., County, cities) should assess/increase their development impact fees to fund fire/EMS; 3) ECCFPD should elect an independent Board of directors to enhance accountability; and 4) ECCFPD should develop long term service and funding plans.

To date, ECCFPD has pursued all of these measures. The District placed on the ballot a special tax that was defeated by the voters. In 2018, ECCFPD was successful in electing an

independent board of directors; and the District has developed long term service and funding plans.

The project includes other risk factors including the potential for wildland fire, and risks associated with the Chevron and Kinder Morgan oil pipelines and the abandoned PG&E natural gas pipeline.

If approved, the project should include mitigation measures to address funding issues as well as physical risks (e.g., wildland fire, oil and gas pipelines). As with other large development projects, LAFCO could impose conditions to address these impacts.

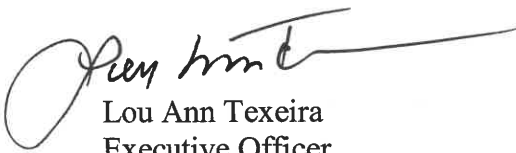
LAFCO would also encourage the City to impose conditions of approval and mitigation measures to fund the increased demand on other city services including police and parks and recreation.

6. **Utilities and Service Systems** – As noted in the NOP, the project will require SOI amendments and annexations to the City of Brentwood and the East Contra Costa Irrigation District (ECCID). The EIR should include detailed information relating to water and sewer service demand and supply/capacity, including: (1) an enumeration and description of the services to be extended to the project area; (2) level and range of services; (3) indication of when those services can feasibly be extended to the project area; (4) description of any improvements or upgrading of structures, roads, sewer or water facilities, or other conditions the City would impose in conjunction with the project; and (5) information with respect to how services will be financed.

7. **Geologic Hazard Abatement District (GHAD)** - The NOP indicates that the project may establish a GHAD. Please note that formation of a GHAD is not subject to LAFCO approval.

Thank you for inviting our input and comments regarding the scope of the EIR for this project. Please contact the LAFCO office if you have any questions.

Sincerely,



Lou Ann Texeira
Executive Officer

c: LAFCO Planner



May 1, 2019

**BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT**

Erik Nolthenius, Planning Manager
City of Brentwood
Community Development Department
150 City Park Way
Brentwood, CA 94513

RE: Vineyards at Deer Creek – Notice of Preparation

ALAMEDA COUNTY

John J. Bauters
Pauline Russo Cutter
Scott Haggerty
Nate Miley

CONTRA COSTA COUNTY

John Gioia
David Hudson
Karen Mitchoff
Mark Ross

MARIN COUNTY

Katie Rice
(Chair)

NAPA COUNTY

Brad Wagenknecht

SAN FRANCISCO COUNTY

Gordon Mar
Hillary Ronen
Tyrone Jue
(SF Mayor's Appointee)

SAN MATEO COUNTY

David Canepa
Carole Groom
Doug Kim

SANTA CLARA COUNTY

Margaret Abe-Koga
Cindy Chavez
(Secretary)
Liz Kniss
Rod G. Sinks
(Vice Chair)

SOLANO COUNTY

James Spering
Lori Wilson

SONOMA COUNTY

Teresa Barrett
Shirlee Zane

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Dear Erik Nolthenius,

Bay Area Air Quality Management District (Air District) staff has reviewed the Notice of Preparation (NOP) for a draft Environmental Impact Report (DEIR) for the proposed Vineyards at Deer Creek Project (Project). We understand that the Project would annex approximately 815 acres of undeveloped land into the City of Brentwood. The Project would develop up to 2,400 residential units and approximately 19 acres of land for commercial and civic uses. The anticipated density of this new development is three dwelling units per acre.

The DEIR should evaluate whether the proposed Project is likely to cause regional or local air quality impacts in the San Francisco Bay Area Air Basin, as well as cause potential impacts to the global climate. Low-density development often leads to car-dependent residents, resulting in high single-occupancy vehicle trips. The Project's design contains limited in-neighborhood availability of goods and services to satisfy daily needs and is likely to motivate frequent trips into and out of the neighborhood. An urban design with only two points of ingress and egress is likely to increase vehicle miles traveled (VMT) for local residents. The anticipated overall result is likely to be a sprawling neighborhood with high criteria pollutants and greenhouse gas emissions.

Air District staff recommends that the Project incorporate the following design characteristics to reduce air quality and GHG emissions:

- **Facilitation of Multi-Modal Transportation:** Design the neighborhood and its roadways to encourage walking, biking, and transit to satisfy daily needs.
- **Mixed-Use Design:** Increase density and expand commercial land uses to enable all daily goods and services to be made available locally.
- **Efficient Ingress and Egress:** Remove community gates and redesign the roadway network to allow more flexible and efficient movement through the neighborhood, particularly to support alternative modes of transportation.

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Bay Area Air District:



Air District staff also recommend that the Project take the following approach in evaluating and mitigating its carbon footprint:

- **The Air District recommends that a significance determination be based on an evaluation of the Project's consistency with the most recent draft of the AB 32 Scoping Plan by the California Air Resources Board and with the State's 2030 and 2050 climate goals.** The Air District's CEQA Guidelines are based on the State's 2020 greenhouse gas targets, which are now superseded by the 2030 targets for greenhouse gases established in SB 32.
- **The Project should ensure on-site power generation and electricity storage for residential and commercial space.** The Air District recommends the Project be designed so that non-fossil fuel power generation and battery storage be integrated into the design, and a community microgrid is used to assure energy infrastructure resilience and efficiency.

Furthermore, Air District staff recommends that the DEIR include the following information:

- **The DEIR should quantify the Project's potential construction and operational impacts to local and regional air quality.** The Air District's CEQA Guidelines provide guidance on how to evaluate a project's or plan's construction, operational, and cumulative air quality and GHG impacts. You may download a copy of the CEQA Guidelines from the Air District's website: <http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>.
- **The DEIR should estimate and evaluate the potential health risk to existing and future sensitive populations within the Project area from toxic air contaminants (TAC) and fine particulate matter (PM_{2.5}) as a result of the project's construction and operation.** Air District staff recommends that the DEIR evaluate potential cumulative health risk impacts of TAC and PM_{2.5} emissions on nearby sensitive receptors.
- **If any aspects of the Project may require a permit from the Air District, then the Air District may be a responsible agency for California Environmental Quality Act (CEQA) purposes.** Please contact Barry Young, Senior Advanced Projects Advisor at (415) 749-4721 or byoung@baaqmd.gov to discuss permit requirements.

We encourage the City to contact Air District staff with any questions and/or to request assistance during the environmental review process. If you have any questions regarding these comments, please contact Josephine Fong, Environmental Planner, at (415) 749-8637, or jfong@baaqmd.gov.

Sincerely,



Greg Nudd
Deputy Air Pollution Control Officer

cc: BAAQMD Director John Gioia
BAAQMD Director David Hudson
BAAQMD Director Karen Mitchoff
BAAQMD Director Mark Ross



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May 1, 2019

Erik Nolthenius, Planning Manager
City of Brentwood
150 City Park Way
Brentwood, California 94513

Sent via e-mail to :
enolthenius@brentwoodca.gov
On May 1, 2019

RE: Comments on the Notice of Preparation for Vineyards at Deer Creek EIR

Dear Mr. Nolthenius:

The East Bay Regional Park District (Park District) appreciates the opportunity to provide comments on the Notice of Preparation for a Specific Plan and Environmental Impact Report for the "Vineyards at Deer Creek" development (project). The project is located southwest of the City of Brentwood, in unincorporated Contra Costa County; north of Balfour Road, east of Deer Valley Road, and west of the westerly City limits. The project is sited across Deer Valley Road from the former Roddy Ranch Golf Course, which the Park District acquired in 2018 as a centerpiece of the future 3,500 acre Regional Park/Preserve in Antioch and East Contra Costa County. The Park District, in partnership with the East Contra Costa County Habitat Conservancy (Conservancy), has a long-term commitment to protect species, while providing passive public access opportunities and protecting open space in Contra Costa County, which aligns with both the Park District's and the Conservancy's goals.

The Notice of Preparation (NOP) details a project on a site of approximately 815 acres, to be built over 20-25 years, with up to 2,400 residential units in six residential neighborhoods. The project is not within the city limits of Brentwood, and is also outside Brentwood's Sphere of Influence (SOI) and Urban Limit Line (ULL), and will require a number of significant project approvals, including a voter initiative to extend the ULL. Because of this, the Park District recognizes this proposal is provisional, and depends on approvals which have not yet been made. At the same time, the Park District is also interested to work with the City on matters of our mutual interests as regards this particular project.

The land use summary for the project includes 555 gross acres of residential uses, 20 acres of commercial or civic uses, and 225 acres of open space uses, which is made up of "agricultural (a minimum of 50% of which will be permanently agricultural crops), parks, permanent open space, and other similar uses, as well as waterways." The design of this open space is of particular interest to the Park District, which recommends that the residential development be clustered on as small a footprint as possible, adjacent to the existing City development, and that the open space be sited to provide a buffer from publicly-owned parklands, such as the former Roddy Ranch and the land which make up the future regional park. The site plan shows residential uses scattered throughout the property with onsite open space being fragmented. This type of open space is difficult to manage and fragmentation impacts any resource values of the project's open space. The project applicant should explore opportunities to provide more clustered residential development that maximizes onsite open space in a biologically appropriate and operationally efficient manner that provides suitable buffers to the offsite preserve lands of the Park District. The open space in the project should also meet the localized demand for playgrounds and dog parks and other recreational amenities, so as to avoid a burden on the Park District's future park and preserve and avoid impacting or conflicting with species protection.

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For background information, the Park District has interests in the area around the project. Starting in 2009, the Park District partnered with the Conservancy to acquire land that is to become a new Regional Park/Preserve to the west of Deer Valley Road, across from the project's western border (see attached map). In time, those land acquisitions now total approximately 3,500 acres and are growing in acreage; the properties range from Horse Valley in Antioch to the south across four valleys, and with the purchase in 2018 of the Roddy Ranch Golf Course (230 acres), land is being secured to become an important new regional park and preserve for the residents of Antioch, Brentwood and East County communities and for the protected and endangered species who also live on these lands. It is important to the Park District that any future adjacent development to the park/preserve be designed in a way that avoids impacts on the natural resources the District is required to protect.

All properties for the future park are west of Deer Valley Road, and the most direct parcel which the project could impact is the former Roddy Ranch Golf Course, where the Park District has plans in the foreseeable future to restore back to open space and make available to the public for passive recreation. The entrance to the future park at the former Roddy Ranch Golf Course is expected to be off Deer Valley Road, only 850 feet away from the intersection of Balfour Road and Deer Valley Road, where the project proposes 20 acres of new commercial and civic uses. The Park District recommends these uses instead be sited in another area of the project, to provide a buffer to the future regional park/preserve. The Park District / Conservancy acquisitions are preserving and enhancing important natural habitat and providing for a future regional recreational amenity. The project, by adding urban uses to the future park's eastern border in the form of residences and commercial development, would change the quality of the future park, and introduce a significant number of people into close proximity of a regional preserve where the protection of species is of paramount importance. These potential impacts should be fully studied during CEQA review.

The Park District is concerned about the environmental impacts from the project on the future regional park/preserve. Specifically, the Park District requests that the Draft EIR study:

- The potential impacts from the project on biological resources in the Park District's future regional park/preserve, given the proximity of the project. Separately, indirect impacts should be studied, of what the addition of thousands of new residents as potential users of the park and preserve could mean for the protected species and habitat in the future Park/Preserve.
- the aesthetic impacts of new housing on the ridgelines above Deer Valley Road and how the views of that ridgeline from the former Roddy Ranch Golf Course will be affected by the project.
- the transportation impacts from the proposed project's newly generated automobile trips on Deer Valley Road, which is currently only 24 feet wide, and if those trips pose potential hazards for the safety of future park users. If the project proposes to make significant improvements to Deer Valley Road to accommodate significant new sources of automobile traffic, there should be consideration in the EIR for the growth-inducing impacts that this could have for other privately owned properties in the area. Another transportation issue to study is the permanent closure of Empire Mine Road, west from the intersection of Deer Valley Road; the road is temporarily closed and the City of Antioch is restricted on how long it can remain closed. Any project that adds significant traffic to the Deer Valley/Balfour intersection needs to ensure Empire Mine Road is closed permanently.
- the parks and recreation impacts of future residents in Vineyards at Deer Creek, who could become the most dedicated of future regional park users, given the proximity of the project to the future Roddy Ranch Golf Course park. The active use of the future park by potentially thousands of future residents can strain limited resources for park operations and maintenance.
- The cumulative condition in the EIR should include a functioning regional park at the former Roddy Ranch Golf Course and a regional preserve on the other lands shown on the attached map.



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Thank you for your review and consideration of our comments. Please send the Park District notices on any future actions regarding this project. If you have any questions or concerns, please contact me at (510) 544-2325, or by e-mail at dreiff@ebparks.org.

Respectfully,

A handwritten signature in black ink that reads "Devan Reiff".

Devan Reiff, AICP
Principal Planner

Cc: Robert Doyle, General Manager
Colin Coffey, Board Member, District 7

Attachment: Map of future Regional Park

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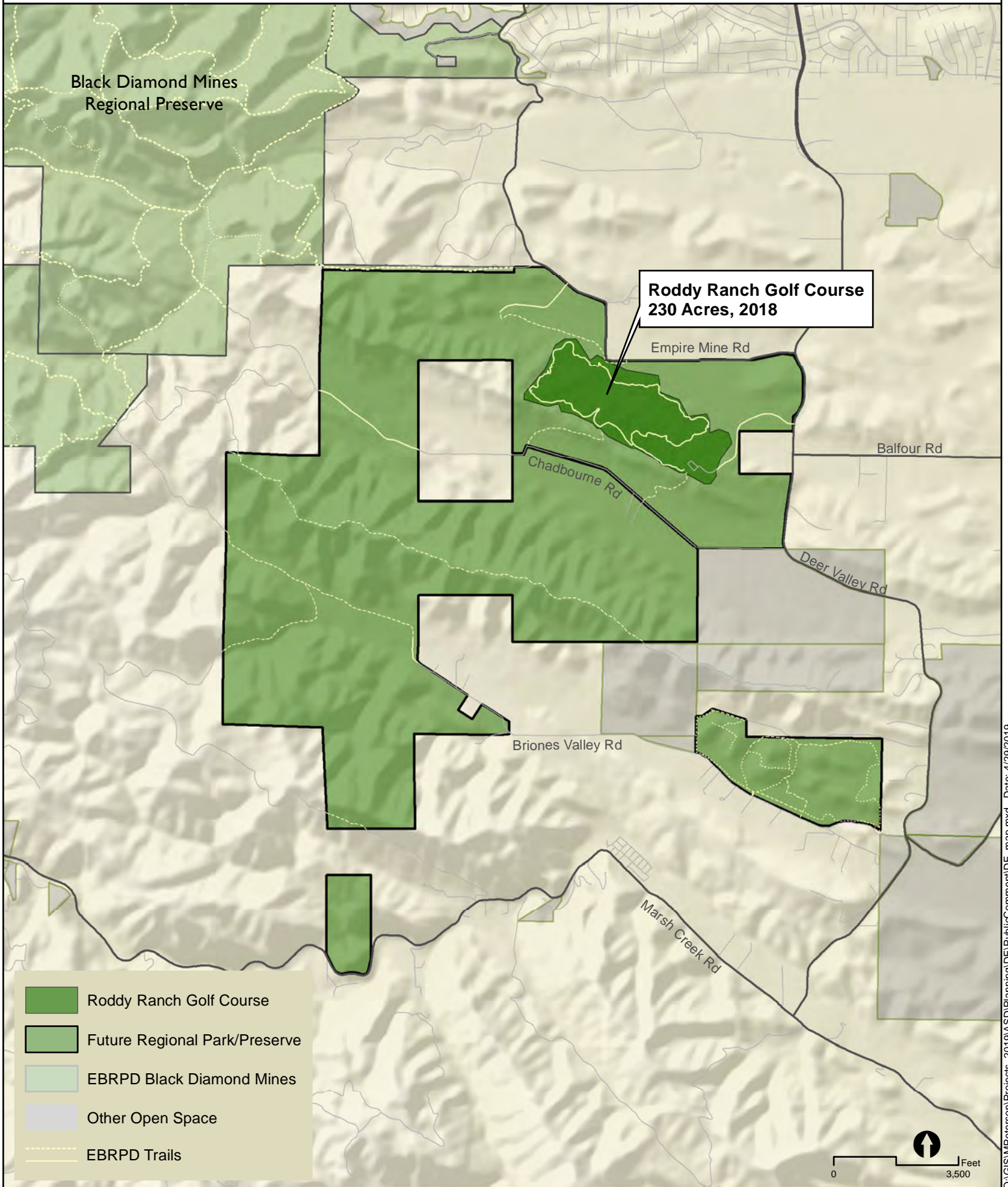
Beverly Lane
Ward 6

Robert E. Doyle
General Manager

Future Regional Park/Preserve

Antioch and Contra Costa County

April, 2019



From: Cutshaw, Jay A [<mailto:CUTS@chevron.com>]
Sent: Wednesday, April 03, 2019 3:20 PM
To: Drummond, April
Cc: Nolthenius, Erik; Reynolds, Rand; Lucido, Bob [Coates Field Svcs, Inc.]
Subject: RE: Vineyards at Deer Creek NOP

Good afternoon April,

Chevron Pipeline does not operate any pipelines in this area.

However, I do have the knowledge that Crimson Pipeline has a 20" Crude line that runs through this property.

Jay Cutshaw

Senior Facility Inspector
cuts@chevron.com

Chevron Pipeline & Power

Chevron Pipe Line Company
2360 Buchanan Road
Pittsburg, CA. 94565
Tel: (925) 753 2010
Fax: (925) 753 2030
Mobile: (925) 766 9207

From: Bob Oxenburgh [<mailto:boboxenburgh@gmail.com>]
Sent: Tuesday, April 30, 2019 11:03 PM
To: Nolthenius, Erik
Subject: Fwd: Vineyards at Deer Creek NOP Scope deadline May 1

Resending to corrected email address.....

----- Forwarded message -----

From: Bob Oxenburgh <boboxenburgh@gmail.com>
Date: Tue, Apr 30, 2019, 4:12 PM
Subject: Vineyards at Deer Creek NOP Scope deadline May 1
To: <enolthenius@brentwood.ca.gov>

Erik,

Thank you for the well organized meeting last week.

Greenbelt Alliance representative Hayley Courrier will have written to you at more length separately. My Greenbelt Alliance fellow director Jon Harvey was the second to speak at the meeting, and you will have the additional items he noted.

I will emphasize one item for the Scope if I may: impact on pollination.

Clearly of importance to local farmers, disturbed ground impacts negatively pollinator habitat. I attach an example of considerable research on this topic for you to pass onto the EIR consultants.

Smart infill to provide necessary homes, rather than sprawl across the ULL, is an answer.

Bob Oxenburgh
Member of Board of Directors
Greenbelt Alliance

Native Pollinators in Anthropogenic Habitats

Rachael Winfree, Ignasi Bartomeus,
and Daniel P. Cariveau

Department of Entomology, Rutgers University, New Brunswick, NJ 08901;
email: rwinfree@rutgers.edu, ibart@rci.rutgers.edu, cariveau@rci.rutgers.edu

Annu. Rev. Ecol. Syst. 2011. 42:1–22

First published online as a Review in Advance on
July 29, 2011

The *Annual Review of Ecology, Evolution, and Systematics* is online at ecolsys.annualreviews.org

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Keywords

bat, bee, bird, butterfly, disturbance, fly, land-use change, moth, pollination

Abstract

Animals pollinate 87% of the world's flowering plant species. Therefore, how pollinators respond to human-induced land-use change has important implications for plants and the species that depend on them. Here, we synthesize the published literature on how land-use change affects the main groups of pollinators: bees, butterflies, flies, birds, and bats. Responses to land-use change are predominantly negative but are highly variable within and across taxa. The directionality of pollinator response varies according to study design, with comparisons across gradients in surrounding landscape cover finding largely negative responses and comparisons across local land-use types finding largely positive responses. Furthermore, among the studies using landscape designs, most were performed in systems where land-use change is extreme, and such studies find stronger negative effects than those performed in more moderate systems. Across multiple taxa, dietary specialists show greater sensitivity to land use than do generalists. There is a need for studies of pollinator species composition and relative abundance, rather than simply species richness and aggregate abundance, to identify the species that are lost and gained with increasing land-use change.

Land-use change:

human modification of the terrestrial land surface, encompassing the loss and fragmentation of natural habitats

Ecosystem functions:

ecological processes that naturally occur within ecosystems, for example, pollination, plant productivity, or nutrient cycling

Anthropogenic habitats:

human-modified habitats

1. INTRODUCTION

In an era of increasing anthropogenic land-use change, it is important to understand the impacts of such land use on species groups that provide critical ecosystem functions. Pollinators are one such group: Eighty-seven percent of the world's wild plants, or roughly 308,000 species, are pollinated by animals (Ollerton et al. 2011). Although many animal-pollinated plants can self-pollinate to some degree, thus lessening the extent of short-term reliance on pollinators, all rely on pollinators in the long term for genetic exchange among individuals. The interactions between plants and pollinators are increasingly situated within ecosystems dominated by human land use. As of 2000, 40% of Earth's ice-free land area is being directly used by humans, and an additional 37% is surrounded by human-modified areas (Ellis et al. 2010). Human land use is predicted to increase rapidly over the next few decades as the human population grows (Tilman et al. 2001). Therefore, how pollinators respond to land-use change has important implications for much of the world's flora.

Many scientists are concerned that pollinators are in decline globally (Potts et al. 2010). However, firm conclusions are hampered by a lack of long-term monitoring data that could reveal trends in pollinator populations over time. In the European Union (EU), where pollinator population status has been best evaluated, some but not all taxa are clearly declining. Across multiple EU countries, 37–65% of bee species are considered to be of conservation concern (Patiny et al. 2009), and in the United Kingdom (UK), 71% of butterfly species have declined to some extent over the past 20 years (Thomas et al. 2004). In North America, a recent National Research Council report concluded that there is evidence of decline for particular bumblebee, butterfly, bat, and hummingbird species, but that for most pollinator species “the paucity of long-term population data and the incomplete knowledge of even basic taxonomy and ecology make definitive assessment of status exceedingly difficult” (NRC 2007, p. 7). The lack of biological knowledge about many pollinator species contributes to their lack of formal protection. For example, only two species of bee are on the Red List of threatened species established by the International Union for Conservation of Nature (IUCN), although multiple species are known to be declining precipitously (Williams & Osborne 2009). Anthropogenic land use has been identified as a principal cause of decline for many threatened species, and it may be causal for pollinators as well (Pereira et al. 2010, Potts et al. 2010).

