

# ANTIOCH HOUSING, ENVIRONMENTAL HAZARDS, AND ENVIRONMENTAL JUSTICE (EJ) ELEMENTS

Draft Environmental Impact Report

State Clearinghouse No. 2021110146



Prepared for:  
City of Antioch

September 2022

URBAN  
PLANNING  
PARTNERS  
INC.



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Prepared for the City of Antioch

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September 2022

The logo for Urban Planning Partners Inc. is a solid orange square containing the text "URBAN PLANNING PARTNERS INC." in white, uppercase, sans-serif font, arranged in four lines.

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INC.





September 2, 2022

**NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF ANTIOCH HOUSING, ENVIRONMENTAL HAZARDS, AND ENVIRONMENTAL JUSTICE ELEMENTS**

**State Clearinghouse #2021110146**

Pursuant to the State of California Public Resources Code and the "Guidelines for Implementation of the California Environmental Quality Act of 1970" as amended to date, this is to advise you that the City of Antioch has prepared an Environmental Impact Report for the following project:

**Project Title:** Antioch Housing, Environmental Hazards, and Environmental Justice (EJ) Elements

**Applicant:** City of Antioch  
Attn: Anne Hersch  
200 H. Street  
Antioch, CA 94509

**Location:** The project site encompasses the entirety of the City of Antioch's geographic boundary

**Project Description:**

The Project is being proposed by the City of Antioch to comply with California Government Code Section 65580-65589.8, which requires local jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups. The Project includes the following components:

1. **Housing Element.** Adoption and implementation of the City's 6th Cycle Housing Element Update (2023-2031), including the adoption and implementation of rezoning and General Plan amendments to accommodate the City's Regional Housing Needs Allocation (RHNA). A community's RHNA obligation represents the total number of housing units that must be planned to accommodate the housing needs of all residents during the eight-year planning period. RHNA obligation numbers are determined by a methodology established by the State of California's Department of Finance (DOF) and Housing and Community Development (HCD) Department. RHNA obligation numbers are ascribed to each region of the State and further allocated to local communities by the designated regional planning entity for each region. The City of Antioch's "fair share" of this RHNA obligation is 3,016 units as determined by the Association of Bay Area Governments (ABAG). The Housing Element demonstrates that the City has capacity to accommodate

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1,559 housing units beyond its RHNA obligation of 3,016 housing units for a total of 4,575 units. The Project includes a compilation of these sites, which is comprised of 182 sites totaling 230 acres. Of these 182 sites, 125 (69 percent) are nonvacant and underutilized, and 57 (31 percent) are vacant. These sites are anticipated to accommodate the potential future development of up to 4,575 residential units, including 967 units affordable for very low-income households, 548 for low-income, 947 for moderate-income, and 2,113 for above moderate-income. Of the sites identified for affordable units (i.e., units for very low- and low-income households), 53 percent of the anticipated units would be on vacant sites and 47 percent on nonvacant, underutilized sites.

2. **Environmental Hazards Element.** As part of the Project, the City of Antioch will also be updating the Environmental Hazards Element of their General Plan (referenced in State Law as “Safety Element”) as required by State Law. A community’s Safety Element is meant to implement policies that minimize the negative impacts and risks of natural and man-made hazards such as fires, floods, droughts, earthquakes, and landslides. In recent years, State requirements have expanded the Safety Element’s scope to include climate change vulnerability and adaptation, and greater attention to evacuation routes. Jurisdictions are also now required to complete a vulnerability assessment; develop adaptation and resilience goals, policies, and objectives; and develop a set of feasible implementation measures addressing climate change adaptation and resiliency.
3. **Environmental Justice (EJ) Element.** Another component of the Project will include the development and adoption of an Environmental Justice Element that will be integrated into the City of Antioch’s General Plan in compliance with State Bill (SB) 1000 (2016). SB 1000 began requiring communities with disadvantaged parts of their population to include additional EJ-related goals, objectives, policies, and implementation measures within their General Plans. These additional goals and policies are intended to reduce the unique or compounded health risks experienced by disadvantaged communities, to encourage civic engagement in the public decision-making process within disadvantaged populations, and to prioritize improvements and programs that benefit disadvantaged populations. The term “disadvantaged communities” is defined as a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation. Additionally, “low-income area” is defined as an area with household incomes at or below 80 percent of the statewide median income (\$109,600 for a household of 4) or with household incomes at or below the threshold designated as low income by HCD’s list of state adopted income limits.

### **Environmental Effects of the Project:**

Pursuant to Article 9 of the California Environmental Quality Act (CEQA), the Draft EIR describes the Project; identifies, analyzes, and evaluates the environmental impacts which may result from the Project; and identifies measures to mitigate adverse environmental impacts. Mitigations identified in the EIR are designed for the Project to ensure that the Project will not cause a significant impact on the environment. The Draft EIR for the Project identified potentially significant impacts in the environmental topics of air quality and transportation. Environmental analysis determined that measures were available to mitigate potential adverse impacts to less-than-significant levels except for Transportation. As a result of the above, a Draft EIR has been prepared pursuant to Public Resources Code Section 21080(d) of the California Environmental Quality Act (CEQA) Guidelines.

**Where to Review the Draft EIR:**

The Draft EIR can be viewed online at the following link: <https://www.antiochca.gov/community-development-department/planning-division/housing-element-docs/>

Any sources of information referenced in the Draft EIR can be provided upon request by contacting the project planner.

**Public Comment Period:**

Prior to adoption of the Draft EIR, the City will be accepting comments on the adequacy of the document during a 45-day public comment period; the Draft EIR may be certified at a future date in a public hearing following the public comment period. The period for accepting comments on the adequacy of the environmental document will begin on Friday, September 2, 2022 and extends to Monday, October 17, 2022 until 5:00 pm. Any comments should be in writing and submitted to the following address:

Anne Hersch, AICP, Planning Manager  
Planning Division  
City of Antioch  
200 H. St, Antioch, CA 94509  
OR emailed to [ahersch@antiochca.gov](mailto:ahersch@antiochca.gov)



Anne Hersch, AICP  
Planning Manager  
City of Antioch  
(925) 779-6159  
[ahersch@antiochca.gov](mailto:ahersch@antiochca.gov)  
Attachment: Project Location Map

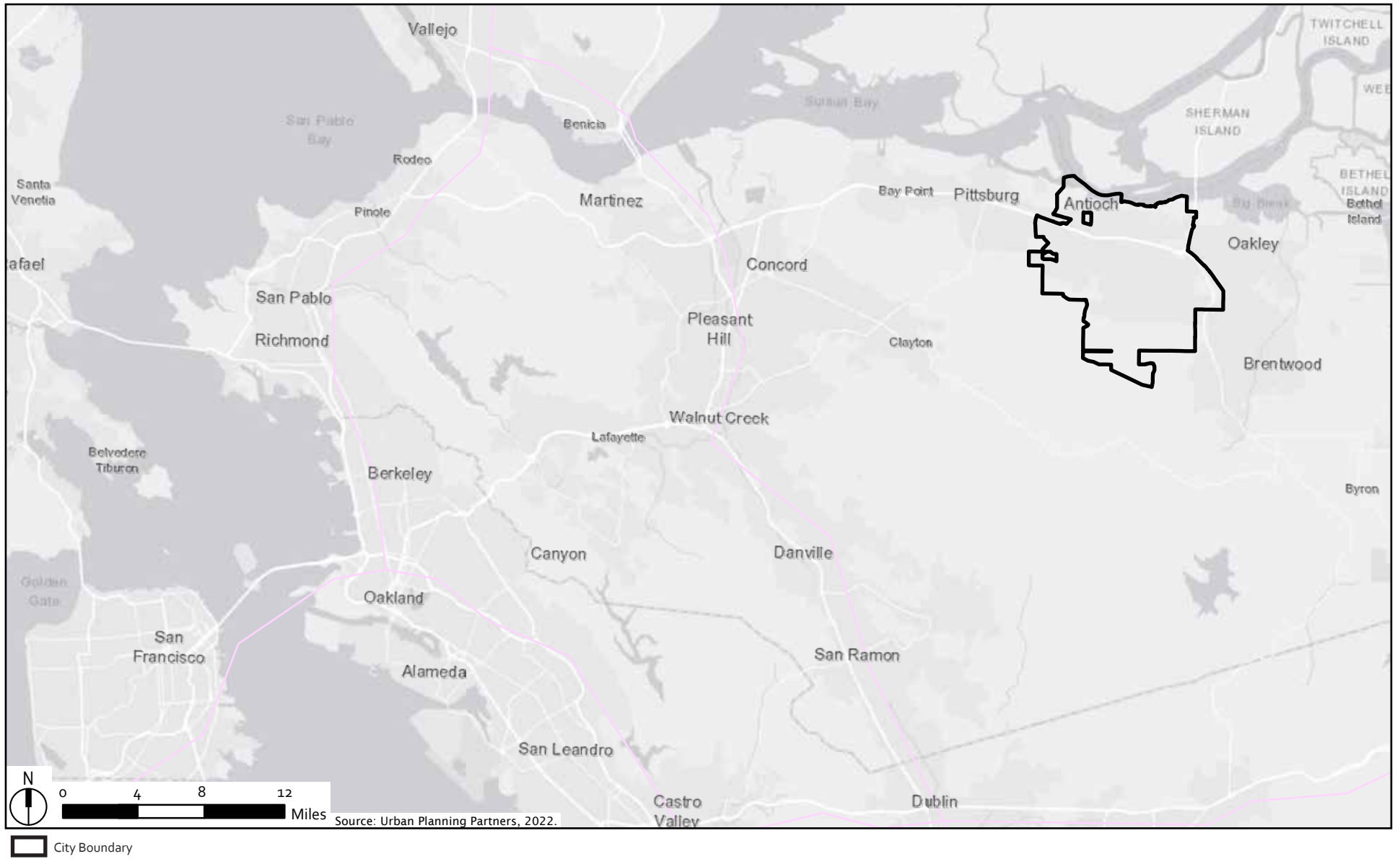


Figure 1  
Project Location

**Antioch Housing, Environmental Hazards, and EJ Elements EIR**



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# I. INTRODUCTION

## A. INTRODUCTION

This Environmental Impact Report (EIR) has been prepared to evaluate the potential environmental effects of the proposed Antioch Housing Element, Environmental Hazards Element, and Environmental Justice Element (Project). The Project is being proposed by the City of Antioch (City), California to comply with California Government Code Sections 65580-65589.8, which requires local jurisdictions to update the Housing Element of their General Plans every eight (8) years to adequately plan for the regional housing needs of residents of all income groups. The Project will include (1) adoption and implementation of the City's 6th Cycle Housing Element Update (2023-2031); (2) adoption and implementation of related updates to the City's Environmental Hazards Element; (3) development and adoption of associated Environmental Justice Policies per Senate Bill (SB) 1000; and (4) adoption of rezonings and specific plan amendments necessary to accommodate the City's Regional Housing Needs Allocation (RHNA). For purposes of this EIR, these actions are together considered a "Project" under California Environmental Quality Act (CEQA) regulations.

This section of the Environmental Impact Report (EIR) will provide a detailed overview of the Project pursuant to CEQA regulations.

## B. PURPOSE OF THE EIR

In compliance with CEQA, this Draft EIR describes the environmental consequences of implementation of the Project. This EIR is designed to inform City staff, Planning Commission, the City Council, other responsible and interested agencies, and the public about: (1) the Project and its potential environmental consequences; (2) the General Plan policies and mitigation measures necessary to lessen or avoid significant adverse impacts; and (3) a reasonable range of feasible alternatives to the Project. The information contained in this Draft EIR will be reviewed and considered by public agencies prior to deciding to approve, reject, or modify the Project.

The City is the lead agency for environmental review of the Project, and as such has made the Draft EIR available for public review for the period identified in the Notice of Availability (NOA) published with this document. During this public review period, written comments may be submitted to the City Planning Department at the address indicated on the NOA. Responses to all comments received on the environmental analysis in the Draft EIR during the specified review period will be included in the Response to Comments/Final EIR document.

## C. PROPOSED PROJECT

The Project is being proposed by the City to comply with California Government Code Section 65580-65589.8, which requires local jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups. The Project includes the following components:

1. **Housing Element.** Adoption and implementation of the City's 6th Cycle Housing Element Update (2023-2031), including the adoption and implementation of rezoning and General Plan amendments to accommodate the City's RHNA. This component is referred to as the Housing Element throughout this EIR.
2. **Environmental Hazards Element.** Adoption and implementation of related updates to the City's Environmental Hazards Element. This component is referred to as the Environmental Hazards Element throughout this EIR.
3. **Environmental Justice (EJ) Element.** Adoption and implementation of associated EJ General Plan policies per SB 1000. This component is referred to as the EJ Element throughout this EIR.

For purposes of this EIR, these three actions are together considered a "Project" under CEQA regulations. Each component of the Project is described in more detail in *Chapter III, Project Description*.

## D. EIR SCOPE

The City of Antioch published and circulated a Notice of Preparation (NOP) on November 8, 2021. The public comment period for the scope of the EIR was from November 8, 2021, to December 8, 2021. The NOP was sent to the City of Antioch's website as well as to responsible and trustee agencies, organizations, and other interested individuals. A copy of the NOP was also sent to the State Clearinghouse.

A Project scoping session was held before the Planning Commission on November 17, 2021. NOP comments—received from public agencies and concerned citizens—were considered during the preparation of this EIR. Comments received included comments encouraging infill development in Antioch and to use applicable state regulations related to transportation and tribal consultation. The NOP and the written public review comments are included in Appendix A.

The following environmental topics are addressed in greater detail in *Chapter IV, Setting, Impacts, and Mitigation Measures*, of this EIR:

- A. Land Use and Planning (*Section IV.A*)
- B. Transportation (*Section IV.B*)



- C. Air Quality (*Section IV.C*)
- D. Greenhouse Gas Emissions (*Section IV.D*)
- E. Energy (*Section IV.E*)
- F. Cultural and Tribal Resources (*Section IV.F*)
- G. Aesthetics (*Section IV.G*)
- H. Biological Resources (*Section IV.H*)
- I. Geology and Soils (*Section IV.I*)
- J. Hazards and Hazardous Materials (*Section IV.J*)
- K. Hydrology and Water Quality (*Section IV.K*)
- L. Noise (*Section IV.L*)
- M. Population and Housing (*Section IV.M*)
- N. Public Services and Recreation (*Section IV.N*)
- O. Utilities and Service Systems (*Section IV.O*)
- P. Wildfire (*Section IV.P*)
- Q. Agriculture and Forestry Resources (*Section IV.Q*)

*Chapter V, Effects Found Not to Be Significant or Less Than Significant*, includes a brief analysis of each environmental topic for which effects from the Project were found to be either not significant or less than significant through the scoping process and preliminary review. The only topic included is Mineral Resources.

## **E. REPORT ORGANIZATION**

This EIR is organized into the following chapters:

*Chapter I – Introduction:* Discusses the overall EIR purpose; provides a summary of the Project; describes the EIR scope; and summarizes the organization of the EIR.

*Chapter II – Executive Summary:* Summarizes the impacts that would result from implementation of the Project and describes the general plan policies and mitigation measures recommended to avoid or reduce significant impacts.

*Chapter III – Project Description:* Describes the Project objectives, Project site, proposed development, and required approval process.

*Chapter IV – Setting, Impacts, and Mitigation Measures:* Provides analysis of each environmental technical topic: existing conditions (setting), significance criteria, potential environmental impacts and their level of significance, and the general plan policies and mitigation measures recommended when necessary to mitigate identified impacts. Cumulative impacts are also

discussed in each technical topic section. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The significance level is identified for each impact before and after implementation of the recommended general plan policies and mitigation measure(s).

CEQA requires the analysis of potential adverse effects of the Project on the environment. Potential effects of the environment on the Project are not legally required to be analyzed or mitigated under CEQA. Nevertheless, this document analyzes the potential effects of the environment on the Project to provide information to the public and decision-makers. Where a potential significant effect of the environment on the Project is identified, the document, as appropriate, identifies project-specific, non-CEQA recommendations to address these issues.

*Chapter V – Effects Found Not to be Significant or Less Than Significant:* Provides a brief analysis of the topic areas found through the NOP scoping process and preliminary analysis to have no impacts or less-than-significant environmental impacts. The only topic discussed includes Mineral Resources.

*Chapter VI – Alternatives:* Evaluates three alternatives to the Project. The alternatives are included to meet the CEQA requirement that require an EIR to describe a reasonable range of alternatives to the Project that would feasibly attain most of the basic objectives of the Project, but that would avoid or substantially lessen any of the significant effects of the Project. The CEQA alternatives include the No Project, the Reduced VMT Alternative, and the Reduced RHNA Buffer Alternative.

*Chapter VII – CEQA-Required Assessment Conclusions:* Provides the required analysis of growth-inducing impacts; significant irreversible changes; and significant unavoidable and cumulative impacts.

*Appendices:* The appendices include: the NOP and written comments received in response to the NOP (Appendix A), the Housing Sites Inventory (Appendix B), the cultural and tribal resources technical report (Appendix C), the letters and correspondence associated with tribal resources outreach (Appendix D), and the comprehensive list of special status species (Appendix E).

The Draft EIR is available for public review for the period identified in the NOA attached to the front of this document. During this time, written comments on the Draft EIR may be submitted to the City of Antioch Planning Department at the address indicated on the NOA. Responses to all comments received on the environmental analysis in the Draft EIR during the specified review period will be included in the Response to Comments/Final EIR.

## II. EXECUTIVE SUMMARY

### A. OVERVIEW OF PROPOSED PROJECT

This Environmental Impact Report (EIR) has been prepared to evaluate the potential environmental effects of the proposed Antioch Housing Element, Environmental Hazards Element, and Environmental Justice Element (Project). The project site encompasses the entirety of the city of Antioch, which encompasses approximately 30 square miles in total land area. The city of Antioch is located in the East Bay region of the San Francisco Bay Area within Contra Costa County, California. Antioch is bordered by the San Joaquin-Sacramento River Delta to the north, the Diablo Mountains to the south, the city of Oakley to the east, and the city of Pittsburg to the west. California State Route (SR-) 4, a major regional freeway, passes through the city diagonally in an east-west direction and connects Antioch to the Sierra foothills and neighboring city of Brentwood to the southeast, and to the rest of the San Francisco Bay Area to the west. Additionally, the city has its own Bay Area Rapid Transit (BART) station along the SR-4 corridor, further connecting the city to the rest of the Bay Area region to the west via a 1-hour transit ride. California SR-160, another state roadway, also intersects Antioch, beginning in the northeastern portion of the city before it crosses the San Joaquin River and connects north to the city of Sacramento.

The Project is being proposed by the City of Antioch (City) to comply with California Government Code Section 65580-65589.8, which requires local jurisdictions to update the Housing Element of their General Plans every 8 years to adequately plan for the regional housing needs of residents of all income groups. The Project includes the following components:

1. **Housing Element.** Adoption and implementation of the City's 6th Cycle Housing Element Update (2023-2031), including the adoption and implementation of rezoning and General Plan amendments to accommodate the City's Regional Housing Needs Allocation (RHNA). This component is referred to as the Housing Element throughout this EIR.
2. **Environmental Hazards Element.** Adoption and implementation of related updates to the City's Environmental Hazards Element. This component is referred to as the Environmental Hazards Element throughout this EIR.
3. **Environmental Justice (EJ) Element.** Adoption and implementation of associated EJ General Plan policies per Senate Bill (SB) 1000. This component is referred to as EJ Element throughout this EIR.

For purposes of this EIR, these three actions are together considered a “Project” under CEQA regulations. Each component of the Project is described in more detail in *Chapter III, Project Description*.

## **B. SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

The summary that follows provides an overview of the analysis contained in *Chapters IV through VII* of this EIR. CEQA requires a summary to include discussion of (1) potential areas of controversy; (2) significant impacts, and proposed mitigation measures and General Plan policies; (3) cumulative impacts; (4) significant and unavoidable impacts; and (5) alternatives to the project. Each of these topics is summarized below.

### **1. Potential Areas of Controversy**

Written letters and verbal comments were received by the City regarding the scope of this EIR during the Notice of Preparation (NOP) (dated November 8, 2021) public comment period. Written comments received are included in Appendix A. Key areas of concern and/or controversy raised in the comments were limited, and all public commentors encouraged the City to prioritize infill and transit-oriented development. Comments received from public agencies, included Caltrans and the Native American Heritage Commission, both of which encouraged use of applicable CEQA regulations related to transportation and tribal consultation, respectively.

The issues raised by these comments are addressed in Chapter IV, *Setting, Impacts, and Mitigation Measures*, and Chapter V, *Effects Found Not to be Significant or Less Than Significant*. Copies of the NOP and written comments are included in Appendix A.

### **2. Significant Impacts, Mitigation Measures, and General Plan Policies**

Under CEQA, a significant impact on the environment is defined as “...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.”<sup>1</sup>

As discussed in *Chapter IV, Setting, Impacts, and Mitigation Measures*, and *Chapter V, Effects Found Not to be Significant or Less Than Significant*, and shown in Table II-1 below, the project would result in several potentially significant impacts. Only one impact related to transportation

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<sup>1</sup> Title 14 of the California Code of Regulations, Section 15382; Public Resources Code Section 21068.

was found to be significant and unavoidable, even after mitigation. All remaining impacts identified could be mitigated to a less-than-significant level with implementation of the recommended mitigation measures and/or General Plan policies, with the exception of Transportation.

Impacts that are less than significant or would be reduced to a less-than-significant level with implementation of mitigation measures or General Plan policies are identified for the following topics and are fully evaluated in *Chapter IV, Setting, Impacts, and Mitigation Measures*, of this EIR:

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

Impacts that are determined to be significant and unavoidable even with the implementation of mitigation measures and General Plan policies are identified for the following topic in this EIR and are fully evaluated in *Chapter IV, Setting, Impacts, and Mitigation Measures*, of this EIR.

- Transportation

The environmental topic for which the project would result in no impact or a less-than-significant impact is briefly described in *Chapter V, Effects Found Not to be Significant or Less Than Significant* of this EIR:

- Mineral Resources

Cumulative impacts are discussed in each of the topic sections included in *Chapter IV, Setting, Impacts, and Mitigation Measures*. The project would not contribute to or be affected by any significant cumulative impacts.

### 3. Alternatives to the Project

*Chapter VI, Alternatives*, analyzes three alternatives to the project to meet the CEQA requirements for analysis of a reasonable range of project alternatives. The three project alternatives analyzed in *Chapter VI* are as follows:

- **No Project Alternative:** Under this alternative, the City would continue to implement the adopted 2015-2023 Housing Element and Environmental Hazards Element adopted with the 2003 General Plan, and the proposed 2023-2031 Housing Element and Environmental Hazards Element would not be adopted. In addition, the proposed Environmental Justice Element and associated policies would not be adopted. Future housing development would be developed in accordance with the 2015-2023 Housing Element and would continue to have a development potential of 1,448 units. This alternative would result in a total net reduction in development potential by 3,127 units when compared to the project and a 1,568-unit shortfall of the City's RHNA obligation.
- **Reduced VMT Alternative:** Under this alternative, housing sites which are not targeted for very low- or low-income housing and located in Traffic Analysis Zones (TAZs) with home-based vehicle miles traveled (VMT) above the significance threshold would be eliminated from the Housing Inventory Sites. All sites located in TAZs with home-based VMT below the significance threshold would be retained. Based on the Housing Inventory Sites, this alternative would result in a total net reduction in development potential by 468 units when compared to the project but would continue to exceed the City's RHNA obligation by 1,091 units.
- **Reduced RHNA Buffer Alternative:** This alternative would reduce the buffer above the City's RHNA in comparison with the Project. Under this alternative, the overall RHNA buffer would be reduced from 52.0 percent under the Project, to 25.0 percent, which is still within the 15 to 30 percent buffer recommended by the California Department of Housing Community Development (HCD) to ensure that jurisdictions remain in compliance with the State Housing Law and the Not Net Loss Requirements Law. A 25.0 percent buffer was applied to the number of the City's RHNA units in each income category, as well as the total unit count. This alternative would result in 3,770 development units in total, which would be a total net reduction in 805 units when compared to the Project, but would continue to exceed the City's RHNA obligation by 754 units.

### C. SUMMARY TABLE

Information in Table II-1, Summary of Impacts, Mitigation Measures, and General Plan Policies, has been organized to correspond with environmental issues discussed in *Chapter IV, Setting, Impacts, and Mitigation Measures*, and *Chapter V, Effects Found Not to be Significant or Less Than Significant*, of this EIR. The table is arranged in four columns: (1) impacts; (2) level of significance without mitigation measures, (3) mitigation measures and General Plan policies which are

intended to reduce the level of impact; and (4) level of significance after implementation of General Plan policies and/or mitigation measures. Other than impacts related to transportation, the EIR found that all potentially significant impacts would be reduced to a less-than-significant level with implementation of General Plan policies and mitigation measures. All General Plan policies and mitigation measures necessary to ensure that no significant impacts would occur are included in Table II-1 for reference. For a complete description of environmental findings and required mitigation measures and General Plan policies, please refer to the specific discussions in *Chapter IV, Setting, Impacts, and Mitigation Measures*, and *Chapter V, Effects Found Not to be Significant or Less Than Significant*.

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<b>A. Land Use and Planning</b>			
<i>Implementation of the project would not result in any significant land use and planning impacts.</i>			
<b>B. Transportation</b>			
<b>TRANS-1:</b> Implementation of the Project would generate home-based VMT per resident that is greater than 85 percent of the Citywide average home-based CMT per resident.	S	<p><b>TRANS-1: Implement VMT Reduction Measures.</b> Individual housing project development proposals that do not screen out from VMT impact analysis shall provide a quantitative VMT analysis using the methods applied in this EIR, with modifications if appropriate based on future changes to City of Antioch practices and CCTA VMT analysis methodology guidelines. Projects which result in a significant impact shall include travel demand management measures and physical measures to reduce VMT to a less-than-significant level. Measures may include, but are not limited to, those described below, which have been identified as potentially VMT reducing in the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Potential VMT reduction estimates are included below, but detailed requirements, calculation steps, and limitations are described in the CAPCOA Handbook. In addition, application of one or more measures is generally expected to result in a net VMT reduction of 10 percent or less for development projects in suburban settings such as Antioch.</p> <ul style="list-style-type: none"> <li>▪ Unbundle parking costs (i.e., sell or lease parking separately from the housing unit). Effectiveness: up to 15.7 percent reduction in GHG from VMT per the CAPCOA Handbook.</li> <li>▪ Provide car-sharing, bike sharing, or scooter sharing programs. Effectiveness: 0.15 to 0.18 percent reduction in GHG from VMT for car share, 0.02 to 0.06 percent for bike share, and 0.07 percent for scooter share, per the CAPCOA Handbook. The higher car share and bike share values are for electric car and bike share programs.</li> <li>▪ Subsidize transit passes for residents of affordable housing. Effectiveness: up to 5.5 percent reduction in GHG from VMT per the CAPCOA Handbook.</li> </ul> <p>In addition to the on-site measures noted above, individual housing projects that are above the VMT threshold could potentially contribute to future VMT mitigation fee programs, banks, or exchanges. No regional VMT mitigation</p>	SU (LTS if feasible)



**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<p>programs currently exist; however, the CCTA is currently evaluating different mitigation program frameworks which may lead to a Countywide or sub-regional VMT mitigation program. Should such a program be implemented, development projects could potentially pay into a fee program or purchase mitigation credits to achieve needed VMT mitigation instead of, or in addition to, on-site TDM measures.</p>			
<b>C. Air Quality</b>			
<p><b>AIR-1:</b> Construction of residential projects with more than 114 single-family units or 240 multi-family units has the potential to result in criteria air pollutant and precursor emissions above the Bay Area Air Quality Management District’s (BAAQMD’s) recommended thresholds of significance for construction.</p>	S	<p><b>AIR-1: Residential Construction Controls for Criteria Air Pollutants.</b> For construction of residential projects with more than 114 single-family units or 240 multi-family units, the project applicant shall retain a qualified air quality consultant to identify measures to reduce the project’s criteria air pollutant and precursor emissions below the Bay Area Air Quality Management District’s (BAAQMD’s) recommended thresholds of significance. Emission reduction measures may include, but are not limited to, the use of off-road equipment with engines that meet the Environmental Protection Agency’s Tier 4 emission standards or engines retrofitted with the most effective Verified Diesel Emissions Control Strategy (VDECS) certified by the California Air Resources Board (CARB). Quantified emissions and identified reduction measures shall be submitted to the City (and the Air District if specifically requested) for review and approval prior to the issuance of building permits and the approved criteria air pollutant reduction measures shall be implemented during construction.</p> <p>In addition, the project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified criteria air pollutant reduction measures (if any). The Emissions Plan shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:</p> <ul style="list-style-type: none"> <li>▪ An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type,</li> </ul>	LTS

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<p><b>AIR-2:</b> Construction of residential projects with more than 325 single-family units or 451 multi-family units has the potential to result in criteria air pollutant and precursor emissions above the Bay Area Air Quality Management District’s (BAAQMD’s) recommended thresholds of significance for operations.</p>	S	<p>serial number, make, model, manufacturer, CARB verification number level, and installation date.</p> <ul style="list-style-type: none"> <li>▪ A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract.</li> </ul>	LTS
<p><b>AIR-3:</b> Future residential development within the City has the potential to generate TACs and PM2.5 emissions from vehicle trips and emergency generators (if required), which could substantially contribute to the existing poor air quality in the City and expose sensitive receptors to substantial pollutant concentrations.</p>	S	<p><b>AIR-3a: Residential Construction Controls for Diesel Particulate Matter.</b> For construction of residential projects with a construction duration greater than 6 months that are located in an area defined as needing “Best Practices” or “Further Study” on the BAAQMD’s Planning Healthy Places Map (<a href="https://www.baaqmd.gov/plans-and-climate/planning-healthy-places">https://www.baaqmd.gov/plans-and-climate/planning-healthy-places</a>), the project applicant shall apply <u>one</u> of the following two measures:</p> <ol style="list-style-type: none"> <li>1. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with current guidance from the Office of Environmental Health Hazard Assessment to determine the health risks to sensitive receptors exposed to diesel particulate matter (DPM) from project construction emissions. The HRA shall be submitted to the City (and BAAQMD if specifically requested) for review and approval. If the HRA concludes that the health risks are at or below acceptable levels, then DPM reduction measures are not required. If the HRA concludes that the health risks exceed acceptable levels, DPM reduction measures shall be identified to reduce the health risks to acceptable levels. Identified DPM reduction measures shall be submitted to the City for review and approval prior to the</li> </ol>	LTS

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>issuance of building permits and the approved DPM reduction measures shall be implemented during construction.</p> <p>OR</p> <p>2. All off-road diesel equipment shall be equipped with the most effective VDECS available for the engine type (Tier 4 engines automatically meet this requirement) as certified by CARB. The equipment shall be properly maintained and tuned in accordance with manufacturer specifications.</p> <p>In addition, the project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified DPM reduction measures (if any). The Emissions Plan shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:</p> <ul style="list-style-type: none"> <li>▪ An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.</li> <li>▪ A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract.</li> </ul>	
		<p><b>AIR-3b: Residential Emergency Generators.</b> Require all emergency generators for new residential development projects (if required) to use best available control technology for air pollutant emissions, such as using engines that meet the Environmental Protection Agency’s Tier 4 Final emission standards or are battery powered.</p>	LTS
		<p><i>General Plan Policy 7.4.2: Non-Motorized Transportation Policies</i></p> <ol style="list-style-type: none"> <li>a. Design new residential neighborhoods to provide safe pedestrian and bicycle access to schools, parks and neighborhood commercial facilities.</li> <li>b. Design intersections for the safe passage of pedestrians and bicycles through the intersection.</li> </ol>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>c. Provide street lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area, and that contributes to vehicular, pedestrian, and bicycle safety.</li> <li>d. Maintain roadway designs that maintain mobility and accessibility for bicyclists and pedestrians.</li> <li>e. Integrate multi-use paths into creek corridors, railroad rights-of-way, utility corridors, and park facilities.</li> <li>f. Provide, as appropriate, bicycle lanes (Class II) or parallel bicycle/pedestrian paths (Class I) along all arterial streets and high-volume collector streets, as well as along major access routes to schools and parks.</li> <li>g. Design new roadway bridges to meet Caltrans standards for bridges involving State highways, including bicycle lanes on all new bridges along Circulation Element roadways. Where provision of bicycle lanes is not feasible, undertake measures to provide alternative routes and to prohibit bicycle riding on bridge walkways.</li> <li>h. Require the provision of bicycle parking and other support facilities (e.g., racks or lockers) as part of new office and retail developments and public facilities.</li> <li>i. Where shopping facilities are located adjacent to residential areas, provide direct access between residential and commercial uses without requiring pedestrians and bicyclists to travel completely around the commercial development.</li> <li>j. Permit the sharing or parallel development of pedestrian walkways with bicycle paths, where this can be safely accomplished, in order to maximize the use of public rights-of-way.</li> <li>k. Orient site design in non-residential areas to allow for safe and convenient pedestrian access from sidewalks, transit and bus stops, and other pedestrian facilities, in addition to access through required parking facilities.</li> <li>l. Require the construction of attractive walkways in new residential, commercial, office, and industrial developments, including provision of shading for pedestrian paths.</li> <li>m. Maximize visibility and access for pedestrians and encourage the removal of barriers for safe and convenient movement of pedestrians.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>n. Ensure that the site design of new developments provides for pedestrian access to existing and future transit routes and transit centers.</p> <p>o. Pave walks and pedestrian pathways with a hard, all-weather surface that is easy to walk on. Walks and curbs should accommodate pedestrians with disabilities. Walks within open space areas should have specially paved surfaces that blend with the surrounding environment.</p> <p>p. In general, design walks to provide a direct route for short to medium distance pedestrian trips, and to facilitate the movement of large numbers of pedestrians. Meandering sidewalks are appropriate in areas where the natural topography or low-density land uses lend themselves to informal landscapes.</p>	
		<p><i>General Plan Policy 10.6.2: Air Quality Policies</i></p> <p><i>Construction Emissions</i></p> <p>a. Require development projects to minimize the generation of particulate emissions during construction through implementation of the dust abatement actions outlined in the CEQA Handbook of the Bay Area Air Quality Management District.</p> <p><i>Mobile Emissions</i></p> <p>b. Require developers of large residential and non-residential projects to participate in programs and to take measures to improve traffic flow and/or reduce vehicle trips resulting in decreased vehicular emissions. Examples of such efforts may include but are not limited to the following.</p> <ul style="list-style-type: none"> <li>▪ Development of mixed-use projects, facilitating pedestrian and bicycle transportation and permitting consolidation of vehicular trips.</li> <li>▪ Installation of transit improvements and amenities, including dedicated bus turnouts and sufficient rights-of-way for transit movement, bus shelters, and pedestrian easy access to transit.</li> <li>▪ Provision of bicycle and pedestrian facilities, including bicycle lanes and pedestrian walkways connecting residential areas with neighborhood commercial centers, recreational facilities, schools, and other public areas.</li> <li>▪ Contributions for off-site mitigation for transit use.</li> <li>▪ Provision of charging stations for electric vehicles within large employment-generating and retail developments.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>c. Budget for purchase of clean fuel vehicles, including electrical and hybrid vehicles where appropriate, and, if feasible, purchasing natural gas vehicles as diesel powered vehicles are replaced.</p> <p>d. Support and facilitate employer-based trip reduction programs by recognizing such programs in environmental mitigation measures for traffic and air quality impacts where their ongoing implementation can be ensured, and their effectiveness can be monitored.</p> <p><i>Stationary Source Emissions</i></p> <p>e. As part of the development review process for non-residential development, require the incorporation of best available technologies to mitigate air quality impacts.</p> <p>f. Provide physical separations between (1) proposed new industries having the potential for emitting toxic air contaminants and (2) existing and proposed sensitive receptors (e.g., residential areas, schools, and hospitals).</p> <p>g. Require new wood burning stoves and fireplaces to comply with EPA and BAAQMD approved standards.</p>	
		<p><i>General Plan Policy 10.8.2: Energy Resource Policies</i></p> <p>a. Continue to implement Title 24 of the State Building Code, and provide incentives to encourage architects and builders to exceed the energy efficiency standards of Title 24 through increased use of passive, solar design and day-lighting.</p> <p>b. Promote the use of site design, landscaping, and solar orientation to decrease the need for summer cooling and winter heating.</p> <p>c. Where feasible, incorporate recycled materials in new construction.</p> <p>d. Encourage the installation of energy-efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.</p> <p>e. Facilitate the installation of environmentally acceptable forms of distributed generation, where such systems can be safely and economically provided.</p> <p>f. Maintain city physical facilities so as to ensure that optimum energy conservation is achieved.</p> <p>g. Promote purchasing of energy-efficient equipment based on a fair return on investment and use energy-savings estimates as one basis for purchasing decisions for major energy-using devices.</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<b>D. Greenhouse Gas Emissions</b>	<i>Implementation of the Project would not result in any significant greenhouse gas impacts. The following General Plan policies would ensure no significant impacts would occur.</i>	<p><i>General Plan Policy 4.1.</i> Provide incentives for energy conservation measures in new housing by providing information on programs available through PG&amp;E.</p> <p><i>General Plan Policy 7.4.2: Non-Motorized Transportation Policies</i></p> <ul style="list-style-type: none"> <li>a. Design new residential neighborhoods to provide safe pedestrian and bicycle access to schools, parks and neighborhood commercial facilities.</li> <li>b. Design intersections for the safe passage of pedestrians and bicycles through the intersection.</li> <li>c. Provide street lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area, and that contributes to vehicular, pedestrian, and bicycle safety.</li> <li>d. Maintain roadway designs that maintain mobility and accessibility for bicyclists and pedestrians.</li> <li>e. Integrate multi-use paths into creek corridors, railroad rights-of-way, utility corridors, and park facilities.</li> <li>f. Provide, as appropriate, bicycle lanes (Class II) or parallel bicycle/pedestrian paths (Class I) along all arterial streets and high-volume collector streets, as well as along major access routes to schools and parks.</li> <li>g. Design new roadway bridges to meet Caltrans standards for bridges involving State highways, including bicycle lanes on all new bridges along Circulation Element roadways. Where provision of bicycle lanes is not feasible, undertake measures to provide alternative routes and to prohibit bicycle riding on bridge walkways.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>h. Require the provision of bicycle parking and other support facilities (e.g., racks or lockers) as part of new office and retail developments and public facilities.</p> <p>i. Where shopping facilities are located adjacent to residential areas, provide direct access between residential and commercial uses without requiring pedestrians and bicyclists to travel completely around the commercial development.</p> <p>j. Permit the sharing or parallel development of pedestrian walkways with bicycle paths, where this can be safely accomplished, in order to maximize the use of public rights-of-way.</p> <p>k. Orient site design in non-residential areas to allow for safe and convenient pedestrian access from sidewalks, transit and bus stops, and other pedestrian facilities, in addition to access through required parking facilities.</p> <p>l. Require the construction of attractive walkways in new residential, commercial, office, and industrial developments, including provision of shading for pedestrian paths.</p> <p>m. Maximize visibility and access for pedestrians and encourage the removal of barriers for safe and convenient movement of pedestrians.</p> <p>n. Ensure that the site design of new developments provides for pedestrian access to existing and future transit routes and transit centers.</p> <p>o. Pave walks and pedestrian pathways with a hard, all-weather surface that is easy to walk on. Walks and curbs should accommodate pedestrians with disabilities. Walks within open space areas should have specially paved surfaces that blend with the surrounding environment.</p> <p>p. In general, design walks to provide a direct route for short to medium distance pedestrian trips, and to facilitate the movement of large numbers of pedestrians. Meandering sidewalks are appropriate in areas where the natural topography or low-density land uses lend themselves to informal landscapes.</p>	
		<p><i>General Plan Policy 10.6.2: Air Quality Policies</i>  <i>Mobile Emissions</i></p>	
		<p>b. Require developers of large residential and non-residential projects to participate in programs and to take measures to improve traffic flow and/or</p>	



**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>reduce vehicle trips resulting in decreased vehicular emissions. Examples of such efforts may include but are not limited to the following.</p> <ul style="list-style-type: none"> <li>▪ Development of mixed-use projects, facilitating pedestrian and bicycle transportation and permitting consolidation of vehicular trips.</li> <li>▪ Installation of transit improvements and amenities, including dedicated bus turnouts and sufficient rights-of-way for transit movement, bus shelters, and pedestrian easy access to transit.</li> <li>▪ Provision of bicycle and pedestrian facilities, including bicycle lanes and pedestrian walkways connecting residential areas with neighborhood commercial centers, recreational facilities, schools, and other public areas.</li> <li>▪ Contributions for off-site mitigation for transit use.</li> <li>▪ Provision of charging stations for electric vehicles within large employment-generating and retail developments.</li> </ul>	
		<p><i>General Plan Policy 10.7.2: Water Resources Policies</i></p> <p>b. Require new development to be equipped with drought tolerant landscaping and water conservation devices.</p>	
		<p><i>General Plan Policy 10.8.2: Energy Resource Policies</i></p> <p>a. Continue to implement Title 24 of the State Building Code, and provide incentives to encourage architects and builders to exceed the energy efficiency standards of Title 24 through increased use of passive, solar design and day-lighting.</p> <p>b. Promote the use of site design, landscaping, and solar orientation to decrease the need for summer cooling and winter heating.</p> <p>c. Where feasible, incorporate recycled materials in new construction.</p> <p>d. Encourage the installation of energy-efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.</p> <p>e. Facilitate the installation of environmentally acceptable forms of distributed generation , where such systems can be safely and economically provided.</p> <p>f. Maintain City physical facilities so as to ensure that optimum energy conservation is achieved.</p> <p>g. Promote purchasing of energy-efficient equipment based on a fair return on investment, and use energy-savings estimates as one basis for purchasing decisions for major energy-using devices.</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>h. Promote coordination of new public facilities with transit services and nonmotorized transportation facilities, including bicycles, and design structures to enhance transit, bicycle, and pedestrian use.</p> <p>i. The City shall review all development plans prior to approval to guarantee that energy conservation and efficiency standards of Title 24 are met and are incorporated into the design of the future proposed project.</p>	
		<p><i>General Plan Policy 11.7.2 (c): Climate Action Design Elements</i>                      Require new residential, commercial, and retail land use developments to demonstrate compliance with the Bay Area Air Management District’s recommended design elements to support long-term climate action goals, if feasible:</p> <ul style="list-style-type: none"> <li>▪ The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).</li> <li>▪ The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.</li> <li>▪ Achieve a reduction in project-generated vehicle miles travelled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor’s Office of Planning and Research’s Technical Advisory on Evaluating Transportation Impacts in CEQA:                             <ul style="list-style-type: none"> <li>▪ Residential projects: 15 percent below the existing VMT per capita.</li> <li>▪ Office projects: 15 percent below the existing VMT per employee.</li> <li>▪ Retail projects: no net increase in existing VMT.</li> </ul> </li> <li>▪ Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.</li> </ul>	
		<p><i>General Plan Policy 11.7.2 (d): Climate Action Plans</i>                      Consider updating the City’s climate action plans to meet the criteria under State CEQA Guidelines Section 15183.5(b) and identify community-wide measures that can be implemented to achieve the statewide GHG emissions targets of 40 percent below 1990 levels by 2030 and support the State’s goal of achieving carbon neutrality by 2045. The updated climate action plans should</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		include a checklist to help future development projects demonstrate how they will support long-term climate action goals. The GHG reduction measures identified in the updated climate action plans would supersede the Bay Area Air Management District’s recommended design elements described in Policy 11.7.2 (c).	
		<i>General Plan Policy 11.7.2 (e): Climate Action and Resilience Plan</i> Require new development to incorporate strategies identified in the City’s current Climate Action and Resilience Plan to increase community resiliency to increasing natural hazard events associated with climate change, such as flooding, drought, and extreme heat.	
<b>E. Energy</b>			
<i>Implementation of the Project would not result in any significant energy impacts. The following General Plan policies would ensure no significant impacts would occur.</i>		<i>General Plan Policy 7.4.2: Non-Motorized Transportation Policies</i> a. Design new residential neighborhoods to provide safe pedestrian and bicycle access to schools, parks and neighborhood commercial facilities. b. Design intersections for the safe passage of pedestrians and bicycles through the intersection. c. Provide street lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area, and that contributes to vehicular, pedestrian, and bicycle safety. d. Maintain roadway designs that maintain mobility and accessibility for bicyclists and pedestrians. e. Integrate multi-use paths into creek corridors, railroad rights-of-way, utility corridors, and park facilities. f. Provide, as appropriate, bicycle lanes (Class II) or parallel bicycle/pedestrian paths (Class I) along all arterial streets and high-volume collector streets, as well as along major access routes to schools and parks. g. Design new roadway bridges to meet Caltrans standards for bridges involving State highways, including bicycle lanes on all new bridges along Circulation Element roadways. Where provision of bicycle lanes is not feasible, undertake measures to provide alternative routes and to prohibit bicycle riding on bridge walkways.	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>h. Require the provision of bicycle parking and other support facilities (e.g., racks or lockers) as part of new office and retail developments and public facilities.</p> <p>i. Where shopping facilities are located adjacent to residential areas, provide direct access between residential and commercial uses without requiring pedestrians and bicyclists to travel completely around the commercial development.</p> <p>j. Permit the sharing or parallel development of pedestrian walkways with bicycle paths, where this can be safely accomplished, in order to maximize the use of public rights-of-way.</p> <p>k. Orient site design in non-residential areas to allow for safe and convenient pedestrian access from sidewalks, transit and bus stops, and other pedestrian facilities, in addition to access through required parking facilities.</p> <p>l. Require the construction of attractive walkways in new residential, commercial, office, and industrial developments, including provision of shading for pedestrian paths.</p> <p>m. Maximize visibility and access for pedestrians and encourage the removal of barriers for safe and convenient movement of pedestrians.</p> <p>n. Ensure that the site design of new developments provides for pedestrian access to existing and future transit routes and transit centers.</p> <p>o. Pave walks and pedestrian pathways with a hard, all-weather surface that is easy to walk on. Walks and curbs should accommodate pedestrians with disabilities. Walks within open space areas should have specially paved surfaces that blend with the surrounding environment.</p> <p>p. In general, design walks to provide a direct route for short to medium distance pedestrian trips, and to facilitate the movement of large numbers of pedestrians. Meandering sidewalks are appropriate in areas where the natural topography or low-density land uses lend themselves to informal landscapes.</p>	
		<p><i>General Plan Policy 9.4.1.</i> Provide incentives for energy conservation measures in new housing by providing information on programs available through PG&amp;E.</p> <p><i>Action 9.4.1.1: Encourage Energy Conservation.</i> Continue to pursue funding sources and program partnerships for energy saving and conservation. Encourage developers to utilize energy-saving designs and building materials.</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><u>Responsible Agency:</u> City Building Official, Community Development Department, in association with energy providers</p> <p><u>Implementation Schedule:</u> Ongoing</p> <p><u>Non-Quantified Objective:</u> Minimize costs of space heating and cooling in new and existing dwelling units.</p> <p><u>Funding Source:</u> General Fund, developers, energy providers</p> <p><i>Action 9.4.1.2. Water Conservation Program.</i> As part of the development review process, ensure that new residential development meets City standards and guidelines for conserving water through provision of drought-tolerant landscaping, and the utilization of reclaimed wastewater when feasible. Continue to encourage water conservation through City’s Water Efficient Landscape Ordinance that conforms to the State’s model ordinance.</p> <p><u>Responsible Agency:</u> Community Development Department, City Engineer, and Building Official</p> <p><u>Implementation Schedule:</u> Ongoing, project-based</p> <p><u>Non-Quantified Objective:</u> Conservation of water resources</p> <p><u>Funding Source:</u> General Fund</p> <p><i>Action 9.4.1.3: Green Building Encouragement.</i> Continue to encourage “green building” practices in new and existing housing development and neighborhoods. The City will continue to provide information on green building programs and resources on the City website and at City Hall. The City shall continually analyze current technologies and best practices and update the informational material as necessary. The City will continue to promote the Energy Upgrade California program, which provides incentives for energy-saving upgrades to existing homes.</p> <p><u>Responsible Agency:</u> Community Development Department</p> <p><u>Implementation Schedule:</u> Ongoing</p> <p><u>Non-Quantified Objective:</u> Encourage green building practices</p> <p><u>Funding Source:</u> General Fund</p>	
		<p><i>General Plan Policy 10.6.2: Air Quality Policies</i></p> <p><i>Construction Emissions</i></p> <p>a. Require development projects to minimize the generation of particulate emissions during construction through</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>implementation of the dust abatement actions outlined in the CEQA Handbook of the Bay Area Air Quality Management District.</p> <p><i>Mobile Emissions</i></p> <p>b. Require developers of large residential and non-residential projects to participate in programs and to take measures to improve traffic flow and/or reduce vehicle trips resulting in decreased vehicular emissions. Examples of such efforts may include, but are not limited to the following.</p> <ul style="list-style-type: none"> <li>▪ Development of mixed-use projects, facilitating pedestrian and bicycle transportation and permitting consolidation of vehicular trips.</li> <li>▪ Installation of transit improvements and amenities, including dedicated bus turnouts and sufficient rights-of-way for transit movement, bus shelters, and pedestrian easy access to transit.</li> <li>▪ Provision of bicycle and pedestrian facilities, including bicycle lanes and pedestrian walkways connecting residential areas with neighborhood commercial centers, recreational facilities, schools, and other public areas.</li> <li>▪ Contributions for off-site mitigation for transit use.</li> <li>▪ Provision of charging stations for electric vehicles within large employment-generating and retail developments.</li> </ul> <p>c. Budget for purchase of clean fuel vehicles, including electrical and hybrid vehicles where appropriate, and, if feasible, purchasing natural gas vehicles as diesel powered vehicles are replaced.</p> <p>d. Support and facilitate employer-based trip reduction programs by recognizing such programs in environmental mitigation measures for traffic and air quality impacts where their ongoing implementation can be ensured, and their effectiveness can be monitored.</p> <p><i>Stationary Source Emissions</i></p> <p>e. As part of the development review process for non-residential development, require the incorporation of best available technologies to mitigate air quality impacts.</p> <p>f. Provide physical separations between (1) proposed new industries having the potential for emitting toxic air contaminants and (2) existing and proposed sensitive receptors (e.g., residential areas, schools, and hospitals).</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		g. Require new wood burning stoves and fireplaces to comply with EPA and BAAQMD approved standards.	
		<p><i>General Plan Policy 10.8.2: Energy Resource Policies</i></p> <p>a. Continue to implement Title 24 of the State Building Code, and provide incentives to encourage architects and builders to exceed the energy efficiency standards of Title 24 through increased use of passive, solar design and day-lighting.</p> <p>b. Promote the use of site design, landscaping, and solar orientation to decrease the need for summer cooling and winter heating.</p> <p>c. Where feasible, incorporate recycled materials in new construction.</p> <p>d. Encourage the installation of energy-efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.</p> <p>e. Facilitate the installation of environmentally acceptable forms of distributed generation, where such systems can be safely and economically provided.</p> <p>f. Maintain City physical facilities so as to ensure that optimum energy conservation is achieved.</p> <p>g. Promote purchasing of energy-efficient equipment based on a fair return on investment and use energy-savings estimates as one basis for purchasing decisions for major energy-using devices.</p> <p>h. Promote coordination of new public facilities with transit services and nonmotorized transportation facilities, including bicycles, and design structures to enhance transit, bicycle, and pedestrian use.</p> <p>i. The City shall review all development plans prior to approval to guarantee that energy conservation and efficiency standards of Title 24 are met and are incorporated into the design of the future proposed project.</p>	
<b>F. Cultural and Tribal Resources</b>			
<i>Implementation of the Project would not result in any significant cultural or tribal resources impacts. The following General Plan policy would ensure no significant impacts would occur.</i>		<p><i>General Plan Policy 10.9.2: Cultural Policies</i></p> <p>a. Require new development to analyze, and therefore avoid or mitigate impacts to archaeological, paleontological, and historic resources. Require surveys for projects having the potential to impact archaeological, paleontological, or historic resources. If significant resources are found to be</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>present, provide mitigation in accordance with applicable CEQA guidelines and provisions of the California Public Resources Code.</p> <p>b. If avoidance and/or preservation in the location of any potentially significant cultural resource is not possible, the following measures shall be initiated for each impacted site:</p> <ul style="list-style-type: none"> <li>▪ A participant-observer from the appropriate Indian Band or Tribe shall be used during archaeological testing or excavation in the project site. Prior to the issuance of a grading permit for the project, the project proponent shall develop a test-level research design detailing how the cultural resource investigation shall be executed and providing specific research questions that shall be addressed through the excavation program. In particular, the testing program shall characterize the site constituents, horizontal and vertical extent, and, if possible, period of use. The testing program shall also address the California Register and National Register eligibility of the cultural resource and make recommendations as to the suitability of the resource for listing on either Register. The research design shall be submitted to the City of Antioch for review and comment. For sites determined, through the Testing Program, to be ineligible for listing on either the California or National Register, execution of the Testing Program will suffice as mitigation of project impacts to this resource.</li> <li>▪ After approval of the research design and prior to the issuance of a grading permit, the project proponent shall complete the excavation program as specified in the research design. The results of this excavation program shall be presented in a technical report that follows the City's outline for Archaeological Testing. The Test Level Report shall be submitted to the City for review and comment. If cultural resources that would be affected by the project are found ineligible for listing on the California or National Register, test-level investigations will have depleted the scientific value of the sites and the project can proceed.</li> <li>▪ If the resource is identified as being potentially eligible for either the California or National Register, and project designs cannot be altered to avoid impacting the site, a Treatment Program to mitigate project effects shall be initiated. A Treatment Plan detailing the objectives of the Treatment Program shall be developed. The Treatment Plan shall contain</li> </ul>	



**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>specific, testable hypotheses relative to the sites under study and shall attempt to address the potential of the sites to address these research questions. The Treatment Plan shall be submitted to the City for review and comment.</p> <ul style="list-style-type: none"> <li>▪ After approval of the Treatment Plan, the Treatment Program for affected, eligible sites shall be initiated. Typically, a Treatment Program involves excavation of a statistically representative sample of the site to preserve those resource values that qualify the site as being eligible for the California or National Register. At the conclusion of the excavation or research program, a Treatment Report shall be developed. This data recovery report shall be submitted to the City for review and comment.</li> <li>c. When existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate reposition, and file a report with the Community Development Department documenting any paleontological resources found during site grading.</li> <li>d. As a standard condition of approval for new development projects, require that if unanticipated cultural or paleontological resources are encountered during grading, alteration of earth materials in the vicinity of the find be halted until a qualified expert has evaluated the find and recorded identified cultural resources.</li> <li>e. Preserve historic structures and ensure that alterations to historic buildings and their immediate settings are compatible with the character of the structure and the surrounding neighborhood.</li> </ul>	
<b>G. Aesthetics</b>			
<p><i>Implementation of the Project would not result in any significant aesthetic impacts. The following General Plan policies would ensure no significant impacts would occur.</i></p>		<p><i>General Plan Policy 5.4.2: General Design Policies</i></p> <ul style="list-style-type: none"> <li>a. Base the City's review of public and private projects on the following general design principles.                             <ul style="list-style-type: none"> <li>▪ Innovative design, regardless of its style, is more important to the achievement of "quality" than the use of predetermined themes.</li> </ul> </li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ "High quality" comes from the explicit consideration of all aspects of development design. It is in design details that "quality" is ultimately manifested.</li> <li>▪ Designers need to respect community goals and needs, as well as address their client's economic objectives.</li> <li>▪ Individual buildings and developments are not isolated entities, but are part of a larger district and community into which they must fit. While innovation and individual expression are sought, compatibility of design elements is also important.</li> <li>▪ Standardized design solutions, "corporate architecture," and "off the shelf models" cannot always be depended upon. What worked before or was accepted elsewhere may not work or be acceptable in the proposed application in Antioch.</li> <li>▪ Architectural styles, landscaping, and project amenities should complement surrounding development, and convey a sense of purpose, not expediency.</li> <li>▪ All building elevations visible to the public should be given equal attention and detail.</li> <li>▪ The same design solution, no matter how well done, when repeated too often or over too large an area, can become boring, lose its effectiveness, and no longer communicate "quality."</li> <li>b. Incorporate Antioch's "Gateway to the Delta" theme and reminders of its community heritage into the design of new residential, commercial, employment-generating, and recreational development, as well as into public facilities.               <ul style="list-style-type: none"> <li>▪ Incorporate nautical/waterway, gateway/entry, industrial or ranching themes into the design details of new developments and community facilities, such as building architecture, signage, lighting standards, site paving and landscaping, street furniture (e.g., benches, trash enclosures and receptacles), fencing, and placement of murals and sculpture in public locations.</li> <li>▪ Maintain a consistent design theme throughout each development project. Each individual development project and area within the project should portray an identifiable design theme.</li> </ul> </li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Select tree species that are appropriate to their specific applications (e.g., providing shade, framing long-distance views of the San Joaquin River or Mt. Diablo, or framing short-distance views of new development.</li> <li>c. Maintain View Corridors from public spaces to natural ridgelines and landmarks such as Mount Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies.</li> <li>▪ Recognizing that new development will inevitably result in some loss of existing views, as part of the City’s review of development and commercial and industrial landscape plans, minimize the loss of views from public spaces.</li> <li>▪ Important view corridors to be protected include Somerville Road, Lone Tree Way, Hillcrest Avenue, SR 4, SR 160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road.</li> <li>d. Strengthen and emphasize community focal points, visual landmarks and features contributing to Antioch’s identify using design concepts and standards implemented through the zoning ordinance, design guidelines and design review process and specific plan and planned community documents.</li> <li>e. Create a framework of public spaces at the neighborhood, community, and regional scale.</li> <li>▪ Provide for new open space opportunities throughout the City, especially in neighborhoods having minimal access to open space. This includes exploring the potential for creek corridors, bicycle and pedestrian paths, and new small open space and conservation areas.</li> <li>▪ Provide an open space network linked by pedestrian and bicycle paths, which preserves and enhances Antioch’s significant visual and natural resources.</li> <li>▪ Provide sitting areas within parks and along pedestrian and bicycle paths.</li> <li>▪ Restore the San Joaquin Riverfront as a linear park and multi-use trail from the westerly City limits to Rodger’s Point/Fulton Shipyard.</li> <li>▪ Utilize existing creeks, such as Sand Creek, as linear parks, providing pedestrian and bicycle paths.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Views along utility corridors should be retained and enhanced through the use of planting materials to frame and focus views and to provide a sense of orientation.</li> <li>f. Provide for consistent use of street trees to identify City streets, residential neighborhoods, commercial and employment districts, and entry points to the City.               <ul style="list-style-type: none"> <li>▪ Select species that enhance the pedestrian character of, and convey a distinctive and high quality visual image for the City's streets; are drought-tolerant, fire- and pest-resistant; and complement existing street trees.</li> <li>▪ Use changes in tree species, scale, color and spacing to differentiate the roadway types identified in the Circulation Element.</li> <li>▪ Use a consistent palette of street trees to distinguish Antioch from other communities, and to distinguish individual areas within the community (e.g., Rivertown, East Lone Tree, "A" Street Corridor) from each other.</li> <li>▪ Street trees should relate to the scale, function, and visual importance of the area in which they are located, establishing a hierarchy of street trees for entry locations, intersections, and activity centers.</li> <li>▪ <i>Major accent trees</i> are to be located at City and community entry locations, key intersections, and major activity centers (e.g., County East Mall, Prewett Family Park).</li> <li>▪ <i>Street Trees</i> should be selected as a common tree for street frontages. A single species may be selected for all residential neighborhoods or different species to distinguish different neighborhoods from each other. Within residential neighborhoods, street trees should be full, providing shade and color. In commercial districts, the trees should provide shade but be more transparent at the motorist and pedestrian levels to promote views of stores fronts and visual interaction of pedestrians. Within employment districts street trees should provide shade and screening, and be used to frame views of buildings and building entries.</li> </ul> </li> <li>g. Maintain common community design elements throughout the City.               <ul style="list-style-type: none"> <li>▪ Provide a system of well-designed directional signage, facilitating wayfinding to community features such as shopping areas, marinas, parks, and civic buildings.</li> </ul> </li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Incorporate common design elements in community features such as roadway landscaping, streetlights, street signs, traffic lights, and community directional signage.</li> <li>▪ Use design variations in landscaping, street light standards, and street signs as a means of defining special design districts (e.g., Rivertown, Somersville Road and "A" Street corridors).</li> <li>h. Wherever feasible, existing above-ground utility lines should be placed underground.</li> <li>i. Preserve and strengthen Rivertown as a vital and attractive place.                             <ul style="list-style-type: none"> <li>▪ Promote activity along Rivertown streets through attractive building designs with street level activity and facade windows, public art, and other landscaping elements that are pedestrian-friendly.</li> <li>▪ Maintain views of the San Joaquin River from buildings within Rivertown, where they are available, by placing windows rather than solid walls along the river side of buildings.</li> <li>▪ Avoid blank parking garage building frontages.</li> <li>▪ Orient buildings along the first street inland from the San Joaquin River toward the river to enhance pedestrian and bicycle activity.</li> <li>▪ Utilize murals to enhance the design quality of existing large blank walls (e.g., Campanile Theater).</li> <li>▪ Seek Opportunities for small public spaces throughout Rivertown to provide for the comfort of pedestrians and bicyclists, enhance street level activity, and provide sitting areas and protection from the sun and rain. Small left over spaces between buildings, at street corners, at the edges of parking lots, or along the edges of sidewalks can thus become attractive and lively additions to the street scene.</li> </ul> </li> <li>j. Within multi-family, commercial, office and business parks, and industrial developments, screen enclosures, loading areas, mechanical equipment, and outdoor storage areas from view from public streets, and, as appropriate, from other public views.                             <ul style="list-style-type: none"> <li>▪ Ground mounted equipment incidental to multi-family, commercial, office, and business park development shall be appropriately screened with solid walls, trellises, and/or landscaping. Equipment location should be away</li> </ul> </li> </ul>	

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		<p>from the front of the building, and screening must be similar to adjacent architecture and materials.</p> <ul style="list-style-type: none"> <li>▪ Refuse collection areas are to be large enough to accommodate storage of recyclable materials, and be screened with a solid perimeter wall using materials and colors compatible with those of the adjacent structures. Refuse collection areas should be located on an interior building side yard, and are to be roofed if the contents of the area are visible from a freeway.</li> <li>▪ Loading docks and areas, as well as trash enclosure areas shall be screened from public view areas. When there is adjacent residential development, loading and trash enclosure areas shall be physically separated and screened from adjacent residential structures.</li> <li>▪ Service areas, including storage, special equipment, outdoor work areas, and loading areas, should be screened from public view with landscaping and architectural elements.</li> <li>▪ Screen utility equipment and communication devices so that the project will appear free of all such devices.</li> </ul> <p>k. Prohibit roof-mounted equipment (with the exception of small satellite dishes and solar panels) for single-family residential development consistent with FCC regulations.</p> <ul style="list-style-type: none"> <li>▪ New residential uses should be prewired so as to allow for the placement of satellite dishes in a manner that is integrated with the building design, and design and avoids placement of dishes on chimneys or above the roof line.</li> <li>▪ Where required for commercial, office, and industrial development, screen roof mounted equipment and cellular antennas completely from public view on all sides. Particular attention shall be given to the sides visible from freeways, with the intent of minimizing the need for screening devices to the greatest extent possible.</li> </ul> <p>l. Screening of roof-mounted equipment and cellular antennas, where provided, should be an integral part of the building design and not appear as a tacked-on afterthought. Ground-mounted mechanical equipment (with appropriate wall or landscape screening) is encouraged as an alternative to roof mounting.</p>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>m. All roof screens must be solid and continuous. Continuous grills or louvers must cover equipment. Roof screens will be sheathed in a matching or complementary material to the exterior building material.</p> <p>n. Utilize street lights in commercial, office, and business park areas that are pedestrian-oriented, attractively designed, compatible in design with other street furniture, and provide adequate visibility and security.</p> <p>o. Design onsite lighting to improve the visual identification of adjacent structures.</p> <ul style="list-style-type: none"> <li>▪ Within commercial areas, lighting should also help create a festive atmosphere by encouraging evening use of areas by pedestrians.</li> <li>▪ Within commercial and industrial development, provide design features such as screened walls, landscaping, setbacks, and lighting restrictions between the boundaries of adjacent residential land use designations to reduce the impacts of light and glare.</li> <li>▪ In all projects, lighting fixtures should be attractively designed and of a low profile to complement the overall design theme of the project within which they are located.</li> <li>▪ On-site lighting shall create a safe environment, adhering to established crime prevention standards, but shall not result in nuisance levels of light or glare on adjacent properties. Limit sources of lighting to the minimum required to ensure safe circulation and visibility.</li> </ul> <p>p. Lighting should accommodate night use of streets and promote security while complying with the provision of a dark night sky. Streetscape areas that are used by pedestrians at night should be well lit. Within rural and open space areas, limit street lighting to intersections and other locations that are needed to maintain safe access (e.g., sharp curves).</p> <p>q. The design of new developments shall protect residents' privacy by avoiding placement of windows directly opposite each other and avoiding windows overlooking the yard areas of adjacent residences to the maximum feasible extent.</p> <p>r. New multi-family, commercial, office, and business park developments shall emphasize pedestrian level activities by utilizing the following techniques.</p>	

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		<ul style="list-style-type: none"> <li>▪ design projects so as to have a central plaza or main visual focus which is oriented toward pedestrians; ·</li> <li>▪ incorporate plaza areas which can be used as informal gathering places;</li> <li>▪ install "street furniture" (benches, bus shelters, planters, bike racks, trash receptacles, newspaper racks, water fountains, and bollards) to create and enhance small plazas and similar open spaces within urban areas; and</li> <li>▪ within commercial, office, business park, and industrial developments, encourage architectural styles that provide covered verandas and other similar pedestrian-oriented shade features.</li> </ul> <p>s. Where needed, undertake active programs to minimize or prohibit through traffic from using neighborhood collectors and local streets. Visual deterrents to through traffic will be emphasized, using physical deterrents only as a last resort.</p>	
		<p><i>General Plan Policy 5.4.5: Freeway Corridor Design Policies</i></p> <p>a. Work with Caltrans to screen views of residential development adjacent to the Route 4 freeway with dense landscape treatments, allowing only glimpses or short breaks to points of interest and commercial sites.</p> <p>b. Landscaped setbacks for structures and parking areas along freeways are to be provided to soften the appearance of development along the freeway right-of-way. These setbacks are to be of a sufficient distance and density, and are to be designed to make the landscaping, rather than the development, the dominant visual feature for freeway motorists.</p> <p>c. Structures adjacent to freeways are to be set back various distances from the freeway right-of-way to avoid flat, straight walls at the edge of a fixed setback line.</p> <p>d. Project site plans may be oriented either to the freeway or to the adjacent street, but in either case should provide an equal amount of site amenities throughout the project. Buildings should not turn their backs completely to either the freeway or adjacent street(s).</p> <p>e. Buildings visible from the freeway, regardless of their orientation, are to be designed to provide the same level of architectural detail on the freeway elevation as on other elevations of the building.</p>	



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		<p><i>General Plan Policy 5.4.6: General Architectural Design Policies</i></p> <ul style="list-style-type: none"> <li>a. The size, height, bulk, and location of buildings are to be managed in relation to the size of the parcel and overall site design to avoid a crowded appearance, and preserve a visual appearance of openness.</li> <li>b. Building forms and elevations should create interesting roof silhouettes, strong patterns of light and shadow, and integral architectural detail. Box-like structures and flat monotonous facades are to be avoided.</li> <li>c. Encourage a harmonious appearance of new development with the surrounding environment and existing developments based on the compatibility of individual structures rather than one specific style of architecture.</li> <li>d. Uniform materials and compatible style should be evident within a development project in all exterior elevations. Secondary accent materials and colors should be used to highlight building features and provide visual interest.</li> <li>e. Encourage the rehabilitation of older structures within neighborhoods to preserve the City's history, and to facilitate a diversity of architectural styles in the City.</li> </ul>	
		<p><i>General Plan Policy 5.4.11: Infill Development</i></p> <ul style="list-style-type: none"> <li>a. Unless the specific purpose is to change the visual appearance of an area due to its outdated or deteriorated character: The scale of proposed infill development should not overpower neighboring developments. The perceived intensity and character of infill buildings should be similar to that of the existing neighborhood. Infill development should appear to be an integral part of the intended character of the neighborhood.</li> <li>b. Where single family residences dominate the existing street scene, infill development should feature single family elements along the street, with additional density behind.</li> <li>c. Setbacks for infill development should respect existing street setbacks.</li> <li>d. By using variations in building height, roof lines, facade articulation, grade definition, the overall perceived mass of proposed infill projects can be effectively reduced to be compatible with existing development. Other techniques to provide appropriate scale relationships include:</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Vary building setbacks and massing of large structures along major streets to provide visual interest.</li> <li>▪ Detail multi-story buildings so as to reduce their vertical appearance.</li> <li>▪ Provide a greater level of architectural detailing at the ground level than at upper levels.</li> </ul>	
		<p><i>General Plan Policy 5.4.12: Development Transitions and Buffering Policies</i></p> <p>a. Minimize the number and extent of locations where non-residential land use designations abut residential land use designations. Where such land use relationships cannot be avoided, strive to use roadways to separate the residential and non-residential uses.</p> <p>b. Ensure that the design of new development proposed along a boundary between residential and non-residential uses provides sufficient protection and buffering for the residential use, while maintaining the development feasibility of the non-residential use. The burden to provide buffers and transitions to achieve compatibility should generally be on the second use to be developed. Where there is bare ground to start from, both uses should participate in providing buffers along the boundary between them.</p> <p>c. Provide appropriate buffering to separate residential and non-residential uses, using one or more of the following techniques as appropriate.</p> <p>Increase setbacks along roadways and common property lines between residential/non-residential uses. Provide a heavily landscaped screen along the roadway or common property line separating residential and non-residential use.</p> <ul style="list-style-type: none"> <li>▪ Locate noise-generating activities such as parking areas; loading docks; and service, outdoor storage, and trash collection areas as far from residential uses as possible.</li> <li>▪ Where a multifamily residential use is located adjacent along a common property line with a non-residential use, locate the noise-generating activities of both uses (e.g., parking areas; loading docks; and service, outdoor storage, and trash collection areas) along the common property line.</li> <li>▪ Design the residential area with cul-de-sacs running perpendicular to and ending at the non-residential use, facilitating greater separation of</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>residential and non-residential structures than would be possible if residential streets ran parallel to the boundary of the non-residential use.</p> <p>d. Where a difference in residential density is indicated on the General Plan land use map, the size of parcels and character of development facing each other across a street or along a common property line should be similar, creating a transition between the densities in each area.</p> <p>e. Where multi-family development is located adjacent to a single-family neighborhood, appropriate buffering is to be provided.</p> <ul style="list-style-type: none"> <li>▪ Increase setbacks for multi-family development along common property lines with single family development.</li> <li>▪ Provide a heavy landscaped screen along the property line of the multi-family use.</li> <li>▪ Locate noise-generating activities such as parking and trash collection areas as far from the single family neighborhood area as possible.</li> </ul> <p>f. The transition from lower to higher residential density should occur within the higher density area.</p> <p>g. Uninterrupted fences and walls are to be avoided, unless they are needed for a specific screening, safety, or sound attenuation purpose.</p> <p>h. Where they are needed, fences or walls should relate to both the site being developed and surrounding developments, open spaces, streets, and pedestrian ways.</p> <p>i. Fencing and walls should respect existing view corridors to the greatest extent possible.</p> <p>j. Fencing and walls should incorporate landscape elements or changes in materials, color, or texture in order to prevent graffiti, undue glare, heat, or reflecting, or aesthetic inconsistencies.</p>	
		<p><i>General Plan Policy 10.3.2: Open Space Policies</i></p> <p>a. Establish a comprehensive system of open space that is available to the public, including facilities for organized recreation; active informal play; recreational travel along formal, natural, and riverfront trails; passive recreation; and enjoyment of the natural environment.</p> <p>b. Implement the design standards of the Community Image and Design Element so as to maintain views of the San Joaquin River, Mount Diablo and its</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>foothills, Black Diamond Mines Regional Preserve and other scenic features, and protect the natural character of Antioch's hillside areas as set forth in the Community Image and Design Element .</p> <p>c. Maintain the shoreline of the San Joaquin River as an integrated system of natural (wetlands) and recreational (trails and viewpoints) open space as set forth in the Land Use Element and Public Services and Facilities Element.</p> <p>d. Where significant natural features are present (e.g., ridgelines, natural creeks and other significant habitat areas, rock outcrops, and other significant or unusual landscape features), require new development to incorporate natural open space areas into project design. Require dedication to a public agency or dedication of a conservation easement, preparation of maintenance plans, and provision of appropriate long-term management and maintenance of such open space areas.</p> <p>e. Require proposed development projects containing significant natural resources (e.g. sensitive or unusual habitats, special-status species, habitat linkages, steep slopes, cultural resources, wildland fire hazards, etc.) to prepare Resource Management Plans to provide for their protection or preservation consistent with the provisions of the Antioch General Plan, other local requirements, and the provisions of State and Federal law. The purpose of the Resource Management Plan is to look beyond the legal status of species at the time the plan is prepared, and provide a long-term plan for conservation and management of the natural communities found onsite. Resource Management Plans shall accomplish the following.</p> <ul style="list-style-type: none"> <li>▪ Determine the significance of the resources that are found onsite and their relationship to resources in the surrounding area, including protected open space areas, habitat linkages and wildlife movement corridors;</li> <li>▪ Define areas that are to be maintained in long-term open space based on the significance of onsite resources and their relationship to resources in the surrounding area, and</li> <li>▪ Establish mechanisms to ensure the long term protection and management of lands retained in open space.</li> </ul> <p>f. Encourage public access to creek corridors through the establishment of trails adjacent to riparian resources, while maintaining adequate buffers</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>between creeks and trails to protect sensitive habitats, special-status species and water quality to the maximum extent feasible.</p> <p>g. Where feasible, incorporate preserve and protect significant existing natural features as part of the design of new development projects rather than removing them. Where preservation of natural features is not feasible, introduce natural elements into project design. Impacts to significant natural features that cannot be preserved or reintroduced into the project design onsite shall be mitigated off-site.</p>	
		<p><i>General Plan Policy 10.5.2: Open Space Transitions and Buffers Policies</i></p> <p>a. Minimize the number and extent of locations where residential, commercial, industrial, and public facilities land use designations abut lands designated for open space and protected resource areas (e.g., lands with conservation easements or set aside as mitigation for development impacts). Where such land use relationships cannot be avoided, use buffers and compatible uses to buffer and protect open space and protected resources from the adverse effects of residential, commercial, industrial and public facilities development.</p> <p>b. Ensure that the design of development proposed along a boundary with open space or protected resources provides sufficient protection and buffering for the open space and protected resources. The provision of buffers and transitions to achieve compatibility shall occur as part of the proposed development.</p> <p>c. In designing buffer areas, the following criteria shall be considered and provided for (when applicable) within the buffer areas to avoid or mitigate significant impacts.</p> <ul style="list-style-type: none"> <li>▪ Aesthetics: How will development affect views from adjacent open space areas? What are the sensitive land uses and resources within open space areas and how might they be affected by changes in the visual environment? Light and Glare: Will a proposed development result in increased light or glare in open space areas that would impact open space uses or wildlife habitats within that open space?</li> <li>▪ Noise: Will noise generated by the proposed development affect the public's quiet enjoyment of public open space? What are the sensitive noise receptors in open space areas and how can impacts on those sensitive</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<b>H. Biological Resources</b>	<i>Implementation of the Project would not result in any significant biological resources impacts. The following General Plan policies would ensure no significant impacts would occur.</i>	<p><i>General Plan Policy 10.3.2: Open Space Policies</i></p> <ul style="list-style-type: none"> <li>a. Establish a comprehensive system of open space that is available to the public, including facilities for organized recreation; active informal play; recreational travel along formal, natural, and riverfront trails; passive recreation; and enjoyment of the natural environment.</li> <li>b. Implement the design standards of the Community Image and Design Element so as to maintain views of the San Joaquin River, Mount Diablo and its foothills, Black Diamond Mines Regional Preserve and other scenic features, and protect the natural character of Antioch's hillside areas as set forth in the Community Image and Design Element.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>c. Maintain the shoreline of the San Joaquin River as an integrated system of natural (wetlands) and recreational (trails and viewpoints) open space as set forth in the Land Use Element and Public Services and Facilities Element.</p> <p>d. Where significant natural features are present (e.g., ridgelines, natural creeks and other significant habitat areas, rock outcrops, and other significant or unusual landscape features), require new development to incorporate natural open space areas into project design. Require dedication to a public agency or dedication of a conservation easement, preparation of maintenance plans, and provision of appropriate long-term management and maintenance of such open space areas.</p> <p>e. Require proposed development projects containing significant natural resources (e.g. sensitive or unusual habitats, special-status species, habitat linkages, steep slopes, cultural resources, wildland fire hazards, etc.) to prepare Resource Management Plans to provide for their protection or preservation consistent with the provisions of the Antioch General Plan, other local requirements, and the provisions of State and Federal law. The purpose of the Resource Management Plan is to look beyond the legal status of species at the time the plan is prepared, and provide a long-term plan for conservation and management of the natural communities found onsite. Resource Management Plans shall accomplish the following.</p> <ul style="list-style-type: none"> <li>▪ Determine the significance of the resources that are found onsite and their relationship to resources in the surrounding area, including protected open space areas, habitat linkages and wildlife movement corridors;</li> <li>▪ Define areas that are to be maintained in long-term open space based on the significance of onsite resources and their relationship to resources in the surrounding area, and</li> <li>▪ Establish mechanisms to ensure the long term protection and management of lands retained in open space.</li> </ul> <p>f. Encourage public access to creek corridors through the establishment of trails adjacent to riparian resources, while maintaining adequate buffers between creeks and trails to protect sensitive habitats, special-status species and water quality to the maximum extent feasible.</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>g. Where feasible, incorporate preserve and protect significant existing natural features as part of the design of new development projects rather than removing them. Where preservation of natural features is not feasible, introduce natural elements into project design. Impacts to significant natural features that cannot be preserved or reintroduced into the project design onsite shall be mitigated off-site.</p>	
		<p><i>General Plan Policy 10.4.2: Biological Resources Policies</i></p> <p>a. Comply with the Federal policy of no net loss of wetlands through avoidance and clustered development. Where preservation in place is found not to be feasible (such as where a road crossing cannot be avoided, or where shore stabilization or creation of shoreline trails must encroach into riparian habitats), require 1) on-site replacement of wetland areas, 2) off-site replacement, or 3) restoration of degraded wetland areas at a minimum ratio of one acre of replacement/restoration for each acre of impacted onsite habitat, such that the value of impacted habitat is replaced.</p> <p>b. Preserve in place and restore existing wetlands and riparian resources along the San Joaquin River and other natural streams in the Planning Area, except where a need for structural flood protection is unavoidable.</p> <p>c. Require appropriate setbacks adjacent to natural streams to provide adequate buffer areas ensuring the protection of biological resources, including sensitive natural habitat, special-status species habitats and water quality protection.</p> <p>d. Through the project approval and environmental review processes, require new development projects to protect sensitive habitat areas, including, but not limited to, oak woodlands, riparian woodland, vernal pools, and native grasslands. Ensure the preservation in place of habitat areas found to be occupied by state and federally protected species.</p> <ul style="list-style-type: none"> <li>▪ If impacts to sensitive habitat areas are unavoidable, appropriate compensatory mitigation shall be required off-site within eastern Contra Costa County. Such compensatory mitigation shall be implemented through the provisions of a Resource Management Plan ("RMP") as described in Policy 1 0.3.2.e, except where, in the discretion of the Community Development Director, an RMP is not necessary or appropriate due to certain characteristics of the site and the project. Among the factors that</li> </ul>	



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		<p>are relevant to determining whether an RMP is necessary or appropriate for a given project are the size of the project and the project site, the location of the project (e.g., proximity to existing urban development or open space), the number and sensitivity of biological resources and habitats on the project site, and the nature of the project (e.g., density and intensity of development).</p> <ul style="list-style-type: none"> <li>▪ Where preserved habitat areas occupy areas that would otherwise be graded as part of a development project, facilitate the transfer of allowable density to other, non-sensitive portions of the site.</li> <li>e. Limit uses within preserve and wilderness areas to resource-dependent activities and other uses compatible with the protection of natural habitats (e.g., passive recreation and public trails).</li> <li>f. Through the project review process, review, permit the removal of healthy, mature oak trees on a case-by-case basis only where it is necessary to do so.</li> <li>g. Preserve heritage trees throughout the Planning Area.</li> <li>h. Within areas adjacent to preserve habitats, require the incorporation of native vegetation and avoid the introduction of invasive species in the landscape plans for new development.</li> <li>i. Design drainage within urban areas so as to avoid creating perennial flows within intermittent streams to prevent fish and bullfrogs from becoming established within a currently intermittent stream.</li> <li>j. Whenever a biological resources survey is undertaken to determine the presence or absence of a threatened or endangered species, or of a species of special concern identified by the U.S. Fish and Wildlife Service or the California Department of Fish and Game, require the survey to follow established protocols for the species in question prior to any final determination that the species is absent from the site.</li> </ul> <p><i>General Plan Policy 10.5.2: Open Space Transitions and Buffers Policies</i></p> <ul style="list-style-type: none"> <li>a. Minimize the number and extent of locations where residential, commercial, industrial, and public facilities land use designations abut lands designated for open space and protected resource areas (e.g., lands with conservation easements or set aside as mitigation for development impacts). Where such land use relationships cannot be avoided, use buffers and</li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>compatible uses to buffer and protect open space and protected resources from the adverse effects of residential, commercial, industrial and public facilities development.</p> <p>b. Ensure that the design of development proposed along a boundary with open space or protected resources provides sufficient protection and buffering for the open space and protected resources. The provision of buffers and transitions to achieve compatibility shall occur as part of the proposed development.</p> <p>c. In designing buffer areas, the following criteria shall be considered and provided for (when applicable) within the buffer areas to avoid or mitigate significant impacts.</p> <ul style="list-style-type: none"> <li>▪ Aesthetics: How will development affect views from adjacent open space areas? What are the sensitive land uses and resources within open space areas and how might they be affected by changes in the visual environment?</li> <li>▪ Light and Glare: Will a proposed development result in increased light or glare in open space areas that would impact open space uses or wildlife habitats within that open space?</li> <li>▪ Noise: Will noise generated by the proposed development affect the public's quiet enjoyment of public open space? What are the sensitive noise receptors in open space areas and how can impacts on those sensitive receptors be avoided or mitigated? Can noise-generating uses be located away from noise sensitive areas?</li> <li>▪ Fire Safety: How will development affect the risk of fire on adjacent open space and resource areas? How would development affect or be affected by existing fire abatement practices on adjacent open space and resource areas, including livestock grazing, prescribed fire, plant pest management, mowing, disking, ecological restoration and other practices?</li> <li>▪ Public Safety: How will development adjacent to open space or resource areas increase the risk of vandalism,</li> <li>▪ Habitat Management: How will proposed development affect habitat values on adjacent open space and resource areas? How will development prevent the spread of introduced animals and plant pests into adjacent open space</li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<b>I. Geology and Soils</b>	<i>Implementation of the Project would not result in any significant geology and soils impacts. The following General Plan policies would ensure no significant impacts would occur.</i>	<p><i>General Plan Policy 5.4.14: Hillside Design Policies</i></p> <ul style="list-style-type: none"> <li>a. Design hillside development to be sensitive to existing terrain, views, and significant natural landforms and features.</li> <li>b. Projects within hillside areas shall be designed to protect important natural features and to minimize the amount of grading. To this end, grading plans shall conform to the following guidelines.                             <ul style="list-style-type: none"> <li>▪ <i>Slopes less than 25%:</i> Redistribution of earth over large areas may be permitted.</li> <li>▪ <i>Slopes between 25% and 35%:</i> Some grading may occur, but landforms need to retain their natural character. Padded building sites may be allowed, but split-level designs and clustering are encouraged as a means of avoiding the need for large, padded building areas.</li> <li>▪ <i>Slopes between 35% and 50%:</i> Development and limited grading can occur only if it can be clearly demonstrated that safety hazards, environmental degradation, and aesthetic impacts will be avoided. Structures shall blend with the natural environment through their shape, materials and colors. Impact of traffic and roadways is to be minimized by following natural contours or using grade separations. Encouraged is the use of larger lots, variable setbacks and variable building structural techniques such as stepped or post and beam foundations are required.</li> <li>▪ <i>Slopes greater than 50%:</i> Except in small, isolated locations, development in areas with slopes greater than 50% should be avoided.</li> </ul> </li> </ul>	

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		<p>c. Manufactured slopes in excess of five vertical feet (5') shall be landform graded. "Landform grading" is a contour grading method which creates artificial slopes with curves and varying slope ratios in the horizontal and vertical planes designed to simulate the appearance of surrounding natural terrain. Grading plans shall identify which slopes are to be landform graded and which are to be conventionally graded.</p> <p>d. The overall project design/layout of hillside development shall adapt to the natural hillside topography and maximize view opportunities to, as well as from the development.</p> <p>e. Grading of ridgelines is to be avoided wherever feasible, siting structures sufficiently below ridgelines so as to preserve unobstructed views of a natural skyline. In cases where application of this performance standard would prevent construction of any structures on a lot of record, obstruction of views of a natural skyline shall be minimized through construction techniques and design, and landscaping shall be provided to soften the impact of the new structure.</p> <p>f. Hillside site design should maintain an informal character with the prime determinant being the natural terrain. This can be accomplished by:</p> <ul style="list-style-type: none"> <li>▪ utilizing variable setbacks and structure heights, innovative building techniques, and retaining walls to blend structures into the terrain, and</li> <li>▪ allowing for different lot shapes and sizes.</li> </ul> <p>g. Buildings should be located to preserve existing views and to allow new dwellings access to views similar to those enjoyed from existing dwellings.</p> <p>h. Streets should follow the natural contours of the hillside to minimize cut and fill, permitting streets to be split into two one-way streets in steeper areas to minimize grading and blend with the terrain. Gul-de-sacs or loop roads are encouraged where necessary to fit the terrain. On-street parking and sidewalks may be eliminated, subject to City approval, to reduce required grading.</p> <p>i. Clustered development is encouraged as a means of preserving the natural appearance of the hillside and maximizing the amount of open space. Under</p>	

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		<p>this concept, dwelling units are grouped in the more level portions of the site, while steeper areas are preserved in a natural state.</p> <p>j. Project design should maximize public access to canyons, overlooks, and open space areas by:</p> <ul style="list-style-type: none"> <li>▪ providing open space easements between lots or near the end of streets or cul-de-sacs; and</li> <li>▪ designating public pathways to scenic vistas.</li> </ul> <p>k. Permit the use of small retaining structures when such structures can reduce grading, provided that these structures are located and limited in height so as not to be a dominant visual feature of the parcel.</p> <ul style="list-style-type: none"> <li>▪ Where retaining walls face public streets, they should be faced with materials that help blend the wall into the natural character of the terrain.</li> <li>▪ Large retaining walls in a uniform plane should be avoided. Break retaining walls into elements and terraces, and use landscaping to screen them from view.</li> </ul> <p>l. Lot lines shall be placed at the top of slopes to facilitate maintenance by the down slope owner, who has the greater "stake" in ensuring the continued integrity of the slope.</p> <p>m. The overall scale and massing of structures shall respect the natural surroundings and unique visual resources of the area by incorporating designs which minimize bulk and mass, follow natural topography, and minimize visual intrusion on the natural landscape.</p> <ul style="list-style-type: none"> <li>▪ The overall height of a building is an important aspect of how well it fits into the existing character of the neighborhood and its hillside environment. Houses should not be excessively tall so as to dominate their surroundings or create a crowded appearance in areas of small lots. Structures should generally be stepped down hillsides and contained within a limited envelope parallel to the natural grade, rather than "jutting out" over natural slopes.</li> <li>▪ Building forms should be scaled to the particular environmental setting so as to complement the hillside character and to avoid excessively massive forms that fail to enhance the hillside character.</li> </ul>	

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		<ul style="list-style-type: none"> <li>▪ Building facades should change plane or use overhangs as a means to create changing shadow lines to further break up massive forms.</li> <li>▪ Wall surfaces facing towards viewshed areas should be minimized through the use of single story elements, setbacks, roof pitches, and landscaping.</li> <li>n. Collective mass rooflines and elements should reflect the naturally occurring ridgeline silhouettes and topographical variation, or create an overall variety, that blends with the hillside.</li> <li>o. Based upon the graphic principle that dark colors recede and light colors project, medium to dark colors which blend with the surrounding environment should be used for building elevations and roof materials in view-sensitive areas.</li> <li>p. Architectural style, including materials and colors, should be compatible with the natural setting. The use of colors, textures, materials and forms that will attract attention by contrasting or clashing with other elements in the neighborhood is to be avoided. No one dwelling should stand out.</li> <li>q. The interface between development areas and open space is critical and shall be given special attention. Slope plantings should create a gradual transition from developed slope areas into natural areas. By extending fingers of planting into existing and sculptured slopes, the new landscape should blend in with the natural vegetation.</li> <li>r. Planting along the slope side of a development should be designed to allow controlled views out, yet partially screen and soften the architecture. In general, 50 percent screening with plant materials should be accomplished.                         <ul style="list-style-type: none"> <li>▪ Trees should be arranged in informal masses and be placed selectively to reduce the scale of long, steep slopes.</li> <li>▪ Shrubs should be randomly spaced in masses.</li> <li>▪ Skyline planting should be used along recontoured secondary ridgelines to recreate the linear silhouette and to act as a backdrop for structures.</li> <li>▪ Trees should be planted to create a continuous linear silhouette since gaps in the planting will not give the desired effect.</li> <li>▪ Trees that grow close to the height of structures should be planted between buildings to eliminate the open gap and blend the roof lines into one continuous silhouette.</li> </ul> </li> </ul>	

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		<ul style="list-style-type: none"> <li>▪ For fire prevention purposes, a fuel modification zone shall be provided between natural open space and development.</li> <li>s. New development within hillside areas shall be conditioned upon:                             <ul style="list-style-type: none"> <li>▪ the preparation and recordation of a declaration of covenants, conditions and restrictions providing for the development and maintenance of manufactured slopes;</li> <li>▪ in the case of a parcel map or subdivision, the subdivider's supplying a program and/or staff for preventive maintenance of major manufactured slope areas. Such program must be approved prior to approval of a final map, and shall include homeowner slope maintenance requirements and guidelines to be incorporated into the declaration of covenants, conditions, and restrictions.</li> </ul> </li> </ul>	
		<p><i>General Plan Policy 8.7.2: Storm Drainage and Flood Control Policies</i></p> <ul style="list-style-type: none"> <li>a. Continue working with the Contra Costa County Flood Control District to ensure that runoff from new development is adequately handled.</li> <li>b. Require adequate infrastructure to be in place and operational prior to occupancy of new development, such that:                             <ul style="list-style-type: none"> <li>▪ new development will not negatively impact the performance of storm drain facilities serving existing developed areas and the performance standards set forth in the Growth Management Element will continue to be met.</li> </ul> </li> <li>c. Design flood control within existing creek areas to maximize protection of existing natural settings and habitat.</li> <li>d. Provide retention basins in recreation areas where feasible to reduce increases in the amount of runoff resulting from new development.</li> <li>e. Require new developments to provide erosion and sedimentation control measures to maintain the capacity of area storm drains and protect water quality.</li> <li>f. Require implementation of Best Management Practices in the design of drainage systems to reduce discharge of non-point source pollutants originating in streets, parking lots, paved industrial work areas, and open spaces involved with pesticide applications.</li> </ul>	

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		<p><i>General Plan Policy 10.7.2: Water Resources Policies</i></p> <p><i>Water Supply</i></p> <ul style="list-style-type: none"> <li>a. As part of the implementing the City's residential growth management program and its development review process for non-residential development, ensure that adequate long-term water supplies are available to serve the development being granted new allocations, including consideration of peak drought and peak firefighting needs.</li> <li>b. Require new development to be equipped with drought tolerant landscaping and water conservation devices.</li> <li>c. Work with Delta Diablo Sanitation District to make reclaimed wastewater available for irrigation use. Where reclaimed wastewater can be made available at a reasonable cost, require the installation of dual water systems in development projects and public facilities, using reclaimed wastewater for irrigation.</li> <li>d. Protect, where possible, groundwater recharge areas, including protection of stream sides from urban encroachment.</li> <li>e. Oppose proposals with the potential to increase the salinity of the Delta and/or endanger the City's rights to divert water from the San Joaquin River.</li> </ul> <p><i>Water Quality</i></p> <ul style="list-style-type: none"> <li>f. Participate in the Contra Costa Clean Water program to reduce storm water pollution and protect the water quality of the City's waterways.</li> <li>g. Require public and private development projects to be in compliance with applicable National Pollution Discharge Elimination System (NPDES) permit requirements and require the implementation of best management practices to minimize erosion and sedimentation resulting from new development.</li> <li>h. Participate in regional watershed planning efforts to enhance area water quality.</li> <li>i. Design drainage within urban areas to avoid runoff from landscaped areas and impervious surfaces from carrying pesticides, fertilizers, and urban and other contaminants into natural streams.</li> </ul>	
		<p><i>General Plan Policy 10.9.2: Cultural Policies</i></p> <ul style="list-style-type: none"> <li>a. Require new development to analyze, and therefore avoid or mitigate impacts to archaeological, paleontological, and historic resources. Require</li> </ul>	



**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>surveys for projects having the potential to impact archaeological, paleontological, or historic resources. If significant resources are found to be present, provide mitigation in accordance with applicable CEQA guidelines and provisions of the California Public Resources Code.</p> <p>b. If avoidance and/or preservation in the location of any potentially significant cultural resource is not possible, the following measures shall be initiated for each impacted site:</p> <ul style="list-style-type: none"> <li>▪ A participant-observer from the appropriate Indian Band or Tribe shall be used during archaeological testing or excavation in the project site. Prior to the issuance of a grading permit for the project, the project proponent shall develop a test-level research design detailing how the cultural resource investigation shall be executed and providing specific research questions that shall be addressed through the excavation program. In particular, the testing program shall characterize the site constituents, horizontal and vertical extent, and, if possible, period of use. The testing program shall also address the California Register and National Register eligibility of the cultural resource and make recommendations as to the suitability of the resource for listing on either Register. The research design shall be submitted to the City of Antioch for review and comment. For sites determined, through the Testing Program, to be ineligible for listing on either the California or National Register, execution of the Testing Program will suffice as mitigation of project impacts to this resource.</li> <li>▪ After approval of the research design and prior to the issuance of a grading permit, the project proponent shall complete the excavation program as specified in the research design. The results of this excavation program shall be presented in a technical report that follows the City's outline for Archaeological Testing. The Test Level Report shall be submitted to the City for review and comment. If cultural resources that would be affected by the project are found ineligible for listing on the California or National Register, test-level investigations will have depleted the scientific value of the sites and the project can proceed.</li> <li>▪ If the resource is identified as being potentially eligible for either the California or National Register, and project designs cannot be altered to avoid impacting the site, a Treatment Program to mitigate project effects</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>shall be initiated. A Treatment Plan detailing the objectives of the Treatment Program shall be developed. The Treatment Plan shall contain specific, testable hypotheses relative to the sites under study and shall attempt to address the potential of the sites to address these research questions. The Treatment Plan shall be submitted to the City for review and comment.</p> <ul style="list-style-type: none"> <li>▪ After approval of the Treatment Plan, the Treatment Program for affected, eligible sites shall be initiated. Typically, a Treatment Program involves excavation of a statistically representative sample of the site to preserve those resource values that qualify the site as being eligible for the California or National Register. At the conclusion of the excavation or research program, a Treatment Report shall be developed. This data recovery report shall be submitted to the City for review and comment.</li> </ul> <p>c. When existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate reposition, and file a report with the Community Development Department documenting any paleontological resources found during site grading.</p> <p>d. As a standard condition of approval for new development projects, require that if unanticipated cultural or paleontological resources are encountered during grading, alteration of earth materials in the vicinity of the find be halted until a qualified expert has evaluated the find and recorded identified cultural resources.</p> <p>e. Preserve historic structures and ensure that alterations to historic buildings and their immediate settings are compatible with the character of the structure and the surrounding neighborhood.</p> <hr/> <p><i>General Plan Policy 11.4.2 (previously General Plan Policy 11.3.2): Geology and Seismicity Policies</i></p> <p><i>Seismicity</i></p> <ul style="list-style-type: none"> <li>a. Require geologic and soils reports to be prepared for proposed development sites, and incorporate the findings and recommendations of these studies into project development requirements. As determined by the</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>City of Antioch Building Division, a site-specific assessment shall be prepared to ascertain potential ground shaking impacts on new development. The site-specific ground shaking assessment shall incorporate up-to-date data from government and non-government sources and may be included as part of any site-specific geotechnical investigation. The site-specific ground shaking assessment shall include specific measures to reduce the significance of potential ground shaking hazards. This The site-specific ground shaking assessment shall be prepared by a licensed geologist and shall be submitted to the City of Antioch Building Division for review and approval prior to the issuance of building permits. For the purpose of this policy, “development” applies to new structures and existing structures or facilities that undergo expansion, remodeling, renovation, refurbishment or other modification. This policy does not apply to second units or accessory buildings.</p> <ul style="list-style-type: none"> <li>b. Provide information and establish incentives for property owners to rehabilitate existing buildings using updated construction techniques to protect against seismic hazards.</li> <li>c. Encourage the purchase of earthquake insurance by residents and businesses.</li> <li>d. Encourage continued investigation by State agencies of geologic conditions within the Bay Area to update knowledge of seismic hazards and promote public awareness.</li> <li>e. Provide expedited review of any seismic-related revisions to the Uniform Building Code proposed by the State.</li> <li>f. Work with PG&amp;E, pipeline companies, and industrial uses to implement measures to safeguard the public from seismic hazards associated with high voltage transmission lines, caustic and toxic gas and fuel lines, and flammable storage facilities.</li> <li>g. Require that engineered slopes be designed to resist seismically induced failure.</li> <li>h. Require that parcels overlying both cut and fill areas within a grading operation be over-excavated to mitigate the potential for seismically induced differential settlement.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><i>Other Geologic Conditions</i></p> <ul style="list-style-type: none"> <li>i. Limit development in those areas which, due to adverse geological conditions, will be hazardous to the overall community and those who will inhabit the area.</li> <li>j. Require evaluations of potential slope stability for developments proposed within hillside areas, and incorporate the recommendations of these studies into project development requirements.</li> <li>k. Require specialized soils reports in areas suspected of having problems with potential bearing strength, expansion, settlement, or subsidence, including implementation of the recommendations of these reports into the project development, such that structures designed for human occupancy are not in danger of collapse or significant structural damage with corresponding hazards to human occupants. Where structural damage can be mitigated through structural design, ensure that potential soils hazards do not pose risks of human injury or loss of life in outdoor areas of a development site.</li> <li>l. Where development is proposed within an identified or potential liquefaction hazards area (as determined by the City), adequate and appropriate measures such as (but not limited to) designing foundations in a manner that limits the effects of liquefaction potential, and the alternative siting of structures in area with lower liquefaction risk, shall be implemented to reduce potential liquefaction hazards. Any such measures shall be submitted to the City of Antioch Building Division for review prior to the approval of the building permits.</li> </ul> <p><i>Historic Mineral Evaluation</i></p> <ul style="list-style-type: none"> <li>m. As appropriate and necessary to protect public health and safety, abandoned mines shall be placed in natural open space areas, with appropriate buffer areas to prevent unauthorized entry.</li> <li>n. Within areas of known historic mining activities, site-specific investigations shall be undertaken prior to approval of development to determine the location of any remaining mine openings, the potential for subsidence of [sic] collapse, and necessary measures to protect public health and safety, and prevent the collapse or structural damage to structures intended for human</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>occupancy due to mine-related ground failure or subsidence. Such measures shall be incorporated into project approvals.</p> <p>o. All identified mine openings shall be effectively sealed.</p> <p>p. Construction of structures for human occupancy shall be prohibited within areas found to have a high probability of surface collapse or subsidence, unless foundations are designed that would not be affected by such collapse or subsidence, as determined by site-specific investigations and engineered structural design.</p> <p>q. The locations of all oil or gas wells on proposed development sites shall be identified in development plans. Project sponsor of development containing existing or former oil or gas wells shall submit documentation demonstrating that all abandoned pursuant to the requirements of the California Department to Conservation Oil, Gas, and Geothermal Resources.</p>	
		<p><i>General Plan Policy 11.10.2 (previously General Plan Policy 11.8.2): Disaster Response Policies.</i></p> <p>a. Maintain and update the City’s Emergency Response Plan, as required by State law.</p> <p>b. Disseminate disaster preparedness information to local residents and businesses, describing how emergency response will be coordinated, how evacuation, if needed, will proceed, and what residents and businesses can do to prepare for emergency situations. Provide information to the public about:</p> <ul style="list-style-type: none"> <li>▪ Environmental hazards existing in Antioch;</li> <li>▪ The costs of doing nothing to mitigate these hazards;</li> <li>▪ Why governmental agencies can not eliminate all hazards;</li> <li>▪ What the City does to assist;</li> <li>▪ What the City cannot do;</li> <li>▪ What the public can do to protect itself.</li> </ul> <p>c. Maintain an effective and properly equipped emergency operations center, along with trained personnel, for receiving emergency calls, providing initial response and key support to major incidents, meeting the demands of automatic and mutual aid programs, and maintaining emergency incident statistical data.</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<b>J. Hazards and Hazardous Materials</b>	<i>Implementation of the Project would not result in any significant hazards and hazardous materials impacts. The following General Plan policies would ensure no significant impacts would occur.</i>	<p><i>General Plan Policy 7.3.2: Vehicular Circulation Policies</i></p> <ul style="list-style-type: none"> <li>a. Facilitate meeting the roadway performance standards set forth in the Growth Management Element and improving traffic flow on arterial roadways.                             <ul style="list-style-type: none"> <li>▪ Work with the UP and BNSF railroads to construct grade separations along the tracks at Somersville Road, Hillcrest Avenue, "A" Street, the proposed Viera Road extension, and the proposed Phillips Lane extension.</li> <li>▪ Promote the design of roadways to optimize safe traffic flow within established roadway configurations by minimizing driveways and intersections, uncontrolled access to adjacent parcels, on-street parking, and frequent stops to the extent consistent with the character of adjacent land uses.</li> <li>▪ Provide adequate capacity at intersections to accommodate future traffic volumes by installing intersection traffic improvements and traffic control devices, as needed, as development occurs.</li> <li>▪ Facilitate the synchronization of traffic signals.</li> <li>▪ Where needed, provide acceleration and deceleration lanes for commercial access drives.</li> <li>▪ Provide for reciprocal access and parking agreements between adjacent land uses, thereby facilitating off-street vehicular movement between adjacent commercial and other nonresidential uses.</li> <li>▪ Encourage regional goods movement to remain on area freeways and other appropriate routes.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>d. Maintain ongoing emergency response coordination with surrounding jurisdictions.</li> <li>e. Encourage private businesses and industrial uses to be self-sufficient in an emergency by:                             <ul style="list-style-type: none"> <li>▪ Maintaining a fire control plan, including onsite firefighting capability and volunteer response teams to respond to and extinguish small fires; and</li> <li>▪ Identifying personnel who are capable and certified in first aid and CPR.</li> </ul> </li> <li>f. Regularly review and clarify emergency evacuation plans for dam failure, fire, and hazardous materials releases.</li> </ul>

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies																																							
		<p>b. Design and reconfigure collector and local roadways to improve circulation within and connections to residential and commercial areas.</p> <ul style="list-style-type: none"> <li>▪ Implement appropriate measures to mitigate speeding and other traffic impacts in residential areas.</li> <li>▪ Implement roadway patterns that limit through traffic on local residential streets.</li> </ul> <p>c. Require the design of new developments to focus through traffic onto arterial streets.</p> <p>d. Where feasible, design arterial roadways, including routes of regional significance, to provide better service than the minimum standards set forth in Measure C and the Growth Management Element. Thus, where feasible, the City will strive to maintain a "High D" level of service (v/c = 0.85-0.89) within regional commercial areas and at intersections within 1,000 feet of a freeway interchange. The City will also strive where feasible to maintain Low-range "D" (v/c = 0.80-0.84) in all other areas of the City, including freeway interchanges.</p> <p>e. Establish Assessment Districts in areas that will require major roadway infrastructure improvements that will benefit only that area of the City, and thereby facilitate the up-front construction of needed roadways.</p> <p>f. Design street intersections to ensure the safe passage of through traffic and accommodate anticipated turning movements. Implement intersection improvements consistent with the following lane geometrics, unless traffic analyses indicate the need for additional turn lanes.</p> <table border="1"> <thead> <tr> <th>Number of Through Lanes on Route</th> <th colspan="2">Intersection Turn Lanes</th> </tr> <tr> <td></td> <th colspan="2">Intersections with 4-Lane Arterials</th> </tr> <tr> <td></td> <th>Left</th> <th>Right</th> </tr> </thead> <tbody> <tr> <td>6 or 8</td> <td>1</td> <td>1</td> </tr> <tr> <td>4</td> <td>1</td> <td>1</td> </tr> <tr> <td>2 (Collector)</td> <td>1</td> <td>NA</td> </tr> <tr> <td>2 (Local)</td> <td>NA</td> <td>NA</td> </tr> <tr> <td></td> <th colspan="2">Intersections with Collectors</th> </tr> <tr> <td></td> <th>Left</th> <th>Right</th> </tr> <tr> <td>6 or 8</td> <td>1</td> <td>1</td> </tr> <tr> <td>4</td> <td>1</td> <td>NA</td> </tr> <tr> <td>2 (Collector)</td> <td>1</td> <td>NA</td> </tr> <tr> <td>2 (Local)</td> <td>NA</td> <td>NA</td> </tr> </tbody> </table>	Number of Through Lanes on Route	Intersection Turn Lanes			Intersections with 4-Lane Arterials			Left	Right	6 or 8	1	1	4	1	1	2 (Collector)	1	NA	2 (Local)	NA	NA		Intersections with Collectors			Left	Right	6 or 8	1	1	4	1	NA	2 (Collector)	1	NA	2 (Local)	NA	NA	
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**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>g. Where uses such as commercial centers that generate heavy traffic volumes are located along arterial roadways, provide acceleration and deceleration lanes as needed to maintain the carrying capacity of through traffic lanes.</p> <p>h. Require traffic impact studies for all new developments that propose to increase the approved density or intensity of development or are projected to generate 50 peak hour trips or more at any intersection of Circulation Element roadways. The purpose of these studies is to demonstrate that:</p> <ul style="list-style-type: none"> <li>▪ the existing roadway system, along with roads to be improved by the proposed project, can meet the performance standards set forth in Sections 3.4.1 and 3.4.2 of the Growth Management Element, and</li> <li>▪ required findings of consistency with the provisions of the Growth Management Element can be made.</li> </ul> <p>h. Require traffic impact studies for all new developments that propose to increase the approved density or intensity of development or are projected to generate 50 peak hour trips or more at any intersection of Circulation Element roadways. The purpose of these studies is to demonstrate that:</p> <ul style="list-style-type: none"> <li>▪ the existing roadway system, along with roads to be improved by the proposed project, can meet the performance standards set forth in Sections 3.4.1 and 3.4.2 of the Growth Management Element, and</li> <li>▪ required findings of consistency with the provisions of the Growth Management Element can be made.</li> </ul> <p>i. Require the preparation of a traffic management plan for special event uses to serve major events (e.g. fairs, festivals, sporting events), where traffic volumes that are generated less than 45 times per year would exceed the roadway performance standards set forth in the Growth Management Element. Such special event venues shall be required to provide sufficient manual traffic control as to maintain consistency with Growth Management Element roadway performance standards. Evaluate the traffic impacts of special event uses based on factors specifically related to the special event, rather than those of a typical development (e.g., traffic patterns, hourly flow, and presence of manual traffic controls).</p>	



**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>j. Require that existing driveways that are unnecessary or substandard be removed or upgraded, wherever feasible, in conjunction with any on-site development or any adjacent street construction.</p> <p>k. Where single family residences have no feasible alternative but to front on collector or arterial roadways, require, wherever possible, that circular driveways or on-site turnarounds be provided to eliminate the need for residents to back onto the street.</p> <p>l. Locate driveways on corner parcels as far away from the intersection as is possible.</p> <p>m. Avoid locating driveways within passenger waiting areas of bus stops or within bus bays. Locate driveways so that drivers will be able to see around bus stop improvements.</p> <p>n. Use raised medians as a method for achieving one or more of the following objectives: access control, separation of opposing traffic flows, left turn storage, aesthetic improvement, and/or pedestrian refuge.</p> <p>o. Where medians are constructed, provide openings at the maximum feasible intervals, typically no less than 1/8 mile.</p> <p>p. Where a series of traffic signals are provided along a route, facilitate the coordination of traffic signals to optimize traffic progression on a given route. Traffic signalization should emphasize facilitating access from neighborhood areas onto the City's primary roadway network, and should work to discourage through traffic from using local streets.</p> <p>q. Demand-actuated traffic signals should include push buttons to signal the need for pedestrians to cross, and include audible signals and countdown signs to assist the disabled in crossing streets. Demand-actuated traffic signals corresponding with bicycle routes should include bicycle sensitive loop detectors or push buttons adjacent to the curb.</p> <p>r. Avoid offset intersections along arterials and collectors. Intersections along local and minor residential collector streets may be offset within the subdivision as a means of discouraging through traffic.</p> <p>s. Expand intersections to include additional turning and through lanes at intersections where needed to relieve congestion and improve intersection operation, so long as the intersection can continue to accommodate</p>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>pedestrians and bicyclists. Avoid traffic system improvements that facilitate vehicular turning and bus movements, but that also discourage pedestrian or bicycle movements. This can be accomplished on wide streets by providing safe stopping places for pedestrian crossing the street.</p> <p>t. Maintain the first priority for public streets of providing safe and efficient travel for the public with parking as a second priority.</p> <p>u. Generally, permit parking on collector streets, with restrictions as needed to accommodate transit stops, on-street bicycle lanes, added lanes at intersections, or other operational requirements.</p> <p>v. Private streets, where permitted, shall provide for adequate circulation and emergency vehicle access. Private streets that will accommodate more than 50 vehicles per hour in the peak hour or that are designed for on-street parking shall be designed to public street standards. The design of other private streets shall be subject to the review and approval of the City Engineer. Private streets shall be improved to public street standards prior to acceptance of dedications to the City.</p> <p>w. Provide arterial and collector roadways within hillside areas with added rights-of-way as needed for roadway slopes, and no on-street parking in order to provide extra safety.</p> <p>x. Require new development to construct all on-site roadways, including Circulation Element routes, and provide a fair share contribution for needed offsite improvements needed to maintain the roadway performance standards set forth in the Growth Management Element. Contributions for offsite improvements may be in the form of fees and/or physical improvements, as determined by the City Engineer. Costs associated with mitigating off-site traffic impacts should be allocated on the basis of trip generation, and should have provisions for lower rates for income-restricted lower income housing projects needed to meet the quantified objectives of the General Plan Housing Element.</p> <p>y. Where feasible, require permitted General Plan land uses that generate high volumes of traffic to be located along major transportation corridors and near transit facilities to minimize vehicular use, congestion, and traffic delays.</p> <p>z. Provide direct access between industrial areas and freeways, with truck routes avoiding residential areas to the extent possible.</p>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		aa. Design street systems serving industrial areas, including the primary routes accessing these areas to accommodate the movement of trucks. bb. Pursue construction of public parking facilities within the downtown area to serve projected parking demand and facilitate mixed-use development without the need to meet off-street parking standards on each individual parcel.	
		<p><i>General Plan Policy 8.10.2: Fire Protection Policies</i></p> a. Work with the Contra Costa County Fire Protection District to provide high quality fire protection services to area residents and businesses. The City’s role should include, but not be limited to: <ul style="list-style-type: none"> <li>▪ Determining the appropriateness of station location sites;</li> <li>▪ Enforcement of building codes to reduce fire hazards;</li> <li>▪ Collection of mitigation fees established by the fire district to construct needed additional stations within the Antioch Planning Area.</li> <li>▪ Support the District in providing funding for personnel costs to staff stations within the City;</li> <li>▪ Support the District in establishing fees that are adequate to mitigate the impacts of new development and income to support operation of new stations whose construction is financed with development fees; and</li> <li>▪ Requiring reasonable reservation of appropriate sites for new fire stations as part of new development.</li> </ul> b. In cooperation with the Contra Costa County Fire Protection District, conduct an annual assessment of the adequacy of facilities and services serving Antioch, personnel and staffing needs, and capital needs, based on anticipated growth and the level of service standard set forth in the Growth Management Element. This assessment should be undertaken as part of the annual review of proposed capital projects required by the California Government code (see Chapter 12, Implementation, Section 12.4b).                     c. Provide the Contra Costa County Fire Protection District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.	