The objective of this review is to synthesize the published literature across pollinator taxa, geographic regions, types of anthropogenic habitats, and research designs to look for general patterns in pollinator response to land-use change. Given the crucial role that pollinators play in ecosystems, the literature on how they are affected by land-use change is surprisingly recent. As of 1993, there were only five published studies on pollinators and human-induced loss of natural habitats (Rathcke & Jules 1993), and in 1998 an influential review on plant-pollinator interactions concluded that “the response of insects to fragmentation is poorly understood” (Kearns et al. 1998, p. 89). Since that time, the literature has grown enormously. There have been recent reviews of pollinator conservation and restoration (Potts et al. 2010, Menz et al. 2011) and a synthetic analysis investigating how land use affects crop pollinators (Ricketts et al. 2008). Other reviews and meta-analyses have focused exclusively on one taxon, investigating responses to tropical deforestation in butterflies (Koh 2007), the role of resources and natural enemies in regulating bee populations (Roulston & Goodell 2011), bee conservation and restoration (Murray et al. 2009, Winfree 2010), or bee community responses to anthropogenic disturbances (Winfree et al. 2009) and the role of species traits in moderating bee responses to disturbance (Williams et al. 2010). The distinguishing feature of our review is that we synthesize the published literature on multiple pollinator taxa in terms of responses to land-use change. Our review of the published literature yielded 265 published

Table 1 Directionality of changes in pollinator outcomes with increasing human land use. Cells record counts for the directionality of changes in pollinator abundance and species richness with increasing human land use. All studies are listed in Supplemental Table 1. Responses were classed as negative or positive when $P \leq 0.10$. Nondirectional responses are included in the neutral category

	Directionality of pollinator response			
	Negative	Neutral	Positive	Negative:positive
Bees	81	94	27	3.0:1
Butterflies	88	88	47	1.9:1
Syrphid flies	18	14	14	1.3:1
Birds	24	20	30	0.8:1
Bats	9	12	20	0.5:1

studies, contributing a total of 674 measures of pollinator response to anthropogenic land use. Information on each of these studies is available in **Supplemental Table 1**. (Follow the **Supplemental Material link** from the Annual Reviews home page at <http://www.annualreviews.org>.) A summary table by pollinator taxon shows that pollinator response to land-use change is predominantly negative, but highly variable (**Table 1**). Our review focuses on possible reasons for this variability. We consider three broad classes of explanation:

1. Characteristics of land-use change, including the type and extent of change.
2. Characteristics of pollinators, including species traits.
3. Research methods and biases.

As pollinators are defined by their function and are taxonomically diverse, we begin with an introduction to the major groups of pollinators.

2. WHO ARE THE POLLINATORS?

There is at present no quantitative evaluation of the relative importance of the different pollinating taxa to pollinating the worlds' flora. However, most pollination ecologists would agree that bees (series Apiformes) are the predominant pollinators for most plants and ecosystems. Bees are often the most frequent visitors of flowers (Neff & Simpson 1993), which makes them likely the most important pollinators as well, insofar as visitation rate is a strong predictor of pollination (Vázquez et al. 2005). The predominance of bees as pollinators is attributable to the fact that all 20,000 species are obligate florivores and both larval and adult life stages feed on floral products. In contrast, in all other pollinator taxa, only a subset of species visit flowers, and florivory is confined to the adult stage (Michener 2007). Female bees of nonparasitic species spend much of their adult lives collecting pollen to provision their offspring and have specialized pollen-collecting structures and behaviors, in contrast to most other pollinator taxa. Bees are present in a wide variety of terrestrial habitats worldwide.

Flies (order Diptera) are the second most frequent visitors to flowers overall (Larson et al. 2001), and they often outnumber bees in lower-temperature situations such as high latitude areas (Elberling & Olesen 1999). Although flies are a diverse group of over 150,000 species, and species from over 70 families have been observed visiting flowers in North America alone (Larson et al. 2001), the frequent flower visitors are concentrated in only three families: Syrphidae (hoverflies or flower flies; herein syrphid flies), Bombyliidae (bee flies), and Tachinidae (tachinid flies). Of these three groups, the syrphid flies are likely the most important flower visitors (Larson et al. 2001). Syrphid flies are found in a variety of habitats throughout the world and are the main group

that has been studied in the context of land-use change; thus, our review of flies focuses on the syrphid flies. In nearly all of the 6,000 syrphid fly species, adults consume nectar, and some species consume pollen.

Butterflies and moths (Lepidoptera) are a diverse group of 300,000 species of which only an estimated 14,500 are butterflies, with the remainder being moths. Many species are nectarivorous; but with a few exceptions, they do not consume pollen. Some species do not feed on flowers, but rather fruit sap or blood, or do not feed at all as adults (Scoble 1995). The nectarivorous and, therefore, pollinating taxa are concentrated in the moth families Sphingidae (hawk moths), Noctuidae (owlet moths), and Geometridae (geometer moths), and the butterfly families Hesperiiidae (skippers) and Papilionoidea (common butterflies); thus, these families are the focus of this review. All of the nectarivorous families are represented worldwide but reach their maximum diversity in the tropics (Scoble 1995). Although comprehensive data on this point are lacking, it is thought that for most plant species, butterflies visit flowers less frequently than do bees and may also deposit less pollen per visit (e.g., Sahli & Conner 2007). However, some studies suggest that butterflies and moths carry pollen farther than other insects, and this long-distance pollen transfer could have important genetic consequences for plants (Herrera 1987).

Among the vertebrates, pollinators are primarily found in particular families of birds and bats. There are six main families of nectar-feeding birds (Fleming & Muchhala 2008). The most speciose group is the Trochilidae (Hummingbirds; 328 flower-visiting species), which are found only in North and South America. The Nectariniidae (sunbirds and flowerpeckers; 174 flower-visiting species), Psittacidae (lorikeets; 53 flower-visiting species), and Meliphagidae (honeyeaters; 176 flower-visiting species) are primarily tropical forest species and are found in Australia, Africa, and Asia (Fleming & Muchhala 2008). Although particular species in other families are known to visit flowers, the vast majority of species do not do so; we therefore focus our review on the families named above.

Two families of bats contain flower-visiting species: the leaf-nosed bats (Phyllostomidae; 38 flower-visiting species) and the fruit bats (Pteropidae; 15 flower-visiting species; Fleming & Muchhala 2008). The Phyllostomidae are found in North and South America, and most species occur in tropical forests. Flower-visiting Pteropidae occur in Asia and Australia, and there is one species in Africa. Flowers visited by bats are generally morphologically distinct and night-blooming, and are often not visited by taxa other than bats (Fleming et al. 2009). **Figure 1** shows representatives of the main pollinator taxa.

Occasional pollinators are found in other, widely divergent taxonomic groups. Beetles (order Coleoptera) in at least 17 families visit specialized beetle-pollinated plants from 34 different plant families, and species in another 4 beetle families are more generalist visitors (Bernhardt 2000). Similarly, wasps (order Hymenoptera), particularly in the families Vespidae, Scoliidae, and Pompilidae, are common flower visitors, and the Agaonidae have a highly specialized pollinating association with figs (Weiblen 2002). Ants (Hymenoptera, Formicidae) are known to visit at least 20 plant species (Rico-Gray & Oliveira 2006), and thrips (Thysanoptera) may be important for specific plant taxa (Mound 2005). Nonflying mammals such as marsupials, rodents, and primates visit at least 85 species of plants globally (Carthew & Goldingay 1997). We were unable to find any further quantitative information on the global importance of the above taxa as pollinators. Because studies reporting land-use change effects on these incidental taxa are scarce, we mention them only tangentially in this review. More studies documenting the contribution of these groups (e.g., generalist beetle visitors) and how they respond to land-use change are needed.

Even within the main pollinator taxa enumerated above, the number of studies reporting responses to land-use change varies widely across taxa. Bees and butterflies dominate the literature, whereas published studies of syrphids, birds, and bats are scarcer (**Table 1**). Hereafter, we

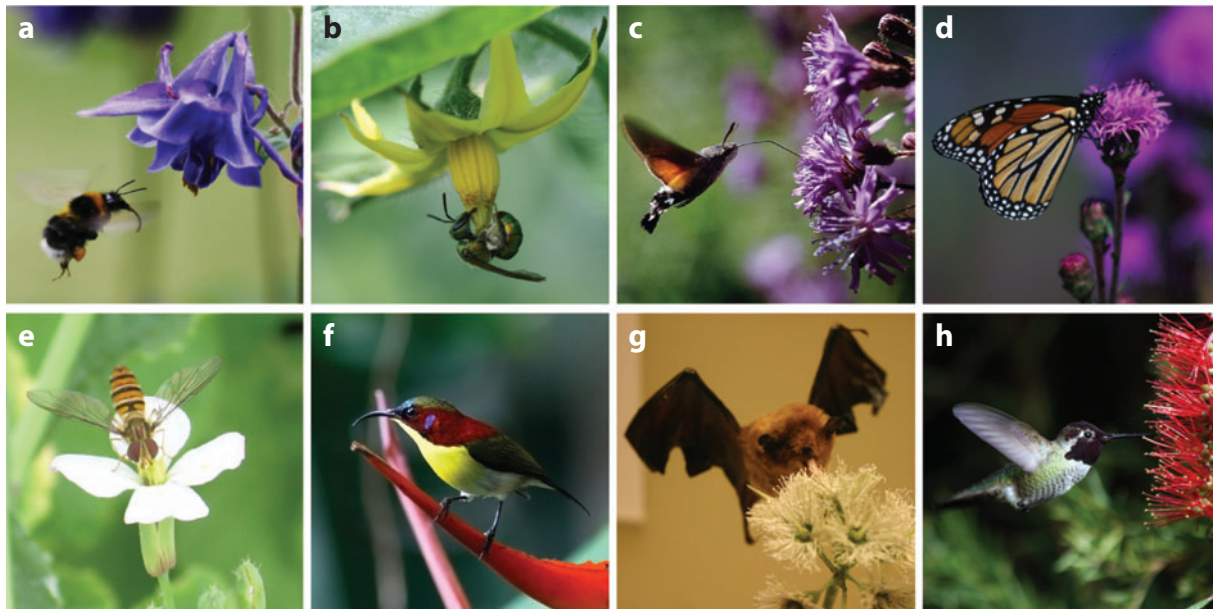


Figure 1

Examples of the primary pollinator taxa. (a) Bumblebee (*Bombus* sp.), (b) solitary bee in the tribe Augochlorini, (c) hawk moth (*Macroglossum stellatarum*, Sphingidae), (d) monarch butterfly (*Danaus plexippus*, Nymphalidae), (e) syrphid fly (Syrphidae), (f) sunbird (*Aethopyga bella*, Nectariniidae), (g) bat (*Glossophaga soricina*, Phyllostomidae), and (h) hummingbird (*Calypte anna*, Trochilidae). Photo credits: L. Mandle, I. Bartomeus, and the following Wikimedia Commons and NBII LIFE authors: Roo72, Mh-k, J.J. Mosesso, Llimchiu, R. Somma and Mbz l.

combine responses of pollinating birds and bats as there are relatively few studies of these groups, and they inhabit similar ecosystems (tropical forests) and exhibit similar responses to land-use change. Lastly, there is a geographic bias in the published literature, such that studies conducted in Europe or North America account for 52% of all recorded responses, whereas tropical countries account for 39%, and India, Russia, and China are particularly underrepresented as they collectively account for <1%. Consequently, our review of necessity reflects the information that is available.

3. POLLINATOR RESPONSE TO LAND-USE CHANGE: TERMINOLOGY AND METHODS

Our literature review was conducted using ISI Web of Science searches through December 2010. Our criteria for inclusion in our review were that a study (a) measured pollinator outcomes such as abundance, species richness, diversity, community composition, or genetic diversity as a function of treatments related to anthropogenic land use, (b) was replicated, and (c) reported statistical results or data. For studies of vertebrates and tropical butterflies, for which a species within a given taxonomic group can be either flower-visiting or not, we recorded results for the flower visitors alone whenever these were distinguished by the researchers. In some studies it was not possible to distinguish the flower visitors from other guilds, most notably in studies of tropical butterfly families that include both flower-visiting and fruit-feeding species. Given the paucity of published work on these groups, we included these studies so long as pollinating taxa were the predominant members of the studied group. We focus on native pollinators, thus excluding

studies of domesticated pollinators such as the honey bee (*Apis mellifera*) and of invasive pollinator species, which may show idiosyncratic responses to land-use transformations. We do not cover pollinator restorations within agricultural systems, as these are typically small (<1 ha) in scale and do not represent what is generally meant by land-use change. Pollinator response to such restorations has recently been reviewed elsewhere (Winfree 2010). Studies of the reproduction of animal-pollinated plants as a function of land use are not covered here; they have recently been reviewed elsewhere (Aguilar et al. 2006).

The habitat affinity of most pollinator species is unknown; thus, in this review, we do not refer to habitat loss or fragmentation, but only to transitions between land-use types or land-use change. We standardized land use to multiple natural/seminatural and anthropogenic types (**Figure 2**). We consider these groupings to be crude; in particular, few researchers of landscape-scale studies quantitatively report the composition of the modified, matrix habitats, yet these must be categorized in order to compare the original with the converted type. Even crude habitat categorizations,

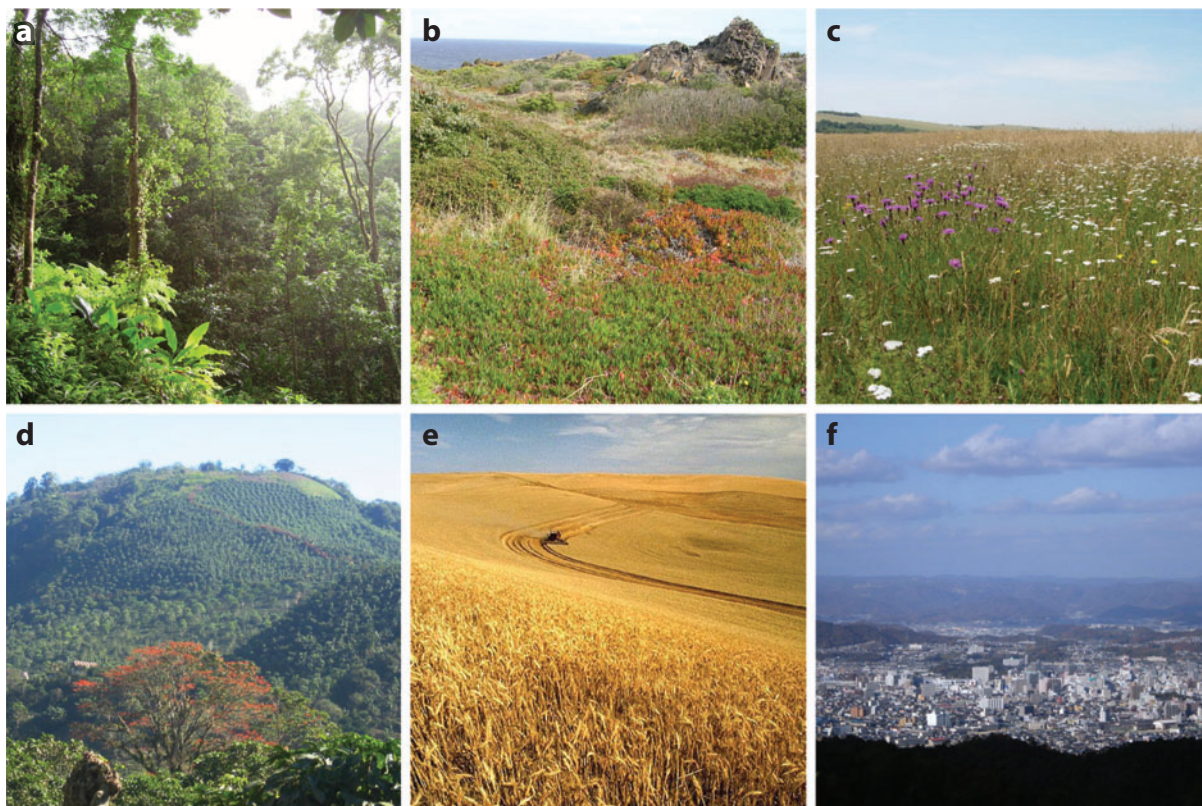



Figure 2

(*Top row*) Representative natural and seminatural habitats: (*a*) tropical forest in Martinica (tropical forest category), (*b*) shrublands (shrub/heath/open woodlands category) in Spain, and (*c*) fallow agriculture (seminatural category) in the United Kingdom. (*Bottom row*) Representative anthropogenic habitats: (*d*) coffee plantation (agriculture category) in Costa Rica, (*e*) wheat (agriculture category) in the United States, and (*f*) urban development (urban/suburban category) in Japan. Additional natural land-use categories that were used, but are not shown here, include temperate forest, desert, and natural grasslands, and for anthropogenic habitats, pasture and deforestation/secondary forest/agroforestry. Photo credits: I. Bartomeus and the following Wikimedia commons and NBII LIFE authors: J. Oliveira, D. VanDerMade, Lanbea, Frameme, and Lizzie.

however, allow for a preliminary exploration of the role of habitat type in determining pollinator responses to land-use change.

In the following sections, we investigate whether the observed variability in pollinator responses to land-use change (**Table 1**) is explained by characteristics of land-use change, by characteristics of the pollinators themselves, or by aspects of research methodology. Because 83% of the recorded pollinator responses are of aggregate pollinator abundance or species richness, we report only these metrics in **Supplemental Tables 2–12** to make comparisons more consistent. In interpreting **Supplemental Tables 2–12**, we focus on the ratio of negative-to-positive responses to reduce the role of variation in statistical power in determining outcomes. We note, however, that nonsignificant or neutral responses are the most frequent response observed (**Table 1**).

 Supplemental Material

4. CHARACTERISTICS OF LAND-USE CHANGE

Land-use change processes are complex, and pollinator responses might be conditioned by the type and extent of land-use change. The strongest pattern we find in this section is that pollinator responses vary according to study design, being largely negative in comparisons across gradients in surrounding landscape cover and largely positive in comparisons across local land-use types. In addition, pollinator responses are more strongly negative in study systems that have already experienced extreme land-use change. Pollinators respond more consistently to changes in floral resources than they do to changes in land use per se; thus, floral resources may be a mechanism explaining some of the diversity of pollinator responses to land-use change. The effect of land-use change on other resources required by pollinators, such as nesting sites, has scarcely been investigated.

4.1. Study Design and the Extent of Land-Use Change

Most studies of pollinator response to land-use change use one of two study designs. In the first design, pollinator populations within a fixed habitat type are compared across landscape contexts that differ in the extent of land-use change. In the second design, pollinator populations are compared across habitat types, generally without reference to the land-use composition of the surrounding landscape (**Figure 3**).

We used studies of the first design to investigate how the extent of land-use change affects pollinator outcomes by comparing results from studies performed in systems characterized by extreme human land use to results from systems characterized by only moderate human land use. We categorized studies as extreme versus moderate according to the values they reported for any of the following metrics: the proportion of land cover surrounding the study site that consists of natural habitat (57% of responses); the linear distance to the nearest natural habitat (25% of responses); or the size of the natural habitat fragment where data were collected (17% of responses). Although these metrics are distinguished in the literature on habitat fragmentation and in principle do not have to be positively correlated, in practice species tend to respond to them similarly (Fahrig 2003). To categorize studies, we used the same scheme as a recent meta-analysis of land use and bees (Winfree et al. 2009), which considered studies as being from extreme systems if the most extreme site in the analysis had $\leq 5\%$ natural habitat cover remaining in the surrounding landscape, was ≥ 1 km from the nearest natural habitat, or was a ≤ 1 -ha habitat fragment, whereas all other studies were classified as moderate. Winfree et al. (2009) found a highly significant difference in pollinator responses between the extreme and moderate systems, with significant negative responses being found only in extreme systems (**Figure 4**).

Here, we found a similar result using a much larger number of responses [158 responses for bees and butterflies combined versus 81 responses of bees alone (reported in Winfree et al. 2009;

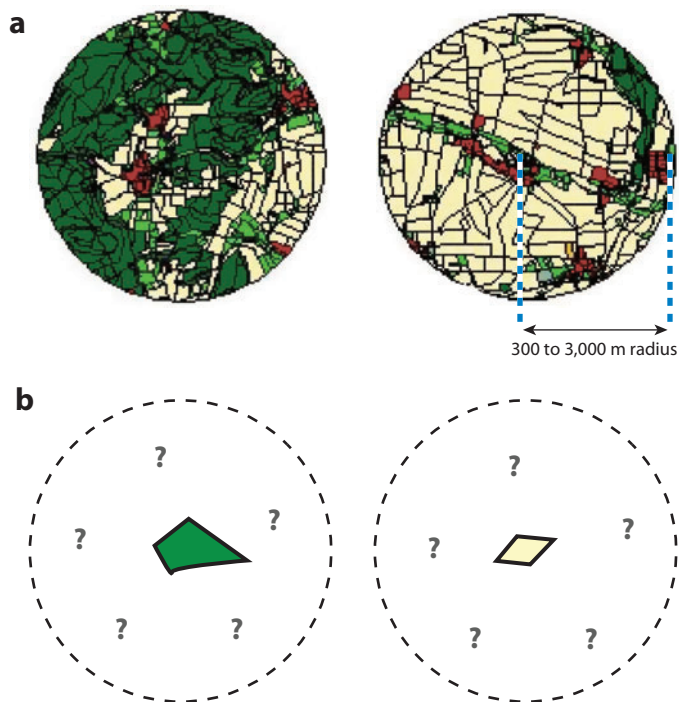


Figure 3

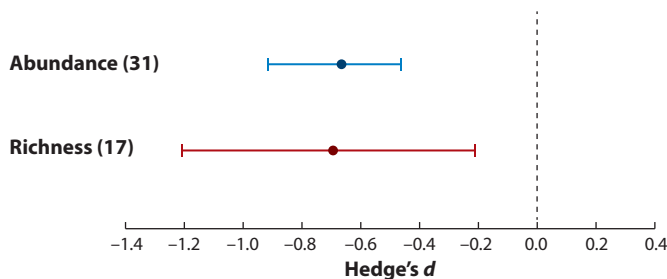
Schematic showing the two study designs contrasted in this review. (a) Design focused on surrounding landscape cover. Sampling is generally done within a fixed habitat type. In the most common design, sites vary in the proportion of surrounding land cover composed of specific habitat types such as forest (dark green) or agriculture (yellow). The radius at which landscape cover is assessed varies across studies but is typically between 300 and 3,000 m. Other designs, which we include in this category, vary either the linear distance to the nearest habitat patch or the area of the habitat patch. (b) Design focused on local land-use type. These studies compare pollinator communities among different habitat types. The surrounding landscape cover and the spatial extent of the habitat type where pollinators are sampled are generally not reported.

Figure 4)]. Bees and butterflies both show strong negative responses to land-use change in extreme systems, but more mixed responses in moderate systems (**Supplemental Tables 2 and 3**). Extreme land use causes a strong decrease in abundance and/or richness (e.g., Aizen & Feinsinger 1994, Koh & Sodhi 2004, Kremen et al. 2002, Ockinger & Smith 2006), whereas studies in moderately anthropogenic landscapes find more varied responses (e.g., Bartomeus et al. 2010, Bergman et al. 2008).