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		<p>d. Involve the Fire Protection District in the development review process by referring development requests to the Fire District for review and comment.</p>	
		<p><i>General Plan Policy 11.6.2 (previously General Plan Policy 11.5.2): Fire Hazards Policies</i></p>	
		<p>a. Where new development borders wildland areas, require appropriate fuel modification and use of fire retardant building materials per the requirements of the Contra Costa County Fire Protection District. Fuel modification may be permitted to extend beyond the boundaries of the site for which wildland fire protection is being provided only if the adjacent owner provides written permission, the proposed fuel modification is consistent with the management practices of the agency controlling such land (if it is in permanent open space), and the off-site fuel modification activity will not significantly impact sensitive habitat areas.</p>	
		<p>b. Require that adequate fire protection be available at initial project occupancy, whenever feasible. Thus, stations should be constructed and manned at the outset of new development. If the Contra Costa Fire Protection District finds that a lag time between initial occupancy and operation of new stations cannot be avoided, the City may consider requiring sprinklers in new homes as an alternative.</p>	
		<p><i>General Plan Policy 11.9.2 (previously General Plan Policy 11.7.2): Hazardous Materials Policies</i></p>	
		<p>a. Promote the reduction, recycling, and safe disposal of household hazardous wastes through public education and awareness.</p>	
		<p>b. Implement the provisions of the Contra Costa County Hazardous Waste Management Plan, including, but not limited to, provisions for pretreatment and disposal, storage, handling, and emergency response.</p>	
		<p>c. Require businesses generating hazardous wastes to pay necessary costs for local implementation of programs specified in the Contra Costa County Hazardous Waste Management Plan, as well as costs associated with emergency response services for a hazardous materials release.</p>	
		<p><i>Source Reduction</i></p>	
		<p>d. Require new and expanding hazardous materials users to reduce the amount of hazardous waste generated.</p>	

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		<ul style="list-style-type: none"> <li>▪ Require submittal of a waste minimization plan with any use permit application for a new large facility or expansion of an existing large facility creating additional hazardous wastes.</li> <li>▪ Encourage existing large facilities to prepare waste minimization plans.</li> <li>▪ Require new large hazardous waste-producing facilities to provide onsite treatment of recycling of wastes generated to the maximum extent feasible. This will minimize the amount of hazardous waste being transferred offsite for treatment or disposal.</li> <li>▪ Require all hazardous waste generators to recycle wastes to the maximum extent feasible.</li> </ul> <p>e. Encourage reductions in the amount of hazardous wastes being generated within Antioch through incentives and other methods.</p> <ul style="list-style-type: none"> <li>▪ Provide educational and technical assistance to all hazardous materials users and waste generators to aid in their source reduction efforts (e.g., substitution of less hazardous products and modifications to operating procedures). These services will primarily be provided by through the County.</li> <li>▪ Provide public recognition to hazardous materials users and waste generators who meet or exceed source reduction goals.</li> <li>▪ Provide penalties for facilities failing to meet minimization objectives, and place funds from these penalties in a revolving account for use in educational and emergency services efforts.</li> </ul>	
		<p><i>Facilities Siting</i></p>	
		<p>f. Locate hazardous materials facilities in areas reserved for compatible uses.</p> <ul style="list-style-type: none"> <li>▪ Permit large hazardous waste users and processors only in areas designated for "heavy industrial" use. Smaller generators and medical facilities (e.g., service stations) may be sited in other industrial and commercial areas, consistent with applicable General Plan policies and zoning regulations. The compatibility of small facilities will be determined by the types and amounts of hazardous materials involved and the nature of the surrounding area.</li> <li>▪ Require use permits for all operations handling hazardous materials to ensure compatibility with the surrounding area.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>g. Maintain adequate siting criteria to determine appropriate locations for hazardous material facilities.                             <ul style="list-style-type: none"> <li>▪ Maintain a "Hazardous Materials" section in the Antioch zoning ordinance to define siting criteria to be used for various types of facilities, requirements for application submittal, and required findings for approval.</li> <li>▪ The siting criteria shall prohibit the siting of hazardous materials facilities in 100-year Flood Hazard Zones and areas susceptible to flooding from storm surge and/or sea level rise unless the proposed design accounts for potential flooding by appropriately elevating and/or floodproofing all areas, including exterior areas, where hazardous materials would be stored and handled.</li> </ul> </li> <li>h. Locate hazardous materials facilities at a sufficient distance from populated areas to reduce potential health and safety impacts.                             <ul style="list-style-type: none"> <li>▪ Require risk assessment studies to determine potential health impacts for all proposed hazardous waste processors and large generators as part of permit application submittals.</li> <li>▪ Require a 2,000-foot buffer zone around all new hazardous waste processors within which no residences, schools, hospitals, or other immobile populations, existing proposed, or otherwise, would be located, unless evidence is presented in the risk assessment study that a larger buffer is needed.</li> </ul> </li> <li>i. Permit hazardous waste processors based on their relative need in conjunction with the "fair share" approach to facilities siting contained in the Contra Costa County Hazardous Waste Management Plan.                             <ul style="list-style-type: none"> <li>▪ Require a needs assessment as part of use permit applications for a waste processor, demonstrating the proposed facility will serve a need that cannot be better met in any other manner (e.g., source reduction) or at any other location.</li> <li>▪ Discourage proposed hazardous waste facilities processing materials similar to those treated or stored at existing facilities within the County, unless the need for the new facility can be adequately demonstrated.</li> </ul> </li> <li>j. Carefully review and require appropriate mitigation for pipelines and other channels for hazardous materials.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><i>Facilities Management</i></p> <ul style="list-style-type: none"> <li>k. Ensure adequate provision is made for emergency response to all crises involving hazardous materials.                             <ul style="list-style-type: none"> <li>▪ Require emergency response plans for all hazardous waste processors and large generators to be submitted as part of use permit applications. The emergency response plans shall include procedures for minimizing the potential release of hazardous materials due to flooding such as shutting down operations, securing hazardous materials containers and other objects to prevent them from floating, closing valves/sealing openings on containers/pipelines/tanks, and moving hazardous materials away from flood prone areas ahead of predicted flooding events.</li> <li>▪ Require training of employees of all facilities in emergency procedures, and that they be acquainted with the properties and health effects of the hazardous materials involved in the facilities’ operations.</li> </ul> </li> <li>l. Promote the safest possible transport of hazardous materials through Antioch.                             <ul style="list-style-type: none"> <li>▪ Maintain formally designated hazardous material carrier routes to direct hazardous materials away from populated and other sensitive areas.</li> <li>▪ Restrict all processors and new large generators to access only along established hazardous material carrier routes.</li> <li>▪ Locate hazardous waste processors as near to waste generators as possible, in order to minimize the need for transport.</li> <li>▪ Require transportation analyses for all new large generators and processors to determine the effect of each facility on Antioch’s transportation system, and assess and provide mitigation for potential safety impacts associated with hazardous materials transported to and from the site.</li> <li>▪ Prohibit the parking of vehicles transporting hazardous materials on city streets.</li> <li>▪ Require that new pipelines and other channels carrying hazardous materials avoid residential areas and other immobile populations to the greatest extent possible.</li> </ul> </li> <li>m. Require that hazardous materials facilities within Antioch operate in a safe manner.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ As a condition of approval for new hazardous materials facilities, require access for vehicles carrying hazardous materials to be restricted to hazardous materials carrier routes.</li> <li>▪ Undertake inspections of hazardous materials facilities as needed (e.g., when an unauthorized discharge into city sewers is made), and assist Contra Costa Health Services in their inspections as requested.</li> <li>▪ Require that water, sewer, and emergency services be available consistent with the level of service standards set forth in the Growth Management Element. Work with LAFCO to require that that sites for proposed hazardous materials facilities annex into the city before necessary municipal services are provided.</li> <li>n. Require appropriate design features be incorporated into each facility's layout to increase safety and minimize potential adverse effects on public health.                         <ul style="list-style-type: none"> <li>▪ Require the provision of spill containment facilities and monitoring devices in all facilities.</li> <li>▪ Ensure that pipelines and other hazardous waste channels are properly designed to minimize leakage and require above ground pipelines to be surrounded by spill containment basins.</li> <li>▪ Give priority to underground storage of hazardous materials, unless this method is shown to be infeasible.</li> <li>▪ Require hazardous materials storage areas to be located as far from existing pipelines and electrical transmission lines as possible.</li> </ul> </li> <li>o. Maintain a high priority on clean-up of the GBF landfill, Hickmott Cannery, and other contaminated sites.                         <ul style="list-style-type: none"> <li>▪ Maintain communication with the Department of Toxic Substances Control, Contra Costa Health Services, and other responsible agencies to complete clean-up of the GBF landfill and Hickmott Cannery sites as rapidly and thoroughly as possible.</li> <li>▪ Participate in task forces with County and State agencies for remediation of the GBF landfill and Hickmott Cannery sites.</li> </ul> </li> </ul>	



**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><i>Public Education/Outreach</i></p> <p>p. Require that new large hazardous materials users and/or processors maintain communication lines within the community by establishing a Communication and Information Panel. Encourage existing large users and processors to form similar panels.</p> <p>q. Facilitate public awareness of hazardous materials by preparing and distributing in conjunction with Contra Costa Health Services public information regarding uniform symbols used to identify hazardous wastes, Antioch's household hazardous waste collection programs, and hazardous waste source reduction programs.</p> <p><i>Monitoring</i></p> <p>r. Monitor the progress and success of hazardous materials efforts, and modify these efforts as needed.</p> <p>s. Maintain data regarding the use and generation of hazardous materials within Antioch and its Planning Area.</p> <p><i>Hazardous Building Materials</i></p> <p>t. Prior to the City issuing demolition permits for existing structures, a comprehensive Hazardous Building Materials Survey (HBMS) for the structure shall be prepared and signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials, lead containing paint, lead based paint, polychlorinated biphenyls (PCBs)-containing equipment and materials, and any other hazardous building materials. The HBMS shall include abatement specifications for the stabilization and/or removal of the identified hazardous building materials in accordance with all applicable laws and regulations. The demolition contractor shall implement the abatement specifications and submit to the City evidence of completion of abatement activities prior to demolition of the existing structures.</p> <p>u. The following requirements related to potential hazardous materials contamination would not apply to properties where past land uses have included only residential or undeveloped open space (i.e., no previous agricultural, industrial, commercial, or transportation related use) and where</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>placement of undocumented fill material has not occurred. Evidence of such past land use must be demonstrated to the City through historic aerial photos, maps, and/or building department records.</p> <ul style="list-style-type: none"> <li>▪ Prior to the City issuing demolition, grading, or building permits for a proposed redevelopment or development project that would disturb soil (except for residential renovations/additions), the project applicant shall prepare a Phase I Environmental Site Assessment (ESA) for the project site and shall submit the Phase I ESA it to the City for review. If any Recognized Environmental Conditions (RECs) or other environmental concerns are identified in the Phase I ESA, the project applicant shall prepare a Phase II ESA to evaluate the RECs or other environmental concerns and shall submit the Phase II ESA to the City for review and approval. Phase I and II ESA reports shall be prepared by a qualified environmental assessment professional and include recommendations for further investigation or remedial action, as appropriate, for hazardous materials contamination. Remedial actions may include but not necessarily be limited to the preparation and implementation of a Soil and Groundwater Management Plan, removal of hazardous materials containers/features (e.g., underground or aboveground storage tanks, drums, piping, sumps/vaults, hydraulic lifts, oil/water separators, or impoundments), proper destruction of water supply wells, removal and off-site disposal of contaminated soil or groundwater, in-situ treatment of contaminated soil or groundwater, or engineering/institutional controls (e.g., capping of contaminated soil, installation of vapor intrusion mitigation systems, and establishing deed restrictions). The project applicant shall implement the recommendations for additional investigation and/or remedial actions and shall submit to the City evidence of approvals from the appropriate federal, State, or regional oversight agency(ies) for any proposed remedial action prior to the City issuing demolition, grading, or building permits, and following completion of the remedial action and prior to the City issuing a certificate of occupancy.</li> <li>▪ If the project applicant indicates that in their view regulatory agency oversight/approval is not required for the proposed project based on the findings of the Phase II ESA and/or the proposed remedial actions, then the</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<b>K. Hydrology and Water Quality</b>	<i>Implementation of the Project would not result in any significant hydrology and water quality impacts. The following General Plan policies would ensure no significant impacts would occur.</i>	<p><i>General Plan Policy 8.7.2: Storm Drainage and Flood Control Policies</i></p> <ul style="list-style-type: none"> <li>a. Continue working with the Contra Costa County Flood Control District to ensure that runoff from new development is adequately handled.</li> <li>b. Require adequate infrastructure to be in place and operational prior to occupancy of new development, such that:                             <ul style="list-style-type: none"> <li>▪ new development will not negatively impact the performance of storm drain facilities serving existing developed areas and</li> <li>▪ the performance standards set forth in the Growth Management Element will continue to be met.</li> </ul> </li> <li>c. Design flood control within existing creek areas to maximize protection of existing natural settings and habitat.</li> <li>d. Provide retention basins in recreation areas where feasible to reduce increases in the amount of runoff resulting from new development.</li> <li>e. Require new developments to provide erosion and sedimentation control measures to maintain the capacity of area storm drains and protect water quality.</li> <li>f. Require implementation of Best Management Practices in the design of drainage systems to reduce discharge of non-point source pollutants originating in streets, parking lots, paved industrial work areas, and open spaces involved with pesticide applications.</li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><i>General Plan Policy 10.7.2: Water Resources Policies</i></p> <p><i>Water Supply</i></p> <ul style="list-style-type: none"> <li>a. As part of the implementing the City's residential growth management program and its development review process for non-residential development, ensure that adequate long-term water supplies are available to serve the development being granted new allocations, including consideration of peak drought and peak fire fighting needs.</li> <li>b. Require new development to be equipped with drought tolerant landscaping and water conservation devices.</li> <li>c. Work with Delta Diablo Sanitation District to make reclaimed wastewater available for irrigation use. Where reclaimed wastewater can be made available at a reasonable cost, require the installation of dual water systems in development projects and public facilities, using reclaimed wastewater for irrigation.</li> <li>d. Protect, where possible, groundwater recharge areas, including protection of stream sides from urban encroachment.</li> <li>e. Oppose proposals with the potential to increase the salinity of the Delta and/or endanger the City's rights to divert water from the San Joaquin River.</li> </ul> <p><i>Water Quality</i></p> <ul style="list-style-type: none"> <li>f. Participate in the Contra Costa Clean Water program to reduce storm water pollution and protect the water quality of the City's waterways.</li> <li>g. Require public and private development projects to be in compliance with applicable National Pollution Discharge Elimination System (NPDES) permit requirements and require the implementation of best management practices to minimize erosion and sedimentation resulting from new development.</li> <li>h. Participate in regional watershed planning efforts to enhance area water quality.</li> <li>i. Design drainage within urban areas to avoid runoff from landscaped areas and impervious surfaces from carrying pesticides, fertilizers, and urban and other contaminants into natural streams.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><i>General Plan Policy 11.5.2 (previously General Plan Policy 11.4.2): Flood Protection Policies</i></p> <ul style="list-style-type: none"> <li>a. Prohibit all development within the 100- year floodplain, unless mitigation measures consistent with the National Flood Insurance Program are provided.</li> <li>b. Minimize encroachment of development adjacent to the floodway in order to convey flood flows without property damage and risk to public safety. Require such development to be capable of withstanding flooding and to minimize the use of fill.</li> <li>c. Prohibit alteration of floodways and channelization of natural creeks if alternative methods of flood control are technically and financially feasible. The intent of this policy is to balance the need for protection devices with land use solutions, recreation needs, and habitat preservation.</li> <li>d. Require new development to prepare drainage studies to assess storm runoff impacts on the local and regional storm drain and flood control system, along with implementation of appropriate detention and drainage facilities to ensure that the community's storm drainage system capacity will be maintained and peak flow limitations will not be exceeded.</li> <li>e. Where construction of a retention basin is needed to support new development, require the development to provide for the perpetual funding and ongoing maintenance of the basin.</li> <li>f. Eliminate hazards caused by local flooding through improvements to the area's storm drain system or creek corridors as resources allow.</li> </ul>	
		<p><i>General Plan Policy 11.9.2 (previously General Plan Policy 11.7.2): Hazardous Materials Policies</i></p> <ul style="list-style-type: none"> <li>a. Promote the reduction, recycling, and safe disposal of household hazardous wastes through public education and awareness.</li> <li>b. Implement the provisions of the Contra Costa County Hazardous Waste Management Plan, including, but not limited to, provisions for pretreatment and disposal, storage, handling, and emergency response.</li> <li>c. Require businesses generating hazardous wastes to pay necessary costs for local implementation of programs specified in the Contra Costa County Hazardous Waste Management Plan, as well as costs associated with emergency response services for a hazardous materials release.</li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><i>Source Reduction</i></p> <p>d. Require new and expanding hazardous materials users to reduce the amount of hazardous waste generated.</p> <ul style="list-style-type: none"> <li>▪ Require submittal of a waste minimization plan with any use permit application for a new large facility or expansion of an existing large facility creating additional hazardous wastes.</li> <li>▪ Encourage existing large facilities to prepare waste minimization plans.</li> <li>▪ Require new large hazardous waste-producing facilities to provide onsite treatment of recycling of wastes generated to the maximum extent feasible. This will minimize the amount of hazardous waste being transferred offsite for treatment or disposal.</li> <li>▪ Require all hazardous waste generators to recycle wastes to the maximum extent feasible.</li> </ul> <p>e. Encourage reductions in the amount of hazardous wastes being generated within Antioch through incentives and other methods.</p> <ul style="list-style-type: none"> <li>▪ Provide educational and technical assistance to all hazardous materials users and waste generators to aid in their source reduction efforts (e.g., substitution of less hazardous products and modifications to operating procedures). These services will primarily be provided by through the County.</li> <li>▪ Provide public recognition to hazardous materials users and waste generators who meet or exceed source reduction goals.</li> <li>▪ Provide penalties for facilities failing to meet minimization objectives, and place funds from these penalties in a revolving account for use in educational and emergency services efforts.</li> </ul> <p><i>Facilities Siting</i></p> <p>f. Locate hazardous materials facilities in areas reserved for compatible uses.</p> <ul style="list-style-type: none"> <li>▪ Permit large hazardous waste users and processors only in areas designated for "heavy industrial" use. Smaller generators and medical facilities (e.g., service stations) may be sited in other industrial and commercial areas, consistent with applicable General Plan policies and zoning regulations. The compatibility of small facilities will be determined by the types and amounts of hazardous materials involved and the nature of the surrounding area.</li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Require use permits for all operations handling hazardous materials to ensure compatibility with the surrounding area.</li> <li>g. Maintain adequate siting criteria to determine appropriate locations for hazardous material facilities.                             <ul style="list-style-type: none"> <li>▪ Maintain a "Hazardous Materials" section in the Antioch zoning ordinance to define siting criteria to be used for various types of facilities, requirements for application submittal, and required findings for approval.</li> <li>▪ The siting criteria shall prohibit the siting of hazardous materials facilities in 100-year Flood Hazard Zones and areas susceptible to flooding from storm surge and/or sea level rise unless the proposed design accounts for potential flooding by appropriately elevating and/or floodproofing all areas, including exterior areas, where hazardous materials would be stored and handled.</li> </ul> </li> <li>h. Locate hazardous materials facilities at a sufficient distance from populated areas to reduce potential health and safety impacts.                             <ul style="list-style-type: none"> <li>▪ Require risk assessment studies to determine potential health impacts for all proposed hazardous waste processors and large generators as part of permit application submittals.</li> <li>▪ Require a 2,000-foot buffer zone around all new hazardous waste processors within which no residences, schools, hospitals, or other immobile populations, existing proposed, or otherwise, would be located, unless evidence is presented in the risk assessment study that a larger buffer is needed.</li> </ul> </li> <li>i. Permit hazardous waste processors based on their relative need in conjunction with the "fair share" approach to facilities siting contained in the Contra Costa County Hazardous Waste Management Plan.                             <ul style="list-style-type: none"> <li>▪ Require a needs assessment as part of use permit applications for a waste processor, demonstrating the proposed facility will serve a need that cannot be better met in any other manner (e.g., source reduction) or at any other location.</li> <li>▪ Discourage proposed hazardous waste facilities processing materials similar to those treated or stored at existing facilities within the County, unless the need for the new facility can be adequately demonstrated.</li> </ul> </li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>j. Carefully review and require appropriate mitigation for pipelines and other channels for hazardous materials.</p> <p><i>Facilities Management</i></p> <p>k. Ensure adequate provision is made for emergency response to all crises involving hazardous materials.</p> <ul style="list-style-type: none"> <li>▪ Require emergency response plans for all hazardous waste processors and large generators to be submitted as part of use permit applications. The emergency response plans shall include procedures for minimizing the potential release of hazardous materials due to flooding such as shutting down operations, securing hazardous materials containers and other objects to prevent them from floating, closing valves/sealing openings on containers/pipelines/tanks, and moving hazardous materials away from flood prone areas ahead of predicted flooding events.</li> <li>▪ Require training of employees of all facilities in emergency procedures, and that they be acquainted with the properties and health effects of the hazardous materials involved in the facilities’ operations.</li> </ul> <p>l. Promote the safest possible transport of hazardous materials through Antioch.</p> <ul style="list-style-type: none"> <li>▪ Maintain formally designated hazardous material carrier routes to direct hazardous materials away from populated and other sensitive areas.</li> <li>▪ Restrict all processors and new large generators to access only along established hazardous material carrier routes.</li> <li>▪ Locate hazardous waste processors as near to waste generators as possible, in order to minimize the need for transport.</li> <li>▪ Require transportation analyses for all new large generators and processors to determine the effect of each facility on Antioch’s transportation system, and assess and provide mitigation for potential safety impacts associated with hazardous materials transported to and from the site.</li> <li>▪ Prohibit the parking of vehicles transporting hazardous materials on city streets.</li> <li>▪ Require that new pipelines and other channels carrying hazardous materials avoid residential areas and other immobile populations to the greatest extent possible.</li> </ul>	



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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>m. Require that hazardous materials facilities within Antioch operate in a safe manner.</p> <ul style="list-style-type: none"> <li>▪ As a condition of approval for new hazardous materials facilities, require access for vehicles carrying hazardous materials to be restricted to hazardous materials carrier routes.</li> <li>▪ Undertake inspections of hazardous materials facilities as needed (e.g., when an unauthorized discharge into city sewers is made), and assist Contra Costa Health Services in their inspections as requested.</li> <li>▪ Require that water, sewer, and emergency services be available consistent with the level of service standards set forth in the Growth Management Element. Work with LAFCO to require that that sites for proposed hazardous materials facilities annex into the city before necessary municipal services are provided.</li> </ul> <p>n. Require appropriate design features be incorporated into each facility's layout to increase safety and minimize potential adverse effects on public health.</p> <ul style="list-style-type: none"> <li>▪ Require the provision of spill containment facilities and monitoring devices in all facilities.</li> <li>▪ Ensure that pipelines and other hazardous waste channels are properly designed to minimize leakage and require above ground pipelines to be surrounded by spill containment basins.</li> <li>▪ Give priority to underground storage of hazardous materials, unless this method is shown to be infeasible.</li> <li>▪ Require hazardous materials storage areas to be located as far from existing pipelines and electrical transmission lines as possible.</li> </ul> <p>o. Maintain a high priority on clean-up of the GBF landfill, Hickmott Cannery, and other contaminated sites.</p> <ul style="list-style-type: none"> <li>▪ Maintain communication with the Department of Toxic Substances Control, Contra Costa Health Services, and other responsible agencies to complete clean-up of the GBF landfill and Hickmott Cannery sites as rapidly and thoroughly as possible.</li> <li>▪ Participate in task forces with County and State agencies for remediation of the GBF landfill and Hickmott Cannery sites.</li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><i>Public Education/Outreach</i></p> <p>p. Require that new large hazardous materials users and/or processors maintain communication lines within the community by establishing a Communication and Information Panel. Encourage existing large users and processors to form similar panels.</p> <p>q. Facilitate public awareness of hazardous materials by preparing and distributing in conjunction with Contra Costa Health Services public information regarding uniform symbols used to identify hazardous wastes, Antioch's household hazardous waste collection programs, and hazardous waste source reduction programs.</p>	
		<p><i>Monitoring</i></p> <p>r. Monitor the progress and success of hazardous materials efforts, and modify these efforts as needed.</p> <p>s. Maintain data regarding the use and generation of hazardous materials within Antioch and its Planning Area.</p>	
		<p><i>Hazardous Building Materials</i></p> <p>t. Prior to the City issuing demolition permits for existing structures, a comprehensive Hazardous Building Materials Survey (HBMS) for the structure shall be prepared and signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials, lead containing paint, lead based paint, polychlorinated biphenyls (PCBs)-containing equipment and materials, and any other hazardous building materials. The HBMS shall include abatement specifications for the stabilization and/or removal of the identified hazardous building materials in accordance with all applicable laws and regulations. The demolition contractor shall implement the abatement specifications and submit to the City evidence of completion of abatement activities prior to demolition of the existing structures.</p> <p>The following requirements related to potential hazardous materials contamination would not apply to properties where past land uses have included only residential or undeveloped open space (i.e., no previous agricultural, industrial, commercial, or transportation related use) and where</p>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>placement of undocumented fill material has not occurred. Evidence of such past land use must be demonstrated to the City through historic aerial photos, maps, and/or building department records.</p> <ul style="list-style-type: none"> <li>▪ Prior to the City issuing demolition, grading, or building permits for a proposed redevelopment or development project that would disturb soil (except for residential renovations/additions), the project applicant shall prepare a Phase I Environmental Site Assessment (ESA) for the project site and shall submit the Phase I ESA it to the City for review. If any Recognized Environmental Conditions (RECs) or other environmental concerns are identified in the Phase I ESA, the project applicant shall prepare a Phase II ESA to evaluate the RECs or other environmental concerns and shall submit the Phase II ESA to the City for review and approval. Phase I and II ESA reports shall be prepared by a qualified environmental assessment professional and include recommendations for further investigation or remedial action, as appropriate, for hazardous materials contamination. Remedial actions may include but not necessarily be limited to the preparation and implementation of a Soil and Groundwater Management Plan, removal of hazardous materials containers/features (e.g., underground or aboveground storage tanks, drums, piping, sumps/vaults, hydraulic lifts, oil/water separators, or impoundments), proper destruction of water supply wells, removal and off-site disposal of contaminated soil or groundwater, in-situ treatment of contaminated soil or groundwater, or engineering/institutional controls (e.g., capping of contaminated soil, installation of vapor intrusion mitigation systems, and establishing deed restrictions). The project applicant shall implement the recommendations for additional investigation and/or remedial actions and shall submit to the City evidence of approvals from the appropriate federal, State, or regional oversight agency(ies) for any proposed remedial action prior to the City issuing demolition, grading, or building permits, and following completion of the remedial action and prior to the City issuing a certificate of occupancy.</li> <li>▪ If the project applicant indicates that in their view regulatory agency oversight/approval is not required for the proposed project based on the findings of the Phase II ESA and/or the proposed remedial actions, then the</li> </ul>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>Phase I and II ESAs and proposed remedial action plans shall be reviewed by a third party qualified environmental assessment professional selected by the City and funded by the project applicant. The third party qualified environmental assessment professional shall either approve of the proposed remedial actions or provide recommendations for further investigation, additional/alternative remediation actions, and/or regulatory agency oversight for the project site, and the recommendations of the third party qualified environmental assessment professional shall be implemented.</p>	
		<p><i>General Plan Policy 11.10.2 (previously General Plan Policy 11.8.2): Disaster Response Policies</i></p> <ol style="list-style-type: none"> <li>a. Maintain and update the City’s Emergency Response Plan, as required by State law.</li> <li>b. Disseminate disaster preparedness information to local residents and businesses, describing how emergency response will be coordinated, how evacuation, if needed, will proceed, and what residents and businesses can do to prepare for emergency situations. Provide information to the public about:               <ul style="list-style-type: none"> <li>▪ Environmental hazards existing in Antioch;</li> <li>▪ The costs of doing nothing to mitigate these hazards;</li> <li>▪ Why governmental agencies can not eliminate all hazards;</li> <li>▪ What the City does to assist;</li> <li>▪ What the City cannot do;</li> <li>▪ What the public can do to protect itself.</li> </ul> </li> <li>c. Maintain an effective and properly equipped emergency operations center, along with trained personnel, for receiving emergency calls, providing initial response and key support to major incidents, meeting the demands of automatic and mutual aid programs, and maintaining emergency incident statistical data.</li> <li>d. Maintain ongoing emergency response coordination with surrounding jurisdictions.</li> <li>e. Encourage private businesses and industrial uses to be self-sufficient in an emergency by:</li> </ol>	

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Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<b>L. Noise</b>	<i>Implementation of the Project would not result in any significant noise impacts. The following General Plan policies would ensure no significant impacts would occur.</i>	<ul style="list-style-type: none"> <li>▪ Maintaining a fire control plan, including onsite fire fighting capability and volunteer response teams to respond to and extinguish small fires; and</li> <li>▪ Identifying personnel who are capable and certified in first aid and CPR.</li> </ul> <p>f. Regularly review and clarify emergency evacuation plans for dam failure, fire, and hazardous materials releases.</p>	
		<p><i>General Plan Policy 11.8.2 (previously General Plan Policy 11.6.1): Noise Objective</i></p> <p>Achieve and maintain exterior noise levels appropriate to planned land uses throughout Antioch, as described below.</p> <ul style="list-style-type: none"> <li>▪ Residential                             <ul style="list-style-type: none"> <li>Single Family: 60 dBA CNEL within rear yards</li> <li>Multi-Family: 60 dBA CNEL within interior open space</li> </ul> </li> <li>▪ Schools                             <ul style="list-style-type: none"> <li>Classrooms: 65 dBA CNEL</li> <li>Play and sports areas: 70 dBA CNEL</li> </ul> </li> <li>▪ Hospitals, Libraries: 60 dBA CNEL</li> <li>▪ Commercial/Industrial: 70 dBA CNEL at the front setback.</li> </ul>	
		<p><i>General Plan Policy 11.8.2 (previously General Plan Policy 11.6.2): Noise Policies Noise Compatible Land Use and Circulation Patterns</i></p> <p>a. Implementation of the noise objective contained in Section 11.6.1 and the policies contained in Section 11.6.2 of the Environmental Hazards Element shall be based on noise data contained in Section 4.9 of the General Plan EIR, unless a noise analysis conducted pursuant to the City’s development and environmental review process provides more up-to-date and accurate noise projections, as determined by the City.</p> <p>b. Maintain a pattern of land uses that separates noise-sensitive land uses from major noise sources to the extent possible, and guide noise-tolerant land uses into the noisier portions of the Planning Area.</p> <p>c. Minimize motor vehicle noise in residential areas through proper route location and sensitive roadway design.</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Provide planned industrial areas with truck access routes separated from residential areas to the maximum feasible extent.</li> <li>▪ Where needed, provide traffic calming devices to slow traffic speed within residential neighborhoods.</li> </ul>	
		<p><i>Noise Analysis and Mitigation</i></p> <p>d. Where new development (including construction and improvement of roadways) is proposed in areas exceeding the noise levels identified in the General Plan Noise Objective, or where the development of proposed uses could result in a significant increase in noise, require a detailed noise attenuation study to be prepared by a qualified acoustical engineer to determine appropriate mitigation and ways to incorporate such mitigation into project design and implementation.</p> <p>e. When new development incorporating a potentially significant noise generator is proposed, require noise analyses to be prepared by a qualified acoustical engineer. Require the implementation of appropriate noise mitigation when the proposed project will cause new exceedances of General Plan noise objectives, or an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development.</p> <p>f. In reviewing noise impacts, utilize site design and architectural design features to the extent feasible to mitigate impacts on residential neighborhoods and other uses that are sensitive to noise. In addition to sound barriers, design techniques to mitigate noise impacts may include, but are not limited to:</p> <ul style="list-style-type: none"> <li>▪ Increased building setbacks to increase the distance between the noise source and sensitive receptor.</li> <li>▪ Orient buildings which are compatible with higher noise levels adjacent to noise generators or in clusters to shield more noise sensitive areas and uses.</li> <li>▪ Orient delivery, loading docks, and outdoor work areas away from noise-sensitive uses.</li> <li>▪ Place noise tolerant use, such as parking areas, and noise tolerant structures, such as garages, between the noise source and sensitive receptor.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Cluster office, commercial, or multifamily residential structures to reduce noise levels within interior open space areas.</li> <li>▪ Provide double glazed and double paned windows on the side of the structure facing a major noise source, and place entries away from the noise source to the extent possible.</li> <li>g. Where feasible, require the use of noise barriers (walls, berms, or a combination thereof) to reduce significant noise impacts.                             <ul style="list-style-type: none"> <li>▪ Noise barriers must have sufficient mass to reduce noise transmission and high enough to shield the receptor from the noise source.</li> <li>▪ To be effective, the barrier needs to be constructed without cracks or openings.</li> <li>▪ The barrier must interrupt the line of sight between the noise source and noise receptor.</li> <li>▪ The effects of noise “flanking” the noise barrier should be minimized by bending the end of the barrier back from the noise source.</li> <li>▪ Require appropriate landscaping treatment to be provided in conjunction with noise barriers to mitigate their potential aesthetic impacts.</li> </ul> </li> <li>h. Continue enforcement of California Noise Insulation Standards (Title 25, Section 1092, California Administrative Code).                             <p><i>Temporary Construction</i></p> <ul style="list-style-type: none"> <li>i. Ensure that construction activities are regulated as to hours of operation in order to avoid or mitigate noise impacts on adjacent noise-sensitive land uses.</li> <li>j. Require proposed development adjacent to occupied noise sensitive land uses to implement a construction-related noise mitigation plan. This plan would depict the location of construction equipment storage and maintenance areas, and document methods to be employed to minimize noise impacts on adjacent noise sensitive land uses.</li> <li>k. Require that all construction equipment utilize noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.</li> <li>m. Prior to the issuance of any grading plans, the City shall condition approval of subdivisions and non-residential development adjacent to any developed/occupied noise-sensitive land uses by requiring applicants to</li> </ul> </li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>submit a construction-related noise mitigation plan to the City for review and approval. The plan should depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project through the use of such methods as:</p> <ul style="list-style-type: none"> <li>▪ The construction contractor shall use temporary noise-attenuation fences, where feasible, to reduce construction noise impacts on adjacent noise sensitive land uses.</li> <li>▪ During all project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.</li> <li>▪ The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.</li> <li>▪ The construction contractor shall limit all construction-related activities that would result in high noise levels to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. No construction shall be allowed on Sundays and public holidays.</li> </ul> <p>n. The construction-related noise mitigation plan required shall also specify that haul truck deliveries be subject to the same hours specified for construction equipment. Additionally, the plan shall denote any construction traffic haul routes where heavy trucks would exceed 100 daily trips (counting those both to and from the construction site). To the extent feasible, the plan shall denote haul routes that do not pass sensitive land uses or residential dwellings. Lastly, the construction-related noise mitigation plan shall incorporate any other restrictions imposed by the City.</p>	
		<p><i>General Plan Policy 11.8.2 (previously would have been in General Plan Chapter 11.6.2): Damage Due to Construction Vibration.</i> Where new development is proposed in areas adjacent to any vibration-sensitive land uses or adjacent to vibration-sensitive activities, require a screening level vibration analysis. If a screening level analysis shows that the project has the potential to result in</p>	



**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		damage to structures or where vibration could substantially interfere with normal operations, require a detailed vibration impact assessment prepared by a structural engineer or other appropriate professional to determine appropriate design means and methods of construction to avoid the potential damage, if feasible.	
<b>M. Population and Housing</b>			
<i>Implementation of the Project would not result in any significant population and housing impacts. The following General Plan policies would ensure no significant impacts would occur.</i>		<i>Housing Element Policy 1.2: Housing Rehabilitation.</i> Continue to participate in housing rehabilitation programs and pursue funding to rehabilitate older housing units.	
		<i>Housing Element Policy 5.4: Anti-Displacement.</i> Reduce the displacement of low-income communities of color by enhancing protections for vulnerable tenant and homeowners and preserving affordable housing in areas that are gentrifying or at risk of gentrification	
<b>N. Public Services and Recreation</b>			
<i>Implementation of the Project would not result in any significant public services and recreation impacts. The following General Plan policies would ensure no significant impacts would occur.</i>		<i>General Plan Policy 3.5.2: Fire Protection Facilities</i> <i>3.5.2.2: Performance Standard.</i> Prior to the approval of discretionary development projects, require written verification from the Contra Costa County Fire Protection District that a five-minute response time (including a three-minute running time) can be maintained for 80 percent of emergency fire, medical, and hazardous materials calls on a citywide response area basis.	
		<i>General Plan Policy 3.5.3 Police Services</i> <i>3.5.3.1: Performance Objective.</i> Maintain an active police force, while developing programs and police facilities that are designed to enhance public safety and protect the citizens of Antioch by providing an average response time to emergency calls of between seven and eight minutes from the time the call is received to the time an officer arrives.	
		<i>3.5.3.2: Performance Standard.</i> Maintain a force level within a range of 1.2 to 1.5 officers, including community service officers assigned to community policing and prisoner custody details, per 1,000 population. The ratio of community service officers assigned to community policing and prisoner	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		custody details to sworn officers shall not exceed 20 percent of the total number of sworn officers.	
		<p><i>General Plan Policy 3.5.8: Schools</i>  <i>3.5.8.1: Performance Objective.</i> Provision of schools in locations that are readily accessible to student populations along with sufficient facilities to provide educational services without overcrowding.  <i>3.5.8.2: Performance Standard.</i> Require new development to provide necessary funding and/or capital improvements to mitigate projected impacts on school facilities, as determined by the responsible school district.</p>	
		<p><i>General Plan Policy 8.8.2: School Facilities Policies</i></p> <ul style="list-style-type: none"> <li>a. Maintain clear, ongoing communications with area school districts on all matter related to the need for and provision of school sites and other administrative, educational, and recreational facilities.</li> <li>b. Coordinate the planning efforts of the City and local school districts by:               <ul style="list-style-type: none"> <li>▪ locating school facilities to facilitate the primary educational purpose of the facility and allow for safe pedestrian, bicycle, and vehicular access, including the provision of traffic calming measures, where appropriate, in the vicinity of schools;</li> <li>▪ maximizing the joint use of facilities by the City and local school district (including, joint school/park sites and, where feasible, joint use of athletic fields, community meeting facilities, and provision of child and senior care facilities) by developing joint funding for such facilities through a combination of school district and City sources, provided that City contributions to joint facilities are consistent with the availability of such joint facilities to meet non-school recreational and other community needs;</li> <li>▪ designing attractive facilities that can also serve as neighborhood and community gathering places, and contribute to neighborhood identity and pride;</li> <li>▪ requiring reasonable reservation of appropriate locations for development of new schools as part of new development;</li> <li>▪ regularly exchanging information on ( 1) the status of development review and construction, (2) the capacity of area schools, (3) the status of site</li> </ul> </li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>acquisitions by the districts, and (4) applicable student generation factors by type of development.</p> <p>c. Require new development to pay all legally established fees or participate in land-based financing districts established by local school districts for the acquisition and development of school sites with adequate, permanent classroom space, as required by the local school district.</p> <p>d. Maintain land development regulations permitting the development of public and private educational facilities at appropriate locations within the Planning Area.</p> <p>e. Provide incentives in the City's residential growth management program for the provision of developer assistance to local school districts beyond nominally required mitigation fees. The objective of such incentives is that the combination of required fees and incentives provide a full contribution proportional to the needs of the proposed development for all school related facilities to serve the proposed project.</p> <p>f. Work with Los Medanos College to further accessibility to and the quality of local community college education.</p> <p>g. Work with public and private universities (e.g., CSU Hayward, University of Phoenix) to create satellite campuses within Antioch.</p> <p>h. Work with trade schools (e.g., DeVry Institute, ITT Technical Institute, Bryman College) to locate new facilities in Antioch.</p>	
		<p><i>General Plan Policy 8.10.1: Fire Protection Objective</i>                      Provision of an adequate number of fire stations, along with fire fighting personnel and equipment to protect Antioch residents and businesses.</p>	
		<p><i>General Plan Policy 8.10.2: Fire Protection Policies</i></p> <p>a. Work with the Contra Costa County Fire Protection District to provide high quality fire protection services to area residents and businesses. The City's role should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>▪ Determining the appropriateness of station location sites;</li> <li>▪ Enforcement of building codes to reduce fire hazards;</li> <li>▪ Collection of mitigation fees established by the fire district to construct needed additional stations within the Antioch Planning Area.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Support the District in providing funding for personnel costs to staff stations within the City;</li> <li>▪ Support the District in establishing fees that are adequate to mitigate the impacts of new development and income to support operation of new stations whose construction is financed with development fees; and</li> <li>▪ Requiring reasonable reservation of appropriate sites for new fire stations as part of new development.</li> </ul> <p>b. In cooperation with the Contra Costa County Fire Protection District, conduct an annual assessment of the adequacy of facilities and services serving Antioch, personnel and staffing needs, and capital needs, based on anticipated growth and the level of service standard set forth in the Growth Management Element. This assessment should be undertaken as part of the annual review of proposed capital projects required by the California Government code (see Chapter 12, Implementation, Section 12.4b).</p> <p>c. Provide the Contra Costa County Fire Protection District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.</p> <p>d. Involve the Fire Protection District in the development review process by referring development requests to the Fire District for review and comment.</p>	
		<p><i>General Plan Policy 8.11.2: Police Services Policies</i></p> <ul style="list-style-type: none"> <li>a. Provide an adequate police force meeting the performance standards for police services set forth the Growth Management Element.               <ul style="list-style-type: none"> <li>▪ As part of the annual budget and capital improvements program, assess crime prevention and law enforcement services, and evaluate the adequacy of Antioch's facilities and services, personnel and staffing needs, and capital needs, based on anticipated growth and the level of service standard set forth in the Growth Management Element.</li> </ul> </li> <li>b. Provide sufficient facilities and staffing to ensure the safety of the citizens of Antioch by:               <ul style="list-style-type: none"> <li>▪ Providing expedient response to emergency calls.</li> </ul> </li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<ul style="list-style-type: none"> <li>▪ Maintaining an efficient well-trained and adequately equipped force of police personnel.</li> <li>▪ Providing neighborhood watch and crime prevention programs, and attempting to improve the participation of individual neighborhoods and businesses.</li> <li>▪ Continuing to provide a variety of programs within the Police Department (e.g., traffic crime prevention, REACH, narcotics, investigations) to meet the needs of an active community.</li> <li>c. Provide basic requirements and incentives for the provision of design features in new development to reduce the potential for crime.                             <ul style="list-style-type: none"> <li>▪ Provide well-lighted and visible streets and street names, entrances, addresses, recreation areas, and parking areas.</li> <li>▪ Limit access into and between buildings to reduce escape routes and undetected entry is made difficult.</li> <li>▪ Provide landscaping which permits surveillance of open areas and entryways, and does not create places for concealment.</li> <li>▪ Within multi-family and non-residential developments, design access systems to allow emergency vehicle access around buildings to the greatest extent possible.</li> <li>▪ Within multi-family and non-residential developments, eliminate the potential for access to roofs by pallets, flag poles, etc.</li> </ul> </li> <li>d. Involve the Antioch Police Department in the development review process by referring development requests to the Police Department for review and comment.</li> <li>e. Promote community involvement in crime prevention.                             <ul style="list-style-type: none"> <li>▪ Promote the establishment and operation of neighborhood watch, park watch, and business watch programs.</li> <li>▪ Work with area schools to maintain educational programs aimed at preventing gang and drug-related activities.</li> </ul> </li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
<b>O. Utilities and Service Systems</b>			
<p><i>Implementation of the Project would not result in any significant utilities and service system impacts. The following General Plan policies would ensure no significant impacts would occur.</i></p>		<p><i>General Plan Policy 8.4.2: Water Facilities Policies</i></p> <ul style="list-style-type: none"> <li>a. As part of the design of water systems, provide adequate pumping and storage capacity for both drought and emergency conditions, as well as the ability to provide fire flows required by the Contra Costa County Fire Protection District.</li> <li>b. Ensure that adequate infrastructure is in place and operational prior to occupancy or new development, such that (1) new development will not negatively impact the performance of water facilities serving existing developed areas, and (2) the performance standards set forth in the Growth Management Element will continue to be met.</li> <li>c. Maintain an up-to-date master plan of water facilities.</li> <li>d. Maintain existing levels of water service by protecting and improving infrastructure, replacing water mains and pumping facilities as necessary, and improving the efficiency of water transmission facilities.</li> <li>e. Permit the construction of interim facilities only when it is found that construction of such facilities will not impair the financing or timely construction of master planned facilities.</li> <li>f. Periodically evaluate local water consumption patterns, the adequacy of existing facilities, and the need for new facilities, including this information in the comparison of proposed development projects to the performance standards of the Growth Management Element.</li> <li>g. Incorporate expected reductions in the need for water facilities resulting from water conservation programs only after several years of experience with the implementation of such programs.</li> <li>h. Provide the Contra Costa Water District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.</li> </ul>	
		<p><i>General Plan Policy 8.5.2: Wastewater Management Policies</i></p> <ul style="list-style-type: none"> <li>a. As part of the design of sewer systems, provide adequate capacity for average and peak conditions.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>b. Ensure that adequate infrastructure is in place and operational prior to occupancy of new development, such that new development will (1) not negatively impact the performance of sewer facilities serving existing developed areas, and (2) the performance standards set forth in the Growth Management Element will continue to be met.</p> <p>c. Maintain an up-to-date master plan of sewer facilities.</p> <p>d. Continue to facilitate economically feasible water conservation programs as a means of reducing sewage generation and the need for expanding sewage treatment capacity.</p> <p>e. Work with Delta Diablo Sanitation District to explore and develop uses for treated wastewater. Where reclaimed wastewater can be economically delivered, require the installation of dual water systems permitting the use of reclaimed water supplies for irrigation purposes and industrial purposes.</p> <p>f. Incorporate expected reductions in sewage flow projections and the need for sewage treatment capacity resulting from water conservation programs only after several years of experience with the implementation of such programs.</p> <p>g. Permit the construction of interim facilities only when it is found that construction of such facilities will not impair the financing or timely construction of master planned facilities.</p> <p>h. Periodically evaluate local sewage generation patterns, the adequacy of existing facilities, and the need for new facilities, including this information in the comparison of proposed development projects to the performance standards of the Growth Management Element.</p> <p>i. Provide the Delta Diablo Sanitary District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.</p> <p>j. Work cooperatively with affected agencies to ensure that capacity allocations are adjusted among the agencies served by Delta Diablo Sanitation District to optimize plant utilization, avoid unnecessary expansions, and facilitate needed expansions.</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p><i>General Plan Policy 8.6.2: Solid Waste Management Policies</i></p> <ul style="list-style-type: none"> <li>a. Continue contracting for garbage and recycling collection services.</li> <li>b. Require provision of attractive, convenient recycling bins and trash enclosures in new residential and non-residential development.</li> <li>c. Provide and promote opportunities to reduce solid waste generation at home and in businesses and public facilities, making possible the safe disposal of hazardous materials.</li> <li>d. Require builders to incorporate interior and exterior storage areas for recyclables into new commercial, industrial, and public buildings.</li> <li>e. Consider the use of co-generation at appropriate facilities.</li> <li>f. Support the identification and selection of new landfill sites in remote locations of the County outside of and not requiring access through the Antioch Planning Area, where such sites would not impact existing or proposed parks or water storage facilities.</li> <li>g. Limit the location of solid waste transfer stations to areas where heavy industrial uses would be appropriate, avoiding traffic, odor, and other environmental impacts on the community.</li> <li>h. The City of Antioch shall follow State regulations in implementing the goals, policies, and programs in order to achieve and maintain a 50 percent reduction in solid waste disposal through source reduction, reuse, recycling, and composting.</li> <li>i. In accordance with State regulations, Antioch shall prepare an annual progress report to determine the City’s progress toward meeting its diversion goals and objectives.</li> <li>j. The City shall require all development projects to coordinate with appropriate departments and/or agencies to ensure that there is adequate waste disposal capacity to meet the waste disposal requirements of the project, and the City shall recommend that all development projects incorporate measures to promote waste reduction, reuse, recycling, and composting.</li> </ul>	
		<p><i>General Plan Policy 8.7.2: Storm Drainage and Flood Control Policies</i></p> <ul style="list-style-type: none"> <li>a. Continue working with the Contra Costa County Flood Control District to ensure that runoff from new development is adequately handled.</li> </ul>	



**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>b. Require adequate infrastructure to be in place and operational prior to occupancy of new development, such that:</p> <ul style="list-style-type: none"> <li>▪ new development will not negatively impact the performance of storm drain facilities serving existing developed areas and</li> <li>▪ the performance standards set forth in the Growth Management Element will continue to be met.</li> </ul> <p>c. Design flood control within existing creek areas to maximize protection of existing natural settings and habitat.</p> <p>d. Provide retention basins in recreation areas where feasible to reduce increases in the amount of runoff resulting from new development.</p> <p>e. Require new developments to provide erosion and sedimentation control measures to maintain the capacity of area storm drains and protect water quality.</p> <p>f. Require implementation of Best Management Practices in the design of drainage systems to reduce discharge of non-point source pollutants originating in streets, parking lots, paved industrial work areas, and open spaces involved with pesticide applications.</p>	
<b>P. Wildfire</b>		<p><i>General Plan Policy 3.5.2.1: Performance Objective</i>                      Maintain competent and efficient fire prevention and emergency fire, medical, and hazardous materials response services with first responder capability in order to minimize risks to life and property.</p> <p><i>General Plan Policy 3.5.2.2: Performance Standard</i>                      Prior to approval of discretionary development projects, require written verification from the Contra Costa County Fire Protection District that a five-minute response time (including three-minute running time) can be maintained for 80 percent of emergency fire, medical, and hazardous materials call on a citywide response area basis.</p> <p><i>General Plan Policy 8.10.2: Fire Protection Policies</i></p> <p>a. Work with the Contra Costa County Fire Protection District to provide high quality fire protection services to area residents and businesses. The City's role should include, but not be limited to: Determining the appropriateness of</p>	
<p><i>Implementation of the Project would not result in any significant wildfire impacts. The following General Plan policies would ensure no significant impacts would occur.</i></p>			

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>station location sites; Enforcement of building codes to reduce fire hazards; Collection of mitigation fees established by the fire district to construct needed additional stations within the Antioch Planning Area. Support the District in providing funding for personnel costs to staff stations within the City; Support the District in establishing fees that are adequate to mitigate the impacts of new development and income to support operation of new stations whose construction is financed with development fees; and Requiring reasonable reservation of appropriate sites for new fire stations as part of new development.</p> <p>b. In cooperation with the Contra Costa County Fire Protection District, conduct an annual assessment of the adequacy of facilities and services serving Antioch, personnel and staffing needs, and capital needs, based on anticipated growth and the level of service standard set forth in the Growth Management Element. This assessment should be undertaken as part of the annual review of proposed capital projects required by the California Government code (see Chapter 12, Implementation, Section 12.4b).</p> <p>c. Provide the Contra Costa County Fire Protection District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.</p> <p>d. Involve the Fire Protection District in the development review process by referring development requests to the Fire District for review and comment.</p>	
		<p><i>General Plan Policy 11.6.2 (previously General Plan Policy 11.5.2): Fire Hazards Policies</i></p> <p>a. Where new development borders wildland areas, require appropriate fuel modification and use of fire retardant building materials per the requirements of the Contra Costa County Fire Protection District. Fuel modification may be permitted to extend beyond the boundaries of the site for which wildland fire protection is being provided only if the adjacent owner provides written permission, the proposed fuel modification is consistent with the management practices of the agency controlling such land (if it is in permanent open space), and the off-site fuel modification activity will not significantly impact sensitive habitat areas.</p>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		<p>b. Require that adequate fire protection be available at initial project occupancy, whenever feasible. Thus, stations should be constructed and manned at the outset of new development. If the Contra Costa Fire Protection District finds that a lag time between initial occupancy and operation of new stations cannot be avoided, the City may consider requiring sprinklers in new homes as an alternative.</p>	
		<p><i>General Plan Policy 11.11.2 (previously General Plan Policy 11.8.2): Fire Hazards Policies</i></p> <p>a. Maintain and update the City's emergency Response Plan, as required by State law.</p> <p>b. Disseminate disaster preparedness information to local residents and businesses, describing how emergency response will be coordinated, how evacuation, if needed, will proceed, and what residents and businesses can do to prepare for emergency situations. Provide information to the public about:</p> <ul style="list-style-type: none"> <li>▪ Environmental hazards existing in Antioch;</li> <li>▪ The costs of doing nothing to mitigate these hazards;</li> <li>▪ Why governmental agencies can not eliminate all hazards;</li> <li>▪ What the City does to assist;</li> <li>▪ What the City cannot do;</li> <li>▪ What the public can do to protect itself.</li> </ul> <p>c. Maintain an effective and properly equipped emergency operations center, along with trained personnel, for receiving emergency calls, providing initial response and key support to major incidents, meeting the demands of automatic and mutual aid programs, and maintaining emergency incident statistical data.</p> <p>d. Maintain ongoing emergency response coordination with surrounding jurisdictions.</p> <p>e. Encourage private businesses and industrial uses to be self-sufficient in an emergency by:</p> <ul style="list-style-type: none"> <li>▪ Maintaining a fire control plan, including onsite fire fighting capability and volunteer response teams to respond to and extinguish small fires; and</li> <li>▪ Identifying personnel who are capable and certified in first aid and CPR.</li> </ul>	

**TABLE II-1 SUMMARY OF IMPACTS, MITIGATION MEASURES, AND GENERAL PLAN POLICIES**

Impacts	Level of Significance Without Mitigation Measure	Mitigation Measures/General Plan Policies	Level of Significance After Implementation of Mitigation Measures or General Plan Policies
		f. Regularly review and clarify emergency evacuation plans for dam failure, fire, and hazardous materials releases.	
<b>Q. Agriculture and Forestry Resources</b>			
<i>Implementation of the project would not result in any significant agriculture and forestry resources impacts.</i>			

### III. PROJECT DESCRIPTION

This chapter describes the Antioch Housing, Environmental Hazards, and Environmental Justice (EJ) Elements being added to the General Plan (the Project). This chapter summarizes the purpose and mandated content of the Project under State law and describes the goals, objectives, and key characteristics of the Project, as well as the approvals required to implement it.

The Project includes an array of policies, strategies, and changes to regulations for the purpose of creating a desired future growth and development framework. Many policies and proposed actions in the Project are not related to an analysis of potentially adverse environmental impacts as required under CEQA. As such, the information presented and described in this chapter more narrowly focuses on aspects of the Project that are pertinent to the potential environmental effects.

#### A. INTRODUCTION

The Project is being proposed by the City of Antioch (City) to comply with California Government Code Section 65580-65589.8, which requires local jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups. The Project includes the following components:

1. **Housing Element.** Adoption and implementation of the City's 6th Cycle Housing Element Update (2023-2031), including the adoption and implementation of rezoning and General Plan amendments to accommodate the City's Regional Housing Needs Allocation (RHNA). This component is referred to as the Housing Element throughout this EIR.
2. **Environmental Hazards Element.** Adoption and implementation of related updates to the City's Environmental Hazards Element. This component is referred to as the Environmental Hazards Element throughout this EIR.
3. **Environmental Justice (EJ) Element.** Adoption and implementation of associated EJ General Plan policies per Senate Bill (SB) 1000. This component is referred to as the EJ Element throughout this EIR.

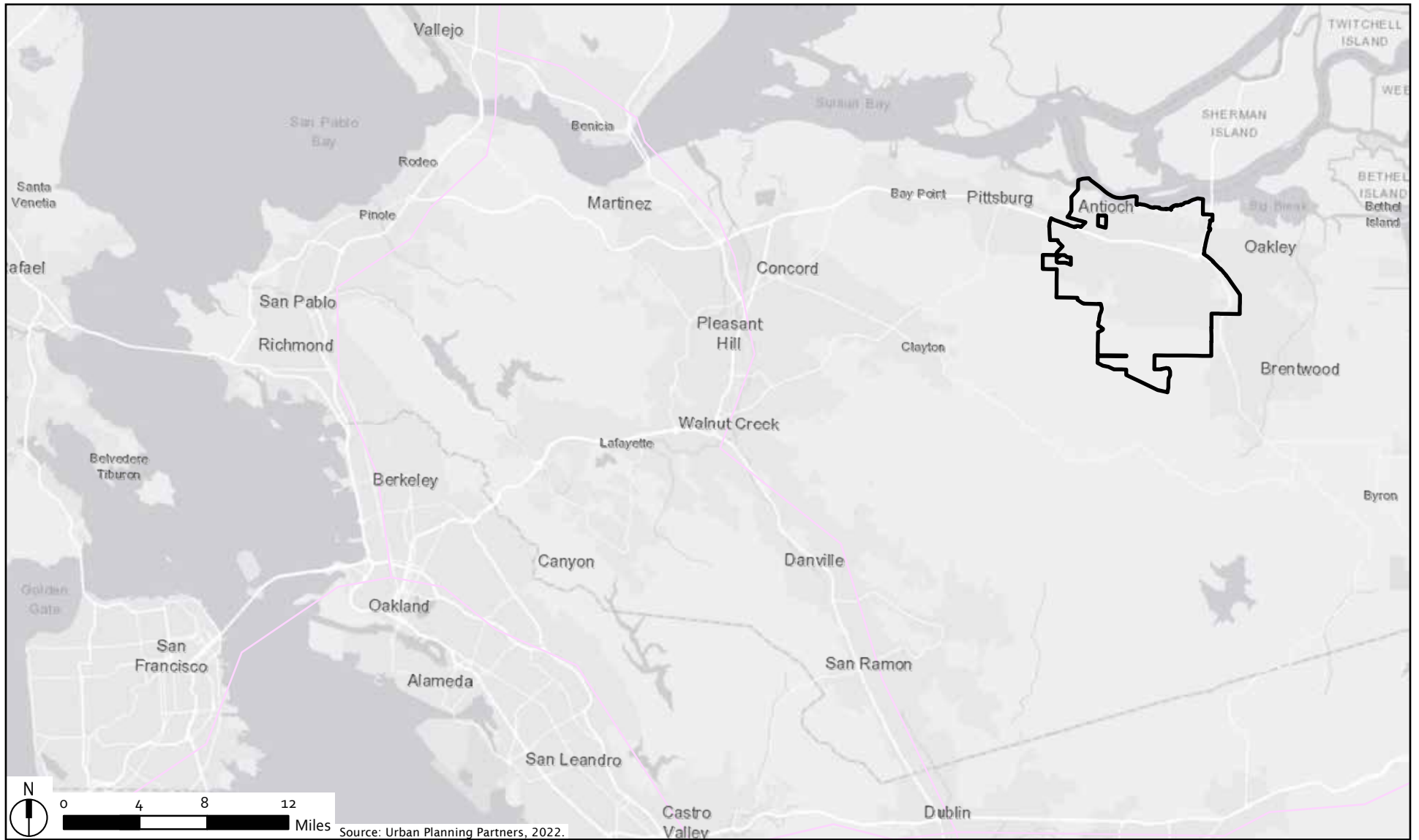
For purposes of this EIR, these three actions are together considered a "Project" under CEQA regulations. Each component of the Project is described in *Section E, Project Components*, of this chapter.

## B. PROJECT LOCATION

The city of Antioch is located in the East Bay region of the San Francisco Bay Area within Contra Costa County, California. Antioch is bordered by the San Joaquin-Sacramento River Delta to the north, the Diablo Mountains to the south, the city of Oakley to the east, and the city of Pittsburg to the west. California State Route (SR)-4, a major regional freeway, passes through the city diagonally in an east-west direction and connects Antioch to the Sierra foothills and neighboring city of Brentwood to the southeast, and to the rest of the San Francisco Bay Area to the west. Additionally, the city has its own Bay Area Rapid Transit (BART) station along the SR-4 corridor, further connecting the city to the rest of the Bay Area region to the west via a one-hour transit ride. California SR-160, another state roadway, also intersects Antioch, beginning in the northeastern portion of the city before it crosses the San Joaquin River and connects north to the city of Sacramento. Figure III-1 provides both a local and regional context map of the city's jurisdictional boundaries. This boundary shall serve as the geographic extent of the Project.

The city of Antioch encompasses approximately 30 square miles in total land area. While the predominate land use throughout the city is single-family residential uses, several areas throughout the city contain distinct land use patterns and development characteristics which contribute to the overall character of the city. These areas include the city's historic downtown, located in the northwestern part of the city along the San Joaquin River, and comprised of a diverse mix of land uses including commercial and retail storefronts and residential neighborhoods of varying historic architectural styles. This area is designated the Downtown Specific Plan Focus Area on the City's General Plan Land Use Map. Opposite of historic downtown, the eastern portion of the city's riverfront is primarily dedicated to heavy commercial and industrial uses, which provide a majority of the city's employment opportunities. This area is designated the Eastern Waterfront Employment Focus Area on the City's General Plan Land Use Map. Outside of downtown, commercial uses are concentrated along major roadway corridors including SR-4, Somersville Road, Lone Tree Way, and Hillcrest Avenue, which hosts the city's BART Station. These areas are designated the Hillcrest Station Focus Area, Western Gateway Focus Area, and East Lone Tree Specific Plan Focus Area on the City's General Plan Land Use Map. Figure III-2 shows the boundaries of the City's specific plan focus areas.

Additionally, a significant portion of the city is designated as and preserved for use as open space, including agricultural and recreational lands and open water. These lands make up over 50 percent of the city's land use area and include large portions of the areas designated Sand Creek Focus Area, Roddy Ranch Focus Area, and Ginochio Property Focus Area on the City's General Land Use Plan. Figure III-3 shows the Antioch General Plan Land Use Map.



City Boundary

Figure III-1  
Project Location

**Antioch Housing, Environmental Hazards, and EJ Elements EIR**

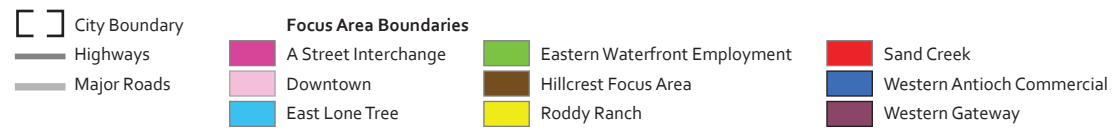
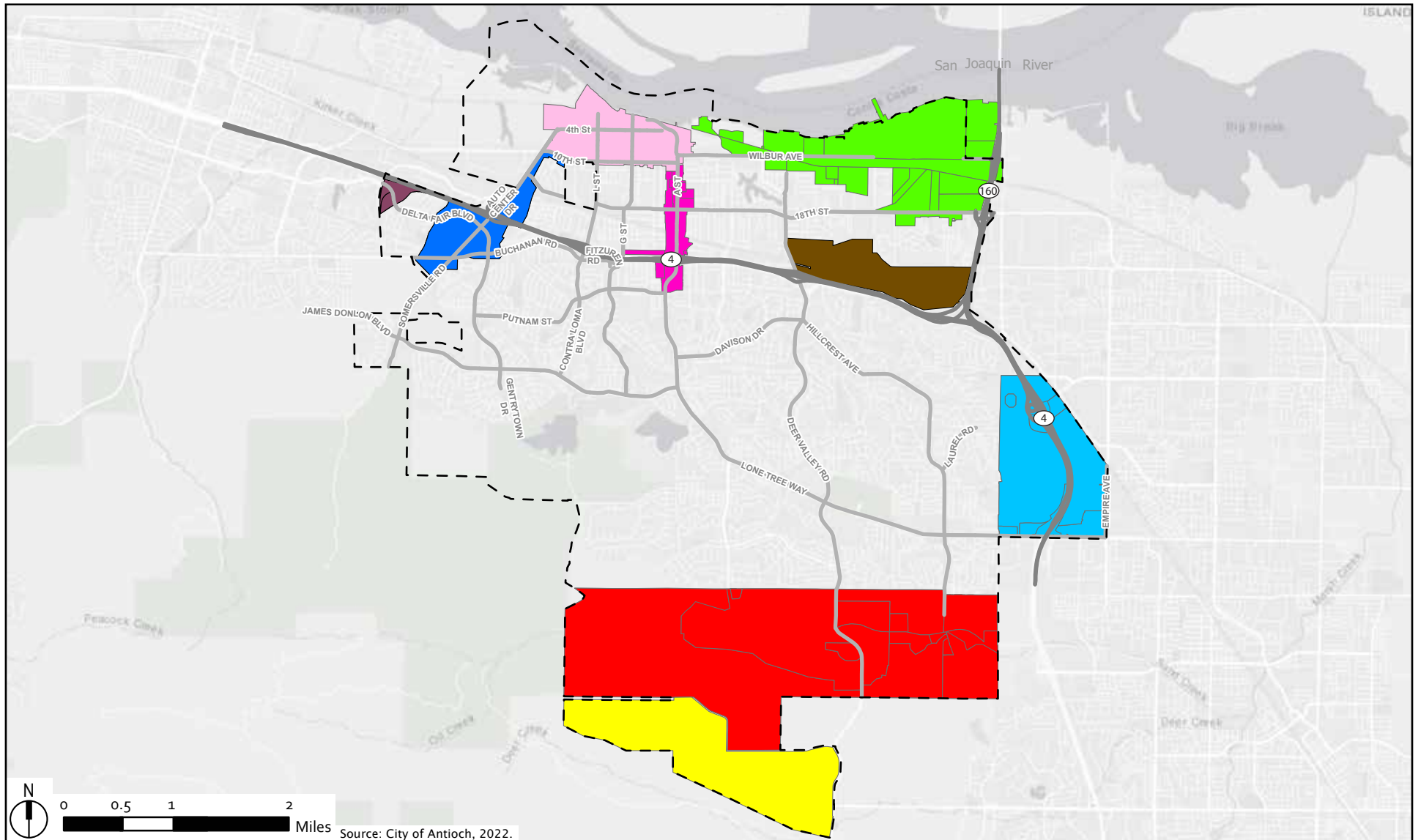
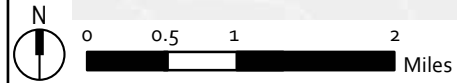
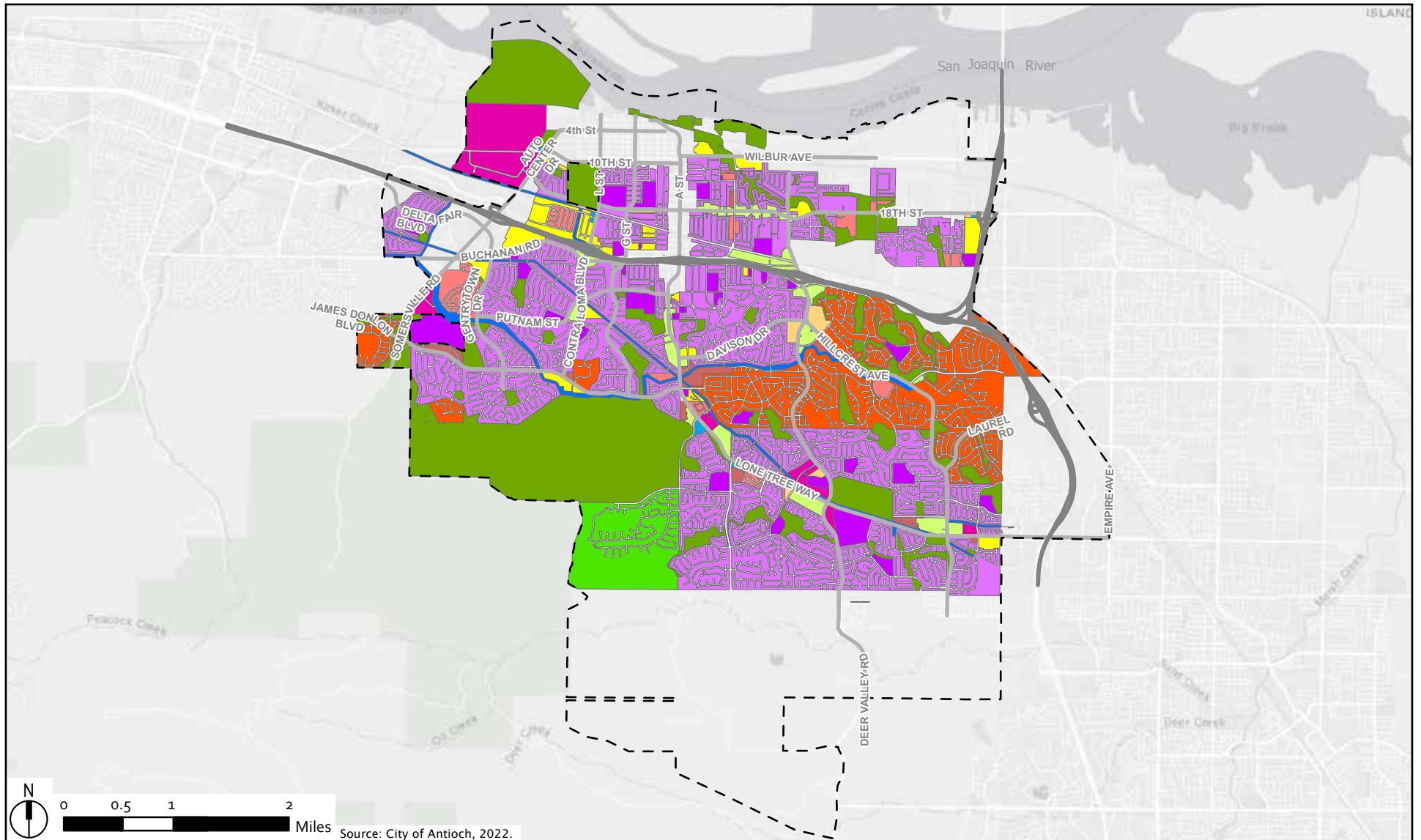


Figure III-2  
Antioch Planning Areas





Source: City of Antioch, 2022.

- |               |                               |                            |                                   |                      |       |
|---------------|-------------------------------|----------------------------|-----------------------------------|----------------------|-------|
| City Boundary | <b>General Plan Land Uses</b> | High Density Residential   | Medium Low Density Residential    | Office               | Water |
| Highways      | Business Park                 | Low Density Residential    | Mixed Use                         | Open Space           |       |
| Major Roads   | Convenience Commercial        | Medium Density Residential | Neighborhood Community Commercial | Public/Institutional |       |
|               | Estate Residential            |                            |                                   |                      |       |

Figure III-3

Current General Plan Designations

**Antioch Housing, Environmental Hazards, and EJ Elements EIR**

## 1. EJ Neighborhoods

In compliance with Senate Bill 1000 (SB 1000) (2016), as part of the Project, the City of Antioch was required to identify disadvantaged parts of the city which are 1) low income, and 2) disproportionately affected by environmental pollution and other hazards which can lead to negative health effects, exposure, or environmental degradation. These parts of the community are referred to as “Environmental Justice (EJ) neighborhoods.” Per SB 1000, local jurisdictions are required to develop and adopt environmental justice policies that are to be integrated into the jurisdiction’s General Plan to reduce the unique or compounded health risks experienced by disadvantaged communities, to encourage civic engagement in the public decision-making process within disadvantaged populations, and to prioritize improvements and programs that benefit disadvantaged populations.

EJ neighborhoods within the city of Antioch were identified through utilization of the California Office of Environmental Health Hazard Assessment’s (OEHHA) CalEnviroScreen mapping tool. The mapping tool included census-tract level environmental, health, and socioeconomic information mapped to identify areas within the city most affected by sources of pollution, where people are especially vulnerable to the effects of pollution. The city of Antioch’s EJ neighborhoods include census tracts 3050, 3060.03, 3071.02, 3072.02 and 3080.01, all of which scored above a 0.75 via the CalEnviroScreen tool. As shown in Figure III-4, these neighborhoods are generally located in the northeastern and central parts of the city, spanning from the city’s riverfront to the southeast, across SR-4.

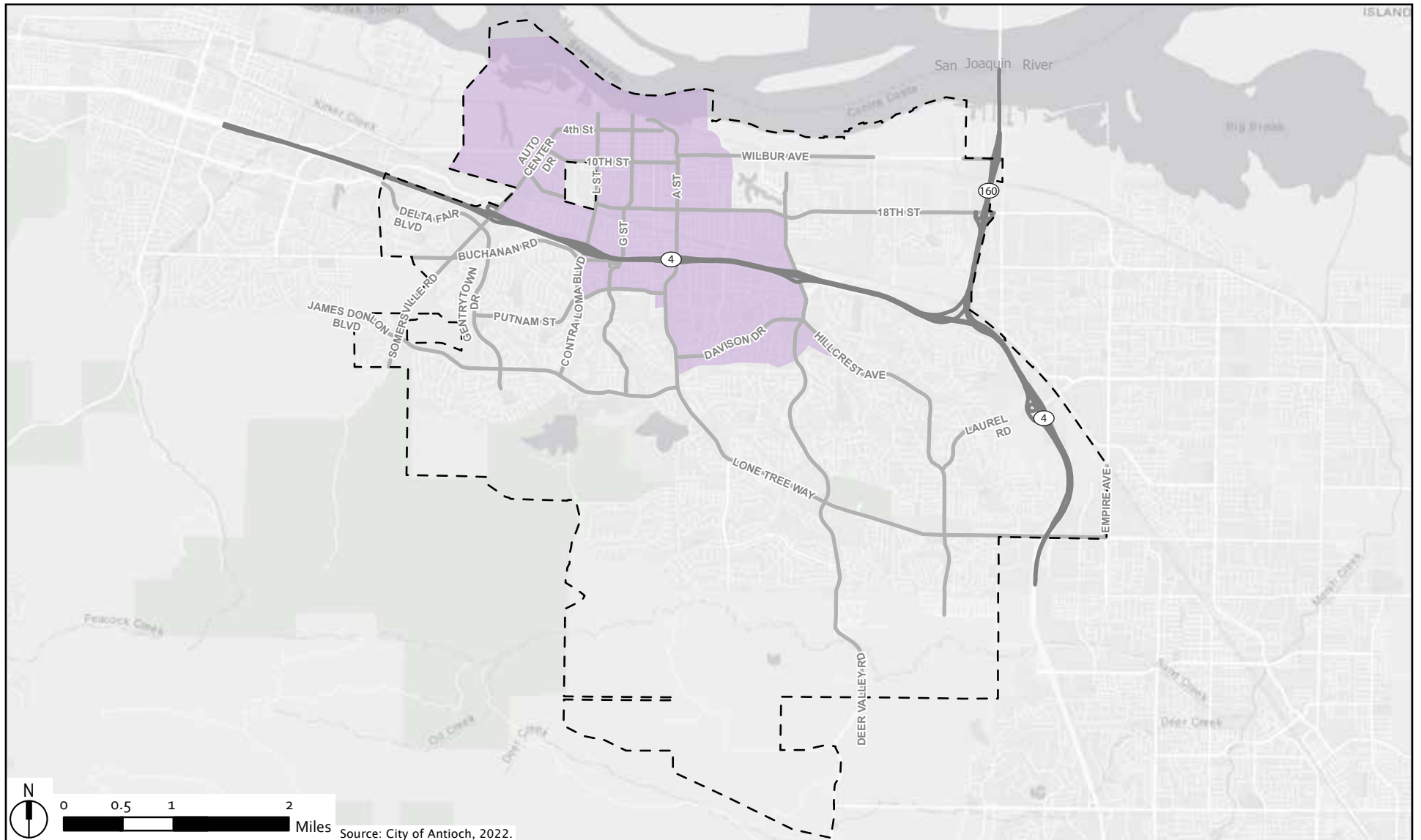
## C. BACKGROUND

According to the California Department of Finance, the city of Antioch’s population was estimated at 115,327 persons as of 2020.<sup>1</sup> In 2010, Antioch’s population was 102,372, representing an approximately 12.6 percent increase since the year 2010.<sup>2</sup> This growth resembles regional trends across the Bay Area where continued population growth lends itself to increased demand for housing and the ongoing housing affordability crisis many communities face. Also contributing to this affordability crisis is a slowing of housing production in many communities due to restrictive land use regulations, high development costs, and other impediments to housing development. The slowing of housing supply, when coupled with rising demand for housing (due to population increase) exacerbates already rising housing costs. In the city of

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<sup>1</sup> California Department of Finance, 2020. E-5 City/County Population and Housing Estimates, April 1.

<sup>2</sup> California Department of Finance, 2021. E-4 Population Estimates for Cities, Counties, and the State, 2011-2021, with 2010 Census Benchmark, March 23.



Source: City of Antioch, 2022.





-  City Boundary
-  Highways
-  Major Roads
-  Environmental Justice Neighborhoods

Figure III-4  
EJ Neighborhoods

Antioch, a majority of the housing stock was produced over two decades ago, prior to the year 2000. Additionally, just 3 percent of residential units comprising the city's housing stock were built after the year 2010.

Recognizing the important role regulatory systems play in the production of housing by the private sector, the State of California has required local jurisdictions to adopt and maintain Housing Elements as part of their General Plan documents since 1969. General Plans serve as a roadmap for communities to use to regulate development within their jurisdiction and must contain at least eight sections, inclusive of a Housing Element and Safety Element, as mandated by the State. The State further requires jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups and comply with new housing laws. The City of Antioch is updating the Housing Element of its General Plan for the 2023-2031 planning period and adopting a series of related rezonings and specific plan and General Plan amendments necessary to accommodate the City's RHNA obligation.

The Housing Element update triggers required updates to other aspects of the City's General Plan. Per SB 1035, jurisdictions must update their Safety Elements when they update their Housing Elements. In Antioch, the Safety Element is referred to as the Environmental Hazards Element. Additionally, per SB 1000 (2016), any time two or more elements of the General Plan are updated the must prepare an EJ Element or policies when a local jurisdiction identifies one or more disadvantaged communities within its General Plan planning area. The required EJ planning must result in EJ policies, either added to the jurisdiction's existing General Plan or contained in a standalone EJ Element. Antioch does include "disadvantaged communities," which are referred to as EJ neighborhoods in this EIR. The City is updating its current General Plan to include EJ policies to enable that all residents have equal access to opportunities that enable them to lead healthy lives.

#### **D. PROJECT OBJECTIVES**

In accordance with CEQA Guidelines Section 15124, an EIR must present a statement of project objectives, which in the case of General Plan elements, are often the same as the objectives of the element. For this EIR, the Project objectives include the City of Antioch's five housing goals contained within their 6th Cycle Housing Element Update (2023-2031), the eight objectives included in the Environmental Hazards Element, and the eight objectives associated with the EJ Element. These goals and objectives are detailed below.

## 1. Housing Element Goals and Policies

The updated Housing Element's goals are described below:

- **Goal 1, Housing Conservation and Improvement:** Conserve and improve the existing housing supply to provide adequate, safe, and decent housing for existing Antioch residents.
- **Goal 2, Housing Production:** Facilitate the development of a broad array of housing types to meet the City's fair share of regional housing needs and accommodate new and current Antioch residents of diverse ages and socioeconomic backgrounds.
- **Goal 3, Special Needs Housing:** Facilitate the development of special purpose housing to meet the needs of the elderly, persons with disabilities, large families, and the unhoused.
- **Goal 4, Elimination of Government Constraints:** Remove governmental constraints inhibiting the development of housing required to meet identified needs in Antioch.
- **Goal 5, Fair Housing:** Provide equal housing opportunities for all existing and future Antioch residents.

## 2. Environmental Hazards Element Objectives

The overall goal of the Environmental Hazards Element is to minimize the potential for loss of life, injury, property damage, and economic and social disruption resulting from natural and human-caused hazards in the community. The following are the specific hazards and related objectives provided within the updated Environmental Hazards Element:

- **Objective 11.4.1, Geology and Seismicity Hazards:** Ensure Antioch residents and businesses are better prepared and protected from the threat of seismic ground shaking and other geologic events.
- **Objective 11.5.1, Flood Protection:** Ensure flooding impacts in Antioch are minimized or eliminated wherever possible.
- **Objective 11.6.1, Fire Hazards:** Meet anticipated needs and demands that address hazards associated with wildland and urban fire.
- **Objective 11.7.1, Climate Change Adaptation:** Incorporate the changing risks associated with climate change into the protection of life, property, the economy, and the environment.
- **Objective 11.8.1, Noise:** Achieve and maintain exterior noise levels appropriate to planned land uses throughout Antioch.
- **Objective 11.9.1, Hazardous Materials:** Minimize the negative impacts associated with the storage, use, generation, transport, and disposal of hazardous materials.
- **Objective 11.10.1, Disaster Response:** Maintain a level of preparedness to adequately respond to emergency situations to save lives, protect property, and facilitate recovery with minimal disruption.

- **Objective 11.11.1, Evacuation:** Ensure Antioch staff, residents, and businesses can effectively respond and evacuate during hazard events.

### **3. EJ Element Objectives**

The EJ Element would minimize pollution and its effects for all communities and strives to ensure that all people, regardless of race, ethnicity, or income, have equal protection from environmental hazards where they live, work, and play; this includes giving people equal ability to participate in, and influence, the decision-making process regarding environmental regulations. The primary objectives of the EJ Element include:

- Reduce pollution exposure.
- Promote public facilities.
- Promote food access.
- Promote safe and sanitary homes.
- Promote physical activity.
- Reduce unique or compounding health risks.
- Promote civic engagement.
- Prioritize the needs of disadvantaged communities.

## **E. PROJECT COMPONENTS**

The following provides a brief description of the proposed Housing, Environmental Hazards, and EJ Elements, which comprise of the key components of the Project.

### **1. Housing Element Update**

California Government Code Section 65580-65589.8 requires local jurisdictions to update the Housing Element of their General Plans every eight years to adequately plan for the regional housing needs of residents of all income groups. Housing Elements are required to contain a series of goals, policies and implementing programs that are intended to promote housing production within a community. These goals, policies and programs are required to be accompanied by a list of eligible land resources identified for planned residential development to accommodate the State-mandated RHNA obligation. This list of eligible land resources is referred to as a community's Housing Inventory Sites (Sites Inventory). Antioch's RHNA obligation and Sites Inventory are described below.

#### **a. Regional Housing Needs Allocation (RHNA)**

A community's RHNA obligation represents the total number of housing units that must be planned to accommodate the housing needs of all residents during the eight-year planning

period. RHNA obligation numbers are determined by a methodology established by the State of California’s Department of Finance (DOF) and Housing and Community Development (HCD) Department. RHNA obligation numbers are ascribed to each region of the State and further allocated to local communities by the designated regional planning entity for each region. The San Francisco Bay Area’s RHNA obligation for the 2023-2031 6<sup>th</sup> Cycle Housing Element Update is 441,176 housing units. The City of Antioch’s “fair share” of this RHNA obligation is 3,016 as determined by the Association of Bay Area Governments (ABAG). The City’s RHNA obligation per income level is shown in Table III-1.

**TABLE III-1 ANTIOCH REGIONAL HOUSNG NEEDS ALLOCATION OBLIGATION (2023-2031)**

Income Category	Units	Percent of Total
Very Low Income (0-50% AMI)	792	26%
Low Income (51%-80% AMI)	456	15%
Moderate Income (81%-120% AMI)	493	16%
Above Moderate Income (>120% AMI)	1,275	42%
<b>Total</b>	<b>3,016</b>	<b>100%</b>

Note: AMI = Area Median Income

Source: Approved Final Regional Housing Needs Allocation Plan: San Francisco Bay Area, 2023-2031, December 2021.

In addition to assigning a total number of units, ABAG categorizes the units for each jurisdiction across four income groups to acknowledge the diversity of housing types necessary to accommodate the region’s housing needs. As shown in Table III-1, these income groups include very low-income households, which earn less than 50 percent of the area median income (AMI); low-income households, which earn between 50 and 80 percent of the AMI; moderate income households, which earn between 80 and 120 percent of the AMI; and above moderate-income households, which earn greater than 120 percent of the AMI.

Given recent State law, the City’s Housing Element will not only show capacity to meet its RHNA obligation, but also a buffer. SB 166 (2017) requires communities to demonstrate an ongoing, adequate supply of housing during the entirety of the housing element planning period. Therefore, if any portion of a community’s Sites Inventory is developed with non-residential uses or residential uses at higher income levels or lower intensities than anticipated by the Housing Element, a jurisdiction can be determined to be out of compliance with State Housing Element Law. Accordingly, the City has identified sites in excess of its RHNA obligation to accommodate a buffer or at least 30 percent in all income categories. Table III-2 shows the level of buffer for each income category. The Housing Element demonstrates that the City has capacity to accommodate 1,559 housing units beyond its RHNA obligation of 3,016 housing units for a total of 4,575 units, which is equivalent to an approximately 52 percent buffer. Implementation of the Project is

conservatively assumed to then result in 4,575 units. This level of buildout is unlikely but, in order to be conservative, this EIR uses the maximum buildout in order to fully identify and mitigate potential environmental impacts.

**TABLE III-2 RHNA BUFFER BY INCOME CATEGORY**

<b>Income Category</b>	<b>RHNA Units</b>	<b>Sites Inventory Units</b>	<b>Buffer Percentage</b>
Very Low Income (0-50% AMI)	792	967	22%
Low Income (51%-80% AMI)	456	548	20%
Moderate Income (81%-120% AMI)	493	947	92%
Above Moderate Income (>120% AMI)	1,275	2,113	66%
<b>Total</b>	<b>3,016</b>	<b>4,575</b>	<b>52%</b>

Source: City of Antioch and Urban Planning Partners, 2022.

**b. RHNA Credits**

Existing development projects that can count as a credit towards a jurisdiction’s RHNA obligation include pipeline and pending projects, which are projects proposed, approved, or under construction and have not received a Certificate of Occupancy as of June 30, 2022. The Housing Element identifies 394 units of housing that are under construction and anticipated to be completed during the 2023-2031 planning period.

In addition, the Housing Element uses past building permit data to project Accessory Dwelling Unit (ADU) development during the planning period. The Housing Element conservatively estimates that 136 ADUs would be constructed over the course of the eight-year planning period based on the annual average of 17 building permits the City issues between 2019 and 2021. The Housing Element utilized regional ADU affordability data<sup>3</sup> to project the affordability categories for the 136 anticipated ADUs.

As shown in Table III-3, when the pipeline and pending projects and projected ADUs are credited towards the RHNA obligation, there is a remaining need to accommodate 2,306 units through the Sites Inventory.

<sup>3</sup> Association of Bay Area Governments, 2021. Draft Affordability of Accessory Dwelling Units, September 8.



**TABLE III-3 PIPELINE, PENDING, AND PROJECTED UNITS**

	Very Low- Income Units	Low-Income Units	Moderate- Income Units	Above Moderate- Income Units	Total Units
<b>RHNA</b>	<b>792</b>	<b>456</b>	<b>493</b>	<b>1,275</b>	<b>3,016</b>
Pipeline Units	91	299	0	4	394
Pending Projects	-	-	-	-	-
Projected ADUs	41	41	41	13	316
Remaining RHNA Obligation	660	116	452	1,258	2,306

Source: Urban Planning Partners and City of Antioch, 2022.

**c. Housing Sites Inventory**

Following the accounting of pipeline and pending projects and ADU projections that can serve as credits towards a community’s RHNA obligation, jurisdictions must demonstrate their ability to accommodate the remainder of their RHNA obligation through land resources. The Sites Inventory includes both vacant and underutilized properties throughout the city which have been identified for potential future residential development or redevelopment. Conservative assumptions were used to estimate the realistic capacity of each site. See Table III-4 and Figures III-5 through III-11 for the Sites Inventory.

Antioch’s Site Inventory is comprised of 182 sites totaling 230 acres. Of these 182 sites, 125 (69 percent) are nonvacant and underutilized, and 57 (31 percent) are vacant. These sites are anticipated to accommodate the potential future development of up to 4,575 residential units, including 967 units affordable for very low-income households, 548 for low-income, 947 for moderate-income, and 2,113 for above moderate-income. Of the sites identified for affordable units (i.e., units for very low- and low-income households), 53 percent of the anticipated units would be on vacant sites and 47 percent on nonvacant, underutilized sites.

**(1) Rezonings**

The Housing Element and Sites Inventory assume that the City will rezone 169 sites to allow residential development or more intense residential development. All 169 sites would be rezoned to Medium Density Residential (R-20) or High Density Residential (R-30<sup>4</sup> and R-35) Zoning Districts before the 6<sup>th</sup> cycle housing element planning period in January 2023.

Figure III-12 and Table III-5 outline the sites that would be rezoned in conjunction with the Housing Element. It is anticipated these rezonings will allow for the realistic development of up to

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<sup>4</sup> The R-25 zone (20-25 units per acre) under the existing Antioch zoning regulations, would be amended to become the R-30 zone (20-30 units per acre) as a part of the Project.

## III. PROJECT DESCRIPTION

**TABLE III-4 HOUSING ELEMENT SITES INVENTORY**

APN	Site Address/Intersection	ZIP Code	Vacancy	Parcel Size (Gross Acres)	Very Low-Income	Low- Income	Moderate- Income	Above Moderate- Income	Total <sup>a</sup>
051-061-001	1650 Viera Avenue	94509	Nonvacant	0.42	0	0	1	1	2
051-061-002	1700 Viera Avenue	94509	Nonvacant	0.92	0	0	2	2	4
051-061-003	1730 Viera Avenue	94509	Nonvacant	0.92	0	0	2	2	4
051-062-004	1839 Stewart Lane	94509	Nonvacant	0.26	0	0	0	0	0
051-062-005	1829 Stewart Lane	94509	Nonvacant	0.29	0	0	0	0	0
051-062-006	1705 Viera Avenue	94509	Nonvacant	0.42	0	0	1	1	2
051-062-010	1853 Stewart Lane	94509	Nonvacant	1.65	0	0	4	4	8
051-071-001	1524 Viera Avenue	94509	Nonvacant	0.93	0	0	2	2	4
051-071-002	1550 Viera Avenue	94509	Nonvacant	0.51	0	0	1	1	2
051-071-003	1560 Viera Avenue	94509	Nonvacant	0.41	0	0	1	1	2
051-071-004	1574 Viera Avenue	94509	Nonvacant	0.47	0	0	1	1	2
051-071-005	1600 Viera Avenue	94509	Nonvacant	0.12	0	0	0	0	0
051-071-006	1606 Viera Avenue	94509	Nonvacant	0.82	0	0	2	2	4
051-071-008	1588 Viera Avenue	94509	Nonvacant	0.46	0	0	1	1	2
051-071-011	1636 Viera Avenue	94509	Nonvacant	0.46	0	0	1	1	2
051-071-012	1628 Viera Avenue	94509	Nonvacant	0.44	0	0	1	1	2
051-072-005	1537 Viera Avenue	94509	Nonvacant	0.46	0	0	1	1	2
051-072-006	1540 Walnut Avenue	94509	Nonvacant	0.4	0	0	1	1	2
051-072-007	1554 Walnut Avenue	94509	Nonvacant	0.51	0	0	1	1	2
051-072-013	1549 Viera Avenue	94509	Nonvacant	0.49	0	0	1	1	2
051-072-014	1565 Viera Avenue	94509	Nonvacant	0.87	0	0	2	2	4
051-072-015	1863 Bown Lane	94509	Nonvacant	0.23	0	0	0	0	0
051-072-016	1877 Bown Lane	94509	Nonvacant	0.23	0	0	0	0	0

**TABLE III-4 HOUSING ELEMENT SITES INVENTORY**

APN	Site Address/Intersection	ZIP Code	Vacancy	Parcel Size (Gross Acres)	Very Low-Income	Low- Income	Moderate- Income	Above Moderate- Income	Total <sup>a</sup>
051-072-017	1568 Walnut Avenue	94509	Nonvacant	0.23	0	0	0	0	0
051-072-018	1580 Walnut Avenue	94509	Nonvacant	0.22	0	0	0	0	0
051-073-001	1605 Viera Avenue	94509	Nonvacant	0.3	0	0	0	0	0
051-073-002	1601 Viera Avenue	94509	Nonvacant	0.22	0	0	0	0	0
051-073-003	1837 Vine Lane	94509	Nonvacant	0.205	0	0	0	0	0
051-073-004	1845 Vine Lane	94509	Nonvacant	0.205	0	0	0	0	0
051-073-005	1859 Vine Lane	94509	Nonvacant	0.21	0	0	0	0	0
051-073-006	1867 Vine Lane	94509	Nonvacant	0.21	0	0	0	0	0
051-073-007	1881 Vine Lane	94509	Nonvacant	0.21	0	0	0	0	0
051-073-008	1897 Vine Lane	94509	Nonvacant	0.85	0	0	0	0	0
051-073-009	1905 Vine Lane	94509	Nonvacant	0.3	0	0	0	0	0
051-073-011	1965 Vine Lane	94509	Nonvacant	0.46	0	0	0	0	0
051-073-012	1585 Walnut Avenue	94509	Nonvacant	0.86	0	0	2	2	4
051-073-014	1537 Walnut Avenue	94509	Nonvacant	0.51	0	0	1	1	2
051-073-015	1523 Walnut Avenue	94509	Nonvacant	0.34	0	0	1	1	2
051-073-016	1551 Walnut Avenue	94509	Nonvacant	0.39	0	0	1	1	2
051-073-017	1927 Vine Lane	94509	Nonvacant	0.24	0	0	0	0	0
051-073-018	1945 Vine Lane	94509	Nonvacant	0.26	0	0	0	0	0
051-073-019	1567 Walnut Avenue	94509	Nonvacant	0.23	0	0	0	0	0
051-073-020	1559 Walnut Avenue	94509	Nonvacant	0.23	0	0	0	0	0
051-074-001	1966 Vine Lane	94509	Nonvacant	0.2	0	0	0	0	0
051-074-002	1954 Vine Lane	94509	Nonvacant	0.23	0	0	0	0	0
051-074-003	1936 Vine Lane	94509	Nonvacant	0.22	0	0	0	0	0

## III. PROJECT DESCRIPTION

**TABLE III-4 HOUSING ELEMENT SITES INVENTORY**

APN	Site Address/Intersection	ZIP Code	Vacancy	Parcel Size (Gross Acres)	Very Low-Income	Low- Income	Moderate- Income	Above Moderate- Income	Total <sup>a</sup>
051-074-005	1898 Vine Lane	94509	Nonvacant	0.22	0	0	0	0	0
051-074-006	Vine Lane & Viera Avenue	94509	Nonvacant	0.22	0	0	0	0	0
051-074-007	1870 Vine Lane	94509	Nonvacant	0.22	0	0	0	0	0
051-074-008	1854 Vine Lane	94509	Nonvacant	0.36	0	0	0	0	0
051-074-009	1836 Vine Lane	94509	Nonvacant	0.29	0	0	0	0	0
051-074-010	1633 Viera Avenue	94509	Nonvacant	0.528	0	0	0	0	0
051-074-011	1908 Vine Lane	94509	Nonvacant	0.22	0	0	0	0	0
051-074-012	1920 Vine Lane	94509	Nonvacant	0.22	0	0	0	0	0
051-081-001	1400 Viera Avenue	94509	Nonvacant	0.17	0	0	0	0	0
051-081-002	1410 Viera Avenue	94509	Nonvacant	0.78	0	0	2	2	4
051-081-003	1428 Viera Avenue	94509	Nonvacant	0.9	0	0	2	2	4
051-081-004	1452 Viera Avenue	94509	Nonvacant	0.45	0	0	1	1	2
051-081-006	1470 Viera Avenue	94509	Nonvacant	0.95	0	0	2	2	4
051-081-007	1490 Viera Avenue	94509	Nonvacant	0.46	0	0	1	1	2
051-081-008	1500 Viera Avenue	94509	Nonvacant	0.91	0	0	2	2	4
051-082-002	1497 Walnut Avenue	94509	Nonvacant	0.85	0	0	2	2	4
051-082-003	1473 Walnut Avenue	94509	Nonvacant	0.43	0	0	1	1	2
051-082-004	1957 Santa Fe Avenue	94509	Nonvacant	0.64	0	0	1	1	2
051-082-005	1915 Santa Fe Avenue	94509	Nonvacant	0.75	0	0	2	2	4
051-082-006	1887 Santa Fe Avenue	94509	Nonvacant	0.81	0	0	2	2	4
051-082-007	1859 Santa Fe Avenue	94509	Nonvacant	0.45	0	0	1	1	2
051-082-008	1831 Santa Fe Avenue	94509	Nonvacant	0.74	0	0	2	2	4
051-082-009	1429 Viera Avenue	94509	Nonvacant	0.77	0	0	2	2	4

**TABLE III-4 HOUSING ELEMENT SITES INVENTORY**

APN	Site Address/Intersection	ZIP Code	Vacancy	Parcel Size (Gross Acres)	Very Low-Income	Low- Income	Moderate- Income	Above Moderate- Income	Total <sup>a</sup>
051-082-010	Walnut Avenue & Santa Fe Avenue	94509	Vacant	0.43	0	0	1	1	2
051-082-011	1939 Santa Fe Avenue	94509	Nonvacant	0.39	0	0	1	1	2
051-082-012	Santa Fe Avenue & Viera Avenue	94509	Nonvacant	0.38	0	0	1	1	2
051-082-013	1503 Walnut Avenue	94509	Nonvacant	0.42	0	0	1	1	2
051-082-014	1515 Walnut Avenue	94509	Nonvacant	0.43	0	0	1	1	2
051-083-001	1528 Walnut Avenue	94509	Nonvacant	0.91	0	0	2	2	4
051-083-002	1506 Walnut Avenue	94509	Nonvacant	0.45	0	0	1	1	2
051-083-004	1866 Santa Fe Avenue	94509	Nonvacant	1.38	0	0	4	4	8
051-083-005	1834 Santa Fe Avenue	94509	Nonvacant	0.46	0	0	1	1	2
051-083-006	1471 Viera Avenue	94509	Nonvacant	0.46	0	0	1	1	2
051-083-009	1509 Viera Avenue	94509	Nonvacant	0.91	0	0	2	2	4
051-083-010	1487 Viera Avenue	94509	Nonvacant	0.16	0	0	0	0	0
051-083-012	1495 Viera Avenue	94509	Nonvacant	0.75	0	0	2	2	4
051-100-022	2101 E 18 <sup>th</sup> Street	94509	Nonvacant	8	0	0	24	24	48
051-120-020	1650 Trembath Lane	94509	Nonvacant	1.48	0	0	0	8	8
051-120-021	1710 Trembath Lane	94509	Nonvacant	1.25	0	0	0	7	7
051-120-024	1450 Trembath Lane	94509	Nonvacant	1.01	0	0	0	6	6
051-120-025	1550 Trembath Lane	94509	Nonvacant	1.02	0	0	0	6	6
051-130-001	1305 St Claire Drive	94509	Nonvacant	1.01	0	0	0	6	6
051-130-002	1277 St Claire Drive	94509	Nonvacant	1.01	0	0	0	6	6
051-140-001	1705 Trembath Lane	94509	Nonvacant	1.69	0	0	0	10	10
051-140-003	1625 Trembath Lane	94509	Nonvacant	1.23	0	0	0	7	7
051-140-006	1501 Trembath Lane	94509	Nonvacant	0.98	0	0	0	5	5

III. PROJECT DESCRIPTION

**TABLE III-4 HOUSING ELEMENT SITES INVENTORY**

APN	Site Address/Intersection	ZIP Code	Vacancy	Parcel Size (Gross Acres)	Very Low-Income	Low- Income	Moderate- Income	Above Moderate- Income	Total <sup>a</sup>
051-140-007	1425 Trembath Lane	94509	Nonvacant	0.98	0	0	0	5	5
051-140-012	1613 St Claire Drive	94509	Nonvacant	1	0	0	0	6	6
051-140-013	1525 St Claire Drive	94509	Nonvacant	1	0	0	0	6	6
051-140-014	1423 St Claire Drive	94509	Nonvacant	0.65	0	0	0	3	3
051-140-015	1420 St Claire Drive	94509	Nonvacant	0.98	0	0	0	5	5
051-140-019	88 Mike Yorba Way	94509	Nonvacant	0.36	0	0	0	2	2
051-140-020	1675 Trembath Lane	94509	Nonvacant	0.39	0	0	0	2	2
051-140-025	1620 ST Claire Drive	94509	Nonvacant	1.11	0	0	0	6	6
051-140-026	1520 ST Claire Drive	94509	Nonvacant	1.87	0	0	0	11	11
051-140-027	1651 ST Claire Drive	94509	Nonvacant	0.48	0	0	0	2	2
051-140-028	1715 ST Claire Drive	94509	Nonvacant	0.49	0	0	0	2	2
051-140-035	1575 Trembath Lane	94509	Nonvacant	0.98	0	0	0	5	5
051-200-076	Holub Lane & E 18 <sup>th</sup> Street	94509	Vacant	1.08	8	4	5	13	30
051-200-037	1841 Holub Lane	94509	Nonvacant	4.4	34	19	21	55	129
051-200-038	Holub Lane	94509	Vacant	4.99	39	22	24	63	148
051-200-039	Holub Lane	94509	Vacant	5.71	44	25	28	72	169
051-230-028	3200 E 18 <sup>th</sup> Street	94509	Vacant	1.286	10	5	6	16	37
051-400-027	Wilson Street & E 18 <sup>th</sup> Street	94509	Vacant	1.204	0	0	9	9	18
052-042-044	3901 Hillcrest Avenue	94509	Nonvacant	1.62	12	7	7	20	46
052-342-010	Wildflower Drive & Hillcrest Avenue	94531	Vacant	3.77	29	17	18	47	111
053-060-055	Neroly Road & Country Hills Drive	94509	Vacant	0.525	4	2	3	7	16
053-060-056	Neroly Road & Country Hills Drive	94509	Vacant	0.606	5	3	3	8	19
053-060-057	Neroly Road & Country Hills Drive	94509	Vacant	7.219	66.00	38	41	106	251

**TABLE III-4 HOUSING ELEMENT SITES INVENTORY**

APN	Site Address/Intersection	ZIP Code	Vacancy	Parcel Size (Gross Acres)	Very Low-Income	Low- Income	Moderate- Income	Above Moderate- Income	Total <sup>a</sup>
055-071-106	Lone Tree Way & Country Hills Drive	94509	Vacant	3.628	28	16	17	46	107
055-071-107	Lone Tree Way & Country Hills Drive	94509	Vacant	2.322	18	10	11	29	68
055-071-108	Lone Tree Way & Deer Valley Road	94509	Vacant	9.54	75	43	46	120	284
055-071-113	Lone Tree Way & Country Hills Drive	94509	Vacant	0.96	0	0	5	5	10
056-130-014	5200 Heidorn Ranch Road	94509	Nonvacant	1.95	15	8	9	24	56
056-130-011	5320 Heidorn Ranch Road	94509	Nonvacant	5.04	39	22	24	63	148
065-071-020	1205 A Street	94509	Nonvacant	0.31	0	0	1	1	2
065-110-006	810 Wilbur Ave	94509	Vacant	2.86	0	0	0	74	74
065-110-007	701 Wilbur Ave	94509	Nonvacant	2.5	19	11	12	31	73
065-161-025	301 E 18 <sup>th</sup> Street	94509	Nonvacant	0.31	0	0	1	1	2
065-262-026	E 18 <sup>th</sup> Street & Blossom Drive	94509	Vacant	1.3	0	0	10	10	20
065-262-035	1015 E 18 <sup>th</sup> Street	94509	Vacant	0.675	0	0	5	5	10
067-093-022	A Street & Park Ln	94509	Vacant	0.32	0	0	2	2	4
067-103-017	A Street	94509	Vacant	1.774	0	0	10	10	20
068-051-015	1805 Cavallo Road	94509	Vacant	0.47	0	0	3	3	6
068-051-049	1801 Cavallo Road	94509	Vacant	0.47	0	0	3	3	6
068-051-050	504 E 18 <sup>th</sup> Street	94509	Vacant	0.087827	0	0	0	0	0
068-082-057	Terrace Drive & E 18 <sup>th</sup> Street	94509	Vacant	0.659	0	0	3	3	6
068-252-041	2721 Windsor Drive	94509	Vacant	1.57	12	7	7	19	45
068-252-042	Windsor Drive & Iglesia Court	94509	Vacant	0	0	0	0	0	0
068-252-043	Windsor Drive & Iglesia Court	94509	Vacant	0	0	0	0	0	0
068-252-045	2709 Windsor Drive	94509	Vacant	0	0	0	0	0	0
071-370-026	3351 Contra Loma Boulevard	94509	Nonvacant	1	0	0	8	8	16

## III. PROJECT DESCRIPTION

**TABLE III-4 HOUSING ELEMENT SITES INVENTORY**

APN	Site Address/Intersection	ZIP Code	Vacancy	Parcel Size (Gross Acres)	Very Low-Income	Low- Income	Moderate- Income	Above Moderate- Income	Total <sup>a</sup>
072-400-036	Cache Peak Drive & Golf Course Road	94531	Vacant	2.01	15	9	9	25	58
072-400-039	4655 Golf Course Road	94531	Nonvacant	2	15	9	9	25	58
072-400-040	Cache Peak Drive & Golf Course Road	94531	Vacant	0.212	0	0	3	3	6
072-450-013	Dallas Ranch Road	94509	Vacant	1.5	11	6	7	19	43
074-080-026	Delta Fair Boulevard & Belle Drive	94509	Nonvacant	12.262	96	55	60	155	366
074-080-028	Delta Fair Boulevard & E Leland Road	94565	Vacant	0.494	0	0	7	7	14
074-080-029	Delta Fair Boulevard	94509	Nonvacant	1.117	8	5	5	14	32
074-080-030	Delta Fair Boulevard	94565	Vacant	5.5	43	24	26	69	162
074-122-016	Delta Fair Boulevard	94509	Vacant	0.6	0	0	4	4	8
074-123-004	Delta Fair Boulevard & Fairview Drive	94509	Vacant	1.75	13	7	8	22	50
074-123-005	Fairview Drive	94509	Vacant	1.45	11	6	7	18	42
074-343-034	2100 L Street	94509	Vacant	1.5	0	0	9	9	18
075-460-001	James Donlon Boulevard & Contra Loma Boulevard	94509	Vacant	3.13	0	0	31	31	62
076-010-039	Somersville Road & Buchanan Road	94509	Vacant	4.77	0	0	38	38	76
052-061-053	4325 Berryessa Court	94509	Nonvacant	5	39	22	24	63	148
071-130-026	3195 Contra Loma Boulevard	94509	Nonvacant	2.9	22	13	14	36	85
068-251-012	620 E Tregallas Road	94509	Nonvacant	0.86	6	3	4	10	23
052-061-014	4215 Hillcrest Avenue	94509	Nonvacant	0.998	7	4	4	12	27
052-042-037	4201 Hillcrest Avenue	94509	Nonvacant	4.39	34	19	21	55	129
052-140-013	Wildflower Drive	94531	Vacant	4.18	0	0	41	41	82
052-140-014	Wildflower Drive	94531	Vacant	3.95	0	0	39	39	78
052-140-015	Wildflower Drive	94531	Vacant	0.91	0	0	9	9	18
052-140-016	Wildflower Drive	94531	Vacant	1.31	0	0	13	13	26

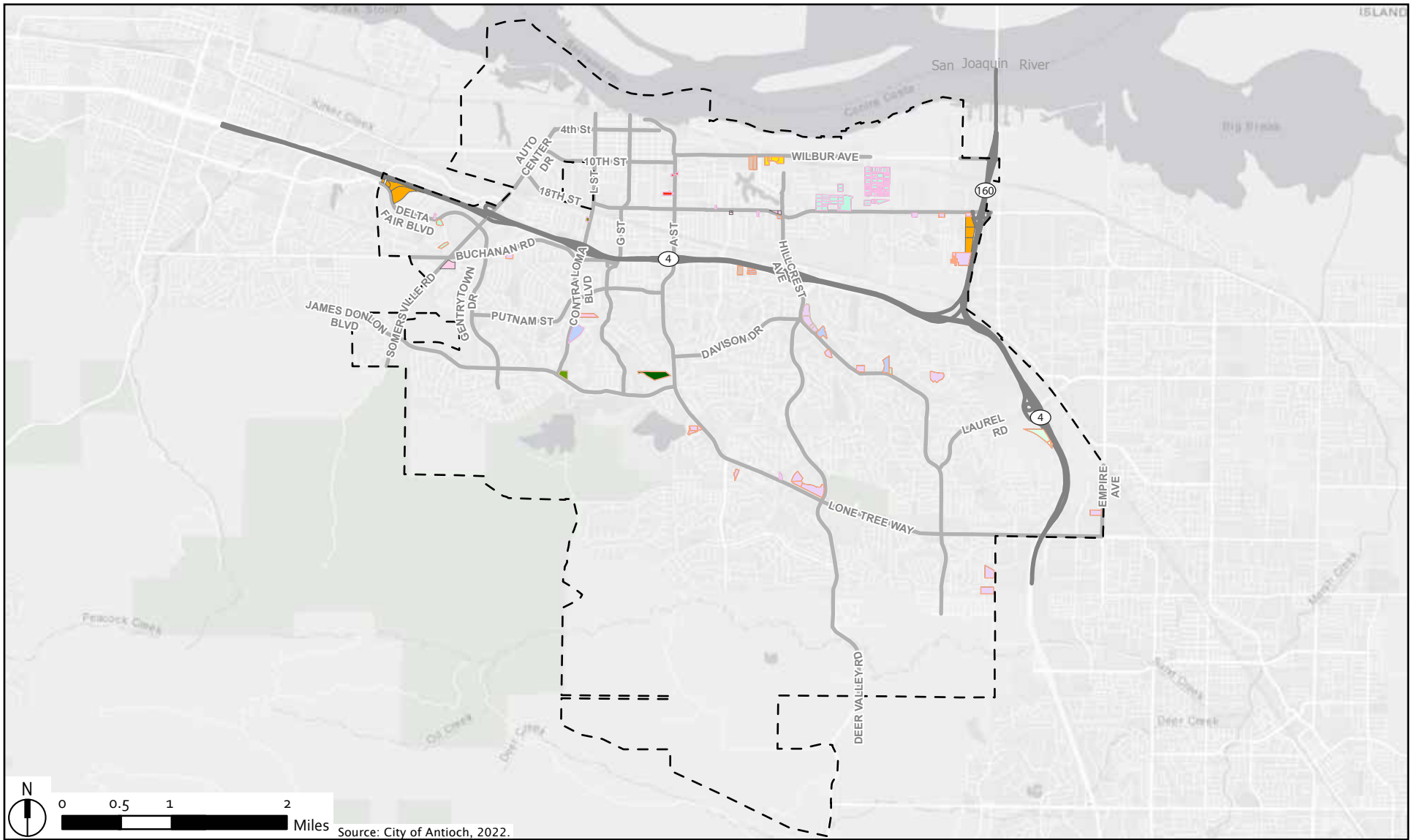


**TABLE III-4 HOUSING ELEMENT SITES INVENTORY**

APN	Site Address/Intersection	ZIP Code	Vacancy	Parcel Size (Gross Acres)	Very Low-Income	Low- Income	Moderate- Income	Above Moderate- Income	Total <sup>a</sup>
056-120-096	2721 Empire Ave	94513	Nonvacant	3.3	25.00	14.00	16.00	41.00	96.00
072-011-052	3950 Lone Tree Way	94509	Nonvacant	4.2	33.00	19.00	20.00	53.00	125.00
051-200-065	3415 Oakley Road	94509	Nonvacant	4	31.00	18.00	19.00	50.00	118.00
068-091-043	1018 E 18 <sup>th</sup> Street	94509	Nonvacant	0.84	6.00	3.00	4.00	10.00	23.00
076-231-007	1919 Buchanan Road	94509	Nonvacant	1.5	11.00	6.00	7.00	19.00	43.00
065-122-023	Apollo Court	94509	Vacant	1.6	12	7	7	20	46
061-122-029	Apollo Court	94509	Vacant	1.7	13	7	8	21	49
061-122-030	Apollo Court	94509	Vacant	2.1	16	9	10	26	61
061-122-028	Apollo Court	94509	Vacant	0.6	4	2	2	7	15
052-370-009	Hillcrest Avenue	94531	Vacant	2.13	16	9	10	27	62
051-390-006	3301 Jessica Court	94509	Vacant	2.98	23	13	14	37	87
051-390-005	3305 Jessica Court	94509	Vacant	0.2	0.00	0.00	0.00	0.00	0.00
051-390-004	3309 Jessica Court	94509	Vacant	0.22	0.00	0.00	0.00	0.00	0.00
051-390-003	3313 Jessica Court	94509	Vacant	0.13	0.00	0.00	0.00	0.00	0.00
051-390-002	3317 Jessica Court	94509	Vacant	0.14	0.00	0.00	0.00	0.00	0.00
051-390-001	3321 Jessica Court	94509	Nonvacant	0.76	0.00	0.00	0.00	0.00	0.00
051-390-016	3325 Jessica Court	94509	Vacant	0.17	0.00	0.00	0.00	0.00	0.00
051-390-011	3329 Jessica Court	94509	Vacant	0.17	0.00	0.00	0.00	0.00	0.00
051-390-010	3333 Jessica Court	94509	Vacant	0.16	0.00	0.00	0.00	0.00	0.00
051-390-009	3345 Oakley Road	94509	Vacant	0.2	0.00	0.00	0.00	0.00	0.00
--	Jessica Court Roundabout	94509	Vacant	0.63	0.00	0.00	0.00	0.00	0.00

<sup>a</sup> Some Housing Inventory Sites show a development potential of "0" because they do not meet the size requirements by HCD. As such, they're included in the Housing Inventory Sites as potentially re-developable but are not counted towards the City's RHNA obligation requirements. The City's RHNA obligation is met through the other listed sites.