Study designs that make comparisons across habitat types, rather than across landscape gradients, find even fewer negative effects, and responses are predominantly positive for most taxa (**Supplemental Table 4**). For bees, the ratio of negative-to-positive responses decreases from 8.2 for extreme landscape studies to 2.0 for moderate landscape studies, to 0.5 for across-habitat comparisons. For butterflies, the ratios decrease from 6.0 to 3.0 to 1.1, respectively (**Supplemental Tables 2–4**). The responses of syrphid flies and vertebrates are difficult to interpret due to the limited number of landscape-scale studies that have been conducted (**Supplemental Tables 2 and 3**).

The reason why pollinator abundance and/or richness often decrease with increasing human land use in the surrounding landscape, but increase with conversion of natural to anthropogenic

a Extreme habitat loss



b Moderate habitat loss

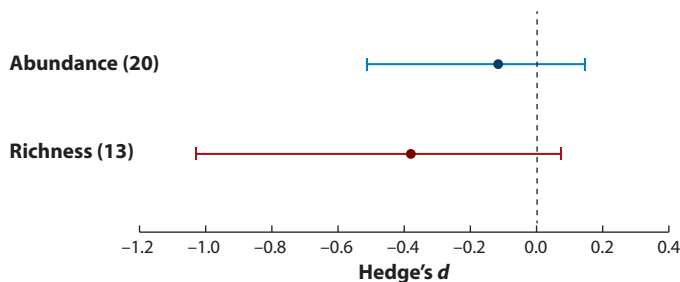


Figure 4

A meta-analysis of bee responses to land use. Weighted-mean effect sizes for changes in bee abundance and species richness in study systems where land use was (a) extreme ($\leq 5\%$ natural habitat cover remaining in the surrounding landscape, ≥ 1 km to the nearest natural habitat, or ≤ 1 -ha habitat fragment) and (b) moderate (all other studies not classified as extreme). The effect size, Hedge's d , can be interpreted as the inverse-variance-weighted difference in abundance or richness of bees between natural and disturbed conditions, measured in units of standard deviations (Gurevitch & Hedges 2001). Positive values of d imply positive effects of anthropogenic disturbance on bees, whereas negative d values imply negative effects. Error bars represent 95% confidence intervals. Sample sizes are given in parentheses. Modified from Winfree et al. (2009).

habitat types, is difficult to discern using only the information reported in the published literature. In particular, studies comparing across local land-use types rarely report the composition of the surrounding landscape, thus leaving this variable uncontrolled. However, it seems probable that the comparisons across local land-use types are, on average, studying land-use change at a smaller spatial scale than are the comparisons across gradients in surrounding land cover. If this is the case, then pollinators appear to respond increasingly negatively as both the spatial scale and extent of land-use conversion increase. It is difficult to generalize on this point because the few studies that have been designed to explicitly compare the relative effects of local habitat type conversion with land-use change in the surrounding landscape have found mixed effects (Gabriel et al. 2010, Haenke et al. 2009, Holzschuh et al. 2010, Koh & Sodhi 2004, Williams & Kremen 2007). Furthermore, most of these studies contrasted organic versus conventional agriculture locally rather than comparing natural to anthropogenic habitat types. Lastly, a related design has been used in the context of pollinator restorations to investigate the effectiveness of small-scale habitat restorations in different landscape contexts. These studies find an interaction between the local and the landscape scales, such that the transition from locally unrestored to restored habitat results in greater biodiversity benefits in intensively human-used landscapes (reviewed in Winfree 2010), as originally hypothesized by Tschardt et al. (2005).

Specialist species: species requiring particular habitat conditions or resources

Biotic homogenization: an increase in the taxonomic similarity of biotas over time

4.2. Habitat Type

The term land-use change encompasses a wide variety of actual habitat transitions, but in general it creates more open or early successional habitats. This leads to the prediction that at least some pollinator taxa will respond positively to land-use change. For example, although forest-specialist bee species exist, bees in general are considered creatures of open habitats (Michener 2007, p. 4). Likewise, in the temperate zone butterflies tend to be associated with open areas, although this is less true in the tropics (Scoble 1995). Syrphid flies are often more abundant, and in some systems more diverse, in open areas (Deans et al. 2007). We predicted that the type of habitats transitioned to and from might be an important determinant of pollinator responses to land-use change with, for example, forest-to-open transitions having different effects from open-to-open transitions. In an analogous way, habitat identity mitigates the responses of multiple taxa to habitat edges (Ries et al. 2004). Although overall the number of published studies is not sufficient to draw conclusions regarding all specific pairwise transitions (**Supplemental Tables 5–7**), two patterns do emerge.

First, in comparisons across habitat types, pollinator abundance and/or species richness are often lower in forests as compared to more open, anthropogenic habitats (**Supplemental Table 7**). Tropical birds and bats, in particular, appear to benefit from agroforestry or logging in many cases (Tschardt et al. 2008, Willig et al. 2007). An important caveat, however, is that the literature is dominated by studies of aggregate abundance and species richness, and these metrics would not reveal changes in composition such as replacement of forest specialist species with common generalist species (Tylianakis et al. 2005).

Second, many studies use moderately anthropogenic habitats such as grazed grasslands, fallow agriculture, and suburban gardens as the focal, good pollinator habitat. These seminatural habitats are then compared to more intensive land use. In addition, some analyses combine native vegetation (generally forest) with intensive anthropogenic land-use categories for analysis (e.g., Steffan-Dewenter et al. 2002). Most of these studies find that the loss of seminatural habitats has negative effects on pollinators of various taxa (Kleijn & van Langevelde 2006, Krauss et al. 2009, Krauss & Steffan-Dewenter 2003, Sjödin et al. 2008; see **Supplemental Tables 5–7**). This body of work provides additional support for the hypothesis that moderate human land use is compatible with the persistence of at least some pollinators (see sidebar, Habitat Heterogeneity, Common Species, and Biotic Homogenization).

Rigorous comparisons of pollinator responses according to the type of anthropogenic habitat transitioned to are not possible, because few habitat types other than agriculture have been investigated (**Supplemental Tables 8–10**). The predominance of agriculture in the published literature is representative of global land-use patterns, insofar as agriculture accounts for 38% of ice-free terrestrial land area worldwide, whereas urban/suburban settlements account for only 8% (Ellis et al. 2010). However, it leaves a research gap regarding pollinator responses to other types of land-use transitions. For example, butterflies may be particularly negatively affected by urbanization, but small sample sizes make this conclusion tentative (**Supplemental Tables 8 and 10**).

4.3. Floral Resources as a Mechanism Underlying Responses to Land-Use Change

Although pollinators can diverge widely in life-history traits, they share a reliance on flowers as a food source. Floral resources can be a limiting factor for populations of bees (Roulston & Goodell 2011), Lepidoptera (Ockinger & Smith 2006, Summerville & Crist 2001), syrphid flies (Kleijn & van Langevelde 2006, Meyer et al. 2009), birds (Lara 2006), and bats (Tschapka 2004). The published studies that report quantitative measures for all three variables—land-use change, floral density, and pollinator responses—suggest that pollinator responses track floral resources

Supplemental Material

HABITAT HETEROGENEITY, COMMON SPECIES, AND BIOTIC HOMOGENIZATION

Some studies find that moderate land use maximizes the richness and abundance of pollinators, including butterflies (Blair 1999, Hogsden & Hutchinson 2004), bees (Kessler et al. 2009), and birds (Tscharrntke et al. 2008). Low-level anthropogenic land use may increase heterogeneity of habitats and resources, thus increasing niche diversity (Tews et al. 2004). For example, pollinators could nest in forest habitats but forage in agricultural habitats (Klein et al. 2003). Consistent with this hypothesis, edges between different land-use types often show the highest diversity of butterflies and bees (Brosi 2009, Hagen & Kraemer 2010, Ohwaki et al. 2007, Vu 2009). However, this pattern may be driven by common species, thus masking effects on rare species and leading to homogenization on larger scales. More studies of pollinator community composition are needed in order to determine whether biotic homogenization is occurring. A related situation arises in a restoration context through agricultural policies that create pollinator habitat on agricultural lands. Such programs may primarily benefit common species, which can persist in agricultural landscapes (Kleijn et al. 2006). Such programs may even contribute to the decline of more vulnerable species elsewhere if additional lands are converted to agriculture to make up production shortfalls (Hodgson et al. 2010). Thus studies of species composition are needed in this context as well.

regardless of its directionality with land-use change. When floral resources decrease with land-use change, pollinators decrease as well, whereas when floral resources increase with land-use change, so do pollinators (see **Supplemental Table 11**).

4.4. Other Mechanistic Factors

A true predictive understanding of pollinators and land-use change would be based on knowledge of the mechanistic factors that underlie pollinator response to each type of habitat type conversion. However, mechanistic factors other than floral resources have rarely been measured for pollinators in the context of land-use change. In particular, nest or oviposition site availability might be important, but has scarcely been measured. Among bees, species nesting in existing cavities above ground decrease with increasing land-use change (Williams et al. 2010), suggesting that these nest sites are destroyed when habitats are converted. Conversely, bee species that nest in the ground increase with land-use change (Williams et al. 2010), possibly because human activities improve access to bare soil. For butterflies, mowing or grazing may have detrimental effects if it destroys the plants on which females have oviposited (Johst et al. 2006). Nest site selection and success in birds are often tied to vegetation structure, which clearly can change with land use (Smith et al. 2009); however, we are not aware of studies investigating land-use change and nest selection for pollinating birds. Some nectarivorous bats use tree hollows as roost sites, and these can be destroyed by logging (Law 1993).

5. CHARACTERISTICS OF POLLINATORS

The broad groups of pollinators (bees, butterflies, flies, and vertebrates) do not show markedly different responses to land-use change once study design is taken into account. Across taxa, the species trait that is most often associated with vulnerability to land-use change is dietary specialization, with pollen-specialist bees, and fly and butterfly larval-host specialists, being the most sensitive. Within each taxon, other biological differences among species explain some variability, with nest site location and sociality being important in bees and mobility being important in syrphid flies and butterflies.

5.1. Are There Broad Differences Across Pollinator Taxa?

As far as we are aware, differential responses to land-use change among the primary pollinator taxa have never been evaluated. There are multiple ecological differences across these groups that might lead to differential responses to land-use change. Perhaps the most obvious is body size, contrasting the insects with the mammals. However, predictions about response to land-use change based on body size are difficult to make, due not only to a multiplicity of other factors that vary between these groups, but also to contrasting expectations with regards to the effect of body size. Small-bodied pollinators such as insects might require smaller areas in order to achieve minimum viable population sizes, thus making them less sensitive to land-use change (Tscharrntke et al. 2002). Conversely, larger-bodied and therefore more mobile pollinators might be better able to find resources throughout the landscape (Henle et al. 2004). When broad comparisons are made across taxa using the ratio of negative-to-positive responses, without controlling for study design, bees and butterflies appear to be the most sensitive to land-use change, whereas vertebrates are the least sensitive (**Table 1**). However, a closer examination reveals that 80% of vertebrate studies have used a study design that compares across local land-use types, and such designs find fewer negative responses to land-use change regardless of taxon (**Figure 3; Supplemental Tables 2–4**). When comparisons across taxa are made only within this study design, few differences emerge across taxa (**Supplemental Table 4**). Similarly, studies that have investigated the responses of multiple taxonomic groups within the same system have not found stark differences (**Supplemental Table 12**). However, a meta-analysis focused exclusively on tropical systems found that bees were negatively affected by conversion to agroforestry, whereas nectarivorous birds benefited from moderate levels of agroforestry (Tscharrntke et al. 2008).

5.2. Do Species Traits Explain Variation within Each Taxonomic Group?

Within each broad taxonomic group, species traits such as dietary or habitat specialization, nesting requirements, body size, or sociality might mediate responses to land-use change. These traits can have somewhat different meanings across the main groups of pollinators. For example, dietary specialization in bees, or oligolecty, refers to species for which females collect pollen only from one to a few genera or families of plants. In contrast, with a few notable exceptions such as yucca moths, adult Lepidoptera and syrphid flies show little flower specialization, visiting mainly open flowers with abundant nectar reward (Scoble 1995). Dietary specialization in butterflies and syrphid flies thus refers not to adults, but to the breadth of host plants or prey items that the larvae feed upon. In contrast to pollen specialization, nectar specialization is rare; thus, adult pollinators that feed upon nectar alone, such as male bees, most butterflies, and vertebrates, are mostly generalists (Michener 2007, Scoble 1995). Many nectarivorous bird and bat species are even more generalist than the generalist insects, because they can forage on fruit or insects when nectar is not available (Tschapka 2004).

The definition of nesting resources also varies across taxa. Syrphid flies and butterflies do not have nests, but host specialists require particular plants for oviposition, or particular prey species. Birds and bees both show wide variation across species in the resources they require for nesting, ranging from use of certain types of preexisting cavities to particular plant species required as nest-building materials. A number of nectarivorous bats use caves for roosts that may be susceptible to anthropogenic activity. Lastly, the species trait of sociality applies primarily to bees, for which roughly 6% of species are social (Michener 2007); the other pollinator taxa have few or no social species.

In bees, a synthetic analysis of 19 data sets shows that nest location (discussed in Section 4.4 above) and sociality are the most important traits moderating response to land-use change

(Williams et al. 2010). Several recent meta-analyses have found that social bees are more negatively affected by land-use change than are solitary species (Ricketts et al. 2008, Williams et al. 2010, Winfree et al. 2009). Although the mechanism behind this effect is unknown, one hypothesis is that pesticides bio-accumulate in the larger and more persistent nests of social species, thereby increasing exposure at all life-history stages (Williams et al. 2010). Neither dietary (floral) specialization nor body size predicts responses to isolation from natural habitat in a synthetic analysis (Williams et al. 2010), despite the fact that some work has found that floral specialist bees decline more with land-use change (Biesmeijer et al. 2006, Cane et al. 2006, Kleijn & Raemakers 2008).

In butterflies and moths, a cross-continental analysis of 24 data sets found that species with specialized larval diets, low mobility, and low reproduction are the most strongly affected by land use (Ockinger et al. 2010). This result concurs with an independent analysis of the ecological characteristics of threatened butterflies (Kotiaho et al. 2005). First, the idea that dietary specialist species are the first to disappear is highly supported by multiple studies in different systems across the world (Filippi-Codaccioni et al. 2010, Koh & Sodhi 2004, Littlewood 2008, Polus et al. 2007, Stefanescu et al. 2009, Steffan-Dewenter & Tscharrntke 2000; **Figure 5**). Second, low mobility, measured as wing size, is also associated with negative responses, although this trend is more pronounced in moths than in butterflies (Ockinger et al. 2010). This finding supports the idea that, at least among Lepidoptera, more mobile organisms are better able to disperse and find suitable habitat patches. Third, high reproductive rate can mitigate the negative effects of land use on highly specialist species (Ockinger et al. 2010), and species with few generations per year are absent from human habitats in some systems (Kitahara & Sei 2001). Lastly, endemics and species with small ranges are most sensitive to land-use change (Bonebrake et al. 2010, Kitahara & Sei 2001).

As in butterflies, larval food source is an important determinant of syrphid fly response to land-use change, with more generalist species being more resilient (Schweiger et al. 2007). In particular, syrphid flies that consume aphids increase in agricultural settings, whereas some phytophagous and saprophagous species decrease (Meyer et al. 2009, Schweiger et al. 2007). Syrphid flies with greater mobility are less susceptible to land-use changes (Schweiger et al. 2007, Sommaggio 1999).

We know of no studies that have examined the relationship between species-level traits of flower-visiting vertebrates and the response to land-use change. In fact, feeding guild itself is an important trait determining bird and bat responses to land use, with nectarivorous species being more resilient to land-use change, as compared to other feeding guilds (Tscharrntke et al. 2008, Willig et al. 2007).

6. RESEARCH METHODS AND BIASES

In this section, we review methodological issues relevant to the interpretation of the literature on pollinators and land use. First, most published studies report species richness and/or aggregate abundance as the outcome variables. More studies of species composition are needed in order to detect changes such as trade-offs between disturbance-sensitive and disturbance-associated species. If such trade-offs occur they could lead to biotic homogenization at larger scales (Olden 2006). Second, land-use change is usually studied by comparing habitats across space, whereas studies of land-use change over time are scarce. Although the results of studies using space as opposed to time designs do not appear to differ at present, more studies over time are needed. Third, the contrasting results found by studies using different spatial designs (discussed in Section 4 above) raise scope of inference issues. In addition, most of the published studies investigating changes in pollinator communities along land-use gradients have been done in systems characterized by extreme human land use. This may not represent a random sample, with respect to land-use change, of all global ecosystems.

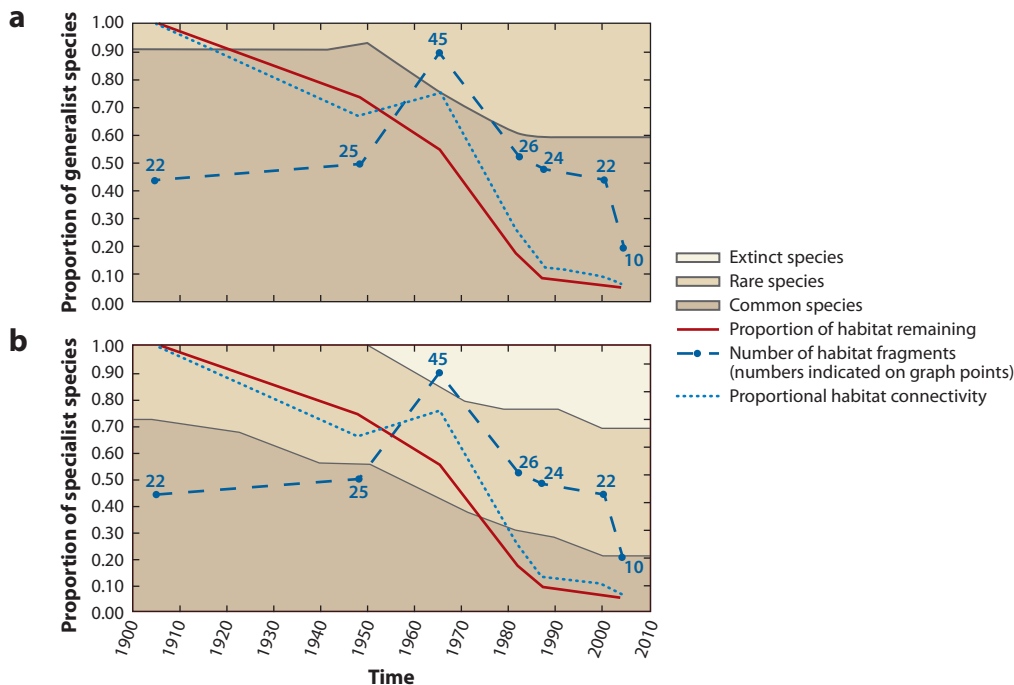


Figure 5

Changes in butterfly communities over time in southern Belgium, illustrating three important issues. First, this is one of the few long-term studies available, and it indicates that many changes took place before the majority of studies covered in this review were initiated. Second, it demonstrates the importance of using community composition rather than simpler metrics such as species richness, which do not capture the trade-offs among rare and common species captured here. Third, the data show the greater susceptibility of specialist species. The graphs show changes within (a) generalist or (b) specialist butterfly communities since 1903. The proportions of common, rare, and extinct species change over time. Superimposed, the remaining area of calcareous grassland habitat (solid red line), the number of habitat fragments (dashed line), and the connectivity among these (dotted line) show the association between land-use change and species composition. Modified from Polus et al. 2007.

6.1. Response Variables

In this section we consider the frequency with which various measures have been used to represent pollinator response to land-use change and how the choice of response variables may influence the conclusions reached. We highlight the lack of studies of species composition, which severely limits our understanding of pollinators and land-use change thus far.

6.1.1. Does species composition change more than abundance and richness? Richness and abundance are simple indices that are useful in evaluating large-scale trends, but they can mask changes in the identity or composition of species, and such changes may be the main result of anthropogenic land use (Barlow et al. 2007, Lewis 2009). When composition changes more than abundance and richness, this implies that some species increase with land-use change while others decrease. Such changes can lead to biotic homogenization if the subset of species that persist in anthropogenic habitats become widespread at the expense of species adapted to particular natural habitat types.

Few studies of bees report community composition, but those that do find it to be more sensitive to land-use change than are abundance and richness (Brosi et al. 2007, Hannon & Sisk 2009). A

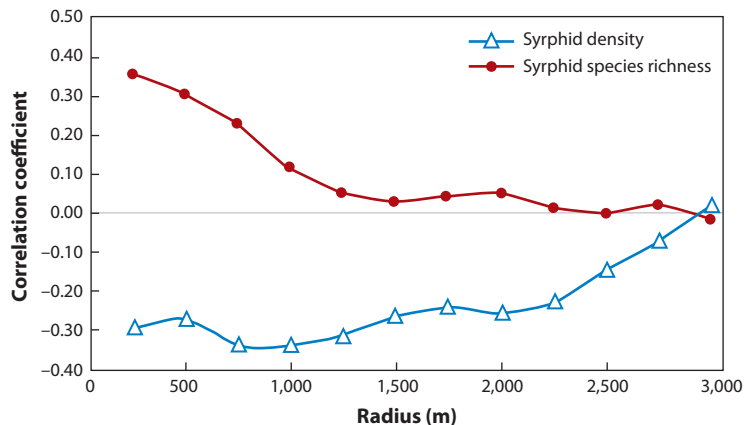


Figure 6

Contrasting responses of richness and abundance to land-use change. Each point represents the correlation between landscape diversity (which is negatively associated with arable land cover in this system) and either syrphid fly abundance or richness at each radius (meters). Adapted from Meyer et al. (2009).

repeated finding in bee communities is that native species decrease and feral honey bees (*Apis mellifera*) increase with increasing land-use change (Aizen & Feinsinger 1994, Brosi et al. 2008). In butterfly studies, composition is more often reported, and it is consistently more sensitive to land use than are richness and abundance. However, the precise pattern of change varies among studies. In some cases, composition changes mainly due to the loss of particular species from the more anthropogenic habitats, such that composition is nested (Ockinger & Smith 2006). Even in the opposite case, in which natural habitats have lower richness, the natural habitats can support species not found elsewhere, thus indicating the importance of the natural habitat type (Natuhara et al. 1999, Spitzer et al. 1993). A third pattern shows similar richness in both land-use types, but with widely divergent community composition (Ohwaki et al. 2007, Summerville & Crist 2003). In such cases, composition effects can be driven by the presence of widespread generalist species in more anthropogenic habitats, accompanied by the loss of specialist species (Balmer & Erhardt 2000, Stefanescu et al. 2005).

Most studies on syrphid flies are conducted across agricultural land-use gradients, and forest-associated and phytophagous species are often absent from the most agricultural sites, leading to decreases in species richness with increasing land-use change (Meyer et al. 2009, Schweiger et al. 2007). At the same time, the smaller number of species whose larvae consume aphids or other crop pests often increase with agriculture, leading to stable or even increasing abundance with land-use change (Meyer et al. 2009; **Figure 6**). All of this work suggests that the focus on abundance and richness is too simplistic and misses important patterns, such as the replacement of forest-dependent species with disturbance-associated species.