Source: City of Antioch and Urban Planning Partners, 2022.



- City Boundary
- Highways
- Major Roads
- Housing Sites

Figure III-5  
Housing Element Sites Inventory

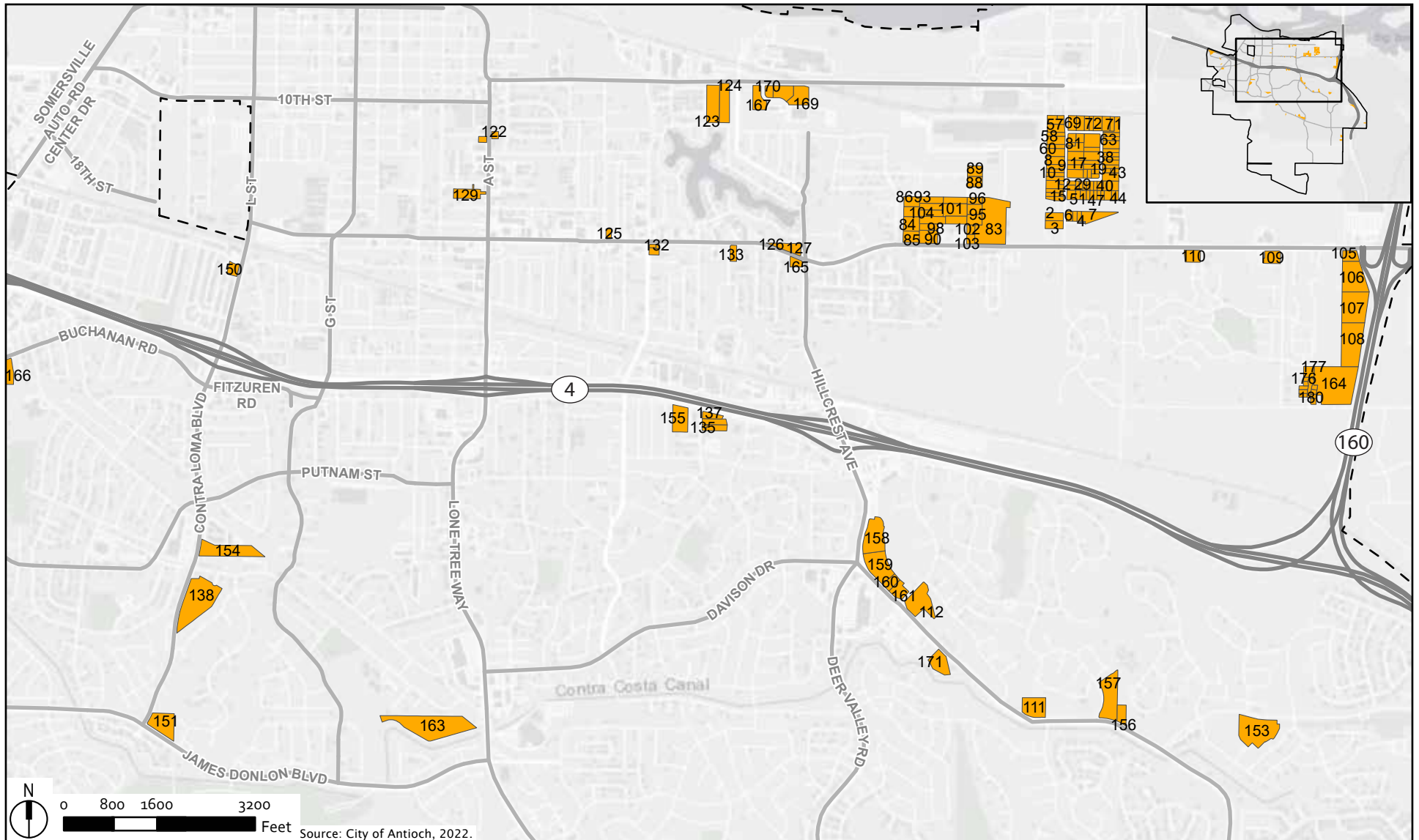
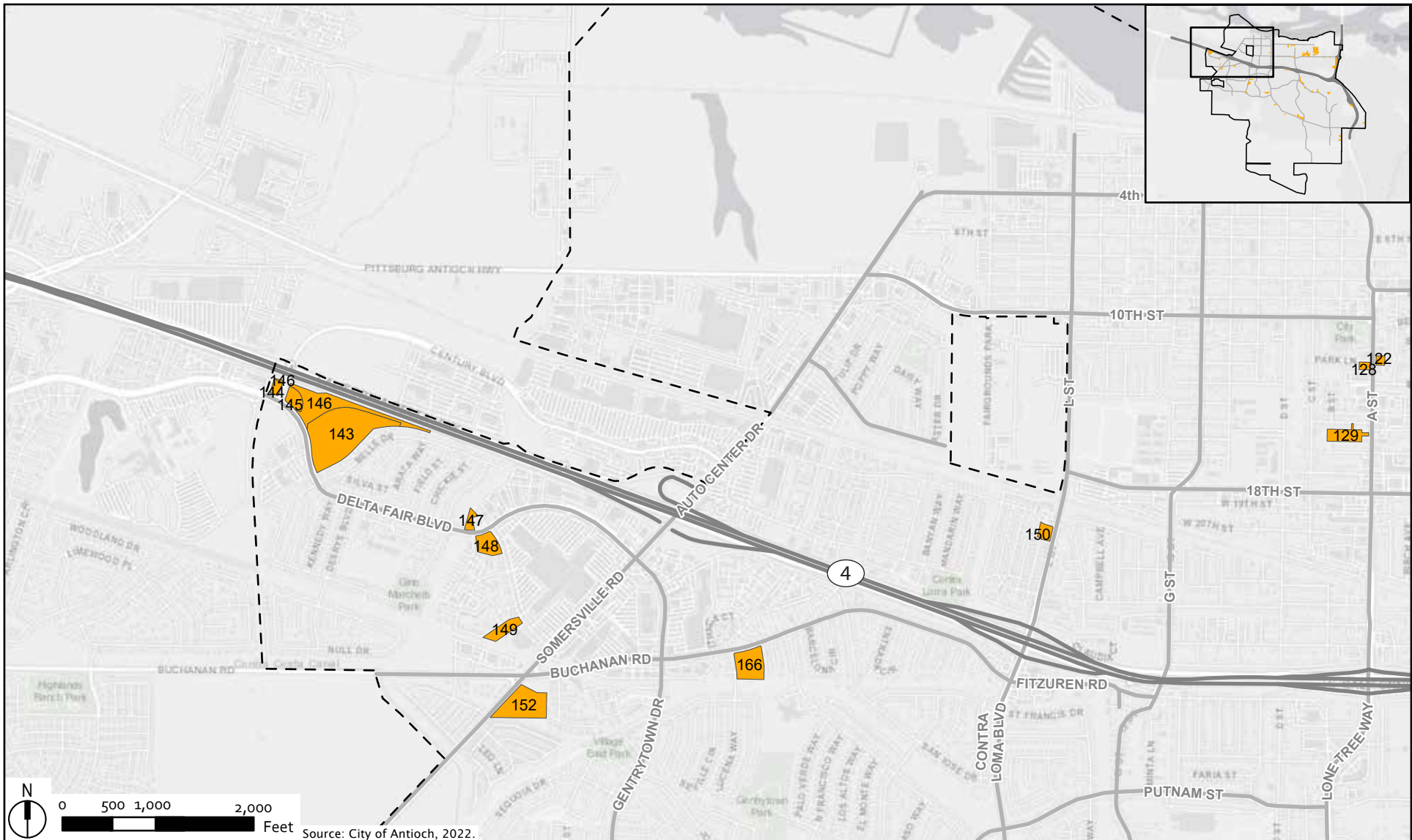
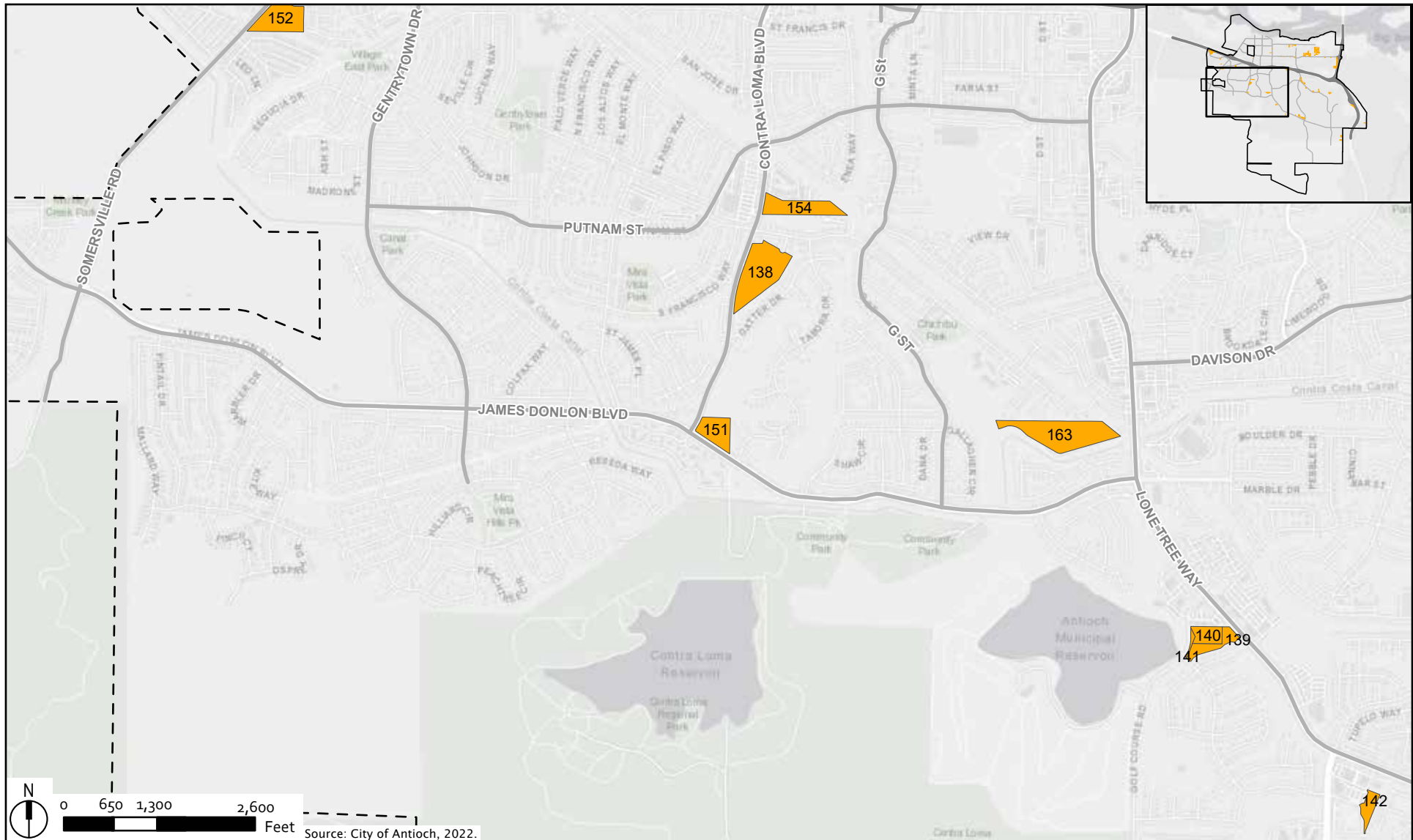


Figure III-6  
Housing Element Sites Inventory: Detail 1



- City Boundary
- Highways
- Major Roads
- Housing Sites

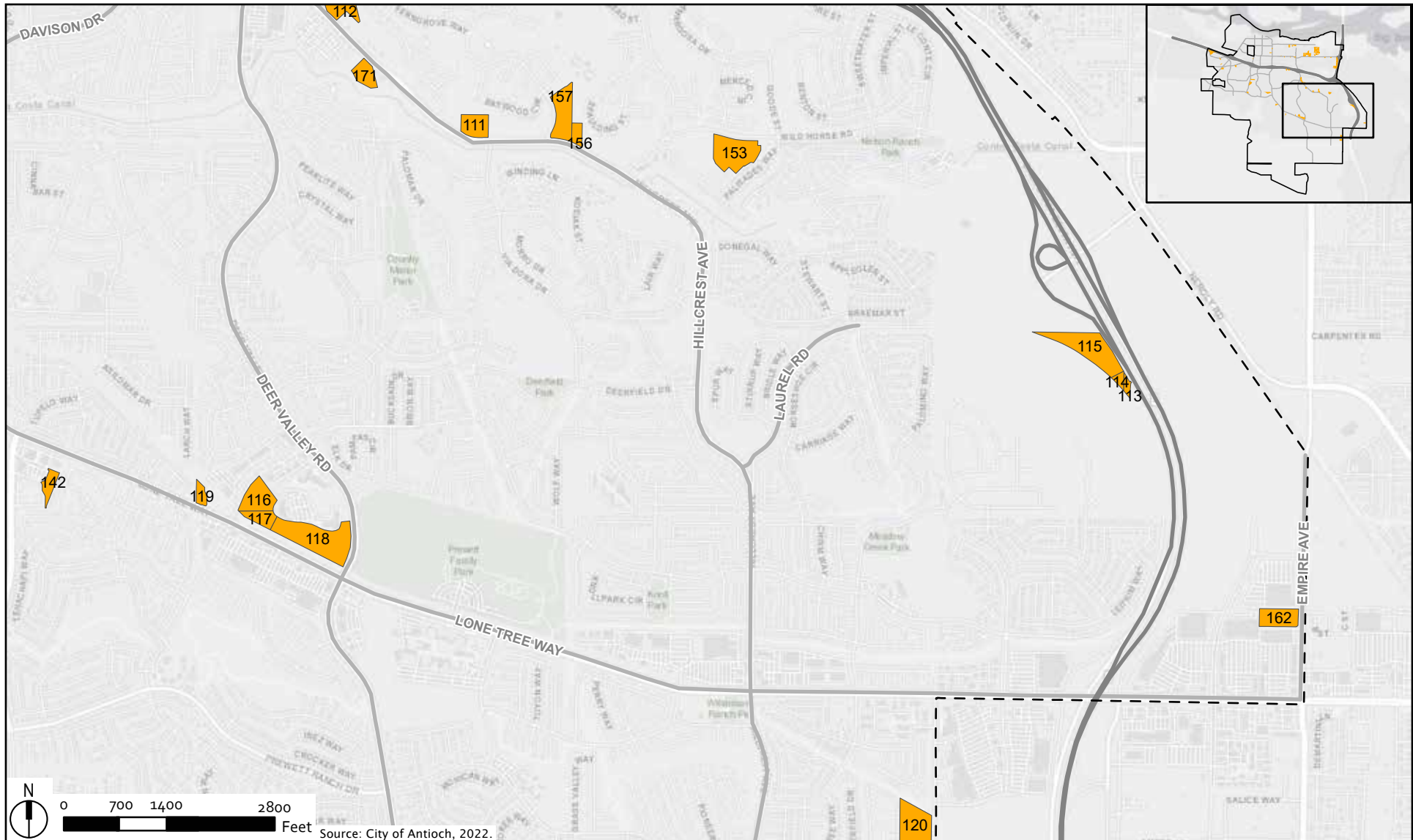
Figure III-7  
Housing Element Sites Inventory: Detail 2



- City Boundary
- Highways
- Major Roads
- Housing Sites

Figure III-8

Housing Element Sites Inventory: Detail 3







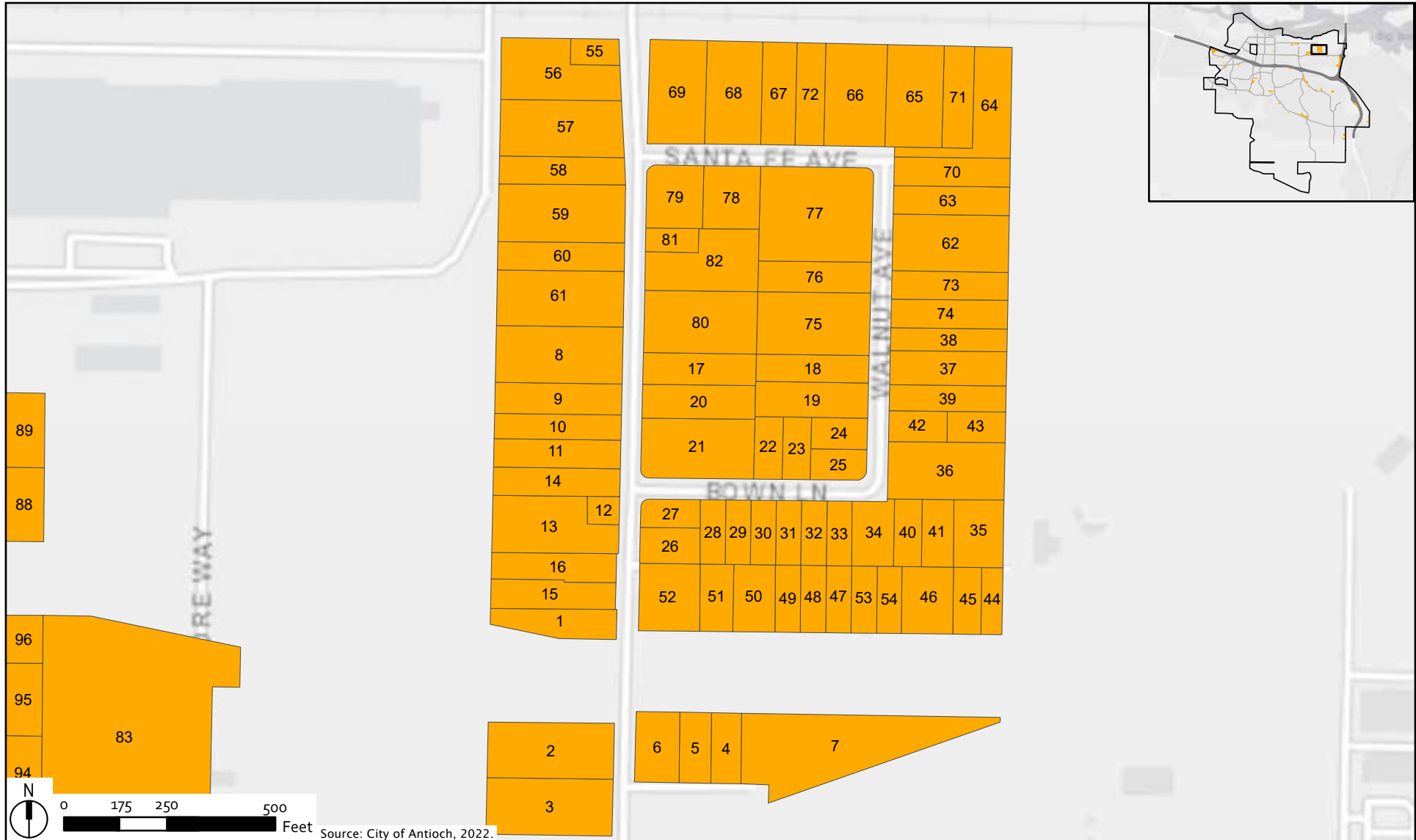
-  City Boundary
-  Highways
-  Major Roads
-  Housing Sites

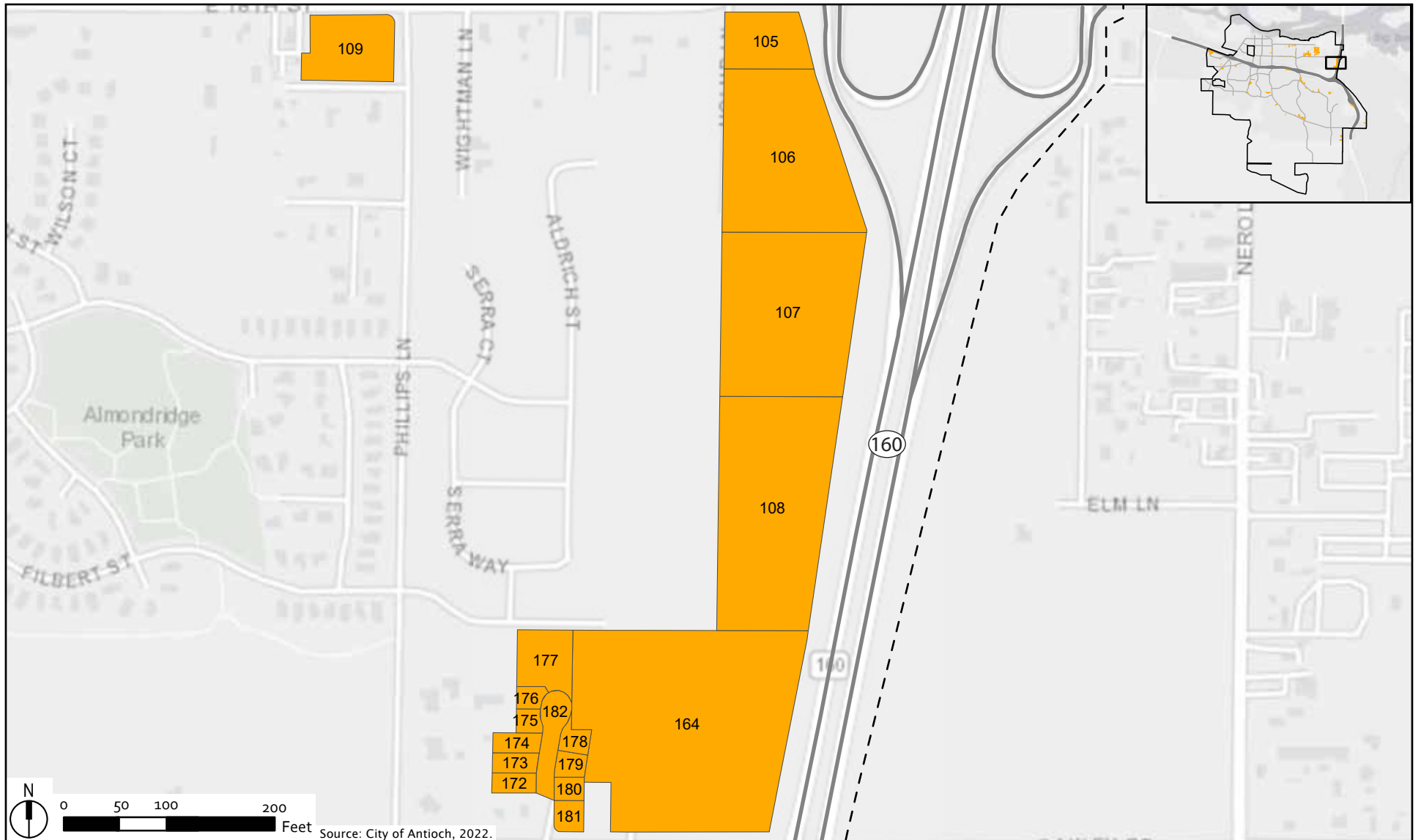
Figure III-9  
Housing Element Sites Inventory: Detail 4



- City Boundary
- Highways
- Major Roads
- Housing Sites

Source: City of Antioch, 2022.

Figure III-10  
Housing Element Sites Inventory: Detail 5







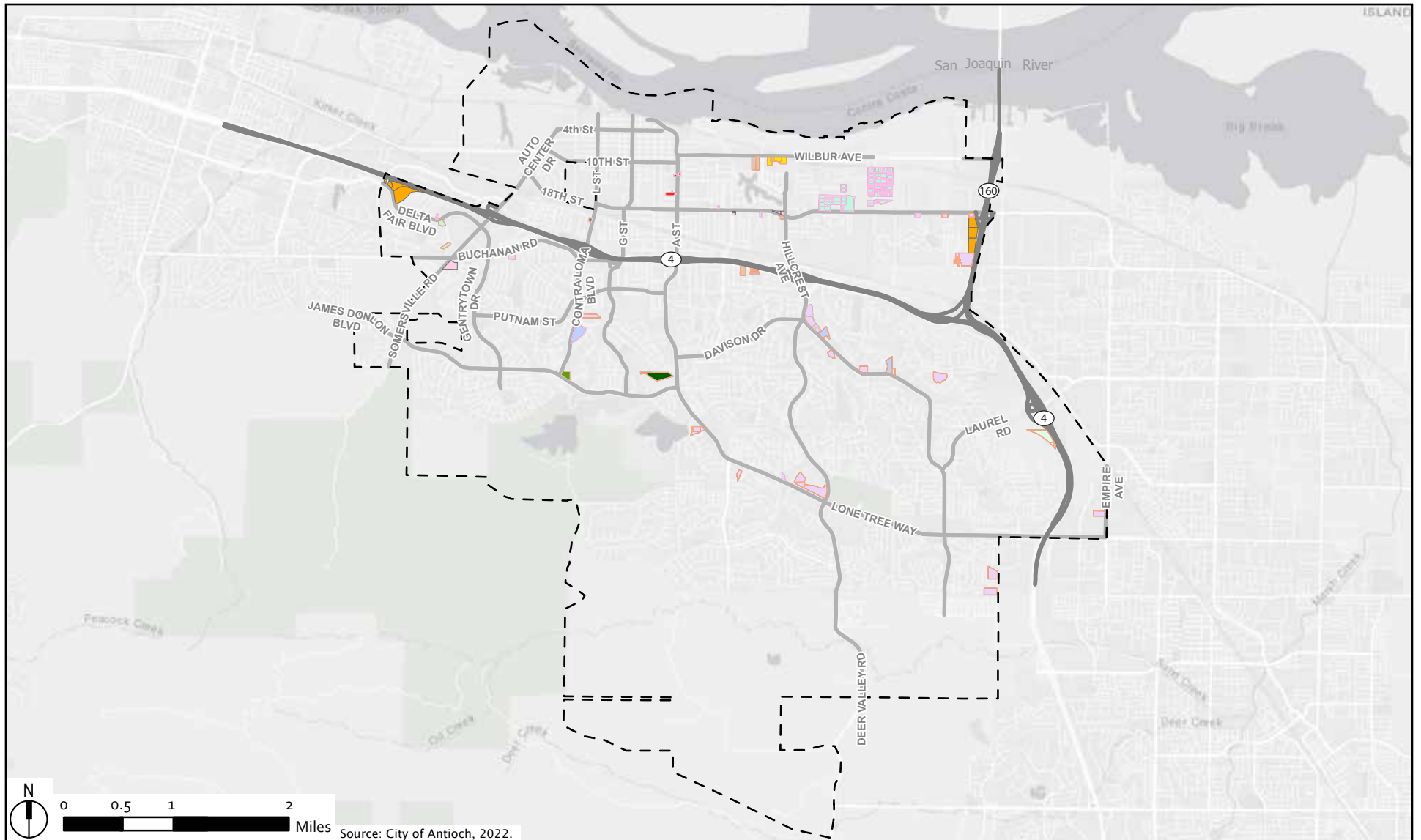
-  City Boundary
-  Highways
-  Major Roads
-  Housing Sites

Figure III-11  
Housing Element Sites Inventory: Detail 6





Source: City of Antioch, 2022.

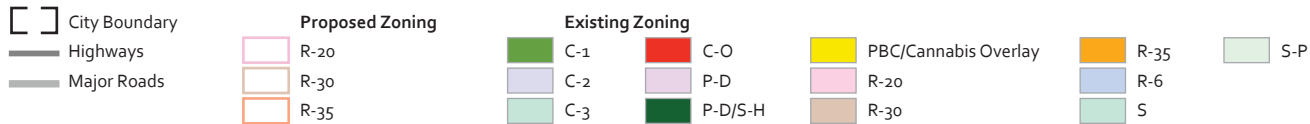


Figure III-12  
 Sites Inventory Existing and Proposed Zoning

**TABLE III-5 SITES FOR REZONING**

APN	Address	Acreage	Current General Plan	Proposed General Plan	Current Zoning	Current Max. Density (du/ac)	Proposed Zoning
	Multiple Sites in Viera & Trembath Areas	68.9	Medium Low Density Residential and Medium-Density Residential	Medium-Density Residential	S	--	R-20
051-200-076	Holub Ln & E 18 <sup>th</sup> St	1.08	Convenience Commercial	High-Density Residential	P-D	--	R-35
+051-230-028	3200 E 18 <sup>th</sup> St	1.286	Eastern Waterfront Employment Focus Area – Business Park	High-Density Residential	P-D	--	R-35
051-400-027	Wilson St & E 18 <sup>th</sup> St	1.204	Eastern Waterfront Employment Focus Area – Business Park	Medium-Density Residential	P-D	--	R-20
052-042-044	3901 Hillcrest Ave	1.62	Open Space	High-Density Residential	P-D	6	R-35
052-342-010	Wildflower Dr & Hillcrest Ave	3.77	Low Density Residential	High-Density Residential	R-6		R-35
053-060-055	Neroly Rd & Country Hills Dr	0.525	East Lone Tree Specific Plan Focus Area	High-Density Residential	S-P		R-35
053-060-056	Neroly Rd & Country Hills Dr	0.606	East Lone Tree Specific Plan Focus Area	High-Density Residential	S-P		R-35
053-060-057	Neroly Rd & Country Hills Dr	7.219	East Lone Tree Specific Plan Focus Area	High-Density Residential	S-P	--	R-35
055-071-106	Lone Tree Way & Country Hills Dr	3.628	Business Park	High-Density Residential	P-D	--	R-35
055-071-107	Lone Tree Way & Country Hills Dr	2.322	Business Park	High-Density Residential	P-D	--	R-35
055-071-108	Lone Tree Way & Deer Valley Rd	9.54	Business Park	High-Density Residential	P-D	--	R-35
055-071-113	Lone Tree Way & Country Hills Dr	0.96	Business Park	Medium-Density Residential	P-D	--	R-20
056-130-014	5200 Heidorn Ranch Rd	1.95	Medium Low Density Residential	High-Density Residential	P-D	--	R-35
056-130-011	5320 Heidorn Ranch Rd	5.04	Medium Low Density Residential	High-Density Residential	P-D	--	R-35
065-071-020	1205 A St	0.31	A Street Interchange Focus Area – Residential	Medium-Density Residential	C-0	25	R-20

**TABLE III-5 SITES FOR REZONING**

<b>APN</b>	<b>Address</b>	<b>Acreage</b>	<b>Current General Plan</b>	<b>Proposed General Plan</b>	<b>Current Zoning</b>	<b>Current Max. Density (du/ac)</b>	<b>Proposed Zoning</b>
065-110-006	810 Wilbur Ave	2.86	High-Density Residential	High-Density Residential	R-30	25	R-35
065-110-007	701 Wilbur Ave	2.5	High-Density Residential	High-Density Residential	R-30	0	R-35
065-161-025	301 E 18 <sup>th</sup> St	0.31	Medium Low Density Residential	Medium-Density Residential	C-0	0	R-20
067-093-022	A St & Park Ln	0.32	A Street Interchange Focus Area – Commercial and Residential	Medium-Density Residential	C-0	0	R-20
067-103-017	A St	1.774	A Street Interchange Focus Area – Commercial and Residential	Medium-Density Residential	C-0	0	R-20
068-082-057	Terrace Dr & E 18 <sup>th</sup> St	0.659	Neighborhood Community Commercial	Medium-Density Residential	C-2	6	R-20
068-252-041	2721 Windsor Dr	1.57	Medium Low Density Residential	High-Density Residential	R-6	6	R-35
068-252-042	Windsor Dr & Iglesia Ct	0	Medium Low Density Residential	High-Density Residential	R-6	6	R-35
068-252-043	Windsor Dr & Iglesia Ct	0	Medium Low Density Residential	High-Density Residential	R-6	6	R-35
068-252-045	2709 Windsor Dr	0	Medium Low Density Residential	High-Density Residential	R-6	6	R-35
071-370-026	3351 Contra Loma Blvd	1	Public/Institutional	Medium-Density Residential	R-6	--	R-20
072-400-036	Cache Peak Dr & Golf Course Rd	2.01	Convenience Commercial	High-Density Residential	P-D	--	R-35
072-400-039	4655 Golf Course Rd	2	Convenience Commercial	High-Density Residential	P-D	--	R-35
072-400-040	Cache Peak Dr & Golf Course Rd	0.212	Convenience Commercial	High-Density Residential	P-D	--	R-35
072-450-013	Dallas Ranch Rd	1.5	Office	High-Density Residential	P-D	0	R-35
074-122-016	Delta Fair Blvd	0.6	Western Antioch Commercial Focus Area – Regional Commercial	Medium-Density Residential	C-3	0	R-20

III. PROJECT DESCRIPTION

**TABLE III-5 SITES FOR REZONING**

APN	Address	Acreage	Current General Plan	Proposed General Plan	Current Zoning	Current Max. Density (du/ac)	Proposed Zoning
074-123-004	Delta Fair Blvd & Fairview Dr	1.75	Western Antioch Commercial Focus Area – Regional Commercial	High-Density Residential	C-3	0	R-35
074-123-005	Fairview Dr	1.45	Western Antioch Commercial Focus Area – Regional Commercial	High-Density Residential	C-3	0	R-35
074-343-034	2100 L St	1.5	Convenience Commercial	Medium-Density Residential	C-1	0	R-20
075-460-001	James Donlon Blvd & Contra Loma Blvd	3.13	Office	High-Density Residential	C-1	--	R-30
052-061-053	4325 Berryessa Ct	5	Low Density Residential	High-Density Residential	P-D	20	R-35
071-130-026	3195 Contra Loma Blvd	2.9	High-Density Residential	High-Density Residential	R-20	25	R-35
068-251-012	620 E Tregallas Rd	0.86	High-Density Residential	High-Density Residential	R-30	--	R-35
052-061-014	4215 Hillcrest Ave	0.998	Open Space	High-Density Residential	S	6	R-35
052-042-037	4201 Hillcrest Ave	4.39	Open Space	High-Density Residential	R-6	--	R-35
052-140-013	Wildflower Dr	4.18	Mixed Use	High-Density Residential	P-D	--	R-30
052-140-014	Wildflower Dr	3.95	Mixed Use	High-Density Residential	P-D	--	R-30
052-140-015	Wildflower Dr	0.91	Mixed Use	High-Density Residential	P-D	--	R-30
052-140-016	Wildflower Dr	1.31	Mixed Use	High-Density Residential	P-D	--	R-30
056-120-096	2721 Empire Ave	3.3	East Lone Tree Focus Area	High-Density Residential	P-D	--	R-35
072-011-052	3950 Lone Tree Way	4.2	Medium-Density Residential	High-Density Residential	P-D/S-H	--	R-35
051-200-065	3415 Oakley Rd	4	Public/Institutional	High-Density Residential	P-D	6	R-35

**TABLE III-5 SITES FOR REZONING**

APN	Address	Acreage	Current General Plan	Proposed General Plan	Current Zoning	Current Max. Density (du/ac)	Proposed Zoning
068-091-043	1018 E 18 <sup>th</sup> St	0.84	Neighborhood Community Commercial	High-Density Residential	R-6	--	R-35
076-231-007	1919 Buchanan Rd	1.5	Public/Institutional	High-Density Residential	P-D	0	R-35
065-122-023	Apollo Ct	1.6	Eastern Waterfront Employment Focus Area	High-Density Residential	PBC/Cannabis Overlay	0	R-35
061-122-029	Apollo Ct	1.7	Eastern Waterfront Employment Focus Area	High-Density Residential	PBC/Cannabis Overlay	0	R-35
061-122-030	Apollo Ct	2.1	Eastern Waterfront Employment Focus Area	High-Density Residential	PBC/Cannabis Overlay	0	R-35
061-122-028	Apollo Ct	0.6	Eastern Waterfront Employment Focus Area	High-Density Residential	PBC/Cannabis Overlay	--	R-35
052-370-009	Hillcrest Ave	2.13	Office	High-Density Residential	P-D	--	R-35
051-390-006, 051-390-005, 051-390-004, 051-390-003, 051-390-002, 051-390-001, 051-390-016, 051-390-011, 051-390-010, 051-390-009	3301-3333 Jessica Ct & 3345 Oakley Rd	2.98	Medium-Density Residential	High-Density Residential	P-D	--	R-35
076-010-039	Somersville Rd & Buchanan Rd	4.77	Western Antioch Commercial Focus Area – Regional Commercial	Medium-Density Residential	R-20	20	No Change <sup>a</sup>

Notes: Rezoning of these sites will take place prior to January 31, 2023.

<sup>a</sup> This parcel currently has a mismatch between its General Plan designation and zoning. The zoning is not proposed to change but cleanup is needed to make the General Plan consistent with the zoning. Source: City of Antioch, 2022.

3,437 housing units. A total of 114 sites, totaling 77 acres of land throughout the city, will be rezoned to the R-20 Zoning District which allows for residential development at up to 20 dwelling units per acre. It is anticipated these rezonings will allow for the development of up to 412 housing units. A total of five sites, totaling 13 acres, will be rezoned to the R-30 Zoning District which allows for residential development up to 30 units per acre. It is anticipated these rezonings will allow for the development of up to 266 housing units. Finally, a total of 50 sites, totaling 96 acres of land, will be rezoned to the R-35 zoning district which allows for residential development up to 35 dwelling units per acre. Per State guidance, sites can only count towards a jurisdiction’s affordable housing RHNA if the density allowed by underlying zoning is 30 dwelling units per acre or greater. Both the R-30 and R-35 Zoning Districts permit residential development at this threshold density, and therefore have the potential to accommodate affordable housing. However, for purposes of calculating realistic capacity of rezoned sites, the minimum density threshold of each new Zoning District is utilized. Therefore, only the sites proposed to be rezoned to the R-35 Zoning District are identified to accommodate affordable housing.

**(1) By-Right and Ministerial Residential Development**

Assembly Bill (AB) 1397 requires communities to rezone sites that were included in their prior 4<sup>th</sup> and 5<sup>th</sup> cycle housing elements to allow for by-right residential development for developments that provide at least 20 percent of the units as affordable to lower-income households. Eight of the sites contained in the Sites Inventory were included in the City’s prior 4<sup>th</sup> and 5<sup>th</sup> cycle housing elements. However, since the City is already rezoning five of these sites proactively, these sites are not required to be included in this by-right process required by AB 1397. The remaining three sites would be rezoned to allow for by-right residential development with at least 20 percent affordability, as specific in Program 5.1.7 of the Housing Element. These sites are listed in Table III-6 below. Development of these Housing Sites will be reviewed ministerially according to objective design standards being developed by the City as part of the Housing Element Update. See the General Plan subsection below for information related to these Standards.

**TABLE III-6 BY-RIGHT SITES**

APN	Address	Acreage	2015-2023 Element	2007-2015 Element	2022-2030 Housing Element
051-200-037	1841 Holub Ln	4.4	Vacant & SF residential <sup>a</sup>	N/A	Nonvacant. Proposed for lower- income units.
065-262-035	1015 E 18th St	0.68	Vacant	Vacant	Vacant. Proposed for moderate and above-moderate units given the density, but by-right approval will be required for projects with 20% of units BMR.
074-080-026	Delta Fair Blvd & Belle Dr	12.26	Vacant	N/A	Nonvacant. <sup>b</sup> Proposed for lower-income units.

<sup>a</sup> Included in a consolidated site made up of vacant parcels and nonvacant parcels with single-family residential.

<sup>b</sup> Since the adoption of the 2015-2023 Housing Element, this site was developed with solar panels. Because it is now a nonvacant site that has been repeated in two consecutive elements, it is conservatively assumed to be subject to by-right requirements.

Source: City of Antioch and Urban Planning Partners, 2022.

## **(2) General Plan and Specific Plan Amendments**

As shown in Figure III-13 and listed in Table III-7, there are 12 sites in the Sites Inventory that are in the following Focused Planning Areas:

- Western Antioch Commercial Focus Area
- Eastern Waterfront Employment Area
- "A" Street Interchange Focus Area
- Western Gateway
- East Lone Tree Specific Plan Area

In addition to these sites being rezoned to R-20 and R-35 to allow higher-density residential uses, these sites will also require amendments to their respective General Plan Land Use Designations and amendments to their respective specific plans to allow for this increased density/intensity.

### **d. Goals, Policies, and Programs**

As mentioned under the Project Objectives section of this chapter, the Housing Element includes goals and policies to address and remove housing constraints, assist in the development of housing, improve and conserve the existing housing stock, and affirmatively further fair housing. All goals and policies have programs for implementation that include quantified objectives, the responsible agency, implementation schedule, and funding source. The programs are found in Chapter 7 of the Housing Element.

### **e. Objective Development Standards**

As part of the Housing Element Update, the City of Antioch will adopt objective design standards (ODS) that will be utilized in the review of by-right, ministerial development of Housing Sites pursuant to State Law. These ODS have been prepared concurrently with the Housing Element and would be adopted with the Housing Element to facilitate development of Housing Sites identified by the Project. The ODS includes site and building design requirements with standards related to, but not limited to the following topics: landscaping and open space, circulation and access, building placement and orientation, parking, lighting, building massing, façade articulation, building frontages and entries, building materials, roof design, and neighborhood design.

## **2. Environmental Hazards Element Update**

As part of the Project, the City of Antioch will also be updating the Environmental Hazards Element of their General Plan (referenced in State Law as "Safety Element") as required by State Law. A community's Safety Element is meant to implement policies that minimize the negative

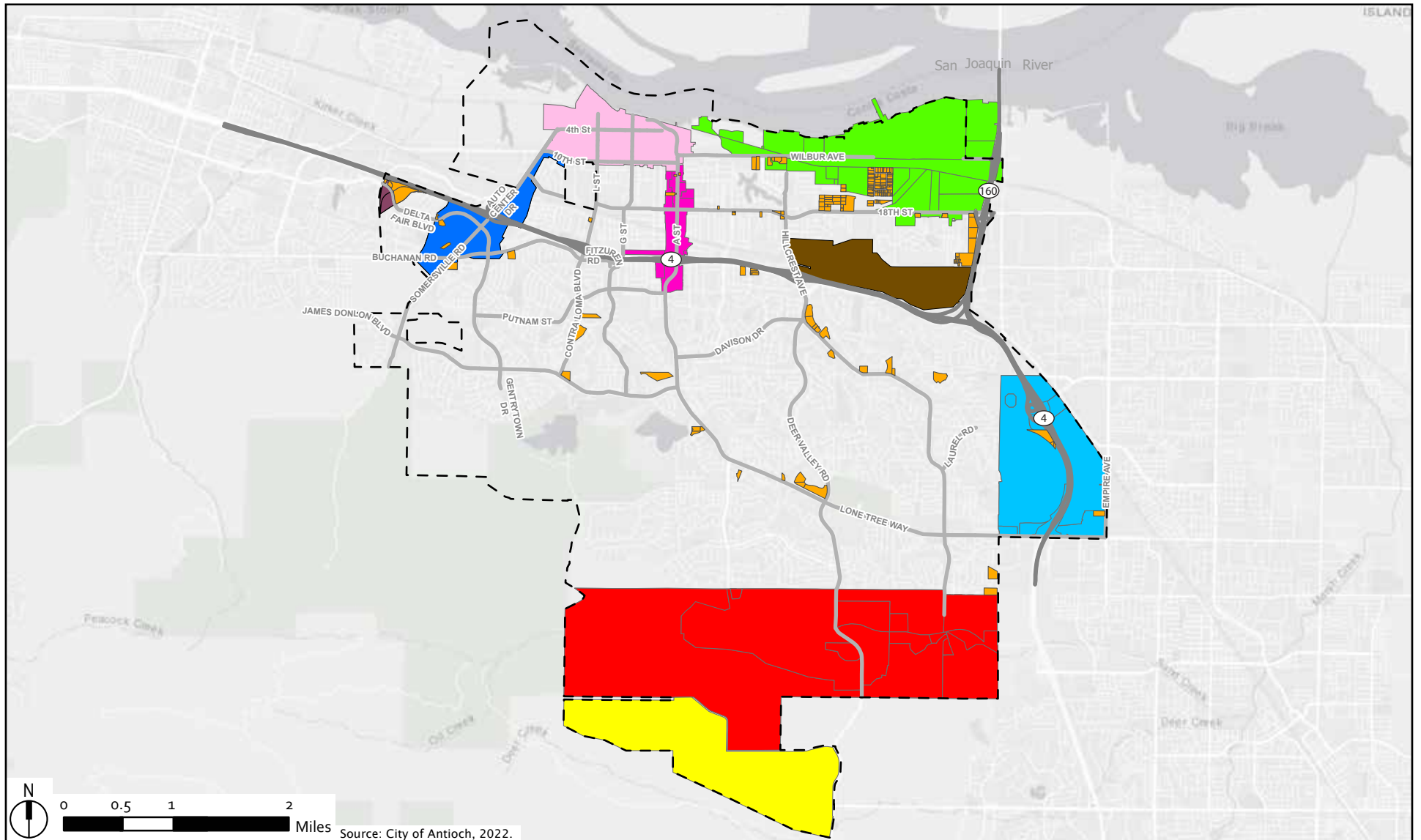
III. PROJECT DESCRIPTION

**TABLE III-7 SITES IN FOCUSED PLANNING AREAS**

Map Number	APN	Site Address/Intersection	Zip Code	Parcel Size	Existing General Plan	Existing Zoning	Proposed Zoning
109	051-230-028	3200 E 18 <sup>th</sup> St	94509	1.286	Eastern Waterfront Employment Focus Area - Business Park	P-D	R-35
110	051-400-027	Wilson St & E 18 <sup>th</sup> St	94509	1.204	Eastern Waterfront Employment Focus Area - Business Park	P-D	R-20
113	053-060-055	Neroly Rd & Country Hills Dr	94509	0.525	East Lone Tree Specific Plan Focus Area	S-P	R-35
114	053-060-056	Neroly Rd & Country Hills Dr	94509	0.606	East Lone Tree Specific Plan Focus Area	S-P	R-35
115	053-060-057	Neroly Rd & Country Hills Dr	94509	7.219	East Lone Tree Specific Plan Focus Area	S-P	R-35
122	065-071-020	1205 A St	94509	0.31	A Street Interchange Focus Area - Residential	C-O	R-20
128	067-093-022	A St & Park Ln	94509	0.32	A Street Interchange Focus Area - Commercial and Residential	C-O	R-20
129	067-103-017	A St	94509	1.774	A Street Interchange Focus Area - Commercial and Residential	C-O	R-20
147	074-122-016	Delta Fair Blvd	94509	0.6	Western Antioch Commercial Focus Area - Regional Commercial	C-3	R-20
148	074-123-004	Delta Fair Blvd & Fairview Dr	94509	1.75	Western Antioch Commercial Focus Area - Regional Commercial	C-3	R-35
149	074-123-005	Fairview Dr	94509	1.45	Western Antioch Commercial Focus Area - Regional Commercial	C-3	R-35
152	076-010-039	Somersville Rd & Buchanan Rd	94509	4.77	Western Antioch Commercial Focus Area - Regional Commercial	R-20	--
162	056-120-096	2721 Empire Ave	94513	3.3	East Lone Tree Focus Area	P-D	R-35
167	065-122-023	Apollo Ct.	94509	1.6	Eastern Waterfront Employment Focus Area - Business Park	PBC/Cannabis Overlay	R-35
168	061-122-029	Apollo Ct	94509	1.7	Eastern Waterfront Employment Focus Area - Business Park	PBC/Cannabis Overlay	R-35
169	061-122-030	Apollo Ct	94509	2.1	Eastern Waterfront Employment Focus Area - Business Park	PBC/Cannabis Overlay	R-35
170	061-122-028	Apollo Ct	94509	0.6	Eastern Waterfront Employment Focus Area - Business Park	PBC/Cannabis Overlay	R-35
<b>Total</b>				<b>31.11</b>			

Source: City of Antioch and Urban Planning Partners, 2022.





Source: City of Antioch, 2022.

- |               |                              |                               |                            |
|---------------|------------------------------|-------------------------------|----------------------------|
| City Boundary | <b>Focus Area Boundaries</b> | Eastern Waterfront Employment | Sand Creek                 |
| Highways      | A Street Interchange         | Hillcrest Focus Area          | Western Antioch Commercial |
| Major Roads   | Downtown                     | Roddy Ranch                   | Western Gateway            |
| Housing Sites | East Lone Tree               |                               |                            |

Figure III-13  
Sites in Focused Planning Areas

impacts and risks of natural and man-made hazards such as fires, floods, droughts, earthquakes, and landslides. In recent years, State requirements have expanded the Safety Element's scope to include climate change vulnerability and adaptation, and greater attention to evacuation routes. Jurisdictions are also now required to complete a vulnerability assessment; develop adaptation and resilience goals, policies, and objectives; and develop a set of feasible implementation measures addressing climate change adaptation and resiliency.

### **3. EJ Element**

Another component of the Project will include the development and adoption of an environmental justice element that will be integrated into the City of Antioch's General Plan in compliance with State Bill (SB) 1000 (2016). SB 1000 began requiring communities with disadvantaged parts of their population to include additional EJ-related goals, objectives, policies, and implementation measures within their General Plans. These additional goals and policies are intended to reduce the unique or compounded health risks experienced by disadvantaged communities, to encourage civic engagement in the public decision-making process within disadvantaged populations, and to prioritize improvements and programs that benefit disadvantaged populations. The term "disadvantaged communities" is defined as a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation. Additionally, "low-income area" is defined as an area with household incomes at or below 80 percent of the statewide median income (\$109,600 for a household of four) or with household incomes at or below the threshold designated as low income by HCD's list of state adopted income limits. Antioch's EJ neighborhoods are shown in Figure III-4.

## **F. REQUIRED APPROVALS**

The following section outlines the City and other agency approvals required to implement the Project.

### **1. City Approvals**

Implementation of the Project would require amendments to the General Plan and to the City's Municipal Code. These amendments are included as part of, and would be adopted at the same time as, the Project. Upon adoption, the Housing Element and Environmental Hazards Element would replace the existing elements and the EJ Element with its associated goals and policies would be added to the General Plan.

This EIR is intended to provide the information and environmental analysis necessary to assist the City in considering all the approvals and actions necessary to adopt and implement the Project. The following are anticipated actions/approvals concerning the Plan:

- **Certify the EIR** and make environmental findings and adopt a Mitigation Monitoring and Reporting Program pursuant to CEQA.
- **Adopt the Housing Element** and make required findings.
- **Adopt the Environmental Hazards Element** and make required findings.
- **Amend the General Plan** and associated maps to be consistent with the Project, including amendments to land use designations pursuant to the Housing Element and the addition of the EJ Element.
- **Amend the Antioch Municipal Code** text and maps to be consistent with the Project.

The City intends to use the streamlining/tiering provisions of CEQA to the maximum feasible extent, so that future environmental review of specific projects is expeditiously undertaken without the need for repetition and redundancy, as provided in CEQA Guidelines Section 15152 and elsewhere. Specifically, pursuant to CEQA Guidelines Section 15183, streamlined environmental review is allowed for projects that are consistent with the development density established by zoning, community plan, specific plan, or general plan policies for which an EIR was certified, unless such a project would have environmental impacts peculiar/unique to the project or the project site. Likewise, Public Resources Code Section 21094.5 and CEQA Guidelines Section 15183.3 also provide for streamlining for certain qualified, infill projects. In addition, CEQA Guidelines Section 15162-15164 allow for preparation of a Subsequent (Mitigated) Negative Declaration, Supplemental or Subsequent EIR, and/or Addendum, respectively, to a certified EIR when certain conditions are satisfied. Moreover, California Government Code Section 65457 and CEQA Guidelines Section 15182 provide that once an EIR is certified and specific plan adopted, any residential development project, including any subdivision or zoning change that implements and is consistent with the specific plan is generally exempt from additional CEQA review under certain circumstances. The above are merely examples of possible streamlining tiering mechanisms that the City may pursue and in no way limits future environmental review of specific projects.

## 2. Other Required Approvals

Additional agencies will need to review and approve components of the Project, as listed below.

- **California Department of Housing and Community Development (HCD)** will review the Housing Element prior to adoption and subsequently certify the Housing Element following adoption.

- **California Geological Survey of the Department of Conservation** will review the Environmental Hazards Element prior to its adoption.

## IV. SETTING, IMPACTS, AND MITIGATION MEASURES

Pursuant to CEQA Regulations, this section of the EIR includes an evaluation of the physical environmental conditions present in the vicinity of the Antioch Housing, Environmental Hazards, and Environmental Justice (EJ) Elements (the Project). This evaluation will constitute the “baseline physical conditions” for which potential impacts associated with the Project will be measured and the level of significance of these impacts, determined.

### A. ENVIRONMENTAL TOPICS

The subsections of this Chapter will each evaluate a different environmental topic, as determined by the City of Antioch to contribute to the overall environmental setting of the Project Area. These environmental topics include:

- Land Use and Planning (*Section IV.A*)
- Transportation (*Section IV.B*)
- Air Quality (*Section IV.C*)
- Greenhouse Gas Emissions (*Section IV.D*)
- Energy (*Section IV.E*)
- Cultural and Tribal Resources (*Section IV.F*)
- Aesthetics (*Section IV.G*)
- Biological Resources (*Section IV.H*)
- Geology and Soils (*Section IV.I*)
- Hazards and Hazardous Materials (*Section IV.J*)
- Hydrology and Water Quality (*Section IV.K*)
- Noise (*Section IV.L*)
- Population and Housing (*Section IV.M*)
- Public Services and Recreation (*Section IV.N*)
- Utilities and Service Systems (*Section IV.O*)
- Wildfire (*Section IV.P*)
- Agriculture and Forestry Resources (*Section IV.Q*)

Each environmental topic subsection of this EIR includes three main components:

- **Setting** – an evaluation of the existing baseline physical conditions of the environmental topic in the Project Area;

- **Regulatory Setting** – an overview of the applicable existing federal, State, regional, and local regulations; and
- **Project Impacts** – an evaluation of anticipated impacts (construction, project, and cumulative) to be generated by the Project, and any applicable mitigation measures or General Plan policies.

## B. IMPACTS AND MITIGATION

Each topic subsection includes an identification and description of anticipated Project impacts as well as whether such impacts are considered to be “Significant,” “Significant and Unavoidable,” or “Less than Significant”. Identified significant impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Significant impacts and mitigation measures are numbered consecutively within each topic (in the order described above) and begin with a shorthand abbreviation for the impact section (e.g., AIR for Air Quality).

The following abbreviations are used for individual topics:

AES:	Aesthetics
AIR:	Air Quality
BIO:	Biological Resources
CULT:	Cultural and Tribal Resources
ENE:	Energy
GEO:	Geology and Soils
GHG:	Greenhouse Gas Emissions
HAZ:	Hazards and Hazardous Materials
HYD:	Hydrology and Water Quality
LU:	Land Use and Planning
NOISE:	Noise and Vibration
POP:	Population and Housing
PS:	Public Services and Recreation
TRANS:	Transportation
UTIL:	Utilities and Service Systems
FIRE:	Wildfire
AG:	Agriculture and Forestry Resources

The following notations are provided after each identified significant impact and mitigation measure:

SU:	Significant and Unavoidable
S:	Significant
LTS:	Less than Significant

These notations indicate the significance of the impact with and without mitigation. All impacts that require mitigation measures and/or are SU are identified with bold impact statements.

### **a. Determination of Significance**

CEQA regulations define a “significant effect” as a substantial or potentially substantial, adverse change in the environment. Each impact evaluation in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant. Appendix G of the State CEQA Guidelines provides thresholds which impacts are evaluated against to determine significance. Appendix G was recently updated in 2018 to reflect recent changes to the CEQA statutes and court decisions including transportation thresholds. The thresholds/criteria used in this EIR incorporate these 2018 revisions.

CEQA requires the analysis of potential adverse effects of the project on the environment. However, CEQA does not require that potential effects of the environment on the project be analyzed or mitigated. Nevertheless, this document includes an analysis of potential effects of the environment on the project in order to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, the document, as appropriate, identifies project-specific non-CEQA recommendations to address these issues.

### **b. Cumulative Analysis**

CEQA regulations define cumulative as “two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project’s incremental effect is cumulatively considerable. “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. These impacts can result from a combination of the proposed project together with other projects causing related impacts. “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.”

#### **(1) Methodology**

The methodology used for assessing cumulative impacts typically varies depending on the specific topic being analyzed. For example, the geographic and temporal (time-related) parameters related to a cumulative analysis of air quality impacts are not necessarily the same as those for a cumulative analysis of noise or aesthetic impacts. This is because the geographic area

that relates to air quality is much larger and regional in character than the geographic area that could be impacted by potential noise or aesthetic impacts from a proposed project and other cumulative projects/growth. The noise and aesthetic cumulative impacts are more localized than air quality and transportation impacts, which are more regional in nature. Accordingly, the parameters of the respective cumulative analyses in this document are determined by the degree to which impacts from this project are likely to occur in combination with other development projects.

According to Section 15130(b) of the CEQA Guidelines, the discussion of cumulative effects “. . . need not provide as great a detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness . . .” The evaluation of cumulative impacts is to be based on either (a) “a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those impacts outside the control of the agency,” or (b) “a summary of projections contained in an adopted local, regional, or statewide plan or related planning document, that describes or evaluates conditions contributing to the cumulative effect . . . Any such planning document shall be referenced and made available to the public at a location specified by the Lead Agency” (CEQA Guidelines Section 15130(b)(1)). Pursuant to Section 15130(d), cumulative impact discussions may rely on previously approved land use documents such as general plans, specific plans, and local coastal plans, which may be incorporated by reference.

## **(2) Plans and Projects Evaluated for Determination of Cumulative Impacts**

To determine the Project’s potential cumulative impacts, this EIR considers the effects of the Project over the course of the 8-year 6<sup>th</sup> cycle planning period in conjunction with growth and development projections contained within adopted local plans.

Cumulative impacts of the Project are cumulative by their nature, and are generally limited to other local plans, unless otherwise noted in each respective resource topic. For this reason, no specific other development projects are considered within this document. For the purposes of analyzing the cumulative analysis of the Project, these local plans include the City of Antioch’s General Plan, Municipal Code, and Climate Action Resilience Plan. These plans and programs are discussed under the Regulatory Setting subsections contained within the respective resource topics. Cumulative impacts determined as a part of analysis are included within each of the subsections of the respective resource topics. Highlighted below are a number of City plans and programs relied upon throughout the cumulative evaluation.

### **City of Antioch General Plan**

The City of Antioch’s General Plan encompasses a comprehensive strategy of managing the City’s future. The General Plan is a legally binding document to be used by City officials,



development community members, citizens and others to guide decisions regarding the future development and management of community resources, including land, the natural environment, public services, and facilities. Accordingly, the General Plan serves as the City's lead policy document which identifies long-term community goals as well as the policies and programs drafted to help the City achieve these goals.

### **City of Antioch Municipal Code**

The City of Antioch's Municipal Code includes a set of regulations applicable to development throughout the city which are intended to implement the goals, policies, and programs of the City's General Plan. The City's Municipal Code includes Building Regulations (Title 8) as well as regulations pertaining to public safety (Title 4), public works (Title 7), and the City's adopted Zoning Ordinance (Title 9). The City's adopted Zoning Ordinance regulates the physical development of land by imposing minimum design standards regarding permitted uses, lot size and dimensions, floor area ratio, and building height among others. Such standards are intended to mitigate impacts of development relative to its surroundings and the existing character of the city.

### **City of Antioch Climate Action and Resilience Plan**

The City of Antioch's Climate Action and Resilience Plan was adopted by City Council in 2020 to begin preparing the Antioch community for hazards shocks related to climate change such as drought, flood, and extreme heat that are expected to intensify in the future; and to reduce the community's reliance on carbon-based energy sources. The Climate Action and Resilience Plan includes policies and programs that are intended to help the City build community resilience to climate challenges. Programs that are identified to build community resilience fall into three broad categories: adaptation to climate related changes, mitigation of greenhouse gas emissions, and community development for building strong communities that can withstand the climate challenge.



## A. LAND USE AND PLANNING

This section describes the existing land use setting in the city of Antioch; discusses the State and local regulations and policies pertinent to land use; evaluates the Project's consistency with relevant land use policies; assesses the Project's potentially significant land use impacts that could result from implementation of the Project; and provides, where appropriate, mitigation measures to address those impacts.

### 1. Setting

This section provides background information on Land Use and Planning and summarizes the existing environmental setting related to Land Use and Planning within the city of Antioch.

The city of Antioch occupies a land area of approximately 30 square miles in eastern Contra Costa County. The San Joaquin River defines the northern edge of the city, while unincorporated open space hillsides flank the city on the south. Antioch is bordered by the city of Pittsburg to the west, the city of Oakley to the east, and the city of Brentwood to southeast.

The unincorporated land extending for miles to the south of Antioch includes a significant amount of public open space that includes the Black Diamond Mines Regional Preserve, Mount Diablo State Park, Round Valley Regional Preserve, and more. Contra Loma Regional Park also provides a large area of open space within city limits, in the southwest part of the city. In addition, the Antioch/Oakley Regional Shoreline located on the northern shoreline adjacent to the Antioch Bridge provides recreational opportunities (excluding swimming) and includes a long fishing pier in the San Joaquin River. The shoreline also features the Antioch Dunes National Wildlife Refuge and the Corteva Wetlands Preserve (formerly Dow Wetland Preserve). Just to the east is the Big Break Regional Shoreline in Oakley. Several islands and sloughs are located in the river delta to the north of the city, which is where the Sacramento River branches off toward the north and the San Joaquin River heads southeast toward the Central Valley city of Stockton.

While the predominant land use throughout the city is single-family residential uses, several areas throughout the city contain distinct land use patterns and development characteristics that contribute to the overall character of the city. These areas include the city's historic downtown, located in the northwestern part of the city along the San Joaquin River, and comprised of a diverse mix of land uses including commercial and retail storefronts and residential neighborhoods of varying historic architectural styles. This area is designated the Downtown Specific Plan Focus Area on the City's General Plan Land Use Map. Opposite the historic downtown, the eastern portion of the city's riverfront is primarily dedicated to heavy commercial and industrial uses, which provide a majority of the city's employment opportunities. This area is designated the Eastern Waterfront Employment Focus Area on the City's General Plan Land Use Map. Outside of downtown, commercial uses are concentrated along major roadway corridors

including State Route-4, Somersville Road, Lone Tree Way, and Hillcrest Avenue, where the city's BART Station is located. These areas are designated the Hillcrest Station Focus Area, Western Gateway Focus Area, and East Lone Tree Specific Plan Focus Area on the City's General Plan Land Use Map.

According to the California Department of Finance (DOF), the city of Antioch had a population of 115,327 persons as of April 1, 2020, making it the third largest of the 19 incorporated cities in Contra Costa County.<sup>1</sup> It is also the oldest incorporated city in the County, established in 1872.<sup>2</sup> Only one other city in Contra Costa County—Martinez (1876)—was incorporated in the nineteenth century.

The DOF estimates that in 2020, the city had 36,749 housing units, with an average household size of 3.22 persons, while the 2020 U.S. Census estimates average household size of 3.28 persons.<sup>3,4</sup> The housing stock included about 77.8 percent (28,583) single-family homes, 4.7 percent (1,732) townhomes, 16.4 percent (6,026) multi-family apartment units, and 1.1 percent (408) mobile homes. The 202 vacancy rate in the city was approximately 3.3 percent, which is comparable to most of the other cities in Contra Costa County.<sup>5</sup> The city's housing stock has grown by just 5.3 percent (1,900 units) since 2010, but has grown by close to 22 percent (6,633 units) since 2000.<sup>6</sup> Household size has increased slightly since 2000, when it was 3.072 persons per household (or an increase in 0.148 persons).

## 2. Regulatory Setting

This section describes the existing State, regional, and local regulatory frameworks related to Land Use and Planning.

### a. State

The following section describes the existing State of California regulatory environment related to Land Use and Planning.

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<sup>1</sup> California Department of Finance, 2021. E-5 City/County Population and Housing Estimates, April 1.

<sup>2</sup> California Department of Finance, 2021. 1850-2020 Historical US Census Populations of Counties and Incorporated Cities/Towns in California, revised August 13, 2021.

<sup>3</sup> U.S. Census Bureau, American Community Survey, [Undated]. DP02: Selected Social Characteristics in the United States, 2020 5-Year Estimates Data Profiles, Antioch City, California.

<sup>4</sup> California Department of Finance, 2020. E-5 City/County Population and Housing Estimates, April 1.

<sup>5</sup> California Department of Finance, 2020. E-5 City/County Population and Housing Estimates, April 1.

<sup>6</sup> California Department of Finance, 2012. E-8 City/County Population and Housing Estimates, 4/1/2000 to 4/1/2010, November.

## (1) General Plan Law

Government Code Sections 65300-65404 set forth the requirements for each city and county in California to adopt a comprehensive, long-term general plan for the physical development of the county or city, and of any land outside its boundaries which in the planning agency's judgment bears relation to its planning. Government Code Section 65302 identifies the mandatory general plan elements and the information they must provide, which include:

- **Land Use Element:** This element must designate the proposed general distribution and general location and extent of the uses of the land for housing; business; industry; open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty; education; public buildings and grounds; solid and liquid waste disposal facilities; greenways; and other categories of public and private uses of land. This typically includes a land use map that shows these designations for all of the land within the boundaries of the planning area for the jurisdiction.
- **Circulation Element:** This element must identify the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.
- **Housing Element:** The requirements of this element are discussed in the following subsection.
- **Conservation Element:** This element must plan for the conservation, development, and utilization of natural resources, including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. Any portion of the conservation element addressing waters must be developed in coordination with any countywide water agency and with all district and city agencies, including flood management, water conservation, or groundwater agencies that have developed, served, controlled, managed, or conserved water of any type for any purpose in the county or city for which the plan is prepared.
- **Open Space Element:** This element must establish a comprehensive set of goals, policies, and objectives for the comprehensive and long-range preservation and conservation of open-space land within the jurisdiction. If a city or county chooses to include an agricultural land component in the open space element, it must identify, map, and quantify agricultural lands within the jurisdiction, utilizing the designations in the California Department of Conservation's Farmland Monitoring and Mapping Program, and must identify all parcels subject to a conservation easement or Williamson Act contract.
- **Noise Element:** The noise element must identify and appraise noise problems in the community, and analyze and quantify, to the extent practicable, current, and projected noise

levels for highways and freeways; primary arterials and major local streets; railroads, including rapid transit systems; airports and heliports and related facilities; industrial plants; and other major noise sources. Noise contour maps must be included for all of these sources—stated in terms of community noise equivalent level (CNEL) or day-night average sound level (Ldn)—and used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise. The noise element must include implementation measures and possible solutions that address existing and foreseeable noise problems, if any, and serve as a guideline for compliance with the State’s noise insulation standards.

- **Safety Element:** The safety element is intended to protect the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards. It must also address hazards related to wildland and urban fires as well as flood hazards. It should map flood hazard zones, as identified by the Federal Emergency Management Agency (FEMA), and dam failure inundation zones, as designated by the California Department of Water Resources. The safety element must establish a comprehensive set of goals, policies, and objectives for protecting the city or county from the hazards listed above.
- **Environmental Justice Element:** This element—which can take the form of goals, policies, and objectives integrated into other general plan elements—must identify disadvantaged communities, if any, within the city or county, and establish objectives and policies to reduce the unique or compounded health risks in disadvantaged communities. Such risks include exposure to air pollution and constrained or insufficient access to public facilities, adequate food, safe and sanitary homes, and physical activity.

## (2) State Housing Element Law

California Government Code (Sections 65580-65589.11) requires cities and counties to update the Housing Element of their General Plans every five or eight years (depending on location/jurisdiction) in order to ensure that they meet their responsibilities in helping the State of California meet its housing goal and in addressing regional housing needs.

California’s housing element law, codified at Government Code Sections 65580-65589.11, establishes the Legislature’s intention to ensure the availability of suitable, decent housing for every Californian, including farmworkers, and ensure the provision of housing that is affordable to low- and moderate-income households. State planning law requires cities and counties to prepare and implement general plan housing elements that, along with federal and State programs, will move toward attainment of those housing goals, which were established in 1969. The California Department of Housing and Community Development (HCD) states that “housing

policy in California rests largely on the effective implementation of local general plans and, in particular, local housing elements.”<sup>7</sup>

Housing elements are required to provide an identification and analysis of existing and projected housing needs and a statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the preservation, improvement, and development of housing. The Housing Element must identify adequate sites for housing, including rental housing, factory-built housing, mobile homes, and emergency shelters, and must include adequate provision for the existing and projected needs of all economic segments of the community. Projected housing needs are to be based on an analysis of population and employment trends and projections for the jurisdiction, and these needs must include the locale’s share of the regional housing need as established by the HCD (discussed further below).

Government Code Section 65588 requires housing elements to be updated as frequently as appropriate to evaluate the jurisdiction’s effectiveness in meeting the community’s housing goals and objectives, but no less often than a five- or eight-year interval, as stipulated in Section 65588 for each regional council of governments. In Antioch, which is part of the Association of Bay Area Governments (ABAG), the housing element must be updated every eight years.

### **(3) Housing Accountability Act**

One State law that is likely to significantly influence housing and land use development in California in the future is the Housing Accountability Act (HAA). Originally enacted in 1982 with limited effect, it has been modified in recent years to expand and strengthen its provisions. One key revision in 2017 gave the California HCD authority to refer HAA violations to the Attorney General for enforcement. Codified in Government Code Section 65589.5, the statute includes in its findings and declarations a long list of problems comprising a “housing supply and affordability crisis of historic proportions,” including that housing in California is the most expensive in the nation, in no small part due to an inadequate housing supply. The Legislature’s intent in adopting the HAA is to significantly increase the approval and construction of new housing for all economic segments of California’s communities.

The HAA prohibits a local government from denying, reducing the density of, or making infeasible housing development projects, including emergency shelters and farmworker housing, which are consistent with applicable, objective general plan, zoning, and subdivision standards and criteria, including design review standards, in effect at the time that the application was

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<sup>7</sup> California Department of Housing and Community Development, Regional Housing Needs Allocation and Housing Elements. Available at: <https://hcd.ca.gov/community-development/housing-element/index.shtml>, accessed April 2, 2022.

deemed complete. A “housing development project” as defined in Government Code Section 65589.5(h)(2) means a use consisting of residential units only, mixed use developments consisting of residential and non-residential uses with at least two-thirds of the square footage designated for residential use, or transitional or supportive housing.

In cases where zoning regulations may not be consistent with the general plan, the HAA clarifies that if the zoning standards and criteria are inconsistent with applicable, objective general plan standards, but the development project is consistent with the applicable objective general plan standards for the site, then the housing development project cannot be found inconsistent with the standards and criteria of the zoning. Furthermore, if such an inconsistency exists, the local agency may not require rezoning prior to housing development project approval.

A local agency may disapprove a project that is consistent with applicable development standards, or impose a condition that the project be developed at a lower density, only if it can make the following written findings supported by a preponderance of evidence on the record that both of the following conditions exist:

- (A) The housing development project would have a specific, adverse impact upon the public health or safety unless the project is disapproved or approved upon the condition that the project be developed at a lower density. As used in this paragraph, a “specific, adverse impact” means a significant, quantifiable, direct, and unavoidable impact, based on objective, identified written public health or safety standards, policies, or conditions as they existed on the date the application was deemed complete.
- (B) There is no feasible method to satisfactorily mitigate or avoid the adverse impact, other than the disapproval of the housing development project or the approval of the project upon the condition that it be developed at a lower density.

The HAA provides additional protections for projects that contain housing affordable to very low-, low-, or moderate-income households, including farmworker housing or emergency shelters. Government Code Section 65589.5(h)(3) establishes the qualifications for housing affordable to very low-, low-, or moderate-income households as a housing development that meets one of the following two criteria:

- At least 20 percent of the total units shall be sold or rented to lower-income households. Lower-income households are those persons and families whose income does not exceed that specified by Health and Safety Code Section 50079.5, established by the HCD as 80 percent of area median income, adjusted for family size and revised annually.
- 100 percent of the units shall be sold or rented to persons and families of moderate-income, or persons and families of middle-income. Moderate-income households are those persons and families whose incomes are 80 percent to 120 percent of area median income (Health



and Safety Code Section 50093.) Middle-income households are those persons and families whose income does not exceed 150 percent of area median income (Government Code Section 65008(c).)

In addition, the rental or sales prices of that housing cannot exceed the following standards:

- Housing units targeted for lower-income households shall be made available at a monthly housing cost that does not exceed 30 percent of 60 percent of area median income with adjustments for household size made in accordance with the adjustment factors on which the lower-income eligibility limits are based.
- Housing units targeted for persons and families of moderate-income shall be made available at a monthly housing cost that does not exceed 30 percent of 100 percent of area median income with adjustments for household size made in accordance with the adjustment factors on which the moderate-income eligibility limits are based.

A local agency may not deny or reduce the density of a proposed housing development project that is affordable to very low-, low-, or moderate-income households unless it makes one of the following written findings, based upon a preponderance of the evidence in the record:

- (1) The jurisdiction has adopted a housing element that meets the current requirements of the State's Housing Element Law, and the jurisdiction has met or exceeded its Regional Housing Needs Allocation (RHNA) share (discussed below in Subsection (b)) for the planning period for the income category proposed for the housing development project, subject to limitations set forth in Government Code Section 65008. If the housing development project includes a mix of income categories, and the jurisdiction has not met or exceeded its share of the regional housing need for one or more of those categories, then the agency may not use this finding to disapprove or conditionally approve the housing development project. In the case of an emergency shelter, the jurisdiction must have met or exceeded the need for emergency shelter, as established in Government Code Section 65583(7)(a).
- (2) The housing development project or emergency shelter as proposed would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific adverse impact without rendering the development unaffordable to low- and moderate-income households or rendering the development of the emergency shelter financially infeasible. Inconsistency with the zoning ordinance or general plan land use designation does not constitute a specific, adverse impact upon the public health or safety.
- (3) The denial of the housing development project or imposition of conditions is required in order to comply with specific State or federal law, and there is no feasible method to comply

without rendering the development unaffordable to low- and moderate-income households or rendering the development of the emergency shelter financially infeasible.

- (4) The housing development project or emergency shelter is proposed on land zoned for agriculture or resource preservation that is surrounded on at least two sides by land being used for agricultural or resource preservation purposes, or which does not have adequate water or wastewater facilities to serve the project.
- (5) The housing development project or emergency shelter is inconsistent with both the jurisdiction's zoning ordinance and general plan land use designation as specified in any element of the general plan as it existed on the date the application was deemed complete, and the jurisdiction has adopted a revised housing element in accordance with Section 65588 that is in substantial compliance with this article. A change to the zoning ordinance or general plan land use designation subsequent to the date the application was deemed complete may not constitute a valid basis to disapprove or condition approval of the housing development project or emergency shelter.

The HAA also imposes parameters and limits on the fees and exactions that can be imposed on a proposed housing development project, as well as on the type of development standards, conditions, and policies that the project can be required to comply with. Such standards, conditions, and policies must meet the following criteria:

- Be appropriate to, and consistent with, meeting the local government's share of the RHNA or meeting the local government's need for emergency shelters as identified in the housing element of the general plan.
- Be applied to facilitate and accommodate development at the density permitted on the site and proposed by the development or to facilitate and accommodate the development of the emergency shelter project.
- Meet the definition of "objective." Objective standards are those that involve no personal or subjective judgment by a public official and being uniformly verifiable by reference to an external and uniform benchmark or criterion available and knowable by both the development applicant or proponent and the public official.

Nothing in the statute generally prohibits a local government from imposing fees and other exactions otherwise authorized by law that are essential to provide necessary public services and facilities to the housing development project or emergency shelter. However, the HAA does impose limitations on the fees and exactions that can be imposed on a specific housing development project once a preliminary application is submitted. Furthermore, additional development standards cannot be imposed once the application is "deemed complete," which is the date on which a preliminary application was submitted to the local agency. (This is distinct

from an application being “determined to be complete” pursuant to the Permit Streamlining Act (Government Code Section 65943).) The HAA provides additional restrictions on a local agency’s ability to find a proposed housing development project inconsistent with applicable plans, programs, policies, ordinances, standards, requirements, and other similar provisions.

#### **(4) Streamlined Ministerial Approval Process**

Government Code Section 65913.4 provides for a streamlined, ministerial approval process for a multi-family residential development of two or more units on a site that is zoned for residential use or residential mixed-use development, or that has a general plan designation that allows residential use or a mix of residential and non-residential uses, and at least two-thirds of the square footage of the development is designated for residential use.<sup>8</sup> Any additional square footage granted pursuant to the Density Bonus Law (see below) must be included in the square footage calculation. This streamlined process does not apply in a jurisdiction that has met its RHNA obligation (see RHNA discussion below).

In order to qualify for a streamlined ministerial approval, the project site must be in an urbanized area, and at least 75 percent of the site perimeter must adjoin parcels that are developed with urban uses (separation by a road or highway is allowed). The project must be consistent with objective zoning standards, subdivision standards, and design review standards in effect at the time that the development is submitted to the local government. A certain percentage of the proposed housing units, depending on conditions in the jurisdiction where the project will be developed, must be affordable to low- and moderate-income households for a period of 55 years for rental units and 45 years for purchased units.

Section 65913.4 lists a variety of excluding factors for environmentally sensitive sites, including for sites located in a flood hazard zone or a very high fire hazard severity zone, among other factors.

#### **(5) Density Bonus Law**

The Density Bonus Law (California Government Code Sections 65915 – 65918) provides residential developers with powerful incentives to develop affordable and senior housing by allowing them to substantially increase the density of their projects when they meet stipulated affordability thresholds. The Density Bonus Law (DBL) can increase the allowable density of a project by up to 50 percent, depending on the amount of affordable housing provided. It allows an 80-percent increase in density for projects which are completely affordable. A local jurisdiction

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<sup>8</sup> Ministerial approvals are those that don’t involve the discretion of the local agency. If objective standards and conditions are met, they must automatically be approved.

must allow the density bonus and other benefits provided by the DBL if the project meets the requirements of the law.

To qualify for a density bonus or other concessions (addressed below), a proposed housing development must include one of the following:

- At least 5 percent of the housing units are restricted to very-low-income residents.
- At least 10 percent of the housing units are restricted to low-income residents.
- At least 10 percent of the housing units in a for-sale common interest development are restricted to moderate-income residents.
- 100 percent of the housing units (other than manager's units) are restricted to very-low-, low-, and moderate-income residents (with a maximum of 20 percent moderate).
- At least 10 percent of the housing units are for transitional foster youth, disabled veterans, or homeless persons, with rents restricted at the very-low-income level.
- At least 20 percent of the housing units are for low-income college students in housing dedicated for full-time students at accredited colleges.
- The project donates at least 1 acre of land to the city or county for very-low-income units, and the land has the appropriate general plan designation, zoning, permits and approvals, and access to public facilities needed for such housing.
- The project is a senior citizen housing development (no affordable units required).
- The project is a mobile home park age-restricted to senior citizens (no affordable units required).

Rental units must include a recorded affordability restriction for at least 55 years. For-purchase units must include recorded restrictions requiring homes that are resold to be sold to families of very-low-, low-, or moderate-income for a period of at least 45 years.

The amount of density bonus is determined on a sliding scale that depends on the percentage of affordable units at each income level included in the proposed development, with the bonus ranging from 5 percent to 50 percent. As previously noted, projects that are 100-percent affordable receive an 80-percent density bonus. A city or county may not apply any development standard that will have the effect of physically precluding the construction of a development project qualifying for a density bonus under the DBL.

The DBL provides additional incentives that may be even more valuable to developers. The local jurisdiction is required to provide at least one incentive or concession to each project that qualifies for a density bonus. The number of incentives depends on the number of very-low-,

low-, and moderate-income units included in the project, with up to four concessions allowed. A concession or incentive is defined as:

- A reduction in site development standards or a modification of zoning code or architectural design requirements, such as a reduction in setback, parking ratio, or minimum square footage requirements; or
- Approval of mixed-use zoning if commercial, office, industrial, or other land uses will reduce the cost of the housing development and if the commercial, office, industrial, or other land uses are compatible with the housing project and the existing or planned development in the area where the proposed housing project will be located; or
- Other regulatory incentives or concessions which actually result in identifiable and actual cost reductions.

The local jurisdiction is required to grant the concession(s) requested by the applicant unless one of the following conditions applies:

- (A) The concession or incentive does not result in identifiable and actual cost reductions;
- (B) The concession or incentive would have a specific, adverse impact on public health and safety or on any property that is listed in the California Register of Historical Resources and for which there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact without rendering the development unaffordable to low-income and moderate-income households; or
- (C) The concession or incentive would be contrary to State or federal law.

Another significant developer benefit of the DBL is a potential waiver from or reduction in any local development standard that would physically prevent the project from being built at the permitted density and with the granted concessions or incentives. A waiver or reduction is not required if conditions (B) or (C), set forth in the preceding paragraph, apply. A waiver or reduction in a development standard does not count as a concession or incentive, and there is no limit on the number of development standard waivers that a developer can request.

A developer qualifying under the DBL can also request the local jurisdiction to limit parking ratios to the following maximum requirements:

- Studio: 1 space
- One-bedroom: 1 space
- Two-bedroom: 1.5 spaces
- Three-bedroom: 1.5 spaces
- Four-bedroom: 2.5 spaces

## **b. Regional**

The following section describes the existing regional regulatory environment related to Land Use and Planning.

### **(1) Regional Housing Needs Allocation (RHNA)**

The California Housing Element Law discussed above includes a requirement, promulgated at Government Code Section 65584, for the HCD to determine the existing and projected need for housing in each region of the State. The HCD must prepare and adopt a Regional Housing Needs Allocation (RHNA) Plan that allocates a share of the regional housing need to each city and county. The RHNA Plan specifies the number of units, by affordability level, that need to be accommodated within the region during the Housing Element planning period. The regional councils of government (COGs) then distribute a share of the region's housing need to each city, town, and county in the region. Each local government must then update the Housing Element of its general plan to inventory housing sites—zoned for residential use—sufficient to meet their RHNA obligation. The COG assigning RHNA goals to each local jurisdiction in the nine-county San Francisco Bay Area is the Association of Bay Area Governments (ABAG).

The current City of Antioch Housing Element 2015-2023 adopted April 14, 2014, accommodates a RHNA of 1,448 units, including 349 very low-income units, 205 low-income units, 214 moderate-income units, and 680 above moderate-income units. The Housing Element identifies sites for 2,488 housing units within city limits, more than sufficient to meet the State-mandated RHNA requirements. The 2015-2023 Housing Element includes housing goals, policies, and implementing programs to guide the City's future housing development decisions, housing programs, strategies, and expenditures for the 2015-2023 planning period. These policies also address the retention and protection of existing rental and ownership housing units.

ABAG adopted its final 2023-2031 RHNA plan for the Bay Area on December 16, 2021, and the HCD approved the plan on January 12, 2022. The RHNA plan advances the five RHNA objectives identified in the Housing Element Law and is consistent with the regional development pattern forecasted in Plan Bay Area 2050, discussed below. The region's nine counties and 101 cities are collectively responsible for developing 441,176 new housing units during the 2023-2031 period; 40.8% of them must be affordable to low- and very low-income households. Antioch's allocation represents approximately 0.3 percent of the regional total. The City's allocation is for 3,016 housing units during the 2023-2031 6<sup>th</sup> Cycle Housing Element Update. At least 41 percent (1,248) of the units must be affordable to low- or very low-income households.

## (2) Plan Bay Area 2050

Plan Bay Area 2050, adopted jointly on October 21, 2021, by the Metropolitan Transportation Commission (MTC) and ABAG, is the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the San Francisco Bay Area, mandated by Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008. SB 375 required each of the State's 18 Metropolitan Planning Organizations (MPOs) to prepare an RTP/SCS that will enable the affected region to achieve the greenhouse gas (GHG) reduction goals established by Assembly Bill 32, passed in 2006, and ensure the provision of adequate housing for growth projected during the planning period.

Plan Bay Area 2050 is a 30-year plan that charts a course for continued development of a Bay Area that is affordable, connected, diverse, healthy, and vibrant for all residents, employing 35 strategies for achieving these goals. Strategies were added or adjusted to respond to the COVID-19 pandemic, and financial and population projections were revised to reflect slower short-term growth. The Plan was crafted to respond to three different sets of potential future conditions, referenced as Futures, in order adapt to sea level rise and other natural hazards, as well as varying population growth rates and emerging technologies, such as autonomous vehicles. Plan Bay Area 2050 focuses on four key issues—the economy, the environment, housing, and transportation—while integrating the cross-cutting issues of equity and resilience.

To accommodate new families and meet the needs of those living in the Bay Area today, Plan Bay Area 2050 plans for sufficient housing growth that does not result an increase in traffic congestion and long-distance commuters traveling to the Bay Area from outside of the region. The population in the region is expected to grow from around 7.8 million residents today to an estimated 10.3 million residents by 2050. The region is forecasted to add 1.4 million new jobs, for a total of 5.4 million Bay Area workers. Household growth is anticipated to roughly follow pace, adding slightly fewer than 1.4 million new households for a total of 4 million households by 2050. Plan Bay Area 2050 states that the Bay Area will need to build 1.4 million new homes by 2050 to meet this forecasted future demand.

Plan Bay Area 2050's core strategy is "focused growth" in existing communities along the existing transportation network. This strategy is intended to leverage existing infrastructure, compliment, and integrate with existing community characteristics, and minimize impacts to less developed areas. The focused growth strategy targets four types of Growth Geographies:

- **Priority Development Areas (PDAs)** that are identified by local governments for housing and job growth. PDAs are generally near existing job centers or in proximity to frequent public transit options.

- **Priority Production Areas (PPAs)**, also identified by local governments, these areas are targeted for job growth in middle-wage industries, such as manufacturing or logistics. PPAs must be zoned for industrial use or have existing land use dominated by industrial uses.
- **Transit-Rich Areas (TRAs)** are areas located in proximity to rail, ferry, or frequent bus service that haven't been identified as PDAs. TRAs must have at least 50 percent of the land area within one-half mile of an existing or planned rail station or ferry terminal that includes bus and/or rail service. Alternatively, they can be located within one-half mile of a bus stop with peak service frequency of 15 minutes or less.
- **High-Resource Areas (HRAs)** are identified by the State HCD as areas that meet a minimum transit service threshold and have good access to schools, jobs, and open space. They must meet a baseline transit service threshold of bus service with peak headways of 30 minutes or better.

Plan Bay Area 2050 envisions a regional approach to inclusionary zoning that is context-specific, with requirements for affordable housing ranging from 10 percent to 20 percent of the total number of apartments built. The percentage would be based on factors like the strength of the housing market and proximity to amenities like transit or well-resourced schools. An exemption for buildings with five units or less would allow homeowners to affordably add backyard cottages and other accessory dwelling units. A multi-pronged strategy that includes new funding sources and introduction of incentives is estimated to ensure that 400,000 new permanently affordable housing units will be developed in the region by 2050.

Plan Bay Area 2050 is also intended to improve the jobs-housing balance throughout the Bay Area. It includes economic strategies encouraging greater commercial densities in targeted growth areas and providing incentives for employers to locate in housing-rich communities with frequent transit service. Also contributing are housing strategies to encourage both market-rate and affordable housing development in High-Resource Areas and Transit-Rich Areas near major employment centers. A strategy to retain key industrial lands by establishing Priority Production Areas would both support a more even jobs-to-housing balance regionwide and protect industrial land from the risk of conversion to residential uses.

### **c. Local**

The following section describes the existing local regulatory environment related to Land Use and Planning.

#### **(1) Antioch General Plan**

The City of Antioch General Plan, updated in November 2003, is a comprehensive planning document intended to guide future development in the bedroom community to expand its



employment base to provide a balance between local jobs and housing while resolving ongoing traffic congestion problems. It is intended to manage residential growth and provide an appropriate range of housing opportunities, including executive housing, traditional single-family neighborhoods, middle- to upper-income attached housing products, and affordable housing. The General Plan includes the following elements:

- Growth Management
- Land Use
- Community Image and Design
- Economic Development
- Circulation
- Public Services and Facilities
- Housing
- Resource Management
- Environmental Hazards

These elements correspond to the general plan elements required by State Planning Law, as described above. The Resource Management Element addresses the requirements for Open Space and Conservation elements, while the Environmental Hazards Element addresses the requirements for Noise and Safety elements. The Growth Management, Community Image and Design, and Economic Development elements are optional elements. The Environmental Justice Element was not a required general plan element at the time of adoption of the City of Antioch General Plan. The Project includes an Environmental Justice Element, which includes goals and policies to meet this general plan requirement.

The General Plan land use map implements General Plan policy by mapping allowed land uses throughout the city. It identifies 13 different residential, commercial, and other land use categories, assigning one land use designation to each parcel in the city or planning area. Proposed new development must be consistent with the land uses and density allowed in the land use designation assigned to the proposed development site. The City's zoning code and ordinances regulating land use must also be consistent with the General Plan.

Each of the General Plan elements listed above includes goals, objectives, and policies intended to achieve the purposes of the elements, as set forth in Government Code 65300 *et seq.* The impacts discussion in this section addresses potential conflicts with General Plan policies that were adopted for the purpose of avoiding or mitigating an environmental effect, which is the applicable threshold of significance for planning impacts pursuant to CEQA. However, for informational purposes, Table IV.A-1 presents a list of General Plan policies relevant to the Project that were adopted for the purpose of avoiding or mitigating an environmental effect, whether or not the Project would conflict with the policies. The table includes a brief discussion of the Project's consistency with each policy.

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
Goal	Conserve and enhance the unique natural beauty of Antioch’s physical setting and control the expansion of urban development by protecting open space where it is important to preserve natural environmental processes and areas of cultural and historical value.	Resource Management Element	<b>Consistent:</b> Housing sites 111, 156, and 157 are currently designated as Open Space in the General Plan but they are all non-vacant and developed with existing single-family homes. The Project would upzone these sites to allow more intense develop. Given the existing use, additional residential units here would not impede the protection of open space.
Goal	Minimize the use of water and energy resources so as to ensure a sustainable long-term supply.	Resource Management Element	<b>Consistent:</b> The Project includes policies/programs to encourage energy and water conservation.
Policy 10.3.2b	Implement the design standards of the Community Image and Design Element so as to maintain views of the San Joaquin River, Mount Diablo and its foothills, Black Diamond Mines Regional Preserve and other scenic features, and protect the natural character of Antioch’s hillside areas as set forth in the Community Image and Design Element.	Resource Management Element, Open Space Objective and Policies	<b>Consistent:</b> Future housing development would be required obtain design review approval and demonstrate compliance with the design standards of the Community Image and Design Element and would also be subject to environmental review pursuant to CEQA, which would require disclosure and mitigation of significant impacts to a publicly accessible scenic vista.
Policy 10.3.2c	Maintain the shoreline of the San Joaquin River as an integrated system of natural (wetlands) and recreational (trails and viewpoints) open space as set forth in the Land Use Element and Public Services and Facilities Element.	Resource Management Element, Open Space Objective and Policies	<b>Consistent:</b> The Project does not propose sites along the river.
Policy 10.3.2e	Require proposed development projects containing significant natural resources (e.g., sensitive or unusual habitats, special-status species, habitat linkages, steep slopes, cultural resources, wildland fire hazards, etc.) to prepare Resource Management Plans to provide for their protection or preservation consistent with the provisions of the Antioch General Plan, other local requirements, and the provisions of State and Federal law. The purpose of the Resource Management Plan is to look beyond the legal status of species at the time the plan is prepared and provide a long-term plan for conservation and management of the natural	Resource Management Element, Open Space Objective and Policies	<b>Consistent:</b> Future development would be required to comply with this policy, where applicable.

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
	<p>communities found onsite. Resource Management Plans shall accomplish the following:</p> <ul style="list-style-type: none"> <li>▪ Determine the significance of the resources that are found onsite and their relationship to resources in the surrounding area, including protected open space areas, habitat linkages and wildlife movement corridors;</li> <li>▪ Define areas that are to be maintained in long-term open space based on the significance of onsite resources and their relationship to resources in the surrounding area, and</li> <li>▪ Establish mechanisms to ensure the long-term protection and management of lands retained in open space.</li> </ul>		
Policy 10.3.2f	<p>Encourage public access to creek corridors through the establishment of trails adjacent to riparian resources, while maintaining adequate buffers between creeks and trails to protect sensitive habitats, special-status species and water quality to the maximum extent feasible.</p>	Resource Management Element, Open Space Objective and Policies	<b>Consistent:</b> A creek crosses Sites 134-137 and future development of the sites would be required to comply with this policy. The anticipated development capacity took into account less developable square footage on these sites
Policy 10.4.2.a	<p>Comply with the Federal policy of no net loss of wetlands through avoidance and clustered development. Where preservation in place is found not to be feasible (such as where a road crossing cannot be avoided, or where shore stabilization or creation of shoreline trails must encroach into riparian habitats), require 1) on-site replacement of wetland areas, 2) off-site replacement, or 3) restoration of degraded wetland areas at a minimum ratio of one acre of replacement/restoration for each acre of impacted onsite habitat, such that the value of impacted habitat is replaced.</p>	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> Although none of the housing sites are known to contain wetlands—and all of the sites are infill sites, many of which are already developed—future proposed housing development would be subject to environmental review pursuant to CEQA, which would confirm the absence of wetlands. In the event wetlands were identified on a proposed development site, the Project would be required to comply with this policy.

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or	Policy Number	Goal or Policy	Source	Project Consistency
	Policy 10.4.2.b	Preserve in place and restore existing wetlands and riparian resources along the San Joaquin River and other natural streams in the Planning Area, except where a need for structural flood protection is unavoidable.	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> A creek is present on Sites 134-137, and development of these sites may be subject to this policy. The anticipated development capacity took into account less developable square footage on these sites in order to allow a large creek setback based on staff's direction. Site 171 is also near the Contra Costa Canal but separated from the canal by an existing trail and the trail's buffer.
	Policy 10.4.2.c	Require appropriate setbacks adjacent to natural streams to provide adequate buffer areas ensuring the protection of biological resources, including sensitive natural habitat, special-status species habitats and water quality protection	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> A creek is present on Sites 134-137, and development of these sites may be subject to this policy. The anticipated development capacity took into account less developable square footage on these sites in order to allow a large creek setback based on staff's direction. Site 171 is also near the Contra Costa Canal but separated from the canal by an existing trail and the trail's buffer.
	Policy 10.4.2.d	Through the project approval and environmental review processes, require new development projects to protect sensitive habitat areas, including, but not limited to, oak woodlands, riparian woodland, vernal pools, and native grasslands. Ensure the preservation in place of habitat areas found to be occupied by state and federally protected species. If impacts to sensitive habitat areas are unavoidable, appropriate compensatory mitigation shall be required off-site within eastern Contra Costa County. Such compensatory mitigation shall be implemented through the provisions of a Resource Management Plan ("RMP") as described in Policy 1 0.3.2.e, except where, in the discretion of the Community Development Director, an RMP is not necessary or appropriate due to certain characteristics of the site and the project. Among the factors that are relevant to determining whether an	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> Although most of the housing sites are infill sites, many of which are already developed, future proposed housing development would be subject to environmental review pursuant to CEQA, which would determine whether or not any sensitive biological resources are present on the site. In the event such resources were identified on a proposed development site, the Project would be required to comply with this policy.

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
	RMP is necessary or appropriate for a given project are the size of the project and the project site, the location of the project (e.g., proximity to existing urban development or open space), the number and sensitivity of biological resources and habitats on the project site, and the nature of the project (e.g., density and intensity of development). Where preserved habitat areas occupy areas that would otherwise be graded as part of a development project, facilitate the transfer of allowable density to other, non-sensitive portions of the site.		
Policy 10.4.2.e	Limit uses within preserve and wilderness areas to resource-dependent activities and other uses compatible with the protection of natural habitats (e.g., passive recreation and public trails).	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> None of the housing sites are within preserves. Future proposed housing development would be subject to environmental review pursuant to CEQA, which would determine whether or not any sensitive natural habitats are present on the site. In the event such resources were identified on a proposed development site, the Project would be required to comply with this policy.
Policy 10.4.2.f	Through the project review process, review, permit the removal of healthy, mature oak trees on a case-by-case basis only where it is necessary to do so.	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> Future housing development would be required to comply with this policy.
Policy 10.4.2.g	Preserve heritage trees throughout the Planning Area.	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> Future housing development would be required to comply with this policy.
Policy 10.4.2.h	Within areas adjacent to preserve habitats, require the incorporation of native vegetation and avoid the introduction of invasive species in the landscape plans for new development.	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> Although most of the housing sites are infill sites, many of which are already developed, future proposed housing development would be subject to environmental review pursuant to CEQA, which would determine whether or not any sensitive biological resources are located adjacent to the site. In the event

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
Policy 10.4.2.i	Design drainage within urban areas so as to avoid creating perennial flows within intermittent streams to prevent fish and bullfrogs from becoming established within a currently intermittent stream.	Resource Management Element, Biological Resources Objective and Policies	a proposed development site is located adjacent to a habitat preserve, the Project would be required to comply with this policy.  <b>Consistent:</b> Future development would be required to comply with this policy.
Policy 10.4.2.j	Whenever a biological resources survey is undertaken to determine the presence or absence of a threatened or endangered species, or of a species of special concern identified by the U.S. Fish and Wildlife Service or the California Department of Fish and Game, require the survey to follow established protocols for the species in question prior to any final determination that the species is absent from the site.	Resource Management Element, Biological Resources Objective and Policies	<b>Consistent:</b> Future development would be required to comply with this policy.
Policy 10.5.2.a	Minimize the number and extent of locations where residential, commercial, industrial, and public facilities land use designations abut lands designated for open space and protected resource areas (e.g., lands with conservation easements or set aside as mitigation for development impacts). Where such land use relationships cannot be avoided, use buffers and compatible uses to buffer and protect open space and protected resources from the adverse effects of residential, commercial, industrial, and public facilities development	Resource Management Element, Open Space Transitions and Buffers Policies	<b>Consistent:</b> The majority of the city’s significant open space resource areas are in or adjacent to the southern edge of the city, and the proposed housing sites avoid these areas. All of the housing sites are infill sites and are not expected to abut protected resource areas. Although there are sites near existing parks, including Site 118 across Deer Valley Road from the Prewett Family Park, none are directly adjacent to parks/open space.
Policy 10.5.2.b	Ensure that the design of development proposed along a boundary with open space or protected resources provides sufficient protection and buffering for the open space and protected resources. The provision of buffers and transitions to achieve compatibility shall occur as part of the proposed development	Resource Management Element, Open Space Transitions and Buffers Policies	<b>Consistent:</b> The majority of the city’s significant open space resource areas are in or adjacent to the southern edge of the city, and the proposed housing sites avoid these areas. All of the housing sites are infill sites and are not expected to abut protected resource areas. Although there are sites near existing parks, including Site 118 across Deer Valley Road from the Prewett

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
Policy 10.5.2.c	<p>In designing buffer areas, the following criteria shall be considered and provided for (when applicable) within the buffer areas to avoid or mitigate significant impacts.</p> <p><b>Aesthetics:</b> How will development affect views from adjacent open space areas? What are the sensitive land uses and resources within open space areas and how might they be affected by changes in the visual environment?</p> <p><b>Light and Glare:</b> Will a proposed development result in increased light or glare in open space areas that would impact open space uses or wildlife habitats within that open space?</p> <p><b>Noise:</b> Will noise generated by the proposed development affect the public’s quiet enjoyment of public open space? What are the sensitive noise receptors in open space areas and how can impacts on those sensitive receptors be avoided or mitigated? Can noise-generating uses be located away from noise-sensitive areas?</p> <p><b>Fire Safety:</b> How will development affect the risk of fire on adjacent open space and resource areas? How would development affect or be affected by existing fire abatement practices on adjacent open space and resource areas, including livestock grazing, prescribed fire, plant pest management, mowing, disking, ecological restoration and other practices?</p> <p><b>Public Safety:</b> How will development adjacent to open space or resource areas increase the risk of vandalism,</p>	Resource Management Element, Open Space Transitions and Buffers Policies	<p>Family Park, none are directly adjacent to parks/open space.</p> <p><b>Consistent:</b> The proposed housing sites are all infill sites and are not expected to abut protected resource areas where buffers would be required or warranted. Although a creek may be present on Sites 134-137, and future development of these sites may be subject to this policy, this would be determined at the time a development application is submitted to the City and, if applicable, the applicant would be required to comply with the provisions of this policy. The anticipated development capacity took into account less developable square footage on these sites in order to allow a large creek setback based on staff’s direction. Site 171 is also near the Contra Costa Canal but is separated from the canal by an existing trail and the trail’s buffer, so development of that site is not expected to be subject to this policy.</p>

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
	<p>trespass, and theft in adjacent open space and resource areas?</p> <p><b>Habitat Management:</b> How will proposed development affect habitat values on adjacent open space and resource areas? How will development prevent the spread of introduced animals and plant pests into adjacent open space and resource areas? How will proposed development affect wildlife migration corridors between or within open space and/or resource areas?</p> <p><b>Public Access Management:</b> How will development adjacent to public open space and resource areas affect the maintenance of existing public facilities, such as roads, trails, fences, gates and restrooms? How might development adjacent to open space or resource areas facilitate illegal public access?</p> <p><b>Buffer Management:</b> How can appropriate management of lands that are set aside as buffers between development and open space or resource areas be ensured?</p>		
Policy 10.6.2.a	Require development projects to minimize the generation of particulate emissions during construction through implementation of the dust abatement actions outlined in the CEQA Handbook of the Bay Area Air Quality Management District	Resource Management Element, Air Quality Objective and Policies	<b>Consistent:</b> Future development facilitated by the Project would be required to comply with this policy.
Policy 10.6.2.b	Require developers of large residential and non-residential projects to participate in programs and to take measures to improve traffic flow and/or reduce vehicle trips resulting in decreased vehicular emissions. Examples of such efforts may include but are not limited to the following. Development of mixed-use projects, facilitating pedestrian and bicycle	Resource Management Element, Air Quality Objective and Policies	<b>Consistent:</b> Future development facilitated by the Project would be required to comply with this policy.



**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
	transportation and permitting consolidation of vehicular trips. Installation of transit improvements and amenities, including dedicated bus turnouts and sufficient rights-of-way for transit movement, bus shelters, and pedestrian easy access to transit. Provision of bicycle and pedestrian facilities, including bicycle lanes and pedestrian walkways connecting residential areas with neighborhood commercial centers, recreational facilities, schools, and other public areas. Contributions for off-site mitigation for transit use. Provision of charging stations for electric vehicles within large employment-generating and retail developments.		
Policy 10.6.2.g	Require new wood burning stoves and fireplaces to comply with EPA and BAAQMD approved standards.	Resource Management Element, Air Quality Objective and Policies	<b>Consistent:</b> Future development facilitated by the Project would be required to comply with this policy.
Policy 10.7.2.a	As part of the implementing the City’s residential growth management program and its development review process for non-residential development, ensure that adequate long-term water supplies are available to serve the development being granted new allocations, including consideration of peak drought and peak firefighting needs.	Resource Management Element, Water Resources and Quality Objective and Policies	<b>Consistent:</b> During development review of future site-specific housing development facilitated by the Project, the applicant would be required to demonstrate that adequate water supplies are available to serve the development. At a programmatic level, the adequacy of long-term water supplies to serve the need of future development facilitated by the Project is evaluated in <i>Section IV.N, Utilities</i> .
Policy 10.7.2.b	Require new development to be equipped with drought tolerant landscaping and water conservation devices.	Resource Management Element, Water Resources and Quality Objective and Policies	<b>Consistent:</b> Future development would be required to comply with this policy.
Policy 10.7.2.c	Work with Delta Diablo Sanitation District to make reclaimed wastewater available for irrigation use. Where reclaimed wastewater can be made available at a reasonable cost, require the installation of dual water	Resource Management Element, Water Resources and Quality Objective and Policies	<b>Consistent:</b> When applicable, future development would be required to comply with this policy.

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
	systems in development projects and public facilities, using reclaimed wastewater for irrigation.		
Policy 10.7.2.d	Protect, where possible, groundwater recharge areas, including protection of stream sides from urban encroachment.	Resource Management Element, Water Resources and Quality Objective and Policies	<b>Consistent:</b> Future development would be subject to separate environmental review that would evaluate the potential for groundwater recharge at the site and identify measures to mitigate potential impacts. Groundwater recharge impacts of the Project are evaluated at a programmatic level in <i>Section IV.K, Hydrology and Water Quality</i> , of this EIR.
Policy 10.7.2.g	Require public and private development projects to be in compliance with applicable National Pollution Discharge Elimination System (NPDES) permit requirements and require the implementation of best management practices to minimize erosion and sedimentation resulting from new development.	Resource Management Element, Water Resources and Quality Objective and Policies	<b>Consistent:</b> Future housing development would be required to comply with this standard requirement applicable to all sizeable development projects.
Policy 10.7.2.i	Design drainage within urban areas to avoid runoff from landscaped areas and impervious surfaces from carrying pesticides, fertilizers, and urban and other contaminants into natural streams.	Resource Management Element, Water Resources and Quality Objective and Policies	<b>Consistent:</b> Mandatory compliance with the NPDES stormwater requirements referenced in Policy 10.7.2.g would ensure that future housing development would comply with this standard requirement applicable to all sizeable development projects.
Policy 10.8.2.a	Continue to implement Title 24 of the State Building Code and provide incentives to encourage architects and builders to exceed the energy efficiency standards of Title 24 through increased use of passive, solar design and daylighting.	Resource Management Element, Energy Resources Objective and Policies	<b>Consistent:</b> Future housing development would be required to comply with Title 24 as part of the building permit process. To the extent the City has provided incentives to exceed Title 24 standards, developers would be expected avail themselves of the incentives, which would further improve the energy efficiency of their projects.
Policy 10.8.2.b	Promote the use of site design, landscaping, and solar orientation to decrease the need for summer cooling and winter heating.	Resource Management Element, Energy Resources Objective and Policies	<b>Consistent:</b> Future housing developers would be encouraged to design their projects in accordance with this policy. The City may consider incorporating this as a requirement in the Objective Development Standards.

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
Policy 10.8.2.c	Where feasible, incorporate recycled materials in new construction.	Resource Management Element, Energy Resources Objective and Policies	<b>Consistent:</b> Future housing developers would be encouraged to design their projects in accordance with this policy. The City may consider incorporating this as a requirement in the Objective Development Standards.
Policy 10.8.2.d	Encourage the installation of energy-efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.	Resource Management Element, Energy Resources Objective and Policies	<b>Consistent:</b> Future housing developers would be encouraged to design their projects in accordance with this policy. The City may consider incorporating this as a requirement in the Objective Development Standards. The proposed Housing Element also includes policies for energy efficiency/conservation that would further the objective of this policy.
Policy 10.8.2.e	Facilitate the installation of environmentally acceptable forms of distributed generation where such systems can be safely and economically provided.	Resource Management Element, Energy Resources Objective and Policies	<b>Consistent:</b> Future housing developers would be encouraged to design their projects in accordance with this policy. The City may consider incorporating this as a requirement in the Objective Development Standards. The proposed Housing Element also includes policies for energy efficiency/conservation that would further the objective of this policy.
Policy 10.8.2.i	The City shall review all development plans prior to approval to guarantee that energy conservation and efficiency standards of Title 24 are met and are incorporated into the design of the future proposed project.	Resource Management Element, Energy Resources Objective and Policies	<b>Consistent:</b> Future development would be subject to this policy, which would be enforced through the standard building permit process.
Objective	Preserve archaeological, paleontological, and historic resources within the Antioch Planning Area for the benefit and education of future residents.	Resource Management Element, Cultural Resources Objective and Policies	<b>Consistent:</b> Future development would be subject to separate site-specific environmental review that would evaluate the potential for significant archaeological, paleontological, or historic resources to be present, and that would identify appropriate measures to mitigate potential impacts. Cultural resource impacts of the Project are evaluated at a programmatic level in <i>Section IV.F, Cultural and Tribal Resources</i> , of this EIR.

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or	Policy Number	Goal or Policy	Source	Project Consistency
Policy 10.9.2.a	Require new development to analyze, and therefore avoid or mitigate impacts to archaeological, paleontological, and historic resources. Require surveys for projects having the potential to impact archaeological, paleontological, or historic resources. If significant resources are found to be present, provide mitigation in accordance with applicable CEQA guidelines and provisions of the California Public Resources Code.	Resource Management Element, Cultural Resources Objective and Policies	<b>Consistent:</b> Future development would be subject to separate site-specific environmental review that would evaluate the potential for significant archaeological, paleontological, or historic resources to be present, and that would identify appropriate measures to mitigate potential impacts. Cultural resource impacts of the Project are evaluated at a programmatic level in <i>Section IV.F, Cultural and Tribal Resources</i> , of this EIR.	
Policy 10.9.2.b	<p>If avoidance and/or preservation in the location of any potentially significant cultural resource is not possible, the following measures shall be initiated for each impacted site:</p> <ul style="list-style-type: none"> <li>▪ A participant-observer from the appropriate Indian Band or Tribe shall be used during archaeological testing or excavation in the project site.</li> <li>▪ Prior to the issuance of a grading permit for the project, the project proponent shall develop a test-level research design detailing how the cultural resource investigation shall be executed and providing specific research questions that shall be addressed through the excavation program. In particular, the testing program shall characterize the site constituents, horizontal and vertical extent, and, if possible, period of use. The testing program shall also address the California Register and National Register eligibility of the cultural resource and make recommendations as to the suitability of the resource for listing on either Register. The research design shall be submitted to the City of Antioch for review and comment. For sites determined, through the Testing Program, to be ineligible for listing on either the California or National Register, execution</li> </ul>	Resource Management Element, Cultural Resources Objective and Policies	<b>Consistent:</b> Future development would be subject to separate site-specific environmental review that would evaluate the potential for significant archaeological, paleontological, or historic resources to be present, and that would identify appropriate measures to mitigate potential impacts. The analysis would determine whether the additional provisions of this policy apply, and the requirements would be enforced, as applicable. Cultural resource impacts of the Project are evaluated at a programmatic level in <i>Section IV.F, Cultural and Tribal Resources</i> , of this EIR.	