6.1.2. Reproduction as an outcome variable. Outcome variables related to population growth rate, such as reproductive success or nest density, would be very useful in predicting the effects of land-use change on pollinators. Unfortunately, these variables have rarely been reported, probably because they are difficult to measure. The few studies of bee nesting or reproduction as a function of land use show mixed effects (Goulson et al. 2010, Holzschuh et al. 2010, Williams & Kremen 2007). We were unable to find quantitative studies of butterfly or fly reproductive success as

a function of land-use change, probably because the lack of a central nest site complicates the monitoring of such variables.

6.2. Issues of Space and Time

Most studies of land-use change are conceptually focused on land-use transitions—that is, changes in land use over time—but in practice collect data simultaneously in land-use contexts, thus substituting space for time. Because the assumptions of this substitution are rarely validated, it is worth asking whether designs based on time achieve results similar to those based on space. Few studies have used an across-time design, but those that do have found results broadly consistent with the across-space designs. For example, among butterflies, extinctions occur mainly in specialist species over time (Nilsson et al. 2008, Ohwaki et al. 2008, Polus et al. 2007, Stefanescu et al. 2009). In a tropical forest fragmentation experiment, hummingbird species either remained stable or increased following deforestation, and they remained stable for the following 20 years (Stouffer et al. 2006). This is consistent with the largely neutral-to-positive responses of nectarivores to tropical forest loss generally (Tschardt et al. 2008).

A related concept, which can be investigated using either time or space designs, is time-delayed extinctions or extinction debt. Among bees, extinction debt has been found for particular floral specialists but not for other taxa (Cane et al. 2006). A pan-European study of 147 fragmented grassland remnants found support for the extinction debt hypothesis for vascular plants, but not for specialist butterflies (Krauss et al. 2010). However, in a similar study system, butterfly species requiring large habitat areas do show signs of extinction debt (Sang et al. 2010).

A final issue related to historical land-use transitions is that they can act as a filter on pollinator communities, which may now be dominated by species that are relatively robust to human land use. Thus, contemporary studies finding little effect of land-use change may be biased insofar as the sensitive species were lost before the studies were conducted (**Figure 5**).

6.3. Scope of Inference

The scope of inference for published studies of pollinators and land-use change will be global in scope only if the systems that have been studied thus far represent a globally random sample with respect to land use. We can use the published studies of pollinators and surrounding land use (**Supplemental Tables 2–3**) to do a preliminary assessment of this issue. Using the criteria for an extremely anthropogenic system described in Section 4 above, 75% of bee studies, 55% of butterfly studies, 84% of fly studies, and 45% of vertebrate studies have been conducted in extremely anthropogenic systems. Thus, a research bias may exist wherein researchers have chosen to study pollinators and land-use change in systems that have already experienced greater than average land conversion. Conversely, a research bias may exist in the opposite direction if researchers have chosen systems where they expect to find sufficient numbers of native pollinators to study and these systems have less land conversion than average. This bias would lead to an underestimate of the actual global effects of land-use change on pollinators. Robust inferences about the effects of land-use change on pollinators globally will need to take into account the actual distribution of anthropogenic and natural systems, as compared to the systems where pollinators have been studied.

SUMMARY POINTS

1. Pollinator responses to land-use change are more often negative than positive, but are characterized by high variability.

2. Pollinator responses vary according to study design, being largely negative in comparisons across gradients in surrounding landscape cover and largely positive in comparisons across local land-use types. In addition, pollinator responses are more strongly negative in study systems that have already experienced extreme land-use change.
3. Pollinators respond more consistently to the directionality of change in floral resources with land-use change than they do to land-use change itself.
4. The most prominent trait associated with vulnerability to land-use change across taxa is dietary specialization, with pollen specialist bees, and fly and butterfly larval host specialists, being most sensitive.
5. Conclusions thus far are largely based on measures of aggregate abundance and species richness. More studies of species composition and relative abundance are needed in order to understand which pollinators are lost and gained with land-use change.

FUTURE ISSUES

Gaps in knowledge resulting from research bias:

1. Are the systems in which pollinators and land use have been studied a random sample of all global systems, with respect to land use? The answer determines the appropriate scope of inference for the published literature.
2. What is the role of extinction debt in explaining long-term changes in pollinator communities? A time lag can exist between land use and the loss of native species, yet very few studies of pollinators have considered time since land-use change took place. A related bias is that the historical baseline for what species were present before any land-use change took place is rarely known, thus potentially biasing contemporary studies if sensitive species are no longer present.

Moving beyond species richness:

3. How does pollinator species composition change with land use? Are disturbance-sensitive species replaced with disturbance-associated species, leading to biotic homogenization? As of yet, the great majority of studies have focused on aggregate abundance and species richness alone, leaving these questions largely unexplored.

Identifying mechanisms:

4. What are the mechanisms underlying pollinator responses to land-use change? Mechanisms other than floral resources have scarcely been investigated.

Future scenarios:

5. How are future trends in land use likely to affect pollinators? Agricultural land area in particular is predicted to increase greatly with the increasing human population (Tilman et al. 2001). What are the trade-offs for pollinators between intensifying agriculture within existing agricultural areas (the land sparing approach) and using larger areas in a more biodiversity-compatible way (the wildlife-friendly farming approach; Hodgson et al. 2010)? What interactions might there be between land use and climate change (Forster et al. 2010)?

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

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This paper is dedicated to Joan Ehrenfeld, scientist, mentor, and friend, who died far too young between the initiation and publication of this paper.

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Finds, in one of the first studies to do so, that the effects of land-use change vary by pollinator life history.

Reviews butterfly responses to land-use change in Southeast Asia, an area experiencing rapid development and in need of conservation attention.

Demonstrates the negative impacts of agricultural intensification on native bees.

Highlights the importance of studying species composition and function to detect land-use effects.

Addresses feeding guild responses of syrphid flies to land use and demonstrates that richness and abundance may have different responses.

Highlights the power of using pollinator life-history traits to explain the effects of land-use change on butterflies.

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benefit from moderate
levels of logging,
whereas insectivorous
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negatively.

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Errata

An online log of corrections to *Annual Review of Ecology, Evolution, and Systematics* articles may be found at <http://ecolsys.annualreviews.org/errata.shtml>



April 30th, 2019

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Erik Nolthenius, Planning Manager
City of Brentwood Community Development Dept.
150 City Park Way
Brentwood, CA 94513

RE: Vineyards at Deer Creek Notice of Preparation (NOP)

Dear Mr. Nolthenius,

Save Mount Diablo (SMD) is a non-profit conservation organization founded in 1971 which acquires land for addition to parks on and around Mount Diablo and monitors land use planning which might affect protected lands. We build trails, restore habitat, and are involved in environmental education. In 1971 there was just one park on Mount Diablo totaling 6,778 acres; today there are almost 50 parks and preserves around Mount Diablo totaling 110,000 acres. We include more than 8,000 donors and supporters.

Thank you for the opportunity to comment on the NOP for the Vineyards at Deer Creek project (Project). The Project proposes, among other things, to move the Brentwood Urban Limit Line (ULL) to accommodate the construction of 2,400 housing units over 815 acres to the west of Brentwood. More than 200 acres of open space/vineyard agriculture and some commercial uses, as well as roads and other infrastructure, would also be accommodated in the Project Site. Below we list several topics of analysis that should be included in the draft Environmental Impact Report (dEIR).

Project Description

Significant environmental mitigations should be included in the project description, such as specific mitigation properties.

Alternatives Analysis – Open Space on Project Site

The Alternatives analysis should include an alternative that increases the amount of open space on the western portion of the Project site in order to buffer protected open space lands owned by East Bay Regional Park District (EBRPD) to the west of the Project Site across Deer Valley Rd. (see Figure 1, below). If the Project is approved, this would serve to smooth the east-to-west transition between development and regional parkland.

Another alternative that should be considered, either as part of the same alternative referred to above or as a completely different one, is to have most of the open space on the Project Site be grassland, especially the open space on the west side of the Project Site. The current proposal is for most of the open space on the Project Site to be vineyards. If instead it were grassland, the negative effects of increased pesticide use, water consumption and depletion of topsoil associated with planting vineyards would be reduced, and the Project Site open space would more closely mimic and offer a better transition to the EBRPD-owned protected grasslands west of the Project Site.



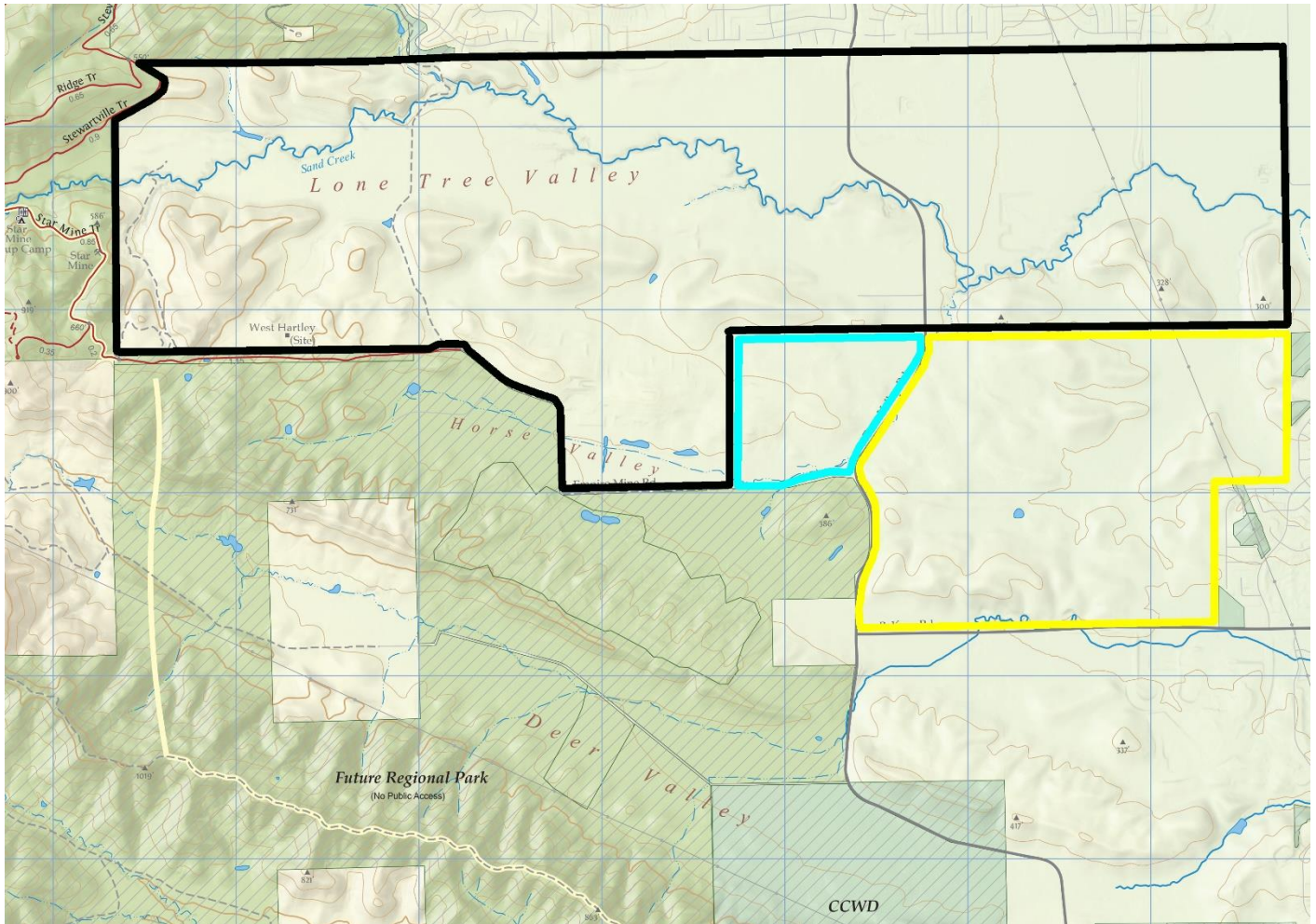


Figure 1. Map showing the terrain and protected lands (green-shaded cross-hatched areas) west of the Project Site and surrounding area. Yellow polygon is the Project Site. Blue polygon is 200-acres west of Deer Valley Rd. owned by the same landowner that owns the Project Site. Black polygon is Antioch's Sand Creek Focus Area (note that land in Sand Creek Focus Area west of Deer Valley Rd. now has increased protection due to adoption of Let Antioch Voters Decide Initiative).

Aesthetics Analysis – 3-D Visual Simulations

The Aesthetic analysis portion of the dEIR should include 3-D visual simulations of the proposed Project taken from various viewpoints in the surrounding area. Some of these viewpoints should be in EBRPD-owned lands across Deer Valley Rd. west of the Project Site looking east towards the Project Site to determine what the visual impacts of the Project would be on current and future users of these protected lands. Part of the value of protected lands for the public is natural, aesthetically pleasing views and experiences, which can be diminished if nearby development does not mesh well with its natural surroundings.

Biological Mitigation – Include in Project Description

As stated above, proposed biological mitigation for the Project should be publicly disclosed and included in the project description of the dEIR so that it can be evaluated. Given that the Project is currently proposing to adjust the ULL and construct several thousand units beyond the urban edge near protected habitat with endangered species present on it, the biological mitigation proposed should be of both high quantity and quality. Therefore, proposed mitigation should be described in the dEIR in great detail to determine how the benefits of mitigation measure against Project impacts.

Regards,

Juan Pablo Galván
Land Use Manager



Erik Nolthenius, Planning Manager
Community Development
150 City Park Way
Brentwood, CA 94513-1164
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From: Anthony Cassano [<mailto:anthonyjcassano@yahoo.com>]
Sent: Wednesday, May 01, 2019 3:43 PM
To: Nolthenius, Erik
Subject: Vineyards at Deer Creek

Hello Erik,

I'm writing today to express my concerns over the "Vineyards at Deer Creek" residential project.

These homes will add to Brentwood's already top heavy housing supply without bringing any long term well paying jobs along with them. This will cause even more traffic on roads leading out of Brentwood during peak commute hours, and congest surface streets around Balfour where traffic is already terrible.

In addition to this, the East Contra Costa Fire Protection District is stretched too thin as it is. Adding 2400 homes on top of the thousands Brentwood already has approved will further increase emergency response times. Brentwood's citizens look to our elected officials to have our best interests at heart and it is clear that developing PA-2 as "Vineyards at Deer Creek" only puts developer's profits at heart.

Thank you,

Anthony Cassano
Brentwood Resident

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Walnut Creek Office
1601 N. Main St., Suite 105
Walnut Creek, CA 94596
(415) 659-8624

May 1, 2019

Erik Nolthenius
Community Development Department
City of Brentwood
150 City Park Way
Brentwood, California 94513

Dear Mr. Nolthenius,

RE: Notice of Preparation for Vineyards at Deer Creek Environmental Impact Report

Thank you for providing the opportunity for Greenbelt Alliance to comment on the Notice of Preparation for the Vineyards at Deer Creek Project (Project). Please notify us of any future developments related to the proposed Project. We encourage the City of Brentwood to conduct a thorough review of all potential impacts of the Project, especially given its proposed location on farmland of local importance and open space outside of the voter-approved urban limit line (ULL).

We are concerned about many impacts of the Project, including significant impacts to county farmland of local importance and open space, growth inducement, traffic, air quality, disturbance of scenic viewshed, immediate and cumulative impacts on County General Plan and growth management policies from the adjustment of the Contra Costa County's voter-approved Urban Limit Line (ULL), and the impact on fire services in the East Contra Costa Fire Protection District. Several items deserve particularly close attention in the DEIR.

Introduction

The proposed Project is a sprawl-type development on active agricultural land at the gateway to the Mount Diablo range, abutting East Bay Regional Park District land. The proposed Project will contribute to the pattern of speculative sprawl development, thereby significantly impacting traffic, congestion, air quality, and devastating effects on farmland, open space, and scenic viewsheds. Moreover, the DEIR should consider the impact of this new proposed development on the already limited fire and emergency services in the East Contra Costa Fire Protection District.

Project Need

The benefits from infill development lay a solid foundation of growth and economic stability for Brentwood. Development that prioritizes infill over sprawl is also in line with the City's

General Plan, which states on Page 9-18, “Prioritize the processing of development applications for infill, underutilized, or vacant parcels designated for urban uses over those projects requiring annexation.”

Brentwood currently has 711 parcels covering 1,026 acres within the urban limit line that are available for development (see attached map), and 5,878 units currently permitted or under construction within the City. In addition, in 2016, Contra Costa County determined that all of the County’s housing and job needs could be met within the existing urban limit line through 2036¹.

Building outside the urban limit line, and its associated environmental impacts, is wholly unnecessary for meeting the needs of the City and the County. The DEIR must consider the need for building outside the urban limit line, in light of the substantial environmental impacts caused by this Project.

Agricultural Land Conversion

It is a stated priority of Contra Costa County and the City of Brentwood to protect the region’s agricultural land for food production and a vibrant agricultural economy. On Page 1-2 of Brentwood’s General Plan, one of the Guiding Principles is to “Preserve surrounding agricultural lands and the city’s agricultural heritage.” The proposed Project, which converts 815 acres of active farmland into sprawl development, will result in the irreversible loss of farmland of local importance and an economic threat to the County’s agricultural economy.

In addition, this Project and the annexation of the Project land known as Special Planning Area 2 (SPA 2) is contrary to Contra Costa County LAFCo’s Agricultural and Open Space Preservation Policy². According to Policy 2, “Vacant land within urban areas should be developed before prime agricultural, agricultural and/or open space land is annexed for non-agricultural and non-open space purposes.” As stated above, Brentwood maintains high infill potential, and does not need to move the urban limit line to accommodate more growth. The DEIR must review the wide range of impacts that farmland conversion will have on the environment, community, and economy, and compare these impacts with the services provided by the land in its current state, including food production potential, carbon sequestration, and groundwater recharge. (See attached Bay Area Greenprint report.)

Air Pollution, Greenhouse Gas Emissions, and Vehicle Miles Traveled

This Project will induce auto-oriented suburban-style growth outside of Brentwood’s ULL.

¹ 2016 Urban Limit Line Mid-Term Review

http://64.166.146.245/agenda_publish.cfm?id=&mt=ALL&get_month=12&get_year=2016&dsp=agm&seq=27024&rev=0&ag=841&ln=55010&nseq=28154&nrev=0&pseq=25280&prev=0#ReturnTo55010

² Contra Costa County LAFCo Agricultural & Open Space Preservation
<http://contracostalafco.org/policies/agricultural-open-space-preservation/>

The DEIR should evaluate the full range of impacts that may result from this type of growth inducement, including the ability to reduce greenhouse gas emissions and air pollution and meet local, regional, and state climate change goals. For example, the DEIR should consider how the Project negatively impacts Contra Costa County's ability to achieve its own Climate Action Plan goals.

This Project will significantly increase levels of air pollution, greenhouse gases, and vehicle miles traveled, and all potential impacts must be studied in detail. According to the modeling software Urban Footprint, the development of this project at buildout will create 26,558 vehicle trips per day, which will contribute 30,753 metric tons of greenhouse gas emissions per year. An additional 45,000 metric tons of greenhouse gas emissions will be produced by the development itself.

Per new CEQA regulations, traffic considerations must be measured in terms of Vehicle Miles Traveled (VMT), not Level of Service. These impacts must be documented in light of the number of additional residents who will be forced to leave the City of Brentwood for work every day given the lack of viable jobs in the area, on top of the existing 88% of Brentwood workers that already commute out every day. At least 20% of the homes built (around 480 homes) will be unrestricted market-rate homes whose residents will be unlikely to work in or near Brentwood. The traffic and VMT impacts of this Project must be considered given the existing 5,878 housing units permitted and in development in Brentwood, the housing currently in production in the rest of East County such as the 5,500 homes in development in Oakley, and the existing traffic levels on Hwy 4.

Likewise, the DEIR should investigate how the project will impact attainment of the goals and policies outlined in *Plan Bay Area*, the region's Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). *Plan Bay Area* calls for accommodating the next generation of development entirely within existing ULLs and shifts regional funding priorities to support development near the region's transit resources.

Habitat and Natural Resources

According to the Conservation Lands Network, 64% of the Project area are "Essential" or "Important" priority lands. These 815 acres make up the last buffer area between Brentwood, Antioch, and the newly acquired East Bay Regional Park District land west of Deer Valley Rd, which could compromise the integrity of the habitat provided by the park. The importance of this land to wildlife and the local ecosystem must be investigated and documented, including for habitat connectivity, vernal pools, habitat for species requiring mitigation, and the habitat values of threatened and endangered species.

Insufficient Fire and Emergency Services

Page 3-6 of Brentwood's General Plan states that Goal CSF 4 is to "Ensure the provision of high quality and responsive fire protection services." The East Contra Costa Fire District has described at length their inability to provide adequate fire and emergency services, and that

their response times are consistently longer than the regional and national averages due to lack of stations, trucks, and staff. According to the Fire District's own reporting in 2018, "With this three-station model, it is impossible to provide a high level of service in terms of response times throughout the District."³ The DEIR must have a comprehensive review of how the City of Brentwood will provide adequate fire services to both the new development being proposed, and all city residents. If the population in the proposed development is indeed 55+, the burden on fire and emergency services will be substantial, given increased 911 calls. The DEIR must detail the risks to human health and safety that adding these additional homes may cause, due to currently levels of fire protection in the East Contra Costa Fire Protection District.

Other Public Services

The proposed Project calls for 20% unrestricted market-rate homes; approximately 480 homes. The DEIR must describe the impact these new residents will have on the already overburdened and impacted Brentwood School District, and how new children will be accommodated and adequately provided for by the City.

Alternatives

The DEIR must examine alternatives to the proposed Project, including an analysis of impacts if the equivalent amount of housing is built within the urban limit line on existing developable parcels, and a "no project" alternative. Our assessment is that alternatives are feasible, and it is unlikely to encounter a finding of overriding circumstances because the project itself is not needed.

Process

The environmental impacts of the proposed Project have the potential to be substantial, and adequate time should be made by the City and its consultants to study these impacts. The community is counting on a thorough review. This process should be given its due diligence, and should not be rushed to accommodate the schedule of a private developer. Once the DEIR is released, the community should be given the full 90 days to comment on the draft. Any proposal to move the urban limit line should not be examined by voters until the completion of the environmental review, when the community will have the opportunity to fully understand the impacts at stake.

Conclusion

Thank you again for this opportunity to comment on the Notice of Preparation for the Vineyards at Deer Creek Project. By protecting the area's natural resources and agricultural land, as well as ensuring that infill development is prioritized over building on greenfields

³ East Contra Costa Fire's Critical Infrastructure Update and Next Steps
<https://www.eccfpd.org/files/651015c05/March+27th+2018+Infrastructure+Update+PR.pdf>

outside of the urban limit line, we can ensure the long terms sustainability of our region and our ability to meet our climate change goals.