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
	<p>of the Testing Program will suffice as mitigation of project impacts to this resource.</p> <ul style="list-style-type: none"> <li>▪ After approval of the research design and prior to the issuance of a grading permit, the project proponent shall complete the excavation program as specified in the research design. The results of this excavation program shall be presented in a technical report that follows the City’s outline for Archaeological Testing. The Test Level Report shall be submitted to the City for review and comment. If cultural resources that would be affected by the project are found ineligible for listing on the California or National Register, test-level investigations will have depleted the scientific value of the sites and the project can proceed.</li> <li>▪ If the resource is identified as being potentially eligible for either the California or National Register, and project designs cannot be altered to avoid impacting the site, a Treatment Program to mitigate project effects shall be initiated. A Treatment Plan detailing the objectives of the Treatment Program shall be developed. The Treatment Plan shall contain specific, testable hypotheses relative to the sites under study and shall attempt to address the potential of the sites to address these research questions. The Treatment Plan shall be submitted to the City for review and comment.</li> <li>▪ After approval of the Treatment Plan, the Treatment Program for affected, eligible sites shall be initiated. Typically, a Treatment Program involves excavation of a statistically representative sample of the site to preserve those resource values that qualify the site as being eligible for the California or National</li> </ul>		

**TABLE IV.A-1 2003 GENERAL PLAN POLICIES WITH ENVIRONMENTAL FOCUS**

Goal or Policy Number	Goal or Policy	Source	Project Consistency
	Register. At the conclusion of the excavation or research program, a Treatment Report shall be developed. This data recovery report shall be submitted to the City for review and comment.		
Policy 10.9.2.c	When existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate reposition, 4246315310474653 and file a report with the Community Development Department documenting any paleontological resources found during site grading.	Resource Management Element, Cultural Resources Objective and Policies	<b>Consistent:</b> Future development would be subject to separate site-specific environmental review that would evaluate the potential for paleontological resources to be present, and that would identify appropriate measures to mitigate potential impacts. The analysis would determine whether this policy is applicable to the proposed development, and the requirements would be enforced, as applicable. Paleontological resources impacts of the Project are evaluated at a programmatic level in <i>Section IV.F, Cultural and Tribal Resources</i> , of this EIR.
Policy 10.9.2.d	As a standard condition of approval for new development projects, require that if unanticipated cultural or paleontological resources are encountered during grading, alteration of earth materials in the vicinity of the find be halted until a qualified expert has evaluated the find and recorded identified cultural resources.	Resource Management Element, Cultural Resources Objective and Policies	<b>Consistent:</b> Future development would be subject to this policy

Source: Antioch General Plan.

## (2) Antioch Municipal Code

Antioch's zoning regulations are promulgated in Title 9, Planning and Zoning, of the Antioch Municipal Code. Chapter 5, Article 3 establishes 30 zoning districts, including four overlay districts. Other articles in Chapter 5 establish development regulations for the zoning districts, such as height restrictions and setback requirements. Every parcel in the city has been assigned a zoning district that regulates the type and density of land use(s) that may be developed on the parcel. The Housing Inventory Sites (Sites Inventory) identified in the proposed Housing Element are currently located in the following zoning districts:

- Single-Family Residential, 6 units/acre (R-6)
- Medium-Density Residential, 11-20 units/acre (R-20)
- High-Density Residential, 20-25 units/acre (R-25)
- Professional Office (C-0)
- Convenience Commercial (C-1)
- Neighborhood/Community Commercial (C-2)
- Regional Commercial (C-3)
- Study (S)
- Specific Plan (S-P)
- Planned Development (P-D)
- Planned Business Center/Cannabis Business Overlay (PBC/CB)

Of the 182 total proposed housing sites, 169 of them would be rezoned to Medium-Density Residential (R-20) or High-Density Residential (R-30<sup>9</sup> and R-35) zoning districts before the 6<sup>th</sup> cycle housing element planning period in January 2023. The remaining sites are already zoned for residential use.

## 3. Impacts and Mitigation Measures

This section analyzes the impact related to Land Use and Planning that would result from implementation of the Project. It begins with the criteria of significance, establishing the thresholds to determine whether an impact is significant. The latter part of this section describes the land use impacts associated with the Project and identifies mitigation measures to address these impacts as needed.

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<sup>9</sup> As a part of the Project, the existing R-25 zone (20-25 units per acre) would be amended to become the R-30 zone (20-30 units per acre).

### **a. Significance Criteria**

Implementation of the Project would result in a significant land use impact if it would:

1. Physically divide an established community.
2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

### **b. Findings**

The following discussion describes the potential impacts associated with land use that would result from the Project.

#### **(1) Physically Divide an Existing Community (Criterion 1)**

Physically dividing an existing community typically occurs when a physical barrier is constructed that impedes movement within a community. For example, construction of a freeway or rail line through an existing community would substantially impair movement between the two portions of the bisected community. Such an impact could also result from the removal of a bridge linking two areas of a community.

Implementation of the Project would include the rezoning of 169 sites to allow residential development or more intense residential development. In the majority of cases, the future development of the sites would occur within existing urbanized areas already served by a robust road network. Many of the housing sites are located adjacent to major arterials. In a few cases, such as in the East Lone Tree Specific Plan area, the future development of the sites would require the extension of new roads to serve the development. These improvements would not introduce a barrier to movement within the community; rather, they would improve and enhance movement within the community, integrating with the existing residential neighborhoods immediately to the west and south of the East Lone Tree Specific Plan area.

Similarly, on larger infill housing sites, an internal road network would be required to provide access to new homes. These roads would connect to and integrate with the existing surrounding roads and would therefore improve the connectivity within and between neighborhoods. No new arterial roadways or freeways are proposed that could impair or obstruct movement across the new housing sites or within the existing community.

Proposed policies in the Housing Element are primarily aimed at increasing the production of new housing in Antioch, particularly affordable housing and housing for special needs residents. However, Goal 1 calls for the conservation and improvement of the existing housing supply, which would indirectly contribute to the preservation of existing connectivity in the community.



As summarized above, implementation of the Project would not physically divide an established community or established neighborhoods.

## **(2) Conflict with Land Use Policy (Criterion 2)**

The Project proposes amendments to the General Plan, including the Housing Element and the Environmental Hazards Element. The amendments would comply with State planning law and the Housing Accountability Act and would help the City meet its RHNA obligation as determined by ABAG. The Project is a policy and planning document that, if adopted, would identify 182 sites in the city, rezoning 169 of them, for future development with market-rate and affordable housing. The proposed Housing Element policies would encourage development of new housing units, rehabilitation of existing housing units, and the creation of more housing opportunities for special-needs residents, including seniors, persons with disabilities, and the homeless. Additional policies would reduce government constraints to housing development and would include zoning code amendments to facilitate meeting this objective. The Project would also include the addition of Environmental Justice policies to the General Plan to reduce discrimination and increase opportunities for disadvantaged populations, and the addition of new policies to the Environmental Hazards Element of the General Plan to reduce the risks associated with natural and man-made hazards, such as climate change, fires, floods, droughts, earthquakes, landslides, and sea level rise.

Potential land use policy conflicts are described above and any conflicts with the general plan, including a Housing Element and Safety Element, do not inherently result in a significant effect on the environment within the context of CEQA. As stated in Section 15358(b) of the CEQA Guidelines, "Effects analyzed under CEQA must be related to a physical change." Section 15125(d) of the CEQA Guidelines states that EIRs shall discuss any inconsistencies between the project and applicable general plans in the Setting section of the document (not under Impacts). Further, Appendix G of the CEQA Guidelines (Environmental Checklist Form) explicitly focuses on environmental policies and plans, asking if the project would "conflict with any applicable land use plan, policy, or regulation ...adopted for the purpose of avoiding or mitigating an environmental effect." Even a response in the affirmative, however, does not necessarily indicate a project would have a significant effect, unless a physical change would occur. To the extent that physical impacts may result from such conflicts, such physical impacts are analyzed in this Draft EIR in the section that most aptly applies to that impact (e.g., Noise).

### **General Plan and Zoning**

One of the stated goals of the proposed Housing Element is to remove governmental constraints that inhibit the development of adequate housing to meet identified needs in Antioch. One of those constraints is the restrictions on land use and density that are inherent in general plan land

use designations and zoning districts assigned to individual parcels. The Project would reduce this constraint by the following actions:

- Changing the General Plan land use designations on approximately 31 parcels from non-residential uses to residential uses;
- Changing the General Plan land use designations on approximately 98 residential parcels to higher-density residential designations;
- Rezoning approximately 119 parcels from non-residential uses (not including Planned Development and Specific Plan zoning districts) to residential uses;
- Rezoning approximately 14 parcels zoned for residential use (not including Planned Development and Specific Plan zoning districts) to allow higher-density residential development; and
- Rezoning approximately 37 parcels zoned Planned Development (P-D) or Specific Plan (S-P) to allow higher-density residential development.

The Project would include the rezoning of 169 parcels to residential districts or to higher-density residential districts. The General Plan land use designations would be amended on a comparable number of parcels to designate them as either Medium-Density Residential or High-Density Residential. Future development of the parcels with new housing would inherently be consistent with the amended General Plan and zoning designations. Where adverse physical effects on the environment could result from the future development of housing on the proposed housing sites, those potential impacts are addressed in the appropriate environmental resource section, such as Transportation or Air Quality. Additionally, potential conflicts with planning documents pertaining to a specific environmental resource, such as Air Quality, are discussed in the technical sections pertaining to those resources.

The proposed Housing Element, Environmental Hazards Element, and Environmental Justice policies would be added to the General Plan and, consequently, the Project is inherently consistent with those General Plan policies. The amendments would comply with State Planning Law requirements for these general plan elements, and the proposed housing sites would meet the RHNA allocations for the city assigned by ABAG in compliance with California Housing Element Law.

Future housing development pursuant to the proposed Housing Element would be required to be consistent with the General Plan, including policies and programs adopted for the purpose of avoiding or reducing adverse physical effects on the environment. As future housing projects are proposed, they would be reviewed for consistency with the General Plan and the applicable zoning regulations. Pursuant to Municipal Code Chapter 5, Article 26, future housing development consistent with the Housing Element would be subject to the City's design review

process, which would ensure the development would be consistent with the Citywide Design Guidelines and would embody high-quality design and site planning.

The Project would not eliminate or modify any policies or measures from the General Plan that are intended for environmental protection and as demonstrated in Table IV.A-1, would not conflict with any General Plan policies or measures that are intended for environmental protection.

### **Plan Bay Area 2050**

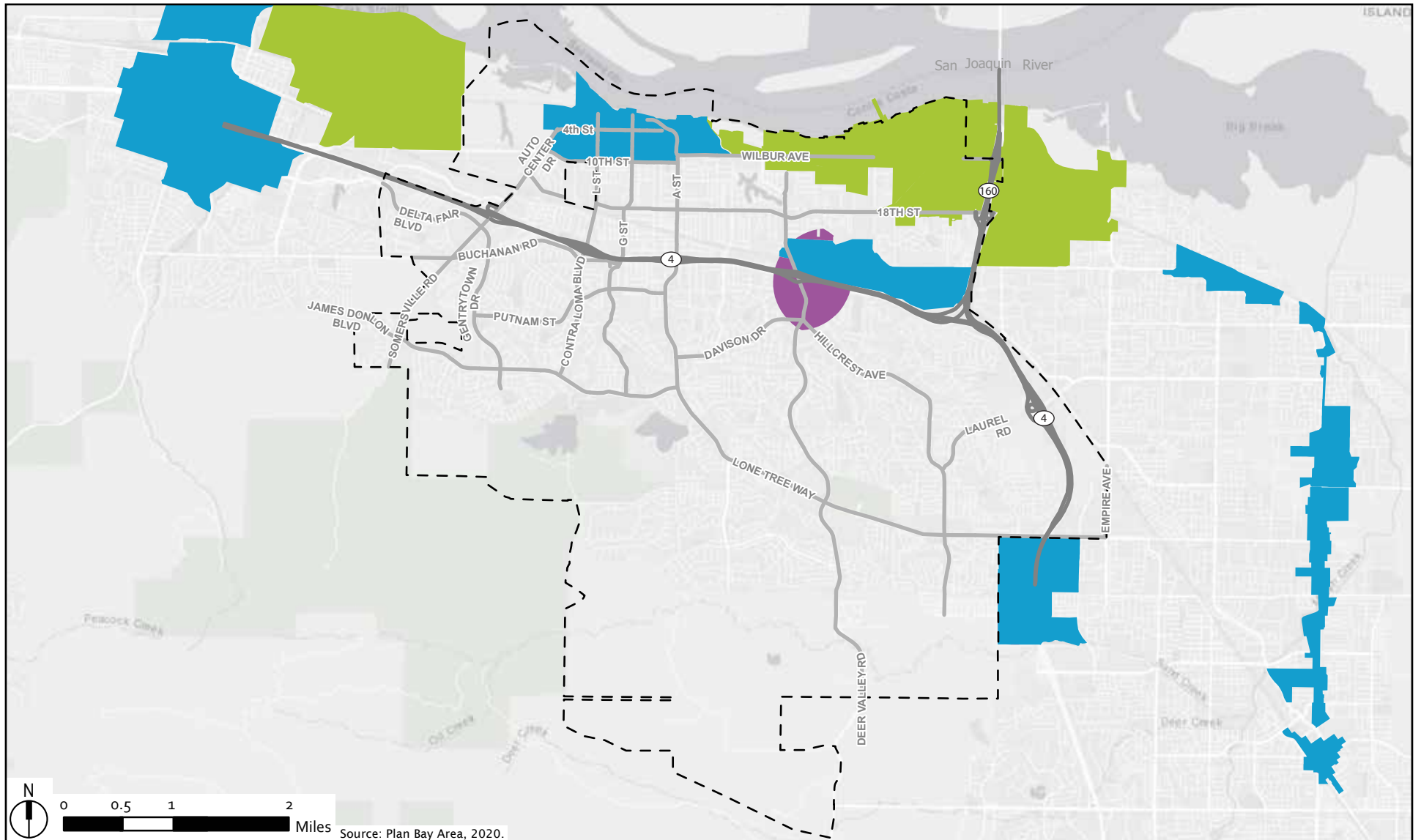
The Project is consistent with the regional and sub-regional growth projections contained in Plan Bay Area 2050, which is a planning document that was adopted for the purpose of avoiding or mitigating an environmental effect. Among other objectives, Bay Area 2050 was developed to help the region reduce greenhouse gas emissions, and implementation of the Plan is projected to result in a 19-percent region-wide reduction in per-capita emissions by 2035 if all of the Plan's 35 strategies are implemented. The strategies are intended to protect vulnerable communities from sea level rise, wildfires, and earthquakes while improving air quality—all explicit environmental objectives.

Plan Bay Area 2050 encourages both market-rate and affordable housing development in High-Resource Areas and Transit-Rich Areas (two of the four growth geographies designated in the plan) in order to promote a healthier balance of jobs and housing throughout the Bay Area. To date, ABAG and MTC have not prepared detailed maps at the local level of the four growth geographies. However, the agencies provide an interactive online GIS map of the nine-county Bay Area that allows users to zoom in to specific localities.<sup>10</sup> The map displays all of the designated growth geographies, but they are all consolidated, so it's not possible to determine which of the four geographies applies to a particular area.

Although the 104 designated housing sites located in proximity to Viera Avenue and Tremblath Lane, shown on Figure III-10 in *Chapter III, Project Description*, are not located within the Plan Bay Area 2050 growth geographies (see Figure IV.A-1), they are immediately adjacent to growth geographies mapped by ABAG and MTC. Since one of the purposes of the growth geographies is to encourage the development of housing in proximity to existing and future employment centers and/or public transit, housing developed in close proximity to a growth area would contribute to meeting this objective.

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<sup>10</sup> Association of Bay Area Governments and Metropolitan Transportation Commission, Plan Bay Area 2050 Growth Geographies, <https://opendata.mtc.ca.gov/datasets/d74d81cfce2a4bc9851858fo87b78f49/explore?location=38.002291,-121.766977,15.00>.



- |               |                                     |                             |
|---------------|-------------------------------------|-----------------------------|
| City Boundary | <b>Growth Geographies</b>           | Transit-Rich Outside HRA    |
| Highways      | High-Resource Area (16-30 min. bus) | Transit Management Resource |
| Major Roads   | Priority Development Area           | Priority Production Area    |

Figure IV.A-1  
 Plan Bay Area 2050 Growth Geographies  
 Antioch Housing, Environmental Hazards, and EJ Elements EIR

Similarly, housing sites 105-108, 123, 124, 164, and 172-182 are adjacent to designated growth geographies, though not within them. Housing sites 158 and 159 are within growth geographies, and adjacent sites 112, 160, and 161 are in close proximity to the growth geographies. Housing sites 109, 110, 116-118, 120, 121, and 167-170 are within designated growth geographies. Site 115 also appears within one of these areas but may lie just outside of one. Sites 125-127, 130, 131, 133, and 165 are outside and not in close proximity to any growth geographies. The following housing sites are well removed from any growth geographies: 113, 115, 116, 118, 138, 140, 142-150, 152-154, and 157.

While a significant number of Antioch's proposed housing sites are not located within one of the growth geographies designated by ABAG and MTC, the majority of those lying outside are in fairly close proximity to a growth geography. Furthermore, the housing sites demonstrate a capacity to develop new housing well above the City's RHNA obligation. The proposed housing sites would further new housing development in Antioch in compliance with its RHNA obligation, which would advance residential growth promoted in Plan Bay Area 2050.

ABAG and MTC have not yet developed guidelines or recommendations for determining whether a proposed development project or adoption of a plan would be consistent with Plan Bay Area 2050; development of this guidance is currently underway.<sup>11</sup> However, as discussed above, the housing sites identified in the proposed Housing Element are generally supportive of and consistent with the residential growth fostered in Plan Bay Area 2050 and the discussion below further demonstrates the Project's consistency with Plan Bay Area 2050.

RHNA and Plan Bay Area 2050 discuss planning for housing on two separate time horizons: RHNA focuses on the shorter-term with its 8-year cycle, while Plan Bay Area 2050 presents a longer-term vision for the next 30 years. The two efforts, however, are coordinated, with RHNA's near-term focus setting the stage for early implementation of Plan Bay Area 2050's envisioned growth pattern. MTC and ABAG staff also developed a framework for evaluating consistency between RHNA and the proposed Plan. This approach compared the 8-year RHNA allocations to the 35-year housing growth from the proposed Plan Final Blueprint at the county and sub-county geographies used in the Plan. If the 8-year growth level from RHNA did not exceed the 35-year housing growth level at either of these geographic levels, then RHNA and the proposed Plan were determined to be consistent. MTC and ABAG staff evaluated the final RHNA methodology using

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<sup>11</sup> Ada Chan, Regional Planner, Bay Area Metro, Association of Bay Area Governments and Metropolitan Transportation Commission. Personal communication with Urban Planning Partners, April 4, 2022.

this approach and determined that the jurisdictional RHNA allocations are consistent with the proposed Plan's growth pattern at the county and sub-county levels.<sup>12</sup>

The Project has been developed specifically to pave the way for the City to meet its RHNA obligation as assigned to it by ABAG. In fact, the proposed Housing Element demonstrates that the city has capacity to accommodate 4,575 housing units, which is 1,559 housing units beyond its RHNA obligation of 3,016 housing units, a buffer of approximately 52 percent. The Project is inherently consistent with RHNA, as explained above, and is consistent with Plan Bay Area 2050.

As demonstrated in the preceding discussions, the Project would not conflict with a land use plan or policy adopted for the purpose of avoiding or reducing an adverse environmental effect. This would be a less-than-significant impact.

### **c. Cumulative Land Use Impacts**

As explained in above, implementation of the Project would not result in a significant land use impact by potentially physically dividing an established community; therefore, it would not make a cumulatively considerable contribution to an environmental impact related to physically dividing an established community.

The Project would be consistent with applicable land use plans and policies adopted for the purpose of avoiding or reducing an adverse environmental effect. Antioch General Plan policies meeting this criterion are listed in Table IV.A-1, which provides a brief explanation of how the Project would be consistent with each policy; no policy conflicts were identified. While future development in Antioch could conflict with environmental policies adopted by the City, such projects would either need to be modified to conform with adopted policy or obtain approval of a general plan amendment to modify the applicable policy. Multiple future development projects seeking general plan amendments in order to comply with the City's adopted environmental policies could potentially result in significant cumulative impacts to the environment if multiple projects did not conform to the City's policies adopted for the purpose of avoiding or reducing an adverse environmental effect. Similarly, multiple future projects conflicting with Plan Bay Area 2050 could make cumulatively considerable contributions to environmental impacts Plan Bay Area 2050 is intended to reduce.

It is expected that the City will continue to review future development proposals to ensure compliance with the City's environmental policies and utilize its discretion to disapprove projects

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<sup>12</sup> Association of Bay Area Governments and Metropolitan Transportation Commission, 2021. *Plan Bay Area 2050 Final Program Environmental Impact Report*, SCH No. 2020090519, Section 2.1.1: Master Response 1: Regional Growth Forecast, October.

and/or general plan amendments that would cause significant cumulative impacts to the environment. However, no such conflicts, including those with Plan Bay Area 2050, have been identified for the current Project, so it would not make a cumulatively considerable contribution to conflicts with land use plans and policies adopted for the purpose of avoiding or reducing an adverse environmental effect. This would be a less-than-significant impact.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

A. LAND USE AND PLANNING



## B. TRANSPORTATION

This section describes the environmental setting with regards to transportation and circulation conditions, including transit services and pedestrian and bicycle facilities in the city; discusses the regulations and policies pertinent to transportation and circulation; assesses the potentially significant transportation impacts that could result from implementation of the Project; and provides, where appropriate, mitigation measures to address those impacts.

### 1. Environmental Setting

The existing transportation-related context in which the Project would be implemented is described below, beginning with a description of the street network that serves Antioch. This section also describes existing transit, bicycle network, and pedestrian facilities; current conditions for roadways; planned transportation changes; and applicable planning policies.

#### a. Existing Road Network

The roadway network serving the city is shown in Figure IV.B-1 as presented in the City of Antioch's 2003 General Plan Update.<sup>1</sup> Key roadways are described below.

##### (1) State Highways

**State Route 4 (SR-4)** is an east-west freeway that extends from the city of Hercules in the west to the city of Stockton and beyond in the east. SR-4 has a northwest/southeast orientation between SR-160 and Walnut Boulevard in east Contra Costa County. SR-4 connects Antioch with Oakley, Brentwood, Pittsburg, Interstate (I-) 680, Martinez, Pinole, and I-80. It is a divided freeway from I-680 east through Concord, Pittsburg, Antioch, Oakley, and portions of Brentwood, transitioning to a two-lane roadway to the east. SR-4, according to the City of Antioch's 2003 General Plan Update has been one of the more congested freeways in Contra Costa, in particular, the segments between Lone Tree Way and Railroad Avenue in the morning and Bailey Road to Lone Tree Way in the afternoon. On and off-ramps between SR-4 and Antioch's local street network occur at East 18th Street, Hillcrest Avenue, "A" Street/Lone Tree Way, "G" Street, "L" Street/Contra Loma Boulevard, and Somersville Road.

**State Route 160 (SR-160)** begins at the East Eighteenth Street/SR-4 junction and continues north over the San Joaquin River via the Antioch Bridge to Rio Vista and Sacramento. Access to

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<sup>1</sup> City of Antioch, 2003. General Plan. Available online: [https://www.antiochca.gov/fc/community-development/planning/Antioch\\_Adopted\\_General\\_Plan.pdf](https://www.antiochca.gov/fc/community-development/planning/Antioch_Adopted_General_Plan.pdf), accessed May 24, 2022.

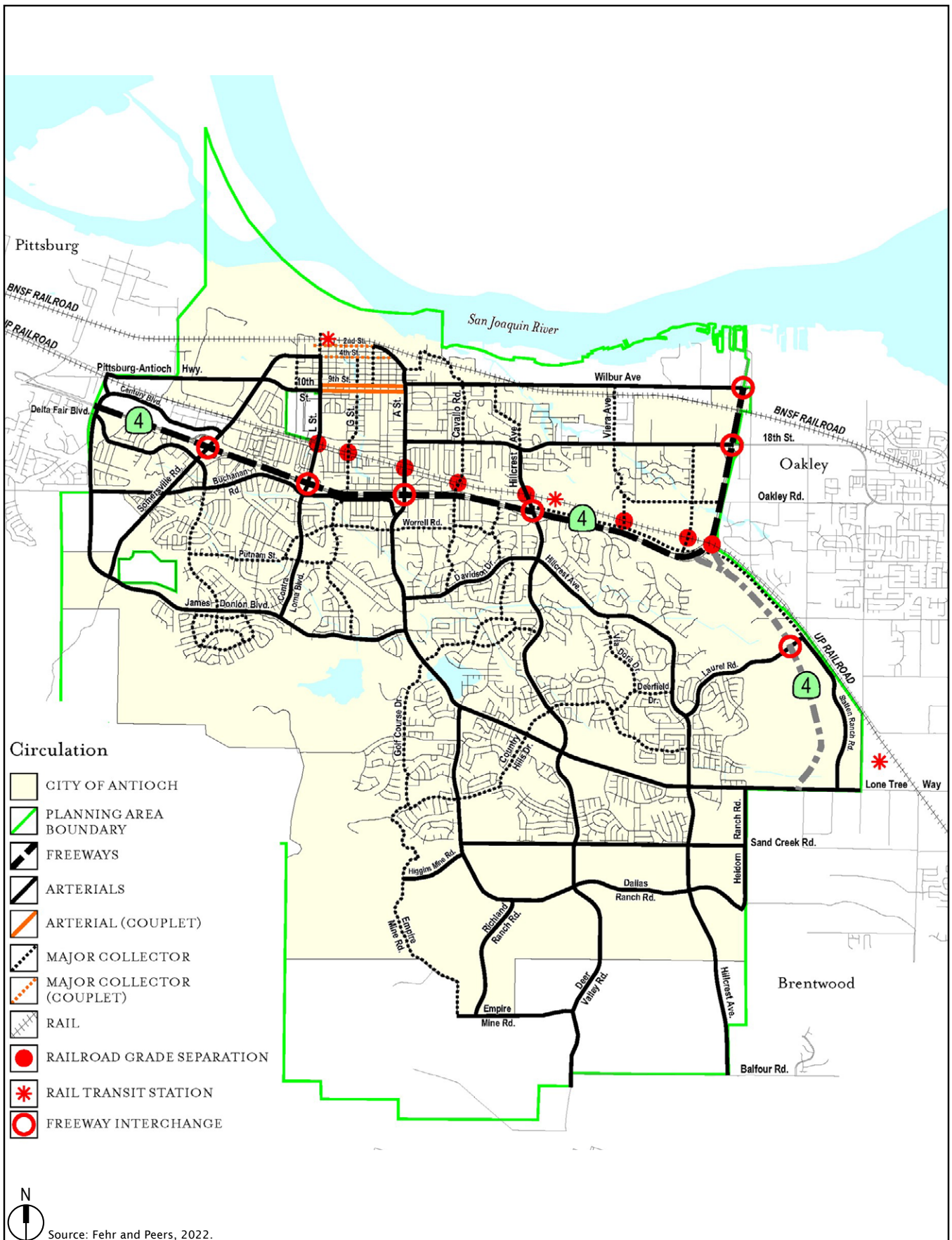


Figure IV.B-1  
Roadway Network

and from SR-160 and Antioch's local street network occurs at Wilbur Avenue south of the Antioch Bridge.

## (2) Arterials and Collectors

Arterials are major streets carrying the traffic of local and collector streets to and from freeways and other major streets, with controlled intersections and generally providing direct access to properties. Primary arterials provide access to Pittsburg to the west, Oakley and Brentwood to the east, and rural Contra Costa County to the south. Collectors are streets for traffic moving between arterial and local streets, generally providing direct access to properties. Local streets provide direct access to properties and are often designed to discourage through traffic.

Key arterials and major collectors in the city of Antioch, as described in City of Antioch's 2003 General Plan Update are described below:

- **"A" Street/Lone Tree Way.** "A" Street is a four-lane arterial that runs north-south between downtown Antioch and SR-4 providing direct access to the Rivertown District. South of SR-4, "A" Street becomes Lone Tree Way, and continues southeast into Brentwood.
- **Deer Valley Road** is an arterial that runs north-south beginning in the north at the Hillcrest Avenue/Davison Drive junction and ending in the south at Marsh Creek Road, south of the City's boundary in Contra Costa County. Deer Valley Road is generally a four-lane roadway within the city.
- **Hillcrest Avenue** is a four-lane arterial located in eastern Antioch on both sides of SR-4 linking the area north of East Eighteenth Street to Prewett Ranch Drive.
- **"L" Street/Contra Loma Boulevard.** "L" Street runs north-south in northern Antioch between SR-4 and West Tenth Street. Contra Loma Boulevard runs north-south in southern Antioch between SR-4 and James Donlon Boulevard. Both are four-lane arterials.
- **Somersville Road/Auto Center Drive.** Somersville Road and Auto Drive Center are four-lane arterials that run north-south in western Antioch. The former on the southern side of SR-4, providing access to James Donlon Boulevard and Buchanan Road, while the latter runs north of SR-4 and connects to the Pittsburg-Antioch Highway.
- **Eighteenth Street** is a two-lane arterial that runs parallel to SR-4 in northern Antioch. Eighteenth Street acts as a major arterial between "L" Street and the SR-4/SR-160 junction.
- **James Donlon Boulevard** connects Lone Tree Way and Somersville Road and provides east-west access through the southwest quadrant of Antioch. It is a four-lane arterial.
- **West Fourth Street** is a two-lane roadway that provides east-west access in Downtown Antioch. West Fourth Street is the main arterial between Auto Center Drive and "G" Street.

- **West Sixth Street** runs east-west in Downtown Antioch. It is a two-lane arterial and connects to "A" Street.
- **West Tenth Street** runs east-west as a 2- to 4-lane arterial providing access in downtown Antioch. West of Auto Center Drive, West Tenth Street becomes the Pittsburg/Antioch Highway, serving industrial uses and providing a regional roadway connection to the west of Antioch.
- **Wilbur Avenue** is a 2- to 4-lane arterial that runs east-west in northeastern Antioch and connects "A" Street and SR-160.
- **Buchanan Road** is an arterial that runs east-west between Contra Loma Boulevard and the westerly city limit. Buchanan Road serves as one of the primary routes to the west of Antioch. It is a 2- to 4-lane roadway.
- **Davison Drive** is a four-lane arterial located south of SR-4 and serves as an east-west connection between Lone Tree Way and Hillcrest Avenue.
- **Gentrytown Drive** is a two-lane collector located south of SR-4 that runs north-south and extends from Buchanan Road in the north to James Donlon Boulevard in the south.
- **"G" Street** serves as a two-lane collector extending from "A" Street to James Donlon Boulevard.
- **Cavallo Road/Garrot Drive** is a two-lane collector that runs north-south and connects Wilbur Avenue to Davison Drive. North of SR-4, the roadway is called Cavallo Road, while south of it changes its name to Garrot Drive.
- **Viera Avenue/Oakley Road** serves as a two-lane collector that connects the northeastern part of Antioch with the city of Oakley.
- **Golf Course Road/Bluerock Drive** is a two-lane collector in southern Antioch that runs from Dear Valley Road to Prewett Ranch Drive and provides access to the Contra Loma Regional Park.
- **Putnam Street** is a two-lane collector located south of SR-4 that runs east-west and extends from Gentrytown Drive to the west to Lone Tree Way in the east.
- **Country Hills Drive/Mokelumne Drive** is a 2- to 4-lane collector that runs east-west in southern Antioch.

## b. Bicycle and Pedestrian Facilities

The bicycle and pedestrian network serving the city of Antioch are described below.

### (1) Bicycle Facilities

Bicycle planning and design typically relies on guidelines and design standards established by the California Department of Transportation (Caltrans) in the Highway Design Manual (Chapter 1000: Bikeway Planning and Design).<sup>2</sup> The Highway Design Manual provides four distinct types of bikeway facilities, as described below:

- **Class I Bikeways (Shared-Use Path)** provide a completely separate right-of-way and are designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian crossflow minimized. In general, bike paths serve corridors where on-street facilities are not feasible or where sufficient right-of-way exists to allow them to be constructed.
- **Class II Bikeways (Bicycle Lanes)** are dedicated lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are typically at least 5 feet wide. Adjacent vehicle parking and vehicle/pedestrian crossflow are permitted. Class II buffered bike lanes provide greater separation from an adjacent traffic lane and/or between the bike lane and on-street parking. This separation is created with chevron or diagonal striping.
- **Class III Bikeways (Bicycle Route)** are designated by signs or pavement markings for shared use with pedestrians or motor vehicles but have no separated bike right-of-way or lane striping. Bike routes serve either to: a) provide a connection to other bicycle facilities where dedicated facilities are infeasible, or b) designate preferred routes through high-demand corridors.
- **Class IV Bikeways (cycle tracks or “separated” bikeways)** provide a right-of-way designated exclusively for bicycle travel within a roadway and are protected from other vehicle traffic by physical barriers, including, but not limited to, grade separation, flexible posts, inflexible vertical barriers such as raised curbs, or parked cars.

Existing bikeway facilities distributed through Antioch are shown on Figure IV.B-2. There are currently two Class I Bikeways, the Delta De Anza Trail and the Mokelumne Trail, and several Class II Bikeways. Some of the main existing bicycle facilities include:

- **Delta De Anza Trail:** The Delta De Anza Trail is classified as Class I path that is a paved, multi-use hiking, bicycling and equestrian trail that currently spans over 15 miles. It generally

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<sup>2</sup> Caltrans, 2015. Highway Design Manual (Chapter 1000: Bikeway Planning and Design). Available online: <https://dot.ca.gov/-/media/dot-media/programs/design/documents/chp1000.pdf>, accessed May 10, 2022.



- |  |                 |  |
|--|-----------------|--|
|  | City Boundary   | <b>Existing Bikeways</b>   |
|  | County Boundary |  Class I Path                   |
|  |                 |  Class II Bike Lanes            |
|  |                 |  Class III Bike Route (partial) |

Figure IV.B-2  
Existing Bicycle Facilities

follows the East Bay Municipal Utility District's corridor and the Contra Costa Water District's canal. It provides access to regional and community parks and many schools. The trail intersects with Mokelumne Trail. It connects the cities of Concord, Bay Point, Pittsburg, Antioch, and Oakley and provides access to Contra Loma Regional Park through Antioch Community Park.

- **Mokelumne Trail:** The Mokelumne Trail is a Class I bikeway that begins at Somersville Towne Center near the intersection of Buchanan Road and Somersville Road in Antioch. At Lone Tree Way, the trail meets the Delta de Anza Regional Trail. It is a paved trail alongside residential areas, is approximately 10 miles long, and ends at Sunset Park in Brentwood.
- **Wilbur Avenue:** Wilbur Avenue has a Class II bikeway from A street to SR-160. It has a length of 2.6 miles and is located in the north of Antioch by the San Joaquin River.
- **Golf Course Road:** Golf course Road is a south-north road that serves residential areas in southern Antioch. Its bikeway extents from Lone Tree Way to Mt. Hamilton Road. A substantial portion of the road passes by the Antioch Municipal Reservoir.

The City of Antioch's 2003 General Plan Update identifies the following recommended bicycle facility improvements:

- **Mokelumne Trail extension:** The Mokelumne Trail (Class I) to be extended from Hillcrest Avenue to Brentwood crossing SR-4 bypass.
- **Delta De Anza Trail extension:** The Delta De Anza Trail (Class I) to be extended to Neroly Road. Neroly Road does not currently have any bicycle infrastructure and lacks pedestrian sidewalks for portions of its length.
- **Somersville Road:** Somersville Road (Class II) is a south-north road. For a big extent it does not have any bicycle facilities, especially at the hilly areas at the southern end.

## (2) Pedestrian Facilities

Pedestrian facilities are available throughout most areas of Antioch, including sidewalks, wheelchair ramps, and crosswalks. There are still some areas that remain underdeveloped, and do not have sidewalks, including portions of key arterials such as Wilbur Avenue. In 2018, the Contra Costa Transportation Authority (CCTA) adopted a Countywide Bicycle and Pedestrian Plan, which incorporated Antioch's local pedestrian-focused programs and defined the areas surrounding BART and Amtrak stations in northern Antioch as Pedestrian Priority Areas. These areas will receive priority for funding for pedestrian improvement projects. The City of Antioch has not adopted any additional pedestrian or active transportation plans.

### **c. Public Transportation**

Two major public mass transit operators provide service within or adjacent to the study area, including Bay Area Rapid Transit (BART) and the Eastern Contra Costa Transit Authority (Tri Delta Transit). Amtrak also serves the city.

#### **(1) BART**

BART is a rapid mass transit system which provides regional transportation connections to much of the Bay Area. BART runs from the North Bay Area in Richmond to the South Bay Area in Fremont. In the east-west direction BART runs from Antioch to the San Francisco Airport and Milbrae with several connections in Oakland. The city of Antioch is served by the Antioch BART Station. Antioch is a terminal station on the yellow line serving northern and eastern Contra Costa County. BART has over 1,000 parking spaces at this station, and it is served by multiple Tri-Delta Transit routes. BART at Antioch runs from 4:47 a.m. to 12:00 a.m. on weekdays with a frequency of 15 minutes. During Saturdays trains runs from 5:44 a.m. to 12:00 a.m. with a frequency of 30 minutes, and on Sundays from 7:17 a.m. to 12:00 a.m. with a frequency of 30 minutes.

#### **(2) Tri-Delta Transit**

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. Eleven routes operate on weekdays, with four routes operating on weekends in the city of Antioch. Figure IV.B-3 and Figure IV.B-4 show Tri-Delta weekday and weekend routes, respectively.

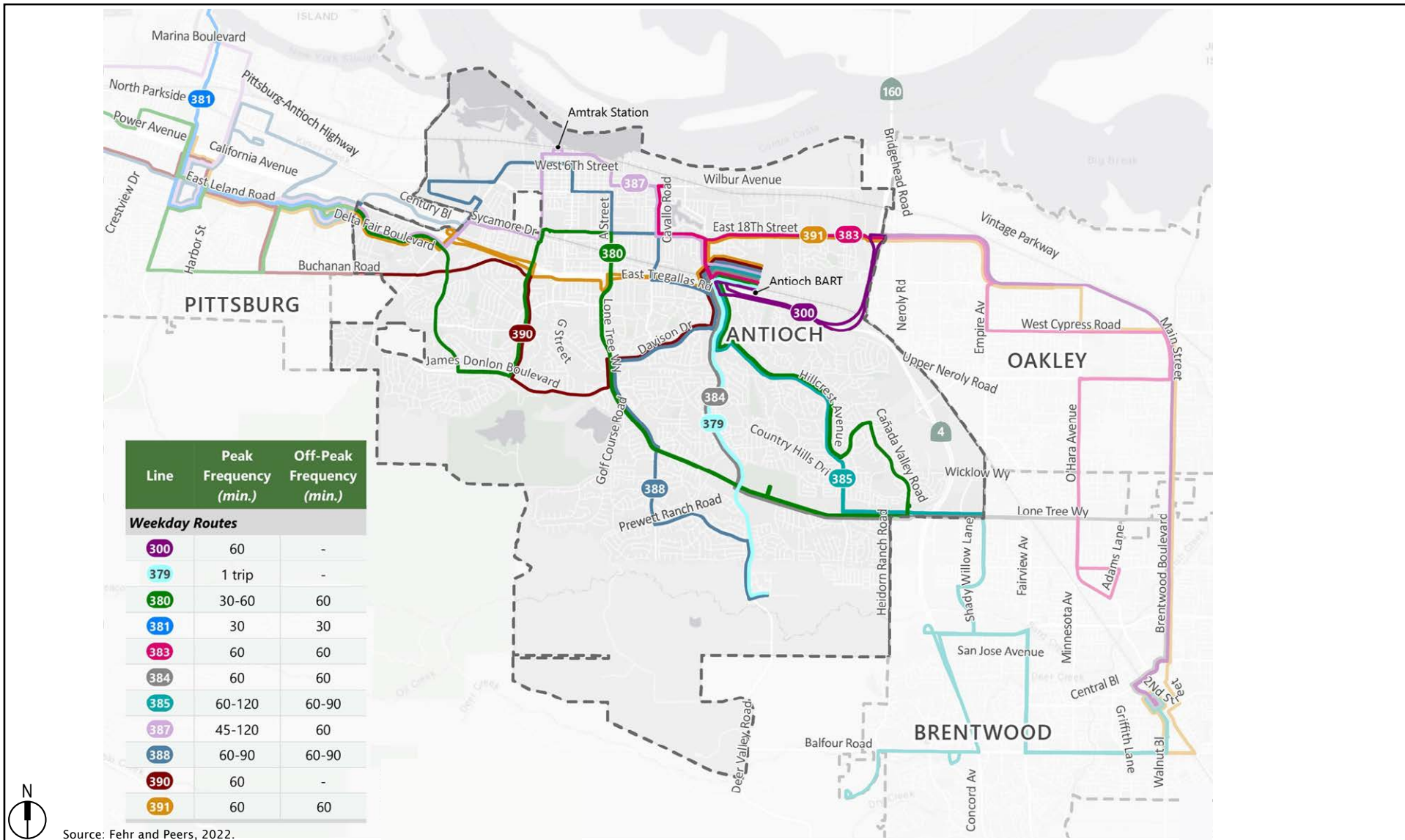
#### **(1) Amtrak**

Amtrak offers regional passenger rail service to Antioch on the Burlington Northern Santa Fe rail line, which services the Oakland-Bakersfield corridor. The train station is located at the foot of "I" Street and is also served by TriDelta Transit.

## **2. Regulatory Setting**

This section describes the existing State, regional, and local regulatory frameworks related to transportation.





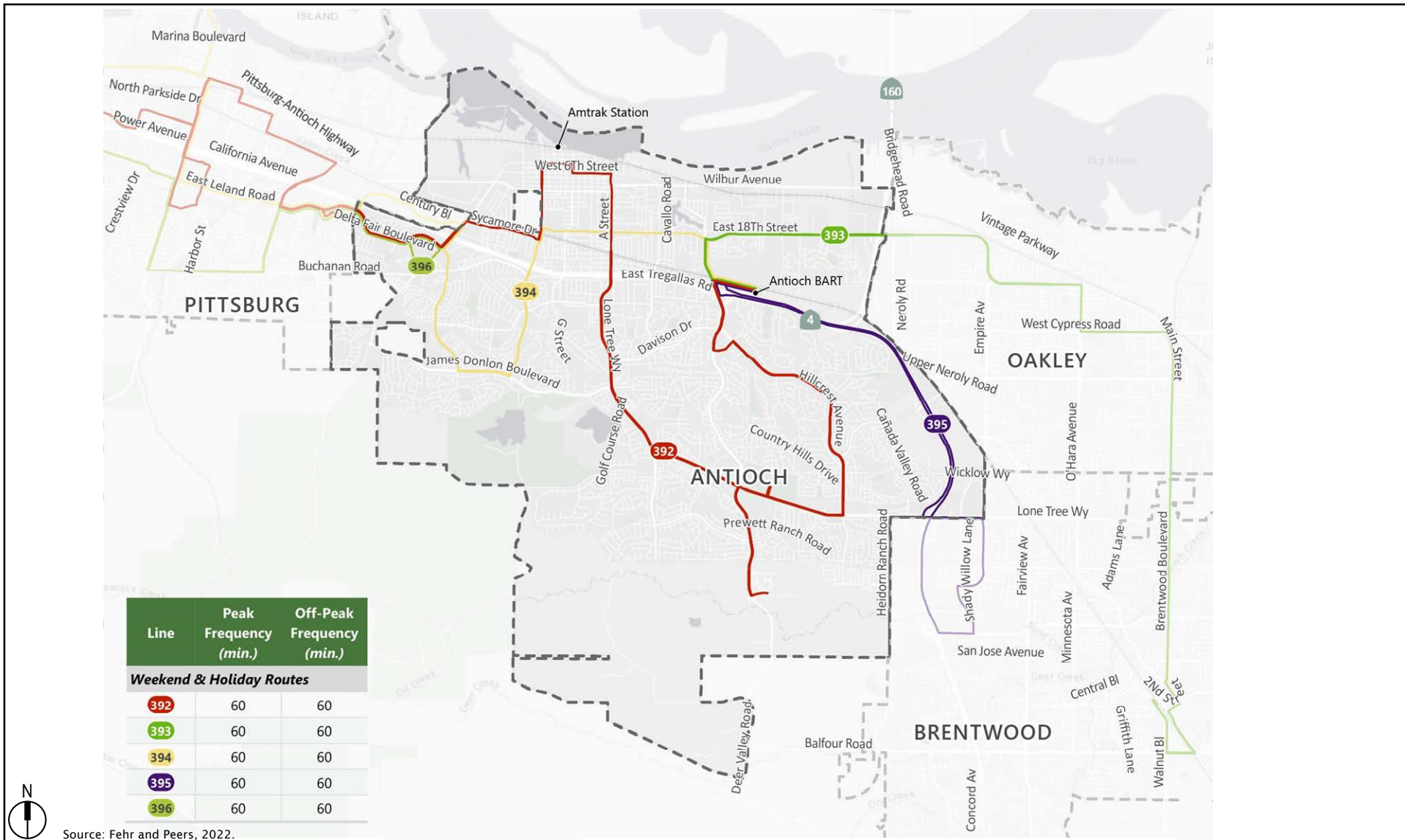
Source: Fehr and Peers, 2022.

- City Boundary
- County Boundary

Figure IV.B-3

Tri-Delta Transit Weekday Routes

Antioch Housing, Environmental Hazards, and EJ Elements EIR



- City Boundary
- County Boundary

Figure IV.B-4  
Tri-Delta Transit Weekend Routes

**a. State**

The following section describes the existing State of California regulatory environment related to transportation.

**(1) Assembly Bill 1358**

Assembly Bill 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include “Complete Street” policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and the disabled. These policies can apply to new streets as well as the redesign of corridors.

**(2) Senate Bill 375**

Senate Bill (SB) 375 provides guidance regarding curbing emissions from cars and light trucks. There are four major components to SB 375. First, SB 375 requires regional greenhouse gas emission targets. These targets must be updated every 8 years in conjunction with the revision schedule of the housing and transportation elements of local general plans. Second, Metropolitan Planning Organizations are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. Third, SB 375 requires housing elements and transportation plans to be synchronized on 8-year schedules. Finally, Metropolitan Planning Organizations must use transportation and air emissions modeling techniques that are consistent with the guidelines prepared by the California Transportation Commission.

**(3) Senate Bill 743**

Passed in 2013, California Senate Bill (SB) 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change is being made by replacing Level of Service (LOS) as a performance metric with a vehicle miles traveled (VMT) approach. This shift in transportation impact focus is intended to better align transportation impact analysis and mitigation outcomes with the State’s goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through development of multimodal transportation networks. LOS or other delay metrics may still be used to evaluate the impact of projects on drivers as part of land use entitlement review and impact fee programs.

In December 2018, the Natural Resources Agency finalized updates to Section 15064.3 of the CEQA Guidelines, including the incorporation of SB 743 modifications. The Guidelines’ changes were approved by the Office of Administrative Law and as of July 1, 2020, are now in effect statewide.

To help aid lead agencies with SB 743 implementation, the Governor’s Office of Planning and Research (OPR) produced the Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory)<sup>3</sup> that provides guidance about the variety of implementation questions they face with respect to shifting to a VMT metric. Key guidance from this document includes:

- VMT is the most appropriate metric to evaluate a project’s transportation impact.
- OPR recommends tour- and trip-based travel models to estimate VMT, but ultimately defers to local agencies to determine the appropriate tools.
- OPR recommends measuring VMT for residential and office projects on a “per rate” basis.
- OPR recommends that a per capita or per employee VMT that is 15 percent below that of existing development may be a reasonable threshold. In other words, an office project that generates VMT per employee that is more than 85 percent of the regional VMT per employee could result in a significant impact. OPR notes that this threshold is supported by evidence that connects this level of reduction to the State’s emissions goals.
- OPR recommends that where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less-than-significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds described above should apply.
- Lead agencies have the discretion to set or apply their own significance thresholds.

#### **(4) Caltrans**

Caltrans issued the VMT-Focused Transportation Impact Study Guide (TISG)<sup>4</sup> in May 2020, providing the process by which Caltrans will review and assess VMT impacts of land development projects. The TISG generally aligns with the guidance in the OPR Technical Advisory.

Caltrans also issued the Transportation Analysis Framework (TAF)<sup>5</sup> in September 2020, which details methodology for calculating induced travel demand for capacity increasing transportation projects on the State Highway System. Caltrans also issued the Transportation Analysis Under CEQA (TAC) guidance in September 2020 which describes significance determinations for capacity increasing projects on the State Highway System. It is noted that the Project does not propose any changes to the Caltrans owned and operated network.

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<sup>3</sup> Governor’s Office of Planning and Research (OPR), 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory). Available online: [https://opr.ca.gov/docs/20190122-743\\_Technical\\_Advisory.pdf](https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf), accessed May 19, 2022.

<sup>4</sup> Caltrans, 2020. VMT-Focused Transportation Impact Study Guide (TISG). Available online: <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf>, accessed May 19, 2022.

<sup>5</sup> Caltrans, 2020. Transportation Analysis Framework (TAF). Available online: <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-10-1st-edition-taf-fnl-a11y.pdf>, accessed May 19, 2022.

Caltrans also issued Traffic Safety Bulletin 20-02-R1: Interim Local Development Intergovernmental Review Safety Review Practitioner Guidance<sup>6</sup> in December 2020, describing the methods with which Caltrans will assess the safety impacts of projects on the Caltrans owned and operated network. This guidance states that Caltrans will provide its safety assessment to lead agencies for inclusion in environmental documents.

Finally, Caltrans has adopted procedures to oversee construction activities on and around its facilities. The Caltrans Construction Manual<sup>7</sup> describes best practices for construction activities, including personnel and equipment safety requirements, temporary traffic control, signage, and other requirements aimed at reducing construction-related hazards and constructing projects safely and efficiently. Any work proposed on Caltrans facilities would be required to abide by these requirements.

## **b. Regional**

The following section describes the existing regional regulatory environment related to transportation.

### **(1) Contra Costa Countywide Transportation Plan**

The Contra Costa Countywide Transportation Plan<sup>8</sup> incorporates five sub-regional Action Plans for Routes of Regional Significance (Action Plans). This is one of the primary vehicles for implementing achieving the Measure J Growth Management Program's goal of reducing the cumulative impacts of growth. The Action Plans also fulfill a key requirement of CCTA's Congestion Management Program. This is a State-mandated program for evaluating the impact of land use decisions on the regional transportation system and establishing performance measures. Each Action Plan contains these components:

- Long range assumptions about future land uses based on local general plans and travel demand based on household and job growth.
- Multi-modal transportation objectives that can be measured and timed.
- Specific actions to be implemented by each jurisdiction.
- A process for consultation on environmental documents.

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<sup>6</sup> Caltrans, 2020. Traffic Safety Bulletin 20-02-R1: Interim Local Development Intergovernmental Review Safety Review Practitioner Guidance. Available online: <https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/policy/interim-ldigr-safety-guidance-memo-revision1-and-guidance-a11y.pdf>, accessed May 19, 2022.

<sup>7</sup> Caltrans, 2019-2022. Construction Manual. Available online: <https://dot.ca.gov/programs/construction/construction-manual>, accessed May 19, 2022.

<sup>8</sup> Contra Costa Transportation Authority, 2017. Countywide Transportation Plan (CTP). Available online: <https://ccta.net/planning/2017-countywide-transportation-plan/>, accessed May 24, 2022.

- A procedure for reviewing the impacts of local General Plan amendments that could affect the transportation objectives.
- A schedule for reviewing and updating the Action Plans.

The city of Antioch is included in the East County Action Plan. The Action Plan includes Routes of regional Significance within Antioch. These are illustrated on Figure IV.B-5.

## **(2) CCTA VMT Guidance for Member Agencies**

The CCTA has developed guidance for member jurisdictions to use in developing their own VMT analysis methods, metrics, and thresholds of significance. The CCTA's Growth Management Program Implementation Guide (revised February 17, 2021),<sup>9</sup> Appendix F (CCTA Recommended Methodology) describes the recommendations. A flow chart describing the recommended methodology is included in the Technical Appendix. The City of Antioch has chosen to follow the CCTA guidance. The City of Antioch has not formally adopted VMT guidelines.

### **Contra Costa County Congestion Management Program**

The CCTA is Contra Costa County's designated Congestion Management Agency (CMA). It is responsible for implementing programs to ensure traffic levels remain manageable. Antioch serves on the TRANSPLAN Committee which coordinates the transportation interests of the communities in eastern Contra Costa County, California. The five member governments of TRANSPLAN include the Cities of Antioch, Brentwood, Oakley, Pittsburg, and Contra Costa County. In addition to the four cities, the region includes the unincorporated communities of Bay Point, Bethel Island, Byron, Discovery Bay, and Knightsen, which are governed by the County.

As the CMA, CCTA is in charge of coordinating land use, air quality, and transportation planning among local jurisdictions. A Congestion Management Program (CMP) was created to spend the funds allocated to these projects, known as Measure J. This measure is a one-half cent Countywide sales tax used for transportation improvements within the County. The revenue must be spent on projects and programs included in the CCTA Transportation Expenditure Plan (Expenditure Plan). The Expenditure Plan designates 18 percent of the annual sales tax revenue as "return-to-source" funds. The City's eligibility for these funds is contingent on compliance with the City's Growth Management Program (GMP), reflected in the Growth Management section of the General Plan.

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<sup>9</sup> Contra Costa Transportation Authority, 2021. Growth Management Program Implementation Guide. Available online: [https://ccta.net/wp-content/uploads/2021/08/GMP\\_Implementation\\_Guide\\_FINAL\\_02172021.pdf](https://ccta.net/wp-content/uploads/2021/08/GMP_Implementation_Guide_FINAL_02172021.pdf), accessed May 27, 2022.

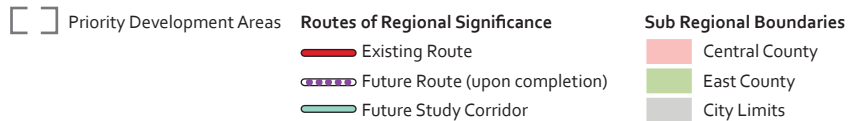
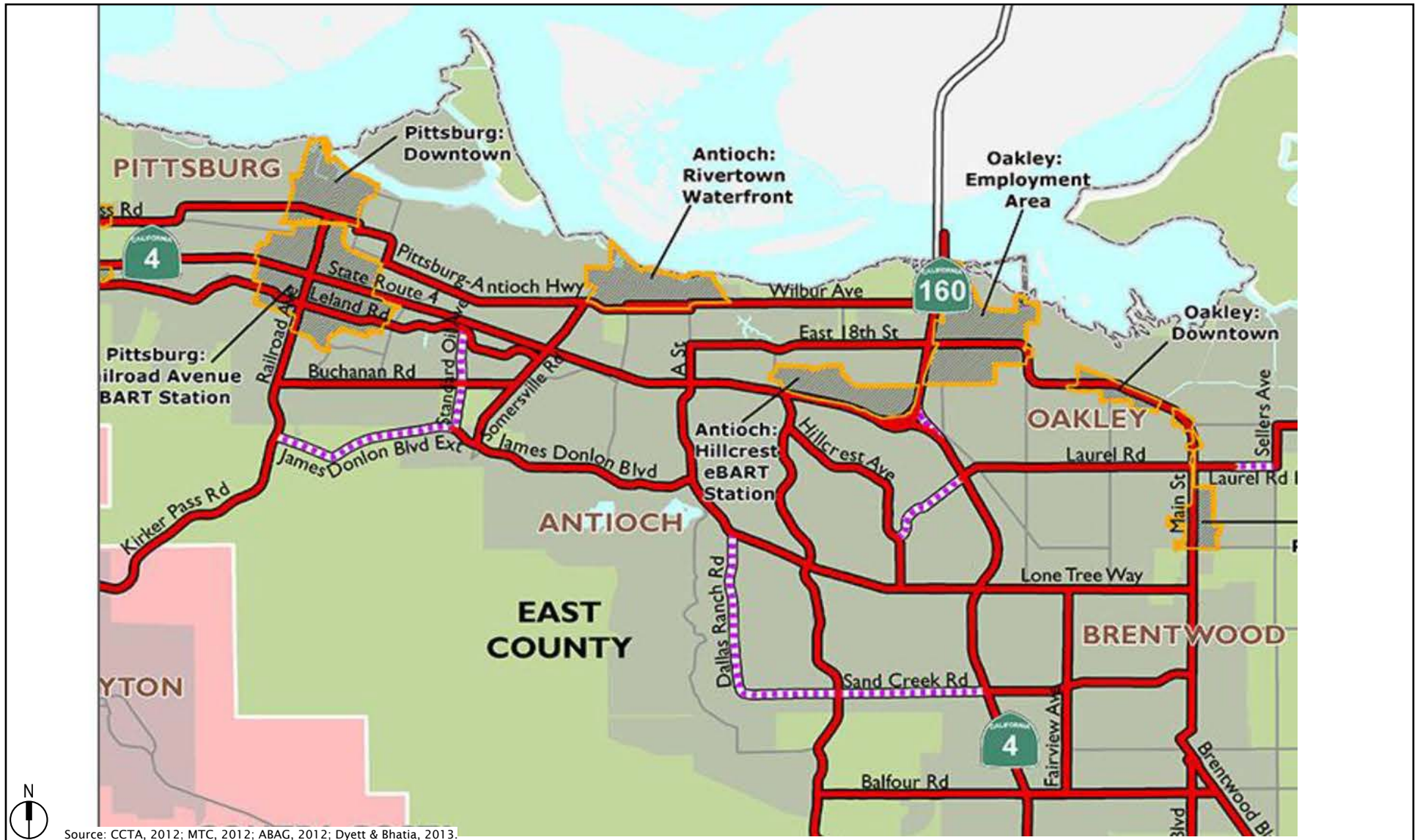


Figure IV.B-5  
Regional Significance Routes

The CMP network is a subset of the network of Routes of Regional Significance Routes adopted by the Authority. In the case of the city of Antioch, the only roadway included in this network is the SR-4 portion that runs through the city.