We look forward to a detailed and thorough investigation, and an adequate Draft Environmental Impact Report that addresses all of the concerns laid out in this letter.

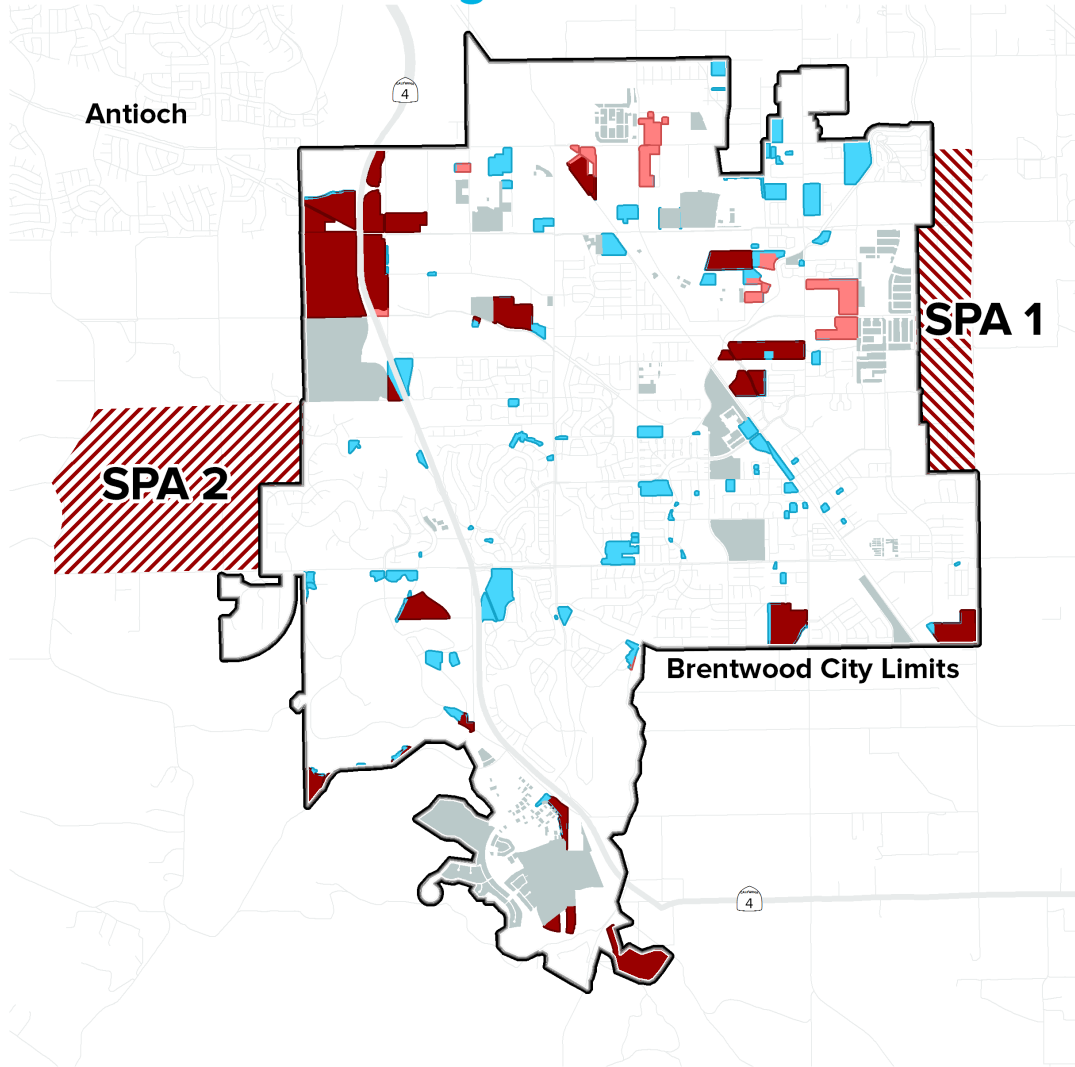
Sincerely,

Hayley Currier
East Bay Regional Representative
Greenbelt Alliance
(415) 659-8624
hcurrier@greenbelt.org

Attachment 1



Brentwood's Infill Opportunities for Agricultural Protection



Development Opportunities Inside Brentwood

Brentwood's Housing Element Opportunity Sites

ABAG Regional Housing Needs Assessment 5, 2015-2023

- | | |
|---|---|
|  Developable Infill Parcels
<small>CA FMMP 2016 - Urban and Built-up Land</small> |  Recently Cultivated or Grazed
<small>CA FMMP 2016 - Farmland, Grazing Land</small> |
|  Approved Housing Project
<small>ABAG RHNA5 2015-2023, Aerial Review 4-2019</small> |  Other Open Space
<small>CA FMMP 2016 - Other Land, Aerial Review 4-2019</small> |

Developable Infill Parcels: 711 parcels, 1026 acres
 Approved Housing Project: 5,878 units

Attachment 2

Bay Area Greenprint Report: <http://bit.ly/2F9Wu2c>

Overview

Key Facts: 815 acres	Includes areas inside:	
Counties: Contra Costa	Urban Growth Boundaries	No
Watersheds: Marsh Creek	City Limits	No
Priority Conservation Areas: 1 PCAs (see online report)	Urban Service Areas	No
	Transportation Priority Areas	No

Protection & Threats

Bay Area Protected Areas Database

None of the selected area is listed in BPAD.

Policy Protections

- Conservation Plan (Policy 8-89)



Did you know?

813 acres of open space in this area could be developed in the near future. Policies can reduce the pressure to develop greenfield lands and preserve important environmental resources.

These development projects in your evaluation area are occurring on open space:

- Brentwood General Plan Update Alternative 1 and...
- Brentwood Measure F
- Brentwood Measure L
- Ginochio Focus Area

Hazards

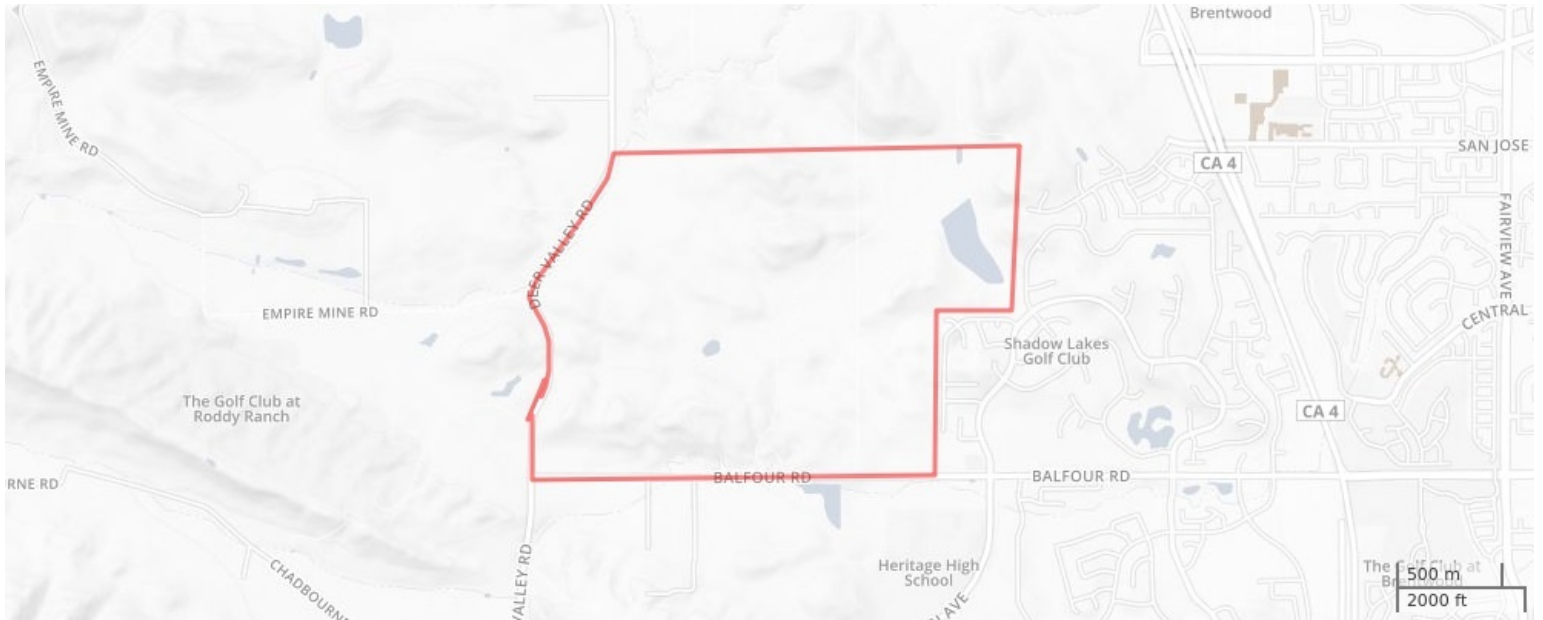
High Seismic Hazard	< 1 acres	< 1 % of area
High & Very High Liquefaction	7 acres	1 % of area
Historic Rainfall Induced Landslides	< 1 acres	< 1 % of area
Area Burned Historically	260 acres	32 % of area
Wildland-Urban Interface	811 acres	100 % of area
High & Very High Fire Hazard Severity	< 1 acres	< 1 % of area
Tsunami Inundation Area	< 1 acres	< 1 % of area

Community

< 1 % of your area is a Community of Concern, defined as areas that are low-income and minority households, or that have a burden of social disadvantages.

< 1 % of your area is a Disadvantaged Community, defined as areas burdened by pollution and vulnerable to the adverse effects of pollution.

Brentwood Build Out Plan SPA2



County Boundaries

— Boundary

Brentwood Build Out Plan SPA2

Metric	Value	Unit	% of Shape	% Area Contributes to County Total	Amount Protected County	% Area Contributes to Watershed Total
Prioritized Habitats						
Conservation Lands Network: Priority Lands	525	acres	64 %	< 1 %	122,479	2 %
Conservation Lands Network: Key Riparian Corridor	< 1	miles		0 %	45	0 %
Baylands	< 1	acres	< 1 %	< 1 %	2,387	< 1 %

How will climate change impact prioritized habitats?

Threat: It is assumed that habitats prioritized for conservation action will persist in those locations into the future. If climate change results in projected climate outside of the range of suitable climate for the vegetation types in that area, then the species and habitats in those prioritized lands may be more vulnerable to climate change. **In your area, none of prioritized habitats have vegetation types likely to be at the margins of suitable climate.**

Opportunity: Some species and vegetation in prioritized landscapes are likely to persist despite climate change. Climatic changes may not result in climatic stress to all vegetation types because the projected changes are still within the range of suitable climate for those vegetation types. Also, some areas may have a local microclimate options that make those vegetation types more resilient to potential climate stress. **In your area, 98% of prioritized habitats have vegetation types that are likely to have suitable climate in the future. And this area of interest is higher than average resilience for the Bay Area.**

Metric	Value	Unit	% of Shape	% Area Contributes to County Total	Amount Protected County	% Area Contributes to Watershed Total
Habitat Connectivity						
Bay Area Critical Linkages: Regional Habitat Linkage	< 1	acres	< 1 %	< 1 %	1,388	< 1 %
Bay Area Critical Linkages: Large Landscape Block	< 1	acres	< 1 %	< 1 %	100,166	< 1 %
Regional Connectivity - Channelized	< 1	acres	< 1 %	< 1 %	41,491	< 1 %
Regional Connectivity - Intensified	2	acres	< 1 %	< 1 %	34,404	< 1 %
Regional Connectivity - Diffuse	659	acres	81 %	1 %	28,921	3 %

What policies protect habitat?

➤ Conservation Plan (Policy 8-89)

Brentwood Build Out Plan SPA2

Metric	Value	Unit	% of Shape	% Area Contributes to County Total	Amount Protected County	% Area Contributes to Watershed Total
Species and Habitats that might require mitigation (regulation)						
Hotspots of Species Requiring Compensatory Mitigation	Hotspot	score				
Important Habitat for T&E Vertebrates	Over 80th	percentile				
Wetlands	3	acres	< 1 %	< 1 %	3,565	4 %
Vernal Pools	175	acres	21 %	6 %	1,437	23 %



Did you know?

There are observations of rare or protected species in your area of interest.

Brentwood Build Out Plan SPA2

Metric	Value	Unit	% of Shape	% Area Contributes to County Total	Amount Protected County	% Area Contributes to Watershed Total
Food Production						
Prime Farmland	< 1	acres	< 1 %	< 1 %	2,308	< 1 %
Farmland of Statewide Importance	< 1	acres	< 1 %	< 1 %	697	< 1 %
Unique Farmland	< 1	acres	< 1 %	< 1 %	559	< 1 %
Farmland of Local Importance	808	acres	99 %	2 %	16,154	7 %
Suitable Grazing Land	< 1	acres	< 1 %	< 1 %	88,797	< 1 %
Prime Agricultural Soil (CA Storie Index Grade 1)	43	acres	5 %	< 1 %	6,462	1 %
Prime Agricultural Soil (Irrigated Capability Class 1 or 2)	44	acres	5 %	< 1 %	9,969	< 1 %



Did you know?

Crops in this area are worth as much as \$17,725. (Note: Because of the differences between county crop types and best available spatial data, countywide Greenprint reports differ from published countywide crop reports.)



How will climate change impact food production?

Threat: A warmer and/or drier climate may require additional irrigation to maintain the same crop in the same location. **In your area, 326 ac-ft/yr of additional irrigation will be needed to offset climate change under the "Hotter, Drier" scenario and 75 ac-ft/yr of additional irrigation will be needed under the "Warmer, Wetter" scenario.**

Brentwood Build Out Plan SPA2

Metric	Value	Unit	% Area Contributes to County Total	% Area Contributes to Watershed Total
Water Supply				
Groundwater Recharge	123	ac-ft/yr	< 1 %	1 %
Runoff	50	ac-ft/yr	< 1 %	< 1 %



Did you know?

The 123 acre-feet of groundwater recharge in your area is equivalent in volume to the annual water use for 631 households.

Your area is part of a municipal drinking water supply watershed.



How will climate change impact water yield?

Threat: Climate change will likely change precipitation and evapotranspiration rates, impacting water yield by altering the quantity of water available for recharging groundwater and runoff to surface water. The Bay Area is likely to experience more extreme water years, including more frequent droughts.

Opportunity: With potential decreases in water yield and increases in water demand as the region becomes hotter and drier, and droughts become more frequent, groundwater basins will be increasingly stressed. Maintaining the infiltration potential of areas with soil and geologic conditions that are most suitable for direct aquifer recharge will become increasingly important in a changing climate. **None of your area has have soil or geologic conditions that are more likely to allow recharge at substantially higher rates.**

Metric	Value	Unit	% of Shape	% Area Contributes to County Total	Amount Protected County	% Area Contributes to Watershed Total
Water Quality						
Naturalness of Active River Areas	59	acres	7 %	< 1 %	33,604	1 %
Wetlands	3	acres	< 1 %	< 1 %	3,565	4 %
Natural Baylands	< 1	acres	< 1 %	< 1 %	1,818	< 1 %
Hydrogeologically Vulnerable Areas	< 1	acres	< 1 %	< 1 %	0	< 1 %



Did you know?

Your area has **lower than average** water quality.



What policies protect water quality?

- Conservation Plan (Policy 8-89)

Brentwood Build Out Plan SPA2

Metric	Value	Unit	% of Shape	% Area Contributes to County Total	Amount Protected County	% Area Contributes to Watershed Total
Water Hazard Risk Reduction						
100-Year Floodplain	23	acres	3 %	< 1 %	21,165	1 %
Natural Baylands	< 1	acres	< 1 %	< 1 %	1,818	< 1 %

How will climate change impact water hazards?

Threat: Climate change may increase the frequency and extent of potential floods through sea level rise, increased storm surges, and increased flood frequency and intensity. **None of your area is predicted to be impacted by sea level rise. 3% of your area is within the 500-year floodplain.**

Opportunity: Natural lands in inundation zones can reduce the velocity and intensity of flood waters and storm surges. Within your area, no baylands are within the sea-level rise inundation area. **11 acres within the 500-year floodplain have natural land use.**

Brentwood Build Out Plan SPA2

Metric	Value	Unit	% Area Contributes to County Total	% Area Contributes to Watershed Total
Carbon Stock				
Above-Ground Live Carbon Stock	154	MT CO2 equiv	< 1 %	< 1 %
Soil Carbon Storage	42,451	MT CO2 equiv	< 1 %	2 %
Urban Forest Carbon Storage	2	MT CO2 equiv	< 1 %	< 1 %



Did you know?

Avoiding disturbance in this area would have greenhouse gas emissions reduction benefits equivalent to getting at least **32 passenger vehicles** driven for one year off of the road, or benefits equivalent to planting at least **3,988 seedlings** and letting them grow for 10 years. *This does not include the amount of carbon below ground, which is often much higher than above ground.*

Brentwood Build Out Plan SPA2

Metric	Value	Unit	% of Shape	% Area Contributes to County Total	Amount Protected County	% Area Contributes to Watershed Total
Outdoor Recreation						
Potential Regional Trails	< 1	miles		< 1 %	60	< 1 %
Existing Regional Trails	< 1	miles		< 1 %	166	< 1 %
Pedestrian and Bicycle Paths and Bicycle Routes	< 1	miles		< 1 %	32	< 1 %
Publicly-Accessible Protected Area	< 1	acres	< 1 %	< 1 %		< 1 %

Brentwood Build Out Plan SPA2

Metric	Value	Unit	% of Shape	% Area Contributes to County Total	% Area Contributes to Watershed Total
Urban Greening					
Urban Heat Island - Air Temp	1	acres	< 1 %	< 1 %	< 1 %
Air Pollution Risk - Cancer-Causing	< 1	acres	< 1 %	< 1 %	< 1 %
Air Pollution Risk - Particulate Matter	< 1	acres	< 1 %	< 1 %	< 1 %
Park Need - Very High & High	< 1	acres	< 1 %	< 1 %	< 1 %



Did you know?

Did you know that green infrastructure has the potential to redirect stormwater runoff in urban areas to help recharge aquifers? Your area of interest has **3 acres** of developed land over an aquifer which **likely has limited or no potential** for green infrastructure to help urban stormwater runoff recharge into groundwater basins. Groundwater recharge, especially in urban systems is complex, and potential pollutants from adjacent land should be evaluated very carefully before developing low impact development recharge projects. Site-scale tools such as GreenPlan-IT can be used for planning and stormwater professionals should be consulted for the design of facilities.



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Erik Nolthenius, Planning Manager
City of Brentwood Community Development Department
150 City Park Way
Brentwood, CA 94513 (925) 516-5137
enolthenius@brentwood.ca.gov

Re: Notice of Preparation for EIR, Vineyards at Deer Creek Project (SCH #2019049008)

Dear Mr. Nolthenius,

We have reviewed the Notice of Preparation for Environmental Impact Report regarding a proposed project called Vineyards at Deer Creek (“Project”). We submit this letter to request that the topics below be included in the scope of the Environmental Impact Report process for this project.

Aesthetics | Agriculture Resources | Land Use/Planning

The Sierra Club applauds the inherent wisdom, restraint & courage characterized by Cities of Antioch and Brentwood leaders' 1992 adoption of the Memorandum of Understanding (MOU) recognizing the “mutual interest of the two cities in resolving boundary issues.” The MOU stipulates that neither City shall file to change its SOI or to annex within the boundary line of the other City. If the City were to proceed with the Project, the MOU would be terminated by the Brentwood City Council.

The Urban Limit Line (ULL) has proven to be the most effective tool in promoting responsible and healthy growth. The County is in the process of updating its General plan; and the necessary changes to the County General Plan and Zoning regulations this Project Demands would result in long term negative effects for important Open Space assets and agricultural uses, many of which have yet to receive proper County & CEQA examination. When ‘violated’ for presumptive reasons, it portends ongoing and unrelenting problems for Protected Open Space.

Sierra Club objects to the fallacy of “protecting” 225 acres of Open Space that is ALREADY well protected by the ULL; furthermore. This twisted argument for violating the sound and well established principals of the ULL should be removed. Further, the Project's aim of changing the natural characteristics of the Project area “Open Space” to “reinforcing a Mediterranean” environment should be removed as a Project “protective” measure.

Theoretically, with the proposed line of reasoning, we could end up with a standard for “re-protecting” land outside the growth boundary, that would effectively replace hundreds of acres of those Agricultural/Open Space regions with edge development, in effect undermining the very premise of a strong growth boundary.

The project clearly does conflict with the commitment we’ve made as a County under measure L to maintaining urban development within the existing urban footprint and protecting existing agricultural uses, and the DEIR findings should reflect significant impact on agricultural resources.



Air Quality | Greenhouse Gasses

The project violates the Bay Area Air Quality Management District's 2010 Clean Air Plan as well as the 2017 Clean Air Plan. Even after mitigations, the impacts will remain significant and unavoidable. Further, the project will generate, either directly or indirectly, greenhouse gas emissions and is contrary to the Contra Costa County Climate Action Plan. Despite mitigation measures, which, due to the absence of any major Public Transportation options, the project would result in significant and unavoidable impacts on the environment.

Building automobile-dependent single-family homes farther from transit and other services will further increase climate-warming emissions; Models show that this project could lead to over 27,000 car trips per day vehicle trips a day at build out, and 74,000 metric tons of greenhouse gas emissions per year. This proposal will have enormous impacts on greenhouse gas emissions. With 88% of Brentwood residents already leaving town every day for work, this project promises to force more people to drive hours to work each day.

Automobile dependent single family homes in a hotter climate will further increase CO2 into the atmosphere, exacerbating climate change. Focusing growth inside cities where there is closer access to existing amenities is the climate smart approach.

Building massive developments so far away from Public Transportation will negatively impact nearby inadequate transportation corridors such as Marsh Creek Road and Balfour Roads and destroy the quaint character of adjacent Brentwood neighborhoods and lower the areas quality of life.

Transportation/Traffic Utilities/Service Systems

The Project should address the Sustainable Communities Strategy, efforts to reduce Vehicle Miles Traveled (VMT), and implementation of alternative transportation options.

The Bay Area, including Contra Costa County, has a Sustainable Communities Strategy (SCS) that is a part of the ABAG/Regional Transportation Plan adopted in 2013. An important foundation of the Sustainable Communities Strategy is the creation of Priority Development Areas. Its location protected by the ULL areas means that its development will be detrimental to the county's efforts to meet ABAG/RTP goals and will have damaging consequences in inducing sprawl and associated transportation impacts.

Encouraging traffic-inducing development to the far reaches of the infrastructure network, is in direct conflict with Smart Growth—sound management practices that focus on maximizing efficient use of current/in-place infrastructures, and core first, edge last policies.

The California Air Resources Board has clear and stated goals regarding VMT:

“California must reduce vehicle miles of travel (VMT) – alongside improvements in vehicle and fuel technology – in order to meet our ambitious greenhouse gas (GHG) reduction goals for the transportation sector. Additionally, research and experience demonstrate that VMT-reducing strategies that increase clean, affordable transportation options such as transit, biking, walking and ride sharing,



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and promote equitable and efficient land uses including infill development, also provide numerous co-benefits, including improved public health outcomes, household cost savings, reduced energy and water consumption, reduced consumption of natural and working lands, and increased access to economic opportunity, as well as the many benefits of cleaner air due to reduced pollution from vehicles. Therefore, strategies to reduce VMT are essential to ensuring both environmental quality and a high quality of life for the future of California.”

Measures to increase public transit access must be addressed: Objectives of the CCTA’s Congestion Management Program, such as “a travel demand element that promotes alternatives to the single-occupant vehicle.”

Additionally, other topics which should be addressed in the EIR include the following:

Hydrology/Water Quality/ drainage

Population/Housing

Public Services and Utilities – (police and fire services)

Recreation

CONCLUSIONS

The Vineyards at Deer Creek NOP will create several problems where significant impacts cannot be fully mitigated. This project would continue to set harmful growth precedents that in fact and will have serious negative impacts on water resources, air and climate change, land use, and transportation.

We anticipate your diligent and committed investigation, taking all exhaustive necessary actions, to deliver the most accurate and pertinent data reflecting the real long-term impacts of this Project in the dEIR.

Respectfully submitted on behalf of the Sierra Club San Francisco Bay Chapter,

Paul Seger

Delta Regional Group

714-504-0838

Contact: psseger65@gmail.com

From: mdc713@gmail.com [<mailto:mdc713@gmail.com>]

Sent: Wednesday, April 17, 2019 3:27 PM

To: Nolthenius, Erik

Subject: Fw: Vineyards at Deer Creek

Hello Mr. Nolthenius,

I just want to log in my wishes against this new development. I have read the Notice of Preparation for the EIR and understand that many of the roadway, environmental and community impacts are noted to be addressed but the biggest impact remains a worry to me, that this additional housing development will further make our once small and quaint town into a housing sprawl. Less greenery and open space, less land for our wild animals to roam. More housing, more people, more commute traffic and more headaches for those already here. The Trilogy and Vineyards at Marsh Creek are not even completed yet, nor are the new developments at Sand Creek and Brentwood Blvd, but at least those are within the city and not encroaching on open hills. We do not need more homes with few places to work. The residents here are hoping to continue to enjoy this city, but it appears it is on its way to becoming too big and therefore harder to manage and feel like a tight community.

Please consider keeping the urban limit line and not supporting the Vineyards at Deer Creek development. Working for the residents of this city is more important than more property tax dollars and developer money.

Thanks for your consideration.

Sincerely,

Michele Castano

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From: K Barnett [<mailto:barnett32@sbcglobal.net>]
Sent: Wednesday, April 24, 2019 9:56 PM
To: Nolthenius, Erik
Subject: Fw: Vineyards at Deer Creek, EIR Public Comment / enforcement of city policy and commitment are lacking

Dear Mr. Nolthenius,

We are writing to implore the City of Brentwood to conduct a thorough review of all potential impacts of the project known as Vineyards at Deer Creek, especially given its proposed location on farmland of local importance and open space outside of the voter-approved urban limit line (ULL).

We are concerned about many impacts of the Project, including significant impacts to county farmland of local importance and open space, growth inducement, traffic, air quality, disturbance of scenic viewshed, immediate and cumulative impacts on County General Plan and growth management policies from the adjustment of the Contra Costa County's voter-approved Urban Limit Line (ULL), and the impact on fire services in the East Contra Costa Fire Protection District.

During the development of the DEIR, please carefully considering the following:

1. How this project will negatively impact the ability for the City and County to meet the climate change goals laid out in state law, the County's Climate Action Plan, and Brentwood's General Plan.
2. A thorough study of the substantial increase in greenhouse gas emissions expected from this project, given the 2400 new homes and the lack of jobs in Brentwood and East Contra Costa County in general. These emissions must be considered in light of the fact that 88% of Brentwood's employed people commute out of town every day, and that there are already over 10,000 homes permitted or under construction just in Oakley and Brentwood.
3. The impact on this new development on fire services in the area. Given that the Fire District's average response time is already far longer than the regional and national average because of lack of funding, how can we ensure the safety of Brentwood's residents if the District is further burdened?
4. Brentwood currently has 711 parcels covering 1,026 acres within the urban limit line that are available for development, and 5,878 units currently permitted or under construction within the City. In addition, in 2016, Contra Costa County determined that all of the County's housing and job needs could be met within the existing urban limit line through 2036. Therefore, building outside the urban limit line, and its associated environmental impacts, is wholly unnecessary for meeting the needs of the City and the County.
5. This Project and moving the urban limit line to accommodate new sprawl development is contrary to Contra Costa County LAFCo's Agricultural and Open Space Preservation Policy. According to Policy 2, "Vacant land within urban areas should be developed before prime agricultural, agricultural and/or open space land is annexed for non-agricultural and non-open space purposes." The DEIR must review the wide range of impacts that farmland conversion will have on the environment, community, and economy, and compare these impacts with the services provided by the land in its current state, including food production potential, carbon sequestration, and groundwater recharge.

Given the extensive environmental impacts of building on active agricultural land outside the urban limit line, Brentwood must conduct an extensive and thorough environmental impact review and make the results public before residents are asked to vote on any measure to expand the urban limit line.

Thank you for your consideration.

Cindy and Kevin Barnett

Cindy and Kevin Barnett
541 Lakeview Dr.
Brentwood, Ca 94513

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From: Ronald Podesta <podesta03@sbcglobal.net>
To: enolthenius@brentwood.ca.gov <enolthenius@brentwood.ca.gov>
Sent: Wednesday, April 24, 2019 10:45:58 PM PDT
Subject: Proposed development by Blackhawk Nunn

Dear Mr. Nolthenius,

I spoke at the City Council meetings on April 9th and 23rd to voice my opposition to the proposed development by Blackhawk Nunn Partners. For many reasons, this development should not be approved. My biggest concerns are listed in my notes.

Thank you so much for your time and consideration.

Sincerely,

Jodi Podesta

Brentwood City Council Meeting April 9, 2019

On March 8, 2019, there was an Op Ed in the Brentwood Press written by Ron Nunn. It was about his new proposed housing development. Mr. Nunn cleverly wrote this article to make it appear as though this is a disagreement between just himself and Kathy Griffin. It's not. This is between Mr. Nunn and Kathy Griffin, my family, my friends and thousands of other Brentwood residents. We don't want more housing.

It has been presented that there are only two options for this parcel of land: either the city approves Mr. Nunn's plan or the City of Antioch will take it over. That cannot be true. We need to preserve our open space. Once it has been developed, we can never take it back.

In the same issue of the Brentwood Press, there was another article that stated "In the 1860s through the 1890s, East County was the largest wheat-producing area between San Francisco and New Orleans." Clearly, this area was meant to be agricultural. What a shame it would be to destroy even more farmland to line the pockets of Mr. Nunn and other developers.

A week later in the Brentwood Press, Mr. Nunn suggested that a farm-to-table restaurant could be part of the commercial development that comes with his new construction. He also suggests that grapes or olives could be grown in that area. It should all be kept agricultural!

Years ago, the Oakland Unified School District took a closer look at where the food they fed their students came from. They followed asparagus and learned that the asparagus that they were serving was grown in South America, processed in China and finally shipped to the United States. Their asparagus took a 16,000 mile journey over three continents. They now buy their asparagus from a farm that is 50 miles away. We are about 50 miles away and in a prime agricultural area. Let us buy our food locally. More and more people want food that is Farm to Fork. Brentwood is the perfect place for that. Once our farmland has been developed, it can never go back.

Another issue regarding this development: we do not have adequate fire protection. It has been that way for years! It would be irresponsible to add more housing. All of you know the facts and figures surrounding this issue. Please don't continue to ignore this important fact.

Our schools are already overcrowded. I urge all of you on the City Council to go to any one of our elementary schools and see how these small classrooms are packed with kids. Garin Elementary is a half mile away from here. Go visit a fourth or fifth grade classroom. It is packed with kids!

Even if new homeowners pay a special assessment of a few thousand more for their new homes, that will hardly make a dent in the cost of building new schools. The cost of building a new school is about four times more than a non-school building. My property tax bill from last year already has nine education bonds attached to it.

What Mr. Nunn is proposing will impact Brentwood forever. I do not believe that his development projects should get the greenlight just because of his last name. It is selfish and greedy of Mr. Nunn and his partners to propose this development. Protect all your citizens, not just the one who stands to profit the most financially. Do not approve this development.

Brentwood City Council Meeting

April 23, 2019

I'm here to voice my opposition to moving the Urban Limit Line and the proposed development by Blackhawk Nunn.

Mr. Nunn proposes that his latest development will be for those who are 55 or older. He implies that those who move in will "age in place" to placate those of us who are opposed to adding even more traffic and homes to our beautiful town. He states that they only "generate 25% of the traffic of conventional housing projects."

Aren't these developments marketed towards "Active Adults" 55 and older? Trilogy's own website states that it is "...close to exceptional outdoor activity, the California wine country, a 3,500-acre nature preserve, and San Francisco..." You have to drive to all of those places. His proposed development is not an Assisted Living facility. His proposed development will certainly bring more traffic, noise, and a host of other problems to Brentwood.

Additionally, this proposed development will destroy even more farmland forever. All of us in this room eat. We need farms to grow our food and provide sustenance for us. I live a half mile away from a cherry orchard. Corn and tomatoes are grown just beyond that. We have beautiful, rich farmland all around us and the opportunity to eat fresh, locally grown food. I realize that this proposed development does not sit on a cherry orchard. But, how much farmland is going to be plowed over to make room for more homes? How much farmland and green space is going to be destroyed to line the pockets of Mr. Nunn and his partners- at the expense of the rest of us?

The City's own website states, "Brentwood's farms have always been central to the city's culture and economy- and the City has been exploring new ways to support its local farmers, preserve its farming heritage, and use its 11,000-acre "Agricultural Core" as a potential engine for economic growth."

Our schools. Have any of you visited a local classroom recently? Our schools are full. There are new housing developments under construction all around Brentwood right now. With the influx of new families, Brentwood Union and Liberty Union School Districts will surely place another measure on the ballot in an upcoming election. In addition to what we already pay for education through state and federal taxes, property owners pay even more every time a school measure passes. The special assessment that new homeowners would pay will hardly make a dent in the cost of building a new school which costs four times more to build than a non-school building.

Even if the proposed development is a 55 + community, those residents who are

age-eligible and currently living in conventional housing, may choose to move to this new development. Their former homes may be sold to families with school age kids. So even though the 55 and over residents will not be enrolled in our public schools, our schools will certainly be impacted by this proposed development.

Finally, all of you- every single one of you- on the City Council and Mr. Nunn and his partners know that we do not have adequate emergency medical and fire services. This has been a problem for at least nine years! Referring to changes to the automatic-aid agreement between our fire department and Con Fire, the headline of the April 19, 2019 issue of the Brentwood Press states, "Response times on the rise." I can only imagine the added stress placed on our local firefighters when there are so few of them to cover such a large area.

Does it make sense for a city of 64,000 residents to have just one fire station? Lodi has four fire stations to serve their 64,000 residents.

It is unreal to me that this proposed development, or any other housing development, is even being considered at this time. It would be unconscionable of you to approve this development when you do not have proper emergency medical services and fire protection for your constituents.

It is beyond greedy and selfish of Blackhawk Nunn Partners to even propose this development.

My concerns and the concerns of thousands of Brentwood residents should matter to you. You have the opportunity to protect our Urban Limit Line. Do not approve this development. Don't flood our schools with even more students. Don't fill our streets with even more cars. Preserve our farmland. Preserve our green space. Protect all your constituents, not just the one who stands to profit the most.

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From: MARA [<mailto:Mara204Baeza@msn.com>]
Sent: Thursday, April 25, 2019 10:14 PM
To: Web Planning Division
Subject: EIR comment

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Subject:

Regarding EIR Blackhawk/Nunn proposal.

To all concerned,

I am a resident of Brentwood.(specifically Shadow Lakes)The proposal is absolutely going to be a detriment to our area and all affected areas in Brentwood and Antioch. Here are the few of many reasons why.

First ,we do not have the infrastructure to support over 2,400 homes. This will bring added noise and traffic. This will bring more traffic coming to and from Deer Valley and Balfour Road. More traffic congestion to Vasco and highway 4.

The amount of traffic congestion going to and from Heritage High and Adams Middle schools for example, is overwhelming. They are already gridlocked . This will cause more children to be a risk for accidents and many more near -misses in the mornings with automobiles.

The SAME reasons residents fought so hard when developers tried to build near the shadow Lakes golf course (&deer Valley)courses apply here.

Second , who will provide emergency services to over 2,400 new residents when our emergency services are already overworked and not meeting the needs of the city residents. Last I read , it was taking over eight minutes on average for our fire department to reach a call . This is too long!

Where will children go to school? The schools are already impacted in the area. My daughter who lives two blocks away was on a waiting list for Krey elementary. Now you might say ,”Hey,these homes will be for 55 year-old residents.” But once these are built they can be changed to a accomodate anyone in the future . Of all ages. And we already have senior living homes being built. Right on Balfour as we speak.

Next , the environmental (&aesthetics)impacts will be irreparable. No longer will Brentwood be a place with open spaces that showcase the beautiful animals, plants, and our Mount Diablo views. It will be another city with just a ton of houses with no rhyme or reason other than filling the pockets of the developers who will leave just as quickly as the houses are sold. Where will the animals go? The owls, mountain lions, coyotes, and hawks? Antioch has agreed to keep land by the ULL protected..are we going to throw that out the window? Changing the ULL to accommodate the greed of a few developers is a sure way to crumble a once beautiful scenic, sleepy, farm-town to the ground.

The EIR will show that this proposal does not meet the needs of Brentwood residents , it doesn't protect wildlife in our area, and it doesn't plan for new jobs, or have a plan for traffic safety. It will be a recipe for disaster.

Please do not allow the ULL to be moved . Do not allow these or any other developer to build in this area. It wasn't designed or planned for such structures.

Respectfully ,

Mara Baeza

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Re: EIR - Blackhawk
Nunn proposal

4/25/19

To all concerned.

I am a resident of Brentwood, (specifically in Shadow Lakes). The proposal is absolutely going to be a detriment to our area and all affected areas in Brentwood and Antioch. Here are the few (of many) reasons why:

First, we do not have the infrastructure to support over 2000 homes, & the added traffic, coming to and from Deer Valley and Balfour Rd. The amount of traffic congestion going to/from Heritage (High) and Adams (Middle Schools) is already gridlocked. This will cause more children to be at risk for accidents and many more "near-misses" in the mornings with automobiles.

THE SAME REASONS RESIDENTS FOUGHT SO HARD WHEN DEVELOPERS TRIED TO BUILD NEAR SHADOW LAKES GOLF COURSES APPLY HERE. (+Deer Valley)

Second, who will provide emergency services to over 2000

→

new residents when our emerg. services are already not meeting the needs of the city residents. Last I read, it was taking over 8 min. on average for fire dept. to reach a call. This is too long!

Where will children go to school? The schools are already impacted in this area. My daughter who lives 2 blocks away was on a waiting list for Krey Elementary.

Now you might say "hey, these homes will be for 55 yr. old residents." But, once these are built they can be changed to accommodate anyone in the future. All ages. AND we already have senior living homes being built!

Next, the environmental (and aesthetics) impacts will be irreparable. No longer will Brentwood be a place with open spaces that showcase the beautiful animals, plants, and our Mount Diablo views. It will be another city with just a ton of houses with no rhyme or reason other than filling the pockets of developers who will leave just as quickly as the houses are sold.

Where will the animals go? The owls, mountain lions, Coyotes, and hawks?

Antioch has agreed to keep lands by the U.L.L. protected. Are we going to "throw that out the window?"

Changing the U.L.L. to accommodate the greed of a few developers is a sure way to crumble a once beautiful, scenic, sleepy farm-town to the ground.

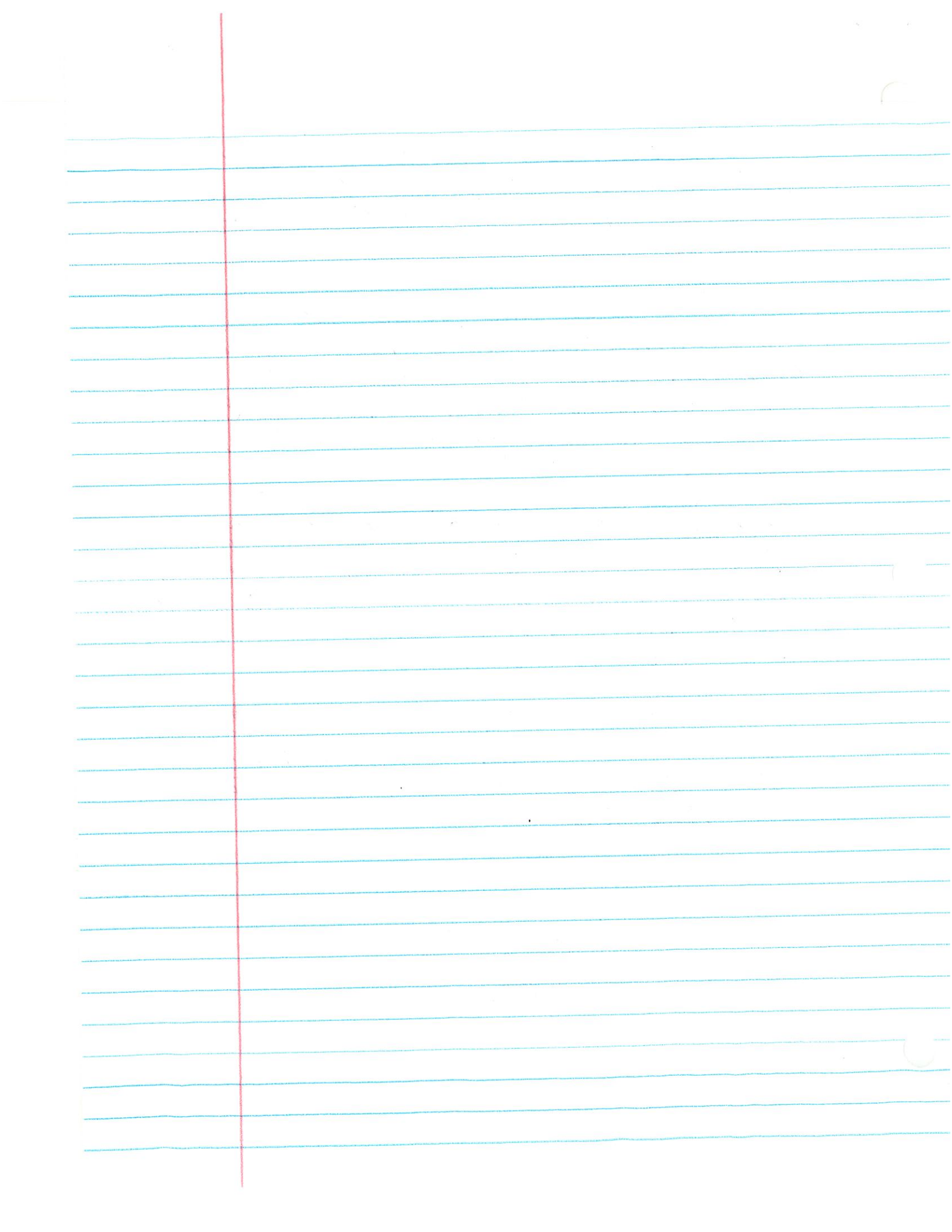
The EIR will show that building without consideration of the needs of Brentwood residents, protecting wildlife in our area and not planning^{for} new jobs, will be a recipe for disaster.

Please do not allow the U.L.L. to be moved. Do not allow these or any other developer to build in this area.

Respectfully,

Mara Baeza

mara204baera@msn.com.



From: Lee Duck [<mailto:laduck@comcast.net>]
Sent: Thursday, April 25, 2019 3:15 PM
To: Web Planning Division
Subject: Vineyards at Deer Ridge Urban Limit Line Expansion

Dear Mr. Nolthenius:

Here we go again; another bad idea by a special interest group and land owner to further negative impact for the local residents. These people just don't get it or could care less about the serious issues we (Brentwood Homeowners) are faced with every single day; lack of REAL improvements for; emergency services, traffic congestion, and the lack of open space, etc., etc. The EIR soon to come will be nothing more than a bad joke and a slap-in-the-face for the local residents who moved to Brentwood and voted for City Staff in hopes of fair protection from the harm by those special interests. Please take a drive on Balfour Road during the morning or afternoons near American Ave. What if a member of your family needed emergency medical assistance during the wrong part of the day and lived nearby and how would you feel about the situation if your family member didn't make it?

There is no question that the REAL reason for such unacceptable proposed changes to seriously damage this Brentwood area is to line the pockets of the land owners and their developers!

PLEASE PROTECT LOCAL HOMEOWNERS FROM THESE BAD ELEMENTS.

Sincerely,
L. Duck
712 San Juan Oaks Road
Brentwood, CA

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From: ROBERT JURACICH [<mailto:rjuracich@comcast.net>]

Sent: Thursday, April 25, 2019 4:38 PM

To: Taylor, Bob; Rarey, Karen; Bryant, Joel; Rodriguez, Johnny; Staton, Claudette; Vina, Gustavo; McCann, Casey; Nolthenius, Erik; jfink@brentwoodca.gov; Wimberly, Margaret

Subject: ULL Expansion

Good afternoon Mayor, City Council, City Managers, City Staff, Planning Commission,

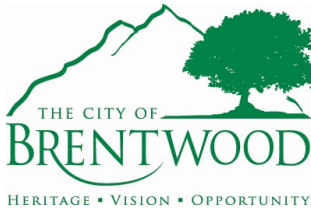
I apologize for not being able to deliver this message in person tonight, but I am coaching baseball for both of my kids here in Brentwood and we have practices tonight.

I am against the expansion of the of ULL and proposed SPA2 development by Blackhawk Nunn in West Brentwood and wanted to send this message to you to convey my feelings on the matter. The proposed 2400 house development would negatively change our city forever as we would lose a large section of beautiful nature that acts as a buffer between Brentwood and neighboring cities. Our infrastructure is not built to support this type of development, especially because of the other projects in the City that have already been approved by the Planning Commission and City Council. PA1 has yet to be built, it has barely broken ground, and those positive and negative impacts on the city, emergency services, roads and infrastructure have not yet materialized. My hope is that we grow slowly and plan appropriately along the way. This way we can keep the high-quality Brentwood lifestyle we all moved here for. We do not want to be Dublin. If you have traveled the 580/680 corridor it is an absolute nightmare. My friends that live there are extremely unhappy with the planning and growth of the city. So much so, that several of them have moved to Brentwood to escape that type of growth and irresponsible development.

Thank you always listening to us,

Robert and Carrie Juracich
2769 St Andrews Dr
Brentwood, CA
925-684-7795

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Erik Nolthenius, Planning Manager
Community Development
150 City Park Way
Brentwood, CA 94513-1164
Phone: 925.516.5137
Fax: 925.516.5407
enolthenius@brentwoodca.gov



From: Patricia Howard [<mailto:pattih52@att.net>]
Sent: Tuesday, April 30, 2019 3:44 PM
To: Nolthenius, Erik
Subject: Fwd: Concerns on EIR Re: Vineyards at Deer Creek

Sent from my iPhone

Begin forwarded message:

From: Patricia Howard <pattih52@att.net>
Date: April 27, 2019 at 12:37:44 PM PDT
To: enolthenius@brentwood.ca.gov
Subject: Fwd: Concerns on EIR Re: Vineyards at Deer Creek

Sent from my iPhone

Begin forwarded message:

From: Patricia Howard <pattih52@att.net>
Date: April 26, 2019 at 3:09:16 PM PDT
To: "enolthenius@brentwood.ca.gov" <enolthenius@brentwood.ca.gov>
Subject: Concerns on EIR Re: Vineyards at Deer Creek

One of my concerns with this project is the encroachment into wild land areas with species that are being impacted greatly by this project. As mentioned at the meeting on April 25, there are bee colonies that will be destroyed. We need bees to pollinate our agricultural areas throughout Brentwood.

Another concern is further congestion on the main road (for Brentwood residents) trying to reach Kaiser Hospital. Deer Valley will be further impacted with a 55+ community and that is already a dangerous road. Therefore, I would like to see action taken to have improvement (which include widening) Deer Valley Road as this project progresses.

Lastly, I would like to see that affordable senior housing be included in this project. For most, \$500-\$600,000 homes are NOT considered affordable. I'm talking about single family homes, not duets. Along the same lines of affordability, the homeowners dues need to be reasonable as well.

I would like to add, though not part of the EIR, a major concern for this project being approved by the City is that it sets precedence for moving urban limit lines and taking away more of the agriculture belt that is the heart of this City. People come from far away to visit our orchards and fruit/vegetable stands each year. It is a great part of the charm of this great City. Please don't take that away!!

From: Jovita Mendoza [mailto:jovita_mendoza@hotmail.com]

Sent: Friday, April 26, 2019 10:20 AM

To: enolthenius@brentwood.ca.gov

Cc: Taylor, Bob; Bryant, Joel; Rodriguez, Johnny; Rarey, Karen; Staton, Claudette; =yPlanningMembers

Subject: COMMENTS on the scope of the NOP for VINEYARDS AT DEER CREEK

Attn: Erik Nolthenius; Planning Manager

First, thank you for coming out last night the 25th to listen to our concerns – your time and patience is greatly appreciated. I am not an expert in this arena by any means, but I am concerned about the future of our community.

Some of my concerns:

Didn't we already do this? In 2010 Voters came out and defeated Measure F, this measure was to move the Urban Limit Line in order to build out 1,300 homes. The Vineyards at Dry Creek is 55% larger than that development. I believe that the opportunity cost of spending community resources on this project is not in our benefit as we can see from the turn-out last night and the comments that this (again) is not what our residents want.

Deer Valley – I am in shock that the developer simply says that Deer Valley is “out of scope”. We must include the impact of the increased traffic, in combination with the increased traffic from the Junior College and the already approved developments. To not forecast the impact at full capacity would be a dis-service to all of us. I can remember an accident, after an accident on this road prior to the bypass being in place. How are we going to manage the emergency services? What is the environmental impact with the increased cars? The state put out an Air Quality Report yesterday and Contra Costa did not look that great.

Emergency Services – I am a mother who has called 911 when her child was having a seizure. I can tell you that every second counts. We are already running longer than desired response times, and we are not even built out yet. With the build out what does the forecast look like? With the additional 2,400 homes what does the response time forecast look like? We cannot afford to look at our health/lives as an opportunity cost to make this developer happy.

55 to Single Family / Schools – as we heard last night, some senior communities are running the risk of transitioning to Single Family. This is a HUGE concern. Take some time and visit the schools. They have so many children; adding portables is not the solution – it only exacerbates the negative behavioral issues. IF, and only IF we move forward with the development we should demand that the developer

PAY to build 3 new schools, elementary, middle and high school; San Ramon was forward thinking when they built out Windermere and we should be too. Can the EIR please include the impact on schools if they were single family with children.

Water – What will the impact be on water availability? We have seen our rates increase and more demand will put a strain on our resource and the services that maintain the system. What does that look like with our current approved build out and then what does it look like with these additional 2,400 homes. Can we see what the usage changes would be for the city and would we have increased rates to maintain or for any other reason?

Open Space – what will this look like? When built I'm sure it will be beautiful, but who's going to pay for the maintenance? We need to also look at parks, basketball courts, tennis courts and toddler play areas. Is what the community wants as recreation being considered?

Traffic – again, with the currently approved build out what does traffic look like on Highway 4, Vasco, Balfour and Marsh Creek. What will it look like with the additional 2,400 homes? With the Jr. College? We have more communities that are going to have children that will go to our schools. What will Balfour traffic look like when those are built out? And then with the additional 2,400 homes.

Jobs – the EIR should consider where these residents will work? An EIR study should include what the city is doing to attract jobs that offer a living wage for a family of 4. We don't need homes sitting empty because there are no jobs.

Mitigation – EIR should have detailed mitigation plans that include dollars and/or land plans with disclosure of all parties involved.

Police & Fire Services – will the city increase headcount to accommodate increased population?

I hope that this does not even get to having us to get out and vote AGAIN for the same thing. We should find a way to poll residents before we even get to an EIR plan, seems like a waste of time for all involved.

Thank you for your time, and I am looking forward to seeing responses to my concerns in the EIR.

Jovita Mendoza

***Just in case you need to know – I am AGAINST moving the ULL.

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enolthenius@brentwoodca.gov



From: Frank [<mailto:Franknca@sbcglobal.net>]
Sent: Sunday, April 28, 2019 12:44 PM
To: Nolthenius, Erik
Subject: Blackhawk Nunn Project

I am extremely opposed to any new construction until there is proper fire and emergency services in our area without any tax increases. We already pay for these service, but fire and emergency services have been shorted for 4 decades while others have been given more than their fair share and refuse to give up any of their extra funding. Developers need to be part of the solution in closing this emergency services gap, not exacerbaters of the situation.

Frank Heinisch
1059 Bountiful Way
Brentwood, CA 94513



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www.avast.com

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910 Mericrest Street
Brentwood CA 94513
4/28/2019

Planned New Housing Development on Balfour Road

Dear Mr. Nolthenius

As a resident of Brentwood for almost 12 years, I feel that I need to give you my comments with reference to the proposed planning on Balfour Road. When I first visited Brentwood over 20 years ago, I was enchanted by the small family farming community spirit within the town. When my husband had the chance to transfer with his company, we made it our goal to be part of this community. We loved the open spaces and fruit farms that lined the town, but in the few short years we have lived here, we have seen a drastic change. Every open space has been filled to the brim with houses, and Brentwood has slowly become a construction site.

When we first moved here, my husband would leave at 4.30-5am to reach his destination in time for his early morning meetings, or to catch the first flight from Oakland. The recent housing boom has also brought double the number of vehicles, and now he needs to leave 3am, 3.30 at the latest. This is because the snake of cars starts from the by-pass and slowly crawls over the hills of Vasco road before it reaches the rat race of the 580. This is now with the development within our city lines. It would be near on impossible with an additional 5000 cars, and that's assuming there will only be two vehicles per new household. The lack of emergency services available and the added amount of people trying to get somewhere in time cries out disaster. The roads around this small farming community were just not built to take the onslaught of all these vehicles and with the reduction of fire services leaves the whole community exposed.

Don't get me wrong, I see the draw to this beautiful city as we did, but the city council did not make changes to the infrastructure before agreeing to the massive amount of builds. The air quality has been poor and often you cannot see Mt. Diablo due to the poor air quality. Every major road has had construction issues with new builds, slowing down traffic and commute times. Emergency vehicles already have difficulty in getting through traffic, and that is within our city limits. We have very little commercial buildings here and most people commute out of Brentwood to work. We have suffered dust and grime for the last few years. Garin Parkway all the way down from Chestnut to Sunset, both sides of Central Boulevard, Griffith Lane, Balfour Road, both near Brentwood Elementary School and now near Garin Elementary, the huge development near Marsh Creek school and now the bottom of Sellers/Garin Parkway heading up towards highway 4, to name but a few. For each household there is a minimum of 2 vehicles, all trying to leave Brentwood and make it to work on time. Vasco road cannot be widened anymore and cannot take much more traffic!!

Moving onto the schools in Brentwood, of which I work at one. None of the middle schools were built for the number of students that are now in attendance. Both Edna Hill and Bristow were

meant to take around 800 students but now within the housing explosion, each around 1200 students. Classrooms are at capacity, some having up to 36 students in one class. Education wise this is not a particularly good scenario, but with increasing housing, these students must go somewhere!

This brings me to the proposed new housing at the top of Balfour. This proposed development will change the demographic of Brentwood. It will no longer be the small, charming community farming town that has lured so many citizens to want to be a part of, it will become like any other sprawling city, a concrete jungle that will seriously impair commute, and which will not only effect animal life but the farming capabilities in this area. Brentwood is known for its fruit farms and corn, but with the environment suffering such a severe blow, the future for continued farming would be in jeopardy. No pollination means fewer harvests and that means that the allure for farming will deteriorate. Farms will not be able to survive, and the history of this town will fall by the wayside.

I understand that there is a counter proposal from nearby Antioch for the same land, but nobody seems to be considering that we neither have the infrastructure in place to accommodate for the extra vehicles, airspace, water, schools, hospitals and emergency services for the extra 2400 houses. Promises to put in roads that have been required for years is no way to win a proposal. (Antioch suggesting the connection road between Brentwood and Kaiser at Sandcreek, and the Brentwood proposal suggesting the American Canyon Road near Heritage & Adams) The increased dangers of citizens trying to reach the Kaiser hospital with the 20 years of construction, would cause mayhem and could even possibly destroy this town. Its already difficult enough to get to Kaiser on the two-way road at Deer Valley, and knowing that the proposal includes widening Balfour Road, which would be restricted anyway with all the commercial vehicles, would still make it difficult and possibly dangerous.

The long-term residents that have supported this community for years deserve better. Brentwood has always been a family community, somewhere you could safely bring up your children and watch them mature and bring up their own families: now it is turning into an urban sprawling mess. Stop building houses, become like Danville who became a moratorium and put a stop on urban development. Be the city every resident wants it to be, not what some rich conglomerate wants it to be. Give credit to the citizens of this town that want to live and stay here, recognizing that Brentwood is a farming community, Brentwood is family, Brentwood does not need to be the sprawl, Brentwood needs to remain the small farming town that everyone knows and loves.

Yours faithfully

Mrs Kelleher

-----Original Message-----

From: Mike Palladino [mailto:work_out@pacbell.net]
Sent: Sunday, April 28, 2019 3:22 PM
To: Nolthenius, Erik
Subject: Proposed Vineyard project

Hello,

Writing to share my input on this proposed project. My husband is a lifetime resident Brentwood. I truly feel the need to build 2400 homes BEYOND the ULL, is absurd.

As there are over 5000 homes on the books to be built in town currently. Why can't the city focus on these and start building. Every strip mall on every corner has vacant spaces..There in no way would be enough jobs to keep the residents working local.

ALL the roads are congested NOW. To say Balfour Rd. would be done in sections over 20 years. , can't even begin to comprehend this.

Fire/ EMT response times are already compromised.

To say it is 55 plus development means nothing. People are working at this day & age till they are 65 plus. As well as starting families in their late 30's early 40's...With that there will be cars and cars all day long on the congested roads currently..

Put the energy into what needs to be done now. Build the 5,000 plus within the ULL..

It seems in the end it is all about politics and \$\$\$.

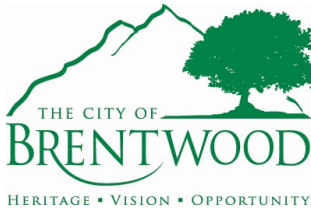
Truly hope the City can re-consider all of the publics input, and make a Smart Decision.

Thank You,

Jami Palladino

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Erik Nolthenius, Planning Manager
Community Development
150 City Park Way
Brentwood, CA 94513-1164
Phone: 925.516.5137
Fax: 925.516.5407
enolthenius@brentwoodca.gov



From: Lisa Steffler [<mailto:lisa.steffler@gmail.com>]
Sent: Sunday, April 28, 2019 8:39 PM
To: Nolthenius, Erik
Subject: Expansion of ULL

My name is Lisa Steffler and I'm opposed to the ULL. I have been a resident of Brentwood for almost two years at present with prior 7 years before in the past.

There have been many great changes to the city over the years and I was happy to the opportunity to move back.

One of the things that attracted me to Brentwood was a planned community with controlled growth. The expansion of the ULL will not benefit anyone besides the developer.

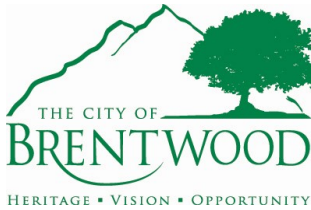
The expansion of the ULL will be a detriment to this city. Traffic is already congested on Balfour due to the schools and adding the additional homes will not only add to traffic congestion, it will also overcrowd the schools. Emergency services are already strained and inadequate for the existing infrastructure.

Please record me as being opposed to the expansion of the ULL.

Thank you,

Lisa Steffler

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Fax: 925.516.5407
enolthenius@brentwoodca.gov



From: Dr. Joan Wenters [<mailto:dr.wenters@gmail.com>]
Sent: Sunday, April 28, 2019 8:38 PM
To: Nolthenius, Erik
Subject: ULL Expansion Opposition

Dear Mr. Nolthenius,

I am a resident and have a clinical psychology practice in Brentwood. I have lived in this wonderful city for 16 years. I am writing to express my opposition to the proposed expansion of the Urban Limit Line in Brentwood. This is an ill conceived notion that will only benefit the few developers and hurt the residents of Brentwood. This is not part of the city plan.

I live in Deer Ridge and drive out Balfour in the mornings to Deer Valley Road. The traffic from Adams and Hertiage is horrific already and clearly the plan for the schools was not well thought out. To add twice as many new homes to the area is insanity. The infrastructure of Brentwood is not designed to handle this expansion, not the roads, the schools or the emergency services.

I was attracted to Brentwood originally because it was a planned community with planned growth. Do not allow the quality of life in this city to be sacrificed for the greed of a few.

Sincerely,

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April 29, 2019

Erik Nolthenius, Planning Manager
City of Brentwood
Community Development Department
150 City Park Way
Brentwood, CA 94513

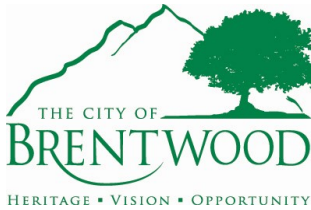
Dear Mr. Nolthenius,

I would like to express my opposition to the “Vineyards at Deer Creek” development that, as I understand, would be located North of Balfour, East of Deer Valley and West of Shadow Lakes. I have no personal animus against Mr. Nunn or his business partners. I simply think that extending Brentwood’s urban line limit for the purpose of this project is a bad idea.

Here are my reasons for opposing this project:

1. I think having natural undeveloped land that buffers Brentwood from neighboring communities, e.g. Antioch, benefits the quality of life in Brentwood.
2. The construction of 2400+ homes of this project will bring a permanent (not temporary) increase in traffic congestion along Balfour that is the site of Adams Middle School and Heritage High School. Balfour is also used to access Krey Elementary School. The traffic congestion along Balfour is already well known to the parents of this City who have children attending these schools. The recent completion of the Highway 4 Bypass to Balfour has increased congestion along this corridor. This development will further exacerbate Balfour traffic congestion that will inevitably result in increased vehicular accidents.
3. Emergency services (e.g. Fire Department) for Brentwood and East Contra Costa County are not adequate for the City’s current population, the homes of City residents and commercial buildings. It is simply not appropriate for the City to keep approving more residential and commercial building projects when there is not sufficient emergency infrastructure in place to handle already existing demands. Bryan Scott (a prominent Brentwood resident) has on many occasions raised this issue at City Council meetings. I share his concerns. It seems foolish to approve so many of these development projects when emergency services are clearly inadequate.

Sincerely,
Clifton K. Fagerquist
2613 Torrey Pines Drive
Brentwood, CA 94513
510-910-1474
ckfagerquist@gmail.com



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150 City Park Way
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Phone: 925.516.5137
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enolthenius@brentwoodca.gov



From: Paul Harford [<mailto:paulsmoney@gmail.com>]
Sent: Monday, April 29, 2019 12:29 PM
To: Nolthenius, Erik
Subject: Blackhawk/Nunn Expansion

I am generally for business development. Business development. Development that brings 'Use Tax' worst case scenario sales tax. BUT more houses, I'm not a big fan.

Whether Blackhawk/Nunn was responsible for improvements along the Hwy 4 extension, I'm uncertain BUT mom's neighbors in Sumerset II got a big damn ineffectual soundwall on their back property. I doubt any prospective homebuyer was forewarned about that.

Brentwood /Antioch has some of the most congested, poorly planned and seldom improved roadways in Contra Costa County. The drivers are not much better but I digress. I worried about my mom venturing out to the grocery store or to get her hair done because of the combination of traffic congestion and the extremely poor driving habits spawned by lousy roads and crowded roads.

Long, long ago when mom and dad built a home in Discovery Bay there were promised road improvements to be shouldered by the major builder at that time. I believe it was a Seeno, but twenty years elapsed before any road widening took place and by the time it was implemented it was obsolete.

I don't trust builders to perform and I don't trust municipal governments to hold a builder's feet to the fire for the satisfactory completion of necessary improvements to infrastructure which will supposedly support the burden created by, in this case, twenty four hundred new homes.

At some point the old real estate tome, "Highest Best Use of the Land" has to be tempered by good community sense. I'm not a tree hugger and I'm not some advocate for affordable housing quotas or requirements. I am an old guy who has seen too many city governments fold under pressure to generate one-time taxes on the backs of a 'favored son' builder.

--

Paul Harford
Let the Sun Shine

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enolthenius@brentwoodca.gov



From: damcg@comcast.net [<mailto:damcg@comcast.net>]
Sent: Monday, April 29, 2019 12:16 PM
To: Nolthenius, Erik
Subject: Environmental factors

I moved to Brentwood in 2005 and really love the city and the way it's maintained. Fortunately, I'm retired and I don't have to commute to the Bay Area very often.

However, my son, daughter-in-law and grandson do have the long commute every day. This was once a small wonderful community, but the orchards are rapidly falling by the wayside and more homes are being built every day. Adding another 2,400 homes off of Balfour/Deer Valley just adds to the problem. There aren't enough jobs here to support those that would move into those homes. This would mean additional cars on Vasco and CA-4 and add to an already crowded commute. Plus, getting past Adams and Heritage traffic on the way to/from Kaiser is a headache.

Please don't be pressured into expanding the urban lines. Leave Brentwood alone.

Dolores McGrath

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Phone: 925.516.5137
Fax: 925.516.5407
enolthenius@brentwoodca.gov



From: Bob and Kim Schriver [<mailto:bkksch@comcast.net>]
Sent: Monday, April 29, 2019 12:00 PM
To: Nolthenius, Erik
Subject: Blackhawk Nunn Proposed Project

Mr. Erik Nolthenius,

Sir. As 15 year residents of Brentwood my spouse and I are extremely AGAINST moving the ULL to allow this proposed project to be built. The city of Brentwood is ALREADY impact by the explosion of growth without the proper infracstrure in place. Namely the lack of fire services. In my opinion it would be criminal to allow this to happen. Currently the roads are already full of cars that are inadequate. This project will only make things worse.

Sincerely
Robert Schriver
Brentwood resident

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To: Nolthenius, Erik
Subject: Blackhawk Nunn Partners's Proposal

Dear Mr. Nolthenius,

I am writing to express my opposition for the Blackhawk Nunn Partners's proposal outside Brentwood city limits. It seems like Blackhawk Nunn is more concerned with making profiting the easy way -- converting open space to housing rather than creating more jobs in Brentwood.

Creating more jobs takes more effort and for sure carries more risks. I do not blame the developers because by definition, companies are there for profit. Our city of Brentwood, however, is not here for profit. Our city is here to create a better place for our community, our residents. When evaluating the proposal, I am sure the planners and council members would evaluate the long term effect of increasing 2,400 housing rather than focusing on short term tax gain.

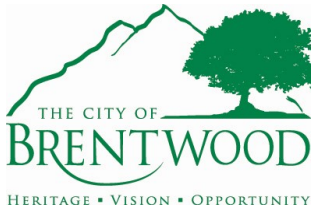
As a Brentwood resident, I believe we need more jobs so our residents don't spend all their time commuting. (Three of my immediate neighbors commute to San Jose to work). We need more jobs so people move here for the jobs (which will drive housing price and tax revenue). We need more jobs so people drive to Brentwood to work and help local businesses. We do not need more people taking High Way 4 and Vasco to work daydreaming one day they can move OUT of Brentwood once they saved enough (or had enough of the commute). I was truly excited about the Great Wolf Lodge project few years back. Even though our city did not win the bid, it was a nice try and does not mean we will not be able to prove ourselves more than a bedroom community. Blackhawk Nunn's proposal, on the other hand, is sabotaging our city's future.

Furthermore, with more housing, our housing price will drop by supply and demand (maybe as low as comparable to Antioch). More opportunistic investors will move into market when houses are cheap and rent the houses to tenants who are not as concerned with the general up-keeping of the house. Many of my neighbors moved to Brentwood from Antioch and expressed concerns that Brentwood may be the next Antioch if we keep on building more houses without a much stronger law enforcement presence. A surplus of housing is a sure fire way to reduce housing price and make Brentwood a less desirable neighborhood to people who brings in good tax revenue.

Thank you for reading this email. It was a long work day so please excuse any typos but I felt that I had to voice my concerns before the deadline. Thanks again.

Sincerely,
Sandra Chen

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Erik Nolthenius, Planning Manager
Community Development
150 City Park Way
Brentwood, CA 94513-1164
Phone: 925.516.5137
Fax: 925.516.5407
enolthenius@brentwoodca.gov



From: Rod Flohr [<mailto:rodflohr@yahoo.com>]

Sent: Tuesday, April 30, 2019 3:49 PM

To: Nolthenius, Erik

Subject: Request for inclusions to the EIR for the proposed Vineyards at Deer Creek project and voter initiative

Hi Erik,

Here are my comments requesting items for inclusion in this EIR.

1. What is the long-term impact of this monstrous project on the health and well being of Brentwood and her citizens? After all the dust and noise and mess and traffic of the construction across two decades is finally settled, what will the real cost be to the citizens of our city? The developer constantly touts the one-time revenues that will be generated, but how much of that is really anything more than what is needed simply to meet the needs of the thousands of new residents who will be brought to our city? And when those funds dry up, what then? Will there be enough to maintain our community at current standards, or will we start to see the decay we already are seeing in other communities around the East County area, and even in areas of our own city?
2. What is it about this project that justifies destroying the Urban Limit put into place by voters to protect our open spaces? The only purpose of this development seems to be to line the pockets of the developers and land owners. Why should we surrender our open space protections only to enrich these people? Why are they privileged over the rest of us, to take away what we have promised to protect? What they themselves, as members of this community, have promised to protect? There are plenty of areas open for development inside the Urban Limit Line. Why isn't that enough for them? Is anything enough for them?
3. How many permanent jobs will this development create? After the construction is done, will there be as many jobs as there are new residents? Retirement age has risen to 67, so 55 and over does not mean retired. And this project is not 100% over 55. If this project is built, many residents there will be employed or will want to be? Where will they work? How far will they have to drive to get there? How many tons of dangerous emissions will their cars spew into our air every year? What is the jobs ratio now, and what will it be when this project is done?
4. Our fire department is funded on an allocation based on a rural volunteer fire department's need. We have long since outpaced the ability of East Contra Costa Fire Protection District (ECCFPD) to provide even minimally adequate protection, and our situation is genuinely a danger to the safety of every Brentwood resident. The addition of every single residential home in this fire district is a net loss to the district, due to this outdated allocation system. It is wildly irresponsible to continue to build more houses with this danger constantly looming over all of us. How on earth can these developers possibly mitigate this threat? Or will this EIR excuse them of this responsibility? Will the developers be able to say "this is not our problem to solve" even as they build thousand of houses in danger of burning to the ground for want of a fire crew to save them? I

suppose if lives are lost, the developers will still be able to get themselves to sleep at night resting their heads on pillows stuffed with hundred-dollar bills.

5. Please make sure that the traffic estimates, fire district degradations, and calculations of the further erosions of the jobs ratio include the thousands of houses planned for the area just south of this project, on the other side of Balfour, that will literally surround Adams Middle School and Heritage High. The developer has pointedly stated in their application and initiative that their project is in keeping with these horrific plans. So, if they make that claim, they should own it. It would not be fair to ignore the cumulative traffic from both of these projects, when this developer is using the other project to justify their own. Or is it the intent of the authors of this EIR to pretend that this other development is not coming, after it is so plainly touted in this project's planning?

6. Please include the effects of pumping the last bit of remaining oil, as well as the effects of all the oil previously pumped, out from under this seismically sensitive piece of land. In addition to the already noted danger of liquefaction, how does this pumping contribute to the risk of collapse under occupied homes?

7. Please thoroughly assess the risk of death and destruction in the event that the underlying pipeline experiences an unpredicted failure, as happened in San Bruno in 2010. As we learned from the San Bruno explosion, the owner of the pipeline is not able to adequately assess the safety of the pipeline, and may feel motivated to increase flow to the point of catastrophic failure, inflicting what was surely an intensely painful and untimely death on eight human beings, caused \$565 million in damages for 499 victims, forced pipeline inspection and safety upgrades of \$229 million to be borne by electricity rate payers, and resulted in Federal penalties of \$3 million and 10,000 hours of community service for criminal actions of violating the Natural Gas Pipeline Safety Act and for obstruction of justice. What assurances can this EIR offer that such a catastrophe will not be visited upon this site which will be under heavy construction for two decades, traversed by roads, water lines, sewer lines, stormwater runoff, electric service, gas service, and cabling for telecommunications, cable, and internet services, and eventually built up to 2400 homes. And what penalties will the authors of this report accept if lives and homes are lost? Or will we just see hollow assurances with no real consequences if those assurances turn out to be false?

8. Finally, we ask the consultants charged with the somber duty of providing an accurate and unbiased report to take this responsibility seriously. Please remember that the purpose of CEQA is to protect the one environment we all must share. Please do not treat this EIR as a hurdle that you will help the developers overcome for the purpose of winning approval for their project. The last EIR we were presented with was written by a consulting firm that provides many services to developers, and they were therefore incentivized to please developers at the expense of the citizens and the environment they were supposed to serve. It showed in the final report, and many were angered by the obvious pro-developer bias in the report. That report only affected two neighborhoods. This report will affect the whole city, and if we are presented with a biased report, the authors should know they will not be forgiven by the public. So please spare us the flowery prose describing how wonderful the project is, and please spare us the excuses and whitewashing of the risks designed to please the developer. We will not fall for it, and we will not let it go unchallenged. Be factual, be thorough, and be fair. That is all we ask, and it is the least we will accept.

Thank you,

Rod Flohr
rodflohr@yahoo.com
925-689-8325

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To: Nolthenius, Erik

Subject: Comments on Scoping of EIR for Vineyards at Deer Valley

Dear Mr. Nolthenius,

Thank you for moderating last week's scoping session. Please find my specific comments re scoping the EIR:

1. It is critical that the consultant provide a fully-transparent and detailed explanation of the study methodologies employed to assess impact and model remediation. These exhibits should include explicit delineation of the assumptions in the methodology and the data/measurements used, such that the consultants conclusions can be replicated by any third party in possession of these exhibits.
2. Please ensure the impact assessment addresses the following:
 - a. Increased demand on water resources must include worst-case scenarios based upon drought-level water availability AND must assess economic impact of that added demand as a function of increased utility costs (including restrictions/fines) for existing household base + non-project household growth over the next 20 years.
 - b. Impact of dramatic increase in home inventory vs. current/projected market demand on home resale values in specific school zones both immediately and over the next 20 years at 2-5 year intervals.
3. Since the citizens of Brentwood will, over the next 20 years, bear the impact of this project, all mitigation efforts should directly address the impacts on these citizens—no mitigation's should move dollars or benefits outside of Brentwood. The assessment should account for the long-term costs of the mitigation efforts, including impact of inflation and long term costs of ensuring mitigation investments/infrastructures are maintained.
4. Mitigation should also include explicit milestones and fines for failure to follow through on explicitly listed "community benefits" of the development, including completion of American Ave extension. Fines should be paid into a financial vehicle that is administered only to support mitigation of the harms from this project.

Thank you!

Regards,

David Salmon

--

David Salmon

Life Sciences Marketing & Digital Transformation Leader

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Hello,

I would like to first express my disapproval of this project. Brentwood has a clearly laid out growth plan that is not being followed. If given an opportunity to vote on this issue, I would vote it down. I found it distressing that Mr. Nunn ended his speech by indicating that if he wasn't allowed to develop the area, someone else would (better the devil you know) threat. Here are my concerns:

- * Brentwood is currently facing an emergency services (fire, police, ambulance) deficit. Adding more homes to an already overburdened system is criminal.
- * Traffic is already a nightmare in the mornings and during pick ups on American Ave. Dumping cars out at two location (american ave extension) will still dump the same amount of cars on Balfour but also add 2400 more households. How will this impact traffic on Vasco Rd?
- * Since women are the majority of drop off and pick up parents, I feel adding to the traffic unfairly impacts women. Women who need to get to jobs where they are already paid less than their male counterparts.
- * Water, how will this community be landscaped and designed to save water usage. Also, how will this many homes affect the current water system (especially during a drought).
- * What benefits will I as a non-resident/non-55+ of this gated neighborhood see from 20 years of construction, more traffic, and more residents.
- * Property value, how will building 2,400 new homes increase my homes value. I currently live in the Adams Middle School/Heritage High School area. I paid \$40,000.00 more for my home to be in this area vs. similar homes outside of the area. The new houses will definitely be in that area.
- * Part of Brentwood's beauty is the breath taking views towards Mt Diablo. How will views and sight lines be affected by this huge neighborhood? I would like to see this laid out as a 3-D visual or street view.
- * What animals/wildlife will be affected by paving over and fencing this area.
- * How much would it cost for the city of Brentwood to purchase and preserve this area?
- * How much revenue will this generate for the builder and the city? What is the projected cost per home?
- * What environmentally friendly building restriction will apply to this neighborhood (I.e. solar, no lawns, drought tolerant landscaping, etc)?
- * I want to know which city councilmen/women supported this expansion of the ULL and any conflicts of interest they may have including businesses that will benefit.

Thank you,

Lauren Wheeler

Sent from my iPad

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Vineyards at Deer Creek Environmental Impact Report - Additional Report Topics

Comments on the "Vineyards at Deer Creek NOP Scoping Meeting" 25-Apr-2019

Potential Water Impacts

I live in the unincorporated agricultural area south of Brentwood. Our only source of water for our 10 acre property is our well. Well water is also the only source of water for most of our neighbors. Our well water source is the Tracy Subbasin aquifer which spans from Mount Diablo through Brentwood to Tracy.

I am concerned that the quantity and quality of our well water may be impacted should the "Vineyards Deer Creek" project be approved. I suggest that the EIR for the proposed project include a section that addresses ground water quality and quantity for the areas impacted by the proposed development, including the Agricultural Core area south of the Brentwood city limit.

The Tracy Subbasin is subject to the Sustainable Groundwater Management Act of 2014 as governed by the Contra Costa County Groundwater Sustainability Agency as mandated by the State Department of Water Resources. I am concerned that any environmental impacts of the proposed development comply with the established requirements.

Accordingly, I suggest that the scope of the Vineyards at Deer Creek Environmental Impact Report include a specific section that addresses the ground water impacts of the proposed development over time and include periodic monitoring for water quality and quantity in the acquirer.

The City of Brentwood provides its residents with a blend of groundwater from the Tracy Subbasin and river water from the San Joaquin river. I suggest that the city's current water quality monitoring can be extended to the areas of the proposed development and would like ongoing monitoring to be required within the Environmental Impact Report. The EIR should require compliance with the "2015 Urban Water Management Plan for the City of Brentwood" (or updates).

Bird Migration Impacts

An additional environmental impact concern is how wildlife are affected by land development. We have seen migratory birds in the proposed development area and want the EIR to determine how they may be impacted by the proposed development. Other attendees at the EIR meeting on April 25th mentioned concern for the impacts on birds and other wildlife. Please include wildlife impact metrics within the EIR requirements.

Thank you.

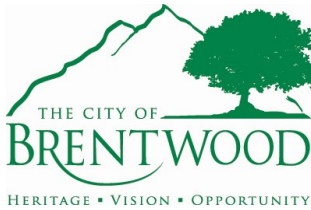


Chris Christian
510/305-9171
chris@crcsolutions.com

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CITY OF BRENTWOOD
COMMUNITY DEVELOPMENT DEPT



Erik Nolthenius, Planning Manager
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From: Kat & Dan Griffin [<mailto:gmcgriffin@comcast.net>]
Sent: Wednesday, May 01, 2019 4:37 PM
To: Nolthenius, Erik
Subject: Vineyards at Deer Creek Project: Components to Evaluate in EIR

KATHY GRIFFIN
386 PECAN PLACE
BRENTWOOD, CA 94513
925-325-8439

May 1, 2019

Mr. Eric Nolthenius
Planning Manager
City of Brentwood
150 City Park Way
Brentwood, CA 94513

RE: Comments, Concerns and Requests for the Preparation of the Draft EIR for the project entitled, "Vineyards at Deer Creek"

Dear Mr. Nolthenius,

I'm submitting the following comments, concerns and requests regarding the components to include in the Draft EIR for the Project entitled, "Vineyards at Deer Creek", referenced as the Project. In my letter below, I have cited numerous areas of concern regarding this development plan, its concepts, and facts & figures that need to be analyzed in the DEIR. Here are my observations, concerns and requests, in no particular order:

Traffic and Circulation: This is one of the biggest components requiring thorough examination in the DEIR. The observations of traffic impacts must be analyzed locally and in combination with ALL geographic features as well as construction currently underway in Antioch to the north and should include future plans throughout far East Contra Costa County. Locally, the traffic currently generated by 3 schools in the area (Heritage, Adams and Krey), as well as the two large neighborhoods of Deer Ridge and Shadow Lakes, along with those persons commuting in and out of the City to the west needs to be analyzed at various times of the day, week, and month; and also as it relates to ALL phases of this Project. The traffic generated by this Project at buildout which includes the myriad of resident types and densities in the Project – some of which are 30 dwelling units to an acre, visitors to the residences, the community recreation uses or persons able to hold events in the Project, possible commercial and civic development within the Project, construction personnel and workers it will take to run all amenities, emergency personnel and/or delivery trucks needs to be seriously evaluated, including how all other road uses in and around the Project will affect the area. The impact of the Project on the route of Balfour to Deer Valley Roads for persons traveling to Clayton/Walnut Creek, Antioch and the nearest

hospital Kaiser must be properly analyzed during the morning and afternoon commutes and on different days of the week, as well as emergency vehicle travel that use that route on a daily and regular basis. The directions of all vehicles and people traveling Balfour Road must be thoroughly evaluated to vet this Project's entire impact. Then, the impacts on all houses, businesses and roads on these same thoroughfares in and out of our City needs to be addressed. The increased traffic to Balfour Road, the Bypass, SR4, Vasco Road, Deer Valley Road, and Marsh Creek Road need to be evaluated as a stand alone analysis as well as a combined analysis. The impact of future build-out in Brentwood of approximately 5,878 housing units, various commercial endeavors, new amenities, as well as the completion of the new Los Medanos College campus scheduled to open in Spring 2020 all need to be included in the DEIR. The extension of American Avenue and partial widening of Balfour needs to be thoroughly evaluated as to its effectiveness. Extending American Avenue back to Balfour Road basically "kicks the can" to a different intersection by continuing to return all cars back on to Balfour Road. The proposed signal that controls that new intersection needs to be analyzed as to the back-up of traffic both east & west on Balfour, how far that traffic would back-up and how the back-up may cause a huge safety concern all the way along Deer Valley Road in both north and south directions. The General Plan map of eventual development on the south side of Balfour Road in and around the 2 schools has to be included in the overall analysis of this Project, as mentioned in the applicants proposal on Page 3 as adjacent land uses. Lastly, adding bike or pedestrian walkways to any of the circulation plans over the entire area both on internal and external streets and roadways needs to be evaluated separately.

Emergency Services: The analysis of this Project regarding emergency services will be key. With 2,400 housing units of any type, much less with 80% age-restricted residents and their effect on our already strained emergency services must be completely analyzed. Simple payment of Fire Fund Fees can't be the answer to adverse impacts. The 20% common market housing will result in many more residents; that number needs to be calculated accurately for this analysis. The traffic generated by this Project would severely hamper the ability of emergency personnel to serve western Brentwood; therefore, this aspect must be thoroughly examined. For analysis, days, weeks and months of varying traffic and circulation must be used to evaluate response time impacts, not just one day or time. The increase in service territory and response times for emergencies is real and dangerous. The extensive construction in the area would certainly hamper fire and emergency response times, and block much of their routes west, north to Antioch and Kaiser Hospital and south to Marsh Creek Road and cities and properties all along that route – these factors must be included in the analysis.

Population and Housing: As stated in the City's Housing Element, there was only an increased need for senior housing of 1% over a five-year period from 2010-2015. There is no data or basis to assume that we will need to accommodate a "growing" senior population. In order to validate the density increase for age-restricted housing, I'd like to see a needs analysis for this age group, especially with Brentwood already having 5 age-restricted, large communities with units for sale and available in them. Since a senior housing development of 63 units is already approved as the Brentwood Country Club Partners project at the corner of SR4 and Balfour, and alternative high density units are planned for Bridle Gate and may be included in the new PA-1 development area, there may be now need for age-restricted housing. In addition, 16 other developments in the City of Brentwood are set to include cluster housing, apartments, small lots of less than 4,000 sq. feet, townhomes/condominiums and duets that can certainly meet some of the housing needs of active seniors and even those needing assisted living. The impact of this Project on the City's population at build-out and its predictions needs to be analyzed and reported since this development has not been included in population buildout numbers and its associated impacts.

Utilities and Service Systems: The impact to sewer and water systems in west Brentwood needs to be examined in the DEIR study. We need to evaluate all pipelines necessary to serve the new Project, and the disruption and construction impact of the installation of all the piping. If Balfour Road and many miles of adjacent properties are to be impacted, the construction mayhem of this requirement needs to

be included in all the impacts. In addition, any construction and service interruption in connectivity to water and/or sewer mains for both the Deer Ridge and Shadow Lakes neighborhoods, businesses in the area and the schools needs to be examined. Any impacts of tearing up streets in the area, Balfour, west Country Club, Deer Valley Road, etc. and impacts of this installation on residents, traffic circulation etc. needs to be in the report. The 2017 Sewer Master Plan modeled the nearby lines as “nearly deficient”, and that the piping would be deficient with any future growth to the west, therefore pipe viability and stability needs to be included in the analysis of this Project. The possible requirement of the design and construction of a 550 foot missing interconnect pipe for the water supply may be a factor. The DEIR needs to evaluate whether a new garbage truck would have to be purchased to serve the area; average costs of a new garbage truck are \$225,000-\$235,000.

Biological Resources: I object to any mitigations to biological resources on this property, and must see that impacts to all animals, flora and fauna have been identified. I need to see the current habitat and migratory evaluation of local animals, and how they may be expected to traverse the Project, as well as their predatory patterns and if that will be adversely affected by the construction of this Project.

Land Use and Planning: This project is inconsistent with the intent of SPA2 in our General Plan. Although it is stated that densities can be increased for an age-restricted component, the intent of this language was not for this large of a development. This Project needs to be analyzed as to the comparison of the original intent of our GP – 583 ranchette estate and very low density residential type housing, to an astronomical number of 1,920 age-restricted and 480 common market houses. I would like to see a comparison of the original use and the use proposed by this developer which also includes commercial and civic uses. The intent of SPA 2 in our general plan was to make a gradual transition to a very rural area west of Deer Valley Road, and a new East Bay Regional Park. SPA2 development should be deferred to such a time as we may find it necessary to expand our City limits, meaning after the residents of Brentwood determine that the City has completed its Community Buildout Plan, has sufficient fire & emergency services, has enough viable jobs, and has adequate circulation locally AND regionally to warrant the movement of our urban uses boundary. In the DEIR, you need to include the necessity for housing of this age type and the common market homes, and the market conditions that may deem this housing necessary, that this is the proper land use and plan for this 815-acre parcel, and that all cumulative impacts are taken into consideration – such as all the traffic generated along the entire western section of Brentwood, and its combination with surrounding city and county properties, and all road use impacted.

Greenhouse Gas Emissions and Hazards: The analysis of emissions is key with this large of a Project. The sheer construction over a 20-25 year period needs evaluation as to the increase to GGE’s and the air quality. The GGE’s during construction of each Phase and as well as the cumulative threat to air quality impacts must be thoroughly vetted. Thousands of daily car trips during the building of this Project, as well as at buildout would certainly adversely affect the air quality of the Project area and beyond; I need to see that all these factors have been evaluated. The construction of this Project over the next 20 years will cause significant poor air quality and noise for the entire west Brentwood area and disrupt the operation of 2-3 schools on a daily basis; the noise generated from this Project needs to be thoroughly analyzed.

Environmental Consequences and Cumulative Impacts: I don’t have to list out the significant environmental effects that can’t be avoided if this Project is implemented – the numerous adverse effects of this Project will certainly come to light if the DEIR is prepared in the most honest and trustworthy way, using the most up-to-date information and facts, and with the most advanced evaluation and measurement tools and perimeters available in the business we call City Planning. I will trust that Brentwood’s Planning Department and its professional personnel who know Brentwood well will evaluate this Project properly and to the fullest extent.

In summary, I submit my questions, concerns and requests for inclusion in the Draft Environmental Impact Report for the Project entitled, "Vineyards at Deer Creek." As you are aware, I find this Project incompatible with west Brentwood, and impossible to mitigate. The Urban Limit Line should be held until such a time as Brentwood's Community Buildout Plan is fully developed and our City's current plans are actuated. I know that we are following a process whereby after preparation, the DEIR will come under our review. I hereby request that the maximum amount of time – **90 days** – be given for its review. This will allow all residents as well as local organizations the time to analyze the DEIR facts and figures. My position is staunch – this Project is incompatible with Brentwood's Community Buildout Plan, and therefore I will continue my vehement objection to any consideration of this Project and any alternative other than the parcel's continuation as a County-controlled agricultural parcel and the community separator between Brentwood and Antioch.

Thank you.

Kathy Griffin
22-year Brentwood Resident

KEG:keg

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Erik Nolthenius, Planning Manager
Community Development
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enolthenius@brentwoodca.gov



From: larry plate [<mailto:ldplate@yahoo.com>]
Sent: Wednesday, May 01, 2019 1:03 PM
To: Nolthenius, Erik
Subject: Comments on Vineyards at Deer Creek NOP

Eric,

Below are my comments regarding subject issue.

Thanks,

Larry

As a resident of West Brentwood, I oppose the consideration of this project. ¶

The proposed project is on property that is outside of the city's urban limit line and sphere of influence and can't be developed. We voted not to expand the limit line several times. A new vote will be costly and also lose. ¶

I hope the proposer has to reimburse the city for all the staff time, benefits, and overhead spent reviewing this proposal. City staff have better things to do than review proposals that are without merit. ¶

The city has several thousand housing units already approved which will take the city to housing capacity. There is no need to expand the city beyond what has already been approved. ¶

The proposed development is in conflict with the city's approved general plan. The general plan calls for this area to remain primarily protected open space with perhaps limited low density residential. This proposal wipes out all of that. ¶

The city's water supply and sewer system cannot support the additional development. Major upgrades will be needed which should be paid for by developers. This was not addressed in the proposal. ¶

As noted under the Project Approvals section, several approvals are needed including several by voters. Some approvals also require changes to or development of new agreements with outside entities. ¶

Much of the property is hilly and would require quite a bit of grading to make it suitable for utilities, streets, and houses. This will create a tremendous amount of dirt and dust in the air for the surrounding area. The wind usually blows towards the middle and high schools from this area making the effect on the children worse. ¶

It looks like there is only one entrance into the development and that would be off Balfour road. Such a large development should have multiple entrances and exits for evacuation purposes. This project is much larger than Shadow Lakes which has four entrances. The city should require an entrance off Deer Valley Road also. ¶

Why extend American Avenue around the schools to Balfour as part of this project? That does not make sense as the change in the urban limit line should only apply to the north side of Balfour and not the south side. What unknown development is planned for the south side of Balfour? The document is wrong about American Avenue in that there is a part of it with three lanes of travel in each direction, not two as stated. ¶

The pipelines that pass under the site are a major hazard. It is not safe to build housing so close to potentially dangerous pipelines. ¶

Existing emergency services are not sufficient to adequately cover this new development along with all the approved development around the city. ¶

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From: Paolo Giusto [mailto:paolo_giusto@yahoo.com]
Sent: Thursday, May 02, 2019 3:20 PM
To: Nolthenius, Erik
Subject: I oppose the expansion of Brentwood City Limits

Dear Erik,

Plain and simple, the planned expansion and consequent development will create unsustainable traffic and accelerate Brentwood's path to an unsustainable expansion. There is no guarantee that the infrastructure including adding fire stations will be built to support the needs of the additional population that will be added. Finally, the construction itself, lasting for several years, will cause the residents of Deer Ridge and Shadow Lakes suffer from equity losses. For these reasons, I would like to express my firm opposition.

Respectfully, Paolo Giusto

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