For all of the roads on the CMP network, the CMP must establish traffic level-of-service standards. To be included in the network all roads should meet three conditions.

- The road is four lanes or wider for at least 1 mile;
- Average daily traffic on the road equals or exceeds 20,000 vehicles per day for a segment of 1 mile or greater; and
- The road has been designated as a Route of Regional Significance.

The CMP legislation states that, "In no case shall the LOS standards established be below LOS E or the current level, whichever is farthest from LOS A...."<sup>10</sup> Therefore, if the current LOS is F, representing significant congestion, the LOS standard can be set at LOS F. Alternatively, if the current LOS is A, the CMA has the option of setting the LOS standard between the existing level A and the lowest allowable LOS E. It was determined that the SR-4 portion that runs through Antioch would have a LOS standard of F.

### **c. Local**

The following section describes the existing local regulatory environment related to transportation.

#### **(1) Antioch General Plan**

The following existing policies and actions from the City's General Plan<sup>11</sup> are related to transportation and are applicable to the Project.

*Goal 3.2-1: Maintain a clear linkage between growth and development within the City and expansion of its service and infrastructure systems.*

*Goal 3.2-2: Maintain a moderate rate of residential growth to ensure that the expansion of public services and facilities keeps pace.*

*Policy 3.3.1-1: The Growth Management Element establishes a quantified annual cap on residential growth and sets forth roadway and highway level of service standards, as well as public services and facilities performance standards.*

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<sup>10</sup>Contra Costa Transportation Authority, 2019. 2019 Congestion Management Program for Contra Costa. Available online: [https://www.ccta.net/wp-content/uploads/2019/09/Draft\\_CMP19\\_MainDoc.pdf](https://www.ccta.net/wp-content/uploads/2019/09/Draft_CMP19_MainDoc.pdf), accessed May 27, 2022.

<sup>11</sup>LSA, 2003. City of Antioch General Plan, November 24.



*Policy 3.3.1-2:* The Land Use Element defines acceptable locations and the appropriate intensity for new development. By defining acceptable locations and appropriate intensities for new development, the Land Use Element establishes maximum allowable development intensity for the City at “build out” of the Antioch Planning area.

*Policy 3.4.2-1:* The Growth Management Element sets level of service standards for roadways within the City of Antioch Planning Area. These standards form the basis for the City’s circulation policy. The level of service for Basic Routes, which are defined as all local roads not otherwise designated as Route of Significance are illustrated in Table IV.B-1.

**TABLE IV.B-1 LEVEL OF SERVICE TRAFFIC STANDARDS**

<b>Land Use</b>	<b>Level of Service (LOS)</b>	<b>Range of Volume to Capacity Ratios (V/C)</b>
Rural	Low - C	0.70 - 0.74
Semi-Rural	High - C	0.75 - 0.79
Suburban	Low - D	0.80 - 0.84
Urban	High - E	0.85 - 0.89
Central Business District	Low - E	0.90 - 0.94

Source: City of Antioch, 2015.

*Goal 4.2-1: Maintain a pattern of land uses that minimizes conflicts between various uses.*

*Policy 4.4.6-1: Create ten areas within the Antioch General Plan for focused policy analysis and direction.*

*Goal 7.2-1: Improve present traffic flows and provide easy and convenient access to all areas of the community.*

*Goal 7.2-2: Provide safety for all modes of motorized and non-motorized transportation.*

*Goal 7.2-3: Reduce dependence on single occupant automobile travel.*

*Policy 7.3.2-a:* Meet the roadway performance set in the Growth Management Element. Promote the design of roadways to optimize safe traffic flow, by minimizing driveways and intersections, uncontrolled access to adjacent parcels, on-street parking, and frequent stops.

*Policy 7.3.2-b:* Design and reconfigure collector and local roadways to improve circulation within and connections to residential and commercial areas.

*Policy 7.3.2-c:* Require the design of new developments to focus on through traffic onto arterial streets.

*Policy 7.3.2-e:* Establish Assessment Districts in areas that will require major roadway infrastructure improvements that will benefit only that area of the City.

*Policy 7.3.2-h:* Require traffic impact studies for all new development that propose to increase the approved density or intensity of development or are projected to generate 50 peak hour trips or more at any intersection of Circulation Element roadways.

*Policy 7.4.2-a:* Design new residential neighborhoods to provide safe pedestrian and bicycle access to schools, parks, and commercial facilities.

*Policy 7.4.2-f:* Provide as appropriate bicycle lanes (Class II) or parallel bicycle/pedestrian paths (Class I) along all arterial streets and high-volume collector streets, as well as along major access routes to schools and parks.

*Policy 7.4.2-p:* Design walks to provide direct route for short to medium distance pedestrian trips, and to facilitate movement of large numbers of pedestrians.

*Policy 7.5.2-a:* Permit higher residential densities and mixed-use development adjacent to the downtown Amtrak stop and other rail transit stations.

## **(2) Antioch Downtown Specific Plan**

The Antioch Downtown Specific Plan<sup>12</sup> is a twenty-year plan. It can change over time as needed to adapt to changes in the economy, market factors, technology, the needs, and desires of the community. Over the next ten to twenty years, the Antioch Downtown Specific Plan seeks to achieve the following relevant goals and policies:

*Goal 1.5:* Support mobility by creating an integrated multi-modal transportation system that effectively serves the Downtown area. Improve all modes of access to and within Downtown, and provide opportunities for residents, workers, and visitors to walk, bike, drive or access transit, Downtown.

*Policy 1.5.1:* A wide range of circulation modes serve Downtown, including cars and trucks, several bus routes, Amtrak, the nearby Hillcrest EBART Station, bike and multi-use trails, and pedestrian sidewalks. Downtown ferry service is planned for the future. this Plan encourages people to use alternative modes of transportation, rather than cars, to get to and around Downtown.

*Policy 1.5.5:* The Plan encourages the City to consider relaxing traffic level of service (LOS) thresholds into and in Downtown, if needed, to preserve the street environment, and prioritize pedestrian, bike and transit access.

*Goal 2.1.A:* An attractive, walkable environment that preserves and celebrates the history and architecture of the community and the district, serves as a cultural and celebratory centerpiece for the City, encourages new investment in both existing buildings and new construction, and offers a high-quality unique experience to residence and visitors alike.

*Goal 2.1.B:* An attractive, walkable, neighborhood-serving commercial district that complements and adds value to the adjacent residential neighborhoods.

*Goal 2.1.C:* A traditional, walkable, neighborhood that offers a residential product that is unique to the City and attractive to reinvestment.

*Policy 2.2.4:* The City discourages the expansion of heavy rail service except for commuter or passenger lines.

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<sup>12</sup> City of Antioch, 2018. Downtown Specific Plan. Available online: <https://www.antiochca.gov/fc/community-development/planning/downtown-specific-plan.pdf>, accessed May 26, 2022.

*Policy 2.4.1:* The City supports the use of pedestrian-oriented signage, including A-frame signs and displays, when located on private property. As an alternative, the City may support a comprehensive program to allow limited use of public property or right of-way for signs or displays if such a program did not detract from the overall aesthetic of the District.

*Policy 2.6.2:* The City supports the permanent improvement of sidewalks, medians, crosswalks and roadway surfaces to improve circulation and pedestrian safety along 10th Street and other neighborhood commercial corridors.

*Policy 2.6.6:* The City discourages the installation of parking lots at the front of lots, especially on 10th Street. As an alternative, parking lots should be installed behind buildings and adjacent to alleys.

*Policy 2.11.1:* New residential buildings and alterations, regardless of density, should reflect a traditional single-family architectural style, including scale, minimized visibility of parking (including garages), traditional porches, etc.

*Goal 4.2.A:* A street network within and to Downtown Antioch that offers ease of connectivity and access.

*Policy 4.1.1:* In Downtown Antioch, the City of Antioch prioritizes pedestrians, cyclists, and quality of life for its residents over simple increases in traffic efficiency.

*Policy 4.3.3:* Provide bicycle parking in a well distributed pattern as an amenity to facilitate bicycle usage, including in existing City parking lots.

*Policy 4.4.3:* Work with Tri-Delta Transit and Bart to promote regional transit service to and from Downtown.

*Policy 4.5.5:* Encourage underground, or tuck-under parking in new development, to maximize occupied uses and open space at the ground level.

### **(3) Local Roadway Safety Plan**

The City of Antioch is currently developing a Local Roadway Safety Plan (LRSP). The LRSP must follow both the Federal Highway Administration and Caltrans requirements. The City is utilizing federal funding to develop a plan to improve transportation safety by reducing fatalities and severe injuries that result from accidents on its transportation systems.

## **3. Impacts and Mitigation Measures**

This section describes the analysis techniques, assumptions, and results used to identify potential significant impacts from implementation of the Project on the transportation system.

Transportation and traffic impacts are described and assessed, and mitigation measures are recommended for impacts identified as significant or potentially significant.

### a. Traffic Impact Assessment under CEQA

State law has changed with respect to how transportation-related impacts may be addressed under CEQA. Traditionally, lead agencies used LOS to assess the significance of such impacts, with greater levels of congestion considered to be more significant than lesser levels. Mitigation measures typically took the form of capacity-increasing improvements, which often had their own environmental impacts (e.g., to biological and cultural resources). Depending on circumstances, and an agency's tolerance for congestion (e.g., as reflected in its general plan), LOS D, E, or F often represented significant environmental effects. In 2013, however, the Legislature passed legislation with the intention of ultimately doing away with LOS in most instances as a basis for environmental analysis under CEQA. As described above, enacted as part of SB 743, CEQA Guidelines Section 21099, subdivision (b)(1), directed OPR to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, VMT, VMT per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section."

CEQA Guidelines Section 21099(b)(2) further provides that "upon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, *shall not be considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any."

Pursuant to SB 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018 and became effective in early 2019. Subdivision (a) of that section provides that "generally, VMT is the most appropriate measure of transportation impacts. For the purposes of this section, 'VMT' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) [regarding roadway capacity], a project's effect on automobile delay shall not constitute a significant environmental impact."

## b. Significance Criteria

The significance criteria used to evaluate the Project's impacts on transportation under CEQA are based on Appendix G of the State CEQA Guidelines, as well as VMT thresholds of significance being developed by the City of Antioch. They are consistent with OPR and CCTA guidance as well as SB 743 requirements.

The following describes the significance criteria used to identify impacts on the transportation for the Project. A significant impact would occur if implementation if the Project would:

1. Conflict with an applicable program, plan, ordinance, or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, bicycle, and pedestrian facilities.
2. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). It should be noted that the City of Antioch has defined its own thresholds of significance that applies to residential projects under their jurisdiction. For the purposes of this evaluation, this impact would be significant, if the implementation of the HEU would generate home-based VMT per resident within the Project's area that is higher than 85 percent of the city-wide average home-based VMT per resident.
3. Result in designs for on-site circulation, access, and parking areas that fail to meet City or industry standard design guidelines.
4. Result in inadequate emergency access to development sites.

## c. Analysis Approach

The VMT analysis methodology utilizes the procedures described in the CCTA's Growth Management Program Implementation Guide (Revised February 17, 2021),<sup>13</sup> Appendix F. The procedures are summarized below.

### (1) Project Screening

There are seven screening criteria that can be applied to screen projects out of conducting project-level VMT analysis.

**CEQA Exemption.** Any project that is exempt from CEQA is not required to conduct a VMT analysis.

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<sup>13</sup> Contra Costa Transportation Authority, 2021. Growth Management Program Implementation Guide. Available online: [https://ccta.net/wp-content/uploads/2021/08/GMP\\_Implementation\\_Guide\\_FINAL\\_02172021.pdf](https://ccta.net/wp-content/uploads/2021/08/GMP_Implementation_Guide_FINAL_02172021.pdf), accessed May 18, 2022.

- **Small Projects.** Small projects can be presumed to cause a less-than-significant VMT impact. Small projects are defined as having 10,000 square feet or less of non-residential space or 10 residential units or less, or otherwise generating or attracting fewer than 110 trips per day.
- **Local-Serving Uses.** Projects that consist of Local-Serving Uses can generally be presumed to have a less-than-significant impact absent substantial evidence to the contrary, since these types of projects will primarily draw users and customers from a relatively small geographic area that will lead to short-distance trips and trips that are linked to other destinations. Local Serving retail projects are defined as having 50,000 square feet or less of retail space.
- **Proximity to a Major Transit Stop.** Projects that are located within a 0.5-mile of an existing or planned high-quality transit corridor or major transit stop can generally be presumed to have a less-than-significant impact absent substantial evidence to the contrary. In Antioch, this includes the existing Antioch BART Station and the Antioch-Pittsburg Amtrak Station.

This exemption would not apply if the project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
  - Includes more parking than required by the City of Antioch;
  - Is inconsistent with Plan Bay area; or
  - Replaces affordable residential units with a smaller number of moderate- or high-income residential units.
- **Projects Located in Low VMT Areas.** Residential and employment-generating projects located within a low VMT-generating area can be presumed to have a less-than-significant impact absent substantial evidence to the contrary.

For residential projects, a low VMT area is defined as an area with baseline home-based VMT per resident that is 85 percent or less of the existing Antioch citywide average. For office projects, a low VMT area is defined as an area with baseline employment home-based-work VMT per employee that is 85 percent or less of the baseline Contra Costa Countywide average.

- **Affordable Housing.** Residential projects containing a particular amount of affordable housing on the basis that affordable housing with specific characteristics, such as not oversupplying parking, close the employment, retail and schools, and served by transit even if it does not meet the definition of high quality, generates less VMT than market-rate housing, can be presumed to have a less-than-significant impact.
- **Transportation projects.** Transit projects, bicycle and pedestrian projects that do not lead in increase in vehicle capacity or VMT are considered to have a less-than-significant impact.

As will be discussed below under Criterion 2, the Project does not meet these seven potential screening approaches and thus requires a full VMT assessment.

## (2) Projects Requiring VMT Analysis

The following scenarios are addressed in the VMT analysis. Note that, while the Antioch guidance recommends that project-level impacts be evaluated against baseline conditions, for this analysis the home-based VMT per resident of the Project is evaluated under both baseline (2020) and future (2040) conditions, because the build-out period is expected to be several years. This is supported by Antioch's development pace, which, by the California Department of Finance<sup>14</sup> saw 1,300 units constructed in just 10 years between 2010 and 2020.

- **2020 Baseline Conditions:** The most current version of the baseline (2020) CCTA model is used to determine the baseline citywide average home-based VMT per resident and the 85 percent of citywide average VMT per resident.
- **2020 Baseline Plus Project Conditions:** The proposed land use(s)—in this case, the proposed additional housing units—are added to the 2020 model for the relevant traffic analysis zones (TAZs) comprising the planning areas, and a full 2020 Plus Project model run is performed.
- **2040 No Project Conditions:** The most current version of the Year 2040 CCTA model is adjusted to reflect only that housing growth within Antioch that is approved but not yet constructed.<sup>15</sup>
- **2040 Plus Project Conditions:** The proposed land use(s)—in this case, the proposed additional housing units—are added to the 2040 No Project model for the relevant TAZs comprising the planning areas, and a full 2040 Plus Project model run is performed.

### d. Findings

#### (1) Consistency with Applicable Transportation Policies (Criterion 1)

Implementation of the Project would implement and be subject to General Plan policies applicable to transit, bicycle, and pedestrian facilities and service. Additionally, development projects under the Project would be subject to all applicable City guidelines, standards, and specifications related to transit, bicycle, or pedestrian facilities.

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<sup>14</sup> California Department of Finance (CDF), 2021. Table E-5 Population and Housing Estimates for [Cities] 2011-2020 with 2010 Census Benchmark. Available online: <https://dof.ca.gov/forecasting/Demographics/estimates/estimates-e5-2010-2020/>, accessed May 25, 2022.

<sup>15</sup> Note that the travel demand model based on Plan Bay Area 2050 was not yet available for use in this analysis.

Specifically, any modifications traffic changes or new transit, bicycle, and pedestrian facilities would be subject to and designed in accordance with all applicable General Plan policies. In particular, General Plan Policy 7.3.2 (a) encourages the minimization of driveways, intersections and on street parking, which aims to the optimization of safe traffic flow; General Plan Policy 7.3.2 (c) requires the design of new developments to focus on through traffic onto the arterial streets; General Plan Policy 7.4.2 (a) encourages new residential neighborhoods to provide safe pedestrian and bicycle access; General Plan Policy 7.4.2 (f) promotes bicycle lanes for arterials and major access routes to schools and parks; and General Plan Policy 7.5.2 (a) supports the development of higher residential densities and mixed-use developments close to downtown Amtrak and other rail transit stations to encourage reduction of vehicle trips by promoting alternatives to the single-occupant automobile.

Because implementation of the Project would be subject to all applicable City guidelines, standards, and specifications, the Project would not conflict with adopted policies, plans, or programs. Therefore, the Project would result in a less-than-significant impact to transit, bicycle, and pedestrian facilities and policies.

## (2) Vehicle Miles Traveled (Criterion 2)

### Screening Analysis

The potential to screen the full Project or a portion of the Project, from a full VMT analysis was considered, as described below. The seven key screening criteria were addressed, and it was determined that a full VMT analysis should be conducted for the Project.

1. **CEQA Exemption.** The project is not otherwise exempt from CEQA, so this criterion does not apply.
2. **Small Projects.** While it is possible that certain housing developments developed under the Project would be 20 or fewer units, this screening test would need to be applied as a part of individual project review and does not apply to the Project as a whole.
3. **Local-Serving Uses.** This screening criteria is intended to apply to commercial uses and is not relevant to residential project types.
4. **Projects Located in Transit Priority Areas (TPAs).** The 0.5-mile (walking radius) surrounding the Antioch BART and Antioch Amtrak stations qualify as a TPA. No housing sites as a part of the Project fall within this boundary.
5. **Projects Located in Low VMT Areas.** Screening based on location within a low-VMT area would be based on the VMT maps prepared by CCTA at the TAZ level using the Contra Costa Countywide Travel Demand Model (CCTA Model) results. Certain TAZs meet the criteria of low-VMT generating characteristics, and housing projects within these TAZs could be



presumed to have a less-than-significant impact with respect to VMT. However, TAZ-based screening was not chosen for this analysis because the City is considering the development under the Project as a whole, and individual project-specific details are not available at the program level. Evaluation may be relevant to VMT assessment of individual development proposals instead.

6. **Affordable Housing.** Residential projects containing a particular amount of affordable housing on the basis that affordable housing with specific characteristics, such as not oversupplying parking, close the employment, retail and schools, and served by transit even if it does not meet the definition of high quality, generates less VMT than market-rate housing, can be presumed to have a less-than-significant impact. This criterion does not apply to the Project as defined.
7. **Transportation projects.** The Project does not consider any transportation projects, so this screening criteria is not relevant to the project.

## VMT Analysis

**Impact TRANS-1: Implementation of the Project would generate home-based VMT per resident that is greater than 85 percent of the citywide average home-based VMT per resident. (S)**

## Modelling Procedure

The CCTA Model was used to generate VMT estimates for the Project. The CCTA Model allows analysts to forecast regional travel behavior as a function of local land use development decisions, transportation network infrastructure planning, and land use and network policies. The CCTA Model reflects data included in Plan Bay Area 2040,<sup>16</sup> the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) that was recently replaced with adoption of Plan Bay Area 2050 by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). CCTA has prepared a memorandum documenting the CCTA Model's consistency with Plan Bay Area 2040 and is currently the best available tool for analysis of VMT impacts for this geographic region.

Residential projects are evaluated based on the home-based VMT per resident VMT metric. Home-based VMT is defined as all home-based automobile vehicle trips traced back to the residence of the trip-maker. Non-home-based trips are excluded. This VMT includes the entire

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<sup>16</sup> Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2019. Plan Bay Area 2040, Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). Available online: <http://2040.planbayarea.org/what-is-plan-bay-area-2040>, accessed April 25, 2022.

length of the trip. This home-based VMT is then divided by the number of residents to calculate home-based VMT per resident.

This calculation is done in the CCTA Model via the production and attraction trip matrices to be able to attribute automobile vehicle trips to the residence of the trip-maker. The calculations are done to include all trips, including trips that leave the travel model area (the nine-county Bay Area). VMT for trips that leave the travel model area is adjusted to account for the part of the trip that occurs outside of the travel model area.

### VMT Results

The CCTA Model was adjusted to reflect the relevant housing unit numbers for the No Project and Plus Project for 2020 and 2040 conditions, and the resulting VMT metrics were reported. Under the 2020 Baseline Plus Project Conditions, the Project would result in the development of 4,575 multi-family units within the associated sites. Table IV.B-2 presents the results for Home-based VMT for the 2020 Baseline Plus Project Conditions, and Table IV.B-3 presents the results for Home-based VMT for the 2040 Plus Project Conditions.

**TABLE IV.B-2 HOME-BASED VMT SUMMARY: 2020 BASELINE PLUS PROJECT CONDITIONS**

VMT Area	Home-Based VMT		Home-Based VMT/Resident	
	2020 Baseline	2020 + Project	2020 Baseline	2020 + Project
Citywide Average	2,435,265	2,800,892	21.5	21.9
85% of 2020 Baseline Citywide Average	-	-	18.3	18.3
Housing Element TAZs	-	-	-	20.1
Project >85% of Citywide Average?	-	-	-	Yes

Source: Contra Costa Countywide Travel Demand Model; Fehr & Peers, June 2022.

**TABLE IV.B-3 HOME-BASED VMT SUMMARY: 2040 PLUS PROJECT CONDITIONS**

VMT Area	Home-Based VMT		Home-Based VMT/Resident	
	2040 No Project	2040 + Project	2040 No Project	2040 + Project
Citywide Average	2,310,190	2,646,911	20.4	20.7
85% of 2040 No Project Citywide Average	-	-	17.4	17.4
Housing Element TAZs	-	-	-	19.1
Project >85% of Citywide Average?	-	-	-	Yes

Source: Contra Costa Countywide Travel Demand Model; Fehr & Peers, June 2022.

The residential VMT analysis indicates that although home-based VMT rates in the city of Antioch are projected to decline between 2020 and 2040, home-based VMT rates within the Project’s TAZs in both 2020 and 2040 are projected to be more than 85 percent of the citywide average.

As reflected on Table IV.B-4 below, which presents the results for total VMT for both scenarios, total VMT rates within the city of Antioch are projected to decrease around 2 percent with implementation of the Project in both 2020 and 2040.

**TABLE IV.B-4 TOTAL VMT SUMMARY**

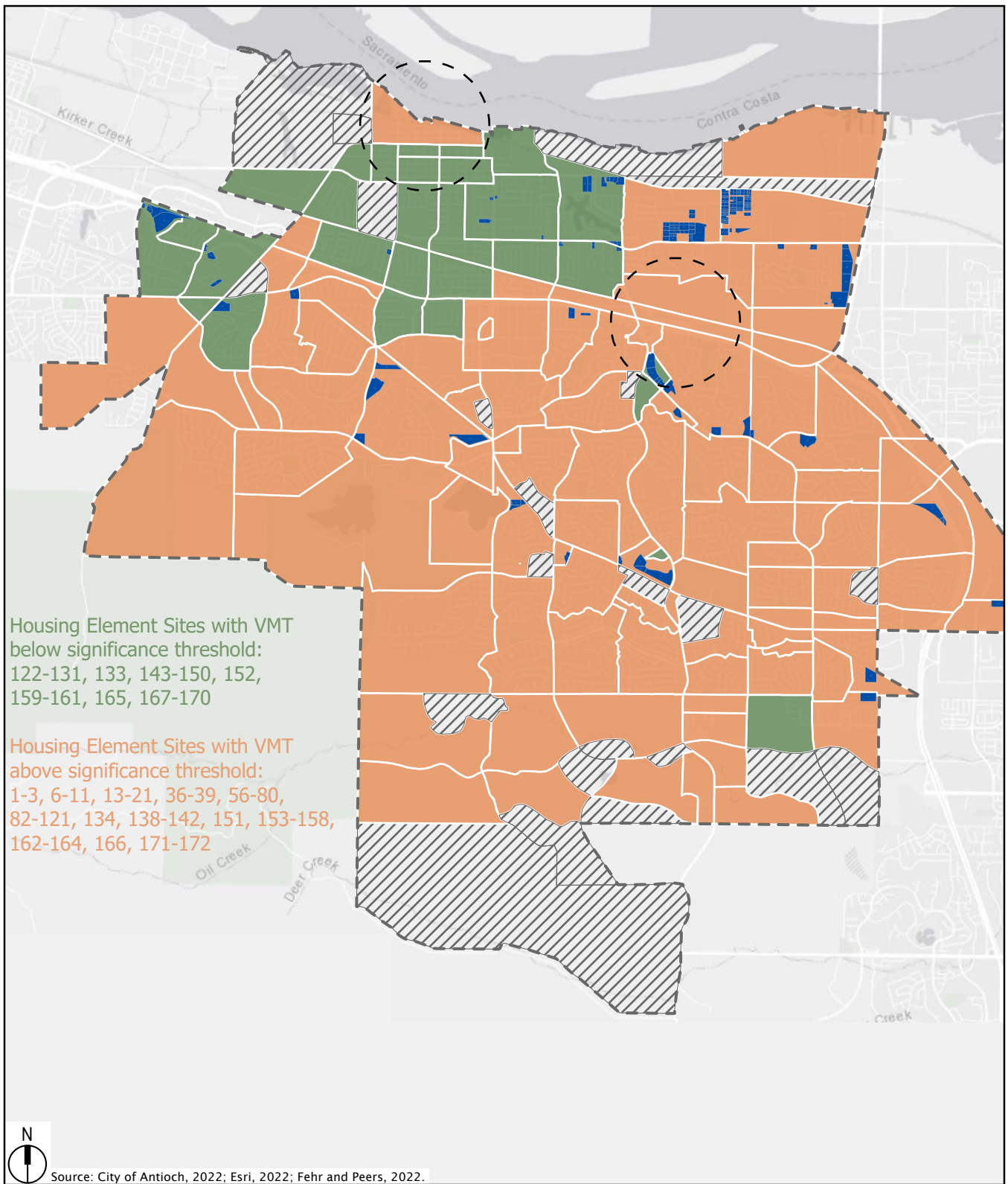
VMT Area	Total VMT				Total VMT/Service Population			
	2020 Baseline	2020 + Project	2040 No Project	2040 + Project	2020 Baseline	2020 + Project	2040 No Project	2040 + Project
Total VMT	4,304,870	4,678,455	4,469,951	4,826,787	31.5	30.9	31.6	30.9

Source: Contra Costa Countywide Travel Demand Model; Fehr & Peers, June 2022.

Figure IV.B-6 and Figure IV.B-7 present the VMT results by site and TAZ for 2020 Plus Project and 2040 Plus Project, respectively. As shown on these figures, most sites—106 out of the 135 HE sites with proposed capacity greater than zero—are located in TAZs with a home-based VMT per resident that is above the significance threshold.

While these results suggest that some of the Project’s housing sites would be less than significant with respect to VMT under baseline and future conditions; however, the Project as a whole exceeds the VMT criteria. For this reason, the impact is conservatively considered significant, requiring mitigation. To address VMT impacts, the following mitigation measure should be implemented:

**Mitigation Measure TRANS-1: Implement VMT Reduction Measures.** Individual housing project development proposals that do not screen out from VMT impact analysis shall provide a quantitative VMT analysis using the methods applied in this EIR, with modifications if appropriate based on future changes to City of Antioch practices and CCTA VMT analysis methodology guidelines. Projects which result in a significant impact shall include travel demand management measures and physical measures to reduce VMT to a less-than-significant level. Measures may include, but are not limited to, those described below, which have been identified as potentially VMT reducing in the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission









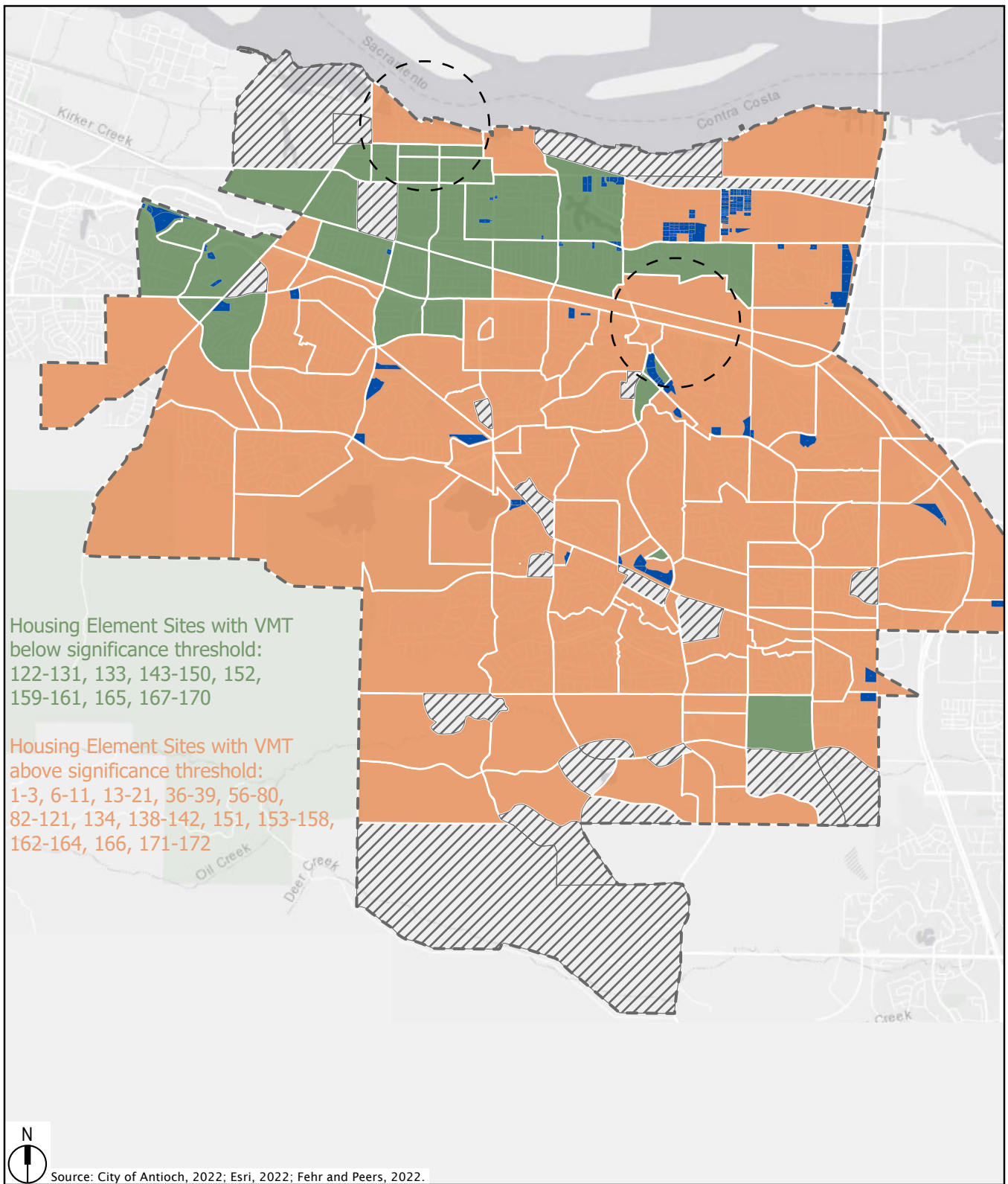
-  City Boundary
-  Transit Priority Area 0.5-mile radius
-  Housing Element Sites
-  TAZs with no Residents
-  TAZ Below Home-Based VMT Threshold
-  TAZ Above Home-Based VMT Threshold

Figure IV.B-6  
Housing Element Home-Based VMT (2020)



- City Boundary
- Transit Priority Area 0.5-mile radius
- Housing Element Sites
- TAZs with no Residents
- TAZ Below Home-Based VMT Threshold
- TAZ Above Home-Based VMT Threshold

Figure IV.B-6  
Housing Element Home-Based VMT (2040)

Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.<sup>17</sup> Potential VMT reduction estimates are included below, but detailed requirements, calculation steps, and limitations are described in the CAPCOA Handbook. In addition, application of one or more measures is generally expected to result in a net VMT reduction of 10 percent or less for development projects in suburban settings such as Antioch.

- Unbundle parking costs (i.e., sell or lease parking separately from the housing unit). Effectiveness: up to 15.7 percent reduction in GHG from VMT per the CAPCOA Handbook.
- Provide car-sharing, bike sharing, or scooter sharing programs. Effectiveness: 0.15 to 0.18 percent reduction in GHG from VMT for car share, 0.02 to– 0.06 percent for bike share, and 0.07 percent for scooter share, per the CAPCOA Handbook. The higher car share and bike share values are for electric car and bike share programs.
- Subsidize transit passes for residents of affordable housing. Effectiveness: up to 5.5 percent reduction in GHG from VMT per the CAPCOA Handbook.

In addition to the on-site measures noted above, individual housing projects that are above the VMT threshold could potentially contribute to future VMT mitigation fee programs, banks, or exchanges. No regional VMT mitigation programs currently exist; however, the CCTA is currently evaluating different mitigation program frameworks which may lead to a Countywide or sub-regional VMT mitigation program. Should such a program be implemented, development projects could potentially pay into a fee program or purchase mitigation credits to achieve needed VMT mitigation instead of, or in addition to, on-site TDM measures. (LTS)

While Mitigation Measure TRANS-1 could reduce impacts to a less-than-significant level, the effectiveness of the above measures in reducing an individual project's VMT impact to a less-than-significant level cannot be determined in this analysis. Therefore, the impact for projects which do not screen out from VMT impact analysis would conservatively remain significant and unavoidable with mitigation.

### **Result in Designs for On-Site Circulation, Access, and Parking Areas that Fail to Meet City or Industry Standard Design Guidelines (Criterion 3)**

Development of subsequent projects as a part of the implementation of the Project, including any new roadway, bicycle, pedestrian, and transit infrastructure improvements, would be subject

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<sup>17</sup> California Air Pollution Control Officers Association (CAPCOA), 2021. Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Available online: [https://www.airquality.org/ClimateChange/Documents/Handbook%20Public%20Draft\\_2021-Aug.pdf](https://www.airquality.org/ClimateChange/Documents/Handbook%20Public%20Draft_2021-Aug.pdf), accessed May 26, 2022.

to, and designed in accordance with City standards and specifications which address potential design hazards including sight distance, driveway placement, and signage and striping. Additionally, any new transportation facilities, or improvements to such facilities associated with subsequent projects would be constructed based on industry design standards and best practices consistent with the City's zoning code and building design and inspection requirements. The City's evaluation of projects' access and circulation will incorporate analysis with respect to City standards for vehicular LOS and queueing, as well as for service to pedestrians, bicyclists, and transit users. Therefore, the Project would result in a less-than-significant impact to transportation hazards.

#### **Inadequate Emergency Access to Development Sites (Criterion 4)**

There are no specific development projects associated with the Project; and thus, specific housing sites developed under the Project cannot be analyzed for adequacy of emergency access at this time. However, the City maintains the roadway network which would provide access to new development sites in accordance with industry design standards which ensures that the physical network would be free of obstructions to emergency responders. Emergency access to new development sites proposed under the Project would be subject to review by the City of Antioch and responsible emergency service agencies, thus ensuring the projects would be designed to meet all emergency access and design standards. The City also requires the preparation of construction management plans that minimize temporary obstruction of traffic during site construction.

Additional vehicles associated with new development sites could increase delays for emergency response vehicles during peak commute hours. However, emergency responders maintain response plans which include use of alternate routes, sirens and other methods to bypass congestion and minimize response times. In addition, California law requires drivers to yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes to ensure the safe and timely passage of emergency vehicles.

Based on the above considerations, adequate emergency access would be provided to new development sites, and the Project's impact would be less than significant.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

B. TRANSPORTATION



## C. AIR QUALITY

This section describes the current air quality conditions in the city of Antioch and its vicinity; discusses the regulations and policies pertinent to air quality; and assesses the potentially significant impacts to the environment that could result from implementation of the Project and its associated development. The analysis in this section was prepared in accordance with the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines (CEQA Guidelines).<sup>1</sup>

### 1. Setting

This section provides background information on air quality and summarizes the existing environmental setting related to air quality within the city of Antioch.

#### a. Regional Climate, Meteorology, and Topography

The city is located within the San Francisco Bay Area Air Basin (SFBAAB). Some air basins have natural characteristics that limit the ability of natural processes to either dilute or transport air pollutants. The major determinants of air pollution transport and dilution are climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine. Wind and terrain can combine to transport pollutants away from upwind areas, while solar energy can chemically transform pollutants in the air to create secondary photochemical pollutants such as ozone.

The San Francisco Bay Area (Bay Area) has a Mediterranean climate characterized by wet winters and dry summers. During the summer, a high-pressure cell centered over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that generally keeps storms from affecting the California coast. During the winter, the Pacific high-pressure cell weakens, resulting in increased precipitation and the occurrence of storms. The highest air pollutant concentrations in the Bay Area generally occur during inversions, when a surface layer of cooler air becomes trapped beneath a layer of warmer air. An inversion reduces the amount of vertical mixing and dilution of air pollutants in the cooler air near the surface.

The city of Antioch is located along the eastern periphery of a Diablo Valley. The mountains on the west side of the valley block much of the marine air from reaching the valley. During the daytime, there are two predominant flow patterns: an up-valley flow from the north and a westerly flow (wind from the west) across the lower elevations of the Coast Range. On clear

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<sup>1</sup> Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

nights, surface inversions separate the flow of air into two layers: the surface flow and the upper layer flow. When this happens, there are often drainage surface winds which flow down-valley toward the Carquinez Strait. Wind speeds in the valley are generally low (about 5 miles per hour). Air temperatures in the valley are cooler in the winter and warmer in the summer than are temperatures further west, as they valley is far from the moderating effect of the Bay and ocean. The mean summer maximum temperature is about 80 degrees Fahrenheit (°F) and the mean winter minimum temperature is about 40°F.<sup>2</sup>

### **b. Air Pollutants of Concern**

The California Air Resources Board (CARB) and United States Environmental Protection Agency (EPA) focus on the following air pollutants as regional indicators of ambient air quality:

- Ozone
- Coarse particulate matter (PM<sub>10</sub>)
- Fine particulate matter (PM<sub>2.5</sub>)
- Nitrogen dioxide
- Carbon monoxide
- Sulfur dioxide
- Lead

Because these are the most prevalent air pollutants known to be harmful to human health based on extensive criteria documents, they are referred to as “criteria air pollutants.” In the SFBAAB, the primary criteria air pollutants of concern are ground-level ozone formed through reactions of oxides of nitrogen (NO<sub>x</sub>) and reactive organic gases (ROG), PM<sub>10</sub>, and PM<sub>2.5</sub>. Regional air pollutants, such as ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>, can be formed and/or transported over long distances and affect ambient air quality far from the emissions source. The magnitude and location of specific health effects from exposure to increased ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> concentrations are the result of emissions generated by numerous sources throughout the SFBAAB, as opposed to a single project.

The BAAQMD and other air districts use regional air dispersion models to correlate the cumulative emissions of regional pollutants to potential community health effects. However, these dispersion models have limited sensitivity to the relatively small (or negligible) changes in criteria air pollutant concentrations associated with an individual project. Therefore, it is not feasible to provide reliable estimates of specific health risks associated with regional air pollutant emissions from an individual project.

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<sup>2</sup> Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

The BAAQMD operates a network of air monitoring stations throughout the SFBAAB to monitor air pollutants such as ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. Table IV.C-1 presents a five-year summary for the period from 2016 to 2020 of the highest annual concentrations of ozone and PM<sub>10</sub> measured at the nearest monitoring station located at 5551 Bethel Island Road in Bethel Island, approximately 6.0 miles east of the city of Antioch. The nearest station where PM<sub>2.5</sub> levels are measured is located at 2956-A Treat Boulevard in Concord, approximately 9.5 miles southwest of the city of Antioch. Table IV.C-1 also compares measured pollutant concentrations with applicable State and federal ambient air quality standards, which are discussed further in *Section IV.C.2, Regulatory Setting*, below. Ozone levels exceeded the State and federal ambient air quality standards 1 to 2 days per year from 2016 to 2020. PM<sub>10</sub> levels exceeded the State and federal ambient air quality standards for about 26 days in 2019; however, it should be noted that the highest daily PM<sub>10</sub> concentration was reported in 2018, but there was not sufficient data to estimate the number of days that exceeded the standards. PM<sub>2.5</sub> levels exceeded the State and federal air quality standards about 6 to 16 days in the years 2017, 2018, and 2020.

**TABLE IV.C-1 AIR QUALITY TRENDS**

Pollutant	Standard	2016	2017	2018	2019	2020
Ozone (O <sub>3</sub> )	Max 1-hour Concentration (ppm)	0.089	0.090	0.093	0.082	0.107
	Days > CAAQS (0.09 ppm)	0	0	0	0	1
	Max 8-hour Concentration (ppm)	0.081	0.071	0.078	0.072	0.086
	Days > CAAQS (0.070 ppm)	2	2	1	1	2
	Days > NAAQS (0.070 ppm)	2	1	1	1	2
Coarse Particulate Matter (PM <sub>10</sub> )	Max 24-hour Concentration (µg/m <sup>3</sup> )	26.0	52.0	151.0	57.0	40.0
	Days > CAAQS (50 µg/m <sup>3</sup> )	NV	NV	NV	26.2	NV
	Days > NAAQS (150 µg/m <sup>3</sup> )	0.0	NV	NV	0.0	NV
	Annual Arithmetic Mean (µg/m <sup>3</sup> )	7.5	7.9	10.0	15.7	7.6
Fine Particulate Matter (PM <sub>2.5</sub> )	Max 24-hour Concentration (µg/m <sup>3</sup> )	20.7	89.4	180.0	28.2	121.4
	Days > NAAQS (35 µg/m <sup>3</sup> )	0.0	6.0	14.2	0.0	16.2
	Annual Arithmetic Mean (µg/m <sup>3</sup> )	5.9	12.0	13.4	6.9	11.1

Notes: CAAQS = California ambient air quality standards; µg/m<sup>3</sup> = micrograms per cubic meter; NAAQS = National ambient air quality standards; ppm = parts per million; NV = no value due to insufficient data.

State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. When the measured state and national concentrations varied due to different sample methods, the highest concentration was reported in the summary table.

Source: California Air Resources Board (CARB) 2022. iADAM: Air Quality Data Statistics; Trend Summaries. Available at: <https://www.arb.ca.gov/adam/trends/trends1.php>, accessed May 24, 2022.

Localized air pollutants generally dissipate with distance from the emission source and can pose a health risk to nearby populations. Toxic air contaminants (TACs), such as diesel particulate matter (DPM), are considered localized pollutants. PM<sub>2.5</sub> is also considered a localized air pollutant, in addition to being considered a regional air pollutant. Air dispersion models can be used to reliably quantify the health risks to nearby receptors associated with emissions of localized air pollutants from an individual project.

The primary air pollutants of concern in the SFBAAB and their associated health risks are discussed below.

### **(1) Ozone**

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation, it can be harmful to the human respiratory system and to sensitive species of plants when it reaches elevated concentrations in the lower atmosphere. Ozone is not emitted directly into the environment but is formed in the atmosphere by chemical reactions between ROG and NO<sub>x</sub> in the presence of sunlight. Ozone formation is greatest during periods of little or no wind, bright sunshine, and high temperatures. As a result, levels of ozone usually build up during the day and peak in the afternoon.

Sources of ROG and NO<sub>x</sub> are vehicle tailpipe emissions; evaporation of solvents, paints, and fuels; and biogenic emissions.<sup>3</sup> Automobiles are the single largest source of ozone precursors in the SFBAAB. Short-term ozone exposure can reduce lung function in children, facilitate respiratory infections, and produce symptoms of respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Ozone can also damage plants and trees and materials such as rubber and fabrics.

### **(2) Particulate Matter**

PM<sub>10</sub> and PM<sub>2.5</sub> consist of extremely small, suspended particles or droplets that are 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter are naturally occurring, such as pollen, forest fires, and windblown dust. In populated areas, however, most particulate matter is caused by road dust, combustion by-products, abrasion of tires and brakes, and construction activities. Particulate matter can also be formed in the atmosphere by condensation of sulfur dioxide and ROG.

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<sup>3</sup> Biogenic sources include volatile organic compounds, which include ROG, from the decomposition of vegetative matter and certain plants, such as oak and pine trees.

Exposure to particulate matter can affect breathing, aggravate existing respiratory and cardiovascular disease, alter the body's defense systems against foreign materials, and damage lung tissue, contributing to cancer and premature death. Individuals with chronic obstructive pulmonary or cardiovascular disease, asthmatics, the elderly, and children are most sensitive to the effects of particulate matter.

### **(3) Toxic Air Contaminants**

TACs include a diverse group of air pollutants that can adversely affect human health. Unlike criteria air pollutants, which generally affect regional air quality, TAC emissions are evaluated based on estimations of localized concentrations and risk assessments. The adverse health effects a person may experience following exposure to any chemical depend on several factors, including the amount (dose), duration, chemical form, and any simultaneous exposure to other chemicals.

For risk assessment purposes, TACs are separated into carcinogens and non-carcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per 1 million exposed individuals over a lifetime of exposure. Non-carcinogenic substances are generally assumed to have a safe threshold below which health impacts would not occur. Acute and chronic exposure to non-carcinogens is expressed as a hazard index, which is the sum of expected exposure levels divided by the corresponding acceptable exposure levels.

In the SFBAAB, adverse air quality impacts on public health from TACs are predominantly from DPM. Emissions of DPM and PM<sub>2.5</sub> generated from the exhaust of diesel-powered engines are a complex mixture of soot, ash particulates, metallic abrasion particles, volatile organic compounds, and other components that can penetrate deeply into the lungs and contribute to a range of health problems. In 1998, CARB identified DPM from diesel-powered engines as a TAC based on its potential to cause cancer and other adverse health effects.<sup>4</sup> While diesel exhaust is a complex mixture that includes hundreds of individual constituents, DPM is used as a surrogate measure of exposure, under California regulatory guidelines, for the mixture of chemicals that make up diesel exhaust as a whole. More than 90 percent of DPM is less than 1 micron in diameter and is thus a subset of PM<sub>10</sub> and PM<sub>2.5</sub>.<sup>5</sup> The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

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<sup>4</sup> California Air Resources Board (CARB), 1998. Initial Statement of Reasons for Rulemaking; Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, June.

<sup>5</sup> California Air Resources Board (CARB), 2016. Overview: Diesel Exhaust and Health. Available at: <https://www.arb.ca.gov/research/diesel/diesel-health.htm>, accessed January 13, 2017. Last updated April 12, 2016.

### **c. Existing Sources and Levels of Local Air Pollution**

In the Bay Area, stationary and mobile sources are the primary contributors of TACs and PM<sub>2.5</sub> emissions to local air pollution. In an effort to promote healthy infill development from an air quality perspective, the BAAQMD has prepared guidance entitled *Planning Healthy Places*.<sup>6</sup> The purpose of this guidance document is to encourage local governments to address and minimize potential local air pollution issues early in the land-use planning process, and to provide technical tools to assist them in doing so. Based on a screening-level cumulative analysis of mobile and stationary sources in the Bay Area, the BAAQMD mapped localized areas of elevated air pollution that: 1) exceed an excess cancer risk of 100 in a million; 2) exceed PM<sub>2.5</sub> concentrations of 0.8 micrograms per cubic meter; or 3) are located within 500 feet of a freeway, 175 feet of a major roadway (with more than 30,000 annual average daily vehicle trips), or 500 feet of a ferry terminal. Within these localized areas of elevated air pollution, the BAAQMD encourages local governments to implement best practices to reduce exposure to and emissions from local sources of air pollutants. As shown by the purple areas in Figure IV.C-1, elevated levels of TACs and/or PM<sub>2.5</sub> pollution currently exist in the vicinity of stationary sources predominantly located near the waterfront and mobile sources located along SR-4, Lone Tree Way, and Hillcrest Avenue.

### **d. Existing Sensitive Receptors**

Sensitive receptors are areas where individuals are more susceptible to the adverse effects of poor air quality. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. Residential areas are also considered sensitive receptors because people are often at home for extended periods, thereby increasing the duration of exposure to potential air contaminants. The current land uses within the city are described in *Section IV.A, Land Use and Planning*.

## **2. Regulatory Setting**

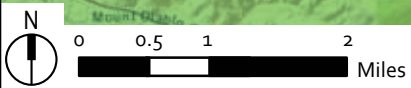
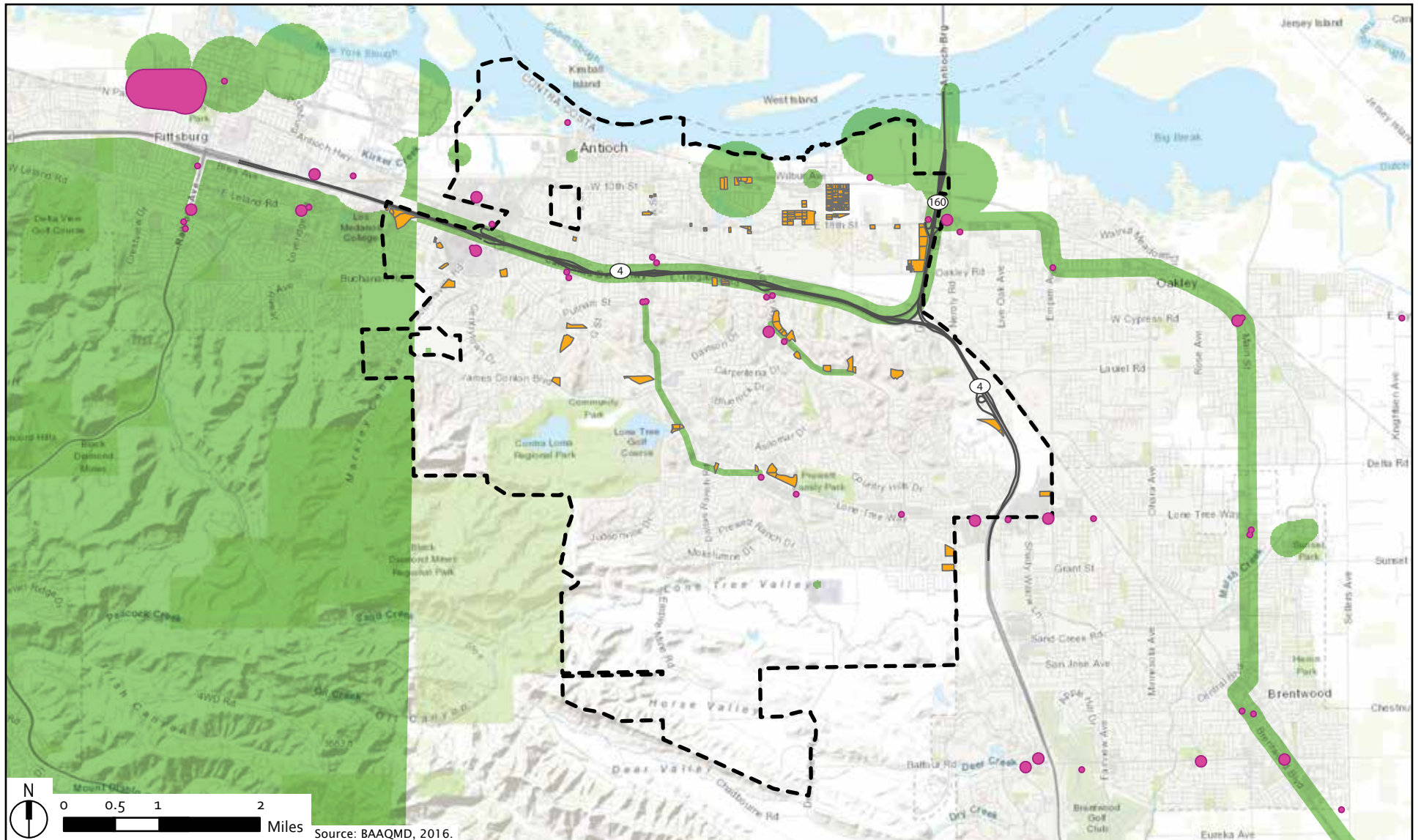
This section describes the existing federal, State, regional, and local regulatory frameworks related to air quality.

### **a. Federal, State, and Local Regulations**

The following section describes the existing federal, State, and local regulatory environment related to air quality.

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<sup>6</sup> Bay Area Air Quality Management District (BAAQMD), 2016. *Planning Healthy Places; A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning*, May.



Source: BAAQMD, 2016.

- City Boundary
- Highways
- Housing Sites
- Areas with elevated TAC and/or PM2.5 concentrations<sup>1</sup>
- Areas requiring further study<sup>2</sup>

Figure IV.C-1

Localized Areas of Elevated Air Pollution

The federal EPA is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and judging the adequacy of State Implementation Plans to attain the NAAQS. A State Implementation Plan must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. If a state fails to enforce its implementation of approved regulations, or if the EPA determines that a State Implementation Plan is inadequate, the EPA is required to prepare and enforce a Federal Implementation Plan to promulgate comprehensive control measures for a given State Implementation Plan.

CARB is responsible for establishing and reviewing the California Ambient Air Quality Standards (CAAQS), developing and managing the California State Implementation Plans, identifying TACs, and overseeing the activities of regional air quality management districts. In California, mobile emissions sources (e.g., construction equipment, trucks, and automobiles) are regulated by CARB and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts.

The CAAQS and NAAQS, which were developed for criteria air pollutants, are intended to incorporate an adequate margin of safety to protect the public health and welfare. California also has ambient air quality standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. To achieve CAAQS, criteria air pollutant emissions are managed through control measures described in regional air quality plans as well as emission limitations placed on permitted stationary sources.

In accordance with the federal Clean Air Act and California Clean Air Act, areas in California are classified as either in attainment, maintenance (i.e., former nonattainment), or nonattainment of the NAAQS and CAAQS for each criteria air pollutant. To assess the regional attainment status, the BAAQMD collects ambient air quality data from over 30 monitoring sites within the SFBAAB. Based on current monitoring data, the SFBAAB is designated as a nonattainment area for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>, and is designated an attainment or unclassified area for all other pollutants (see Table IV.C-2).

Regulation of TACs, referred to as hazardous air pollutants (HAPs) under federal regulations, is achieved through federal, State, and local controls on individual sources. The air toxics provisions of the federal Clean Air Act require the EPA to identify HAPs that are known or suspected to cause cancer or other serious health effects to protect public health and welfare, and to establish National Emission Standards for Hazardous Air Pollutants. California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act created California's program to identify and reduce exposure to TACs. To date, the CARB has identified over 21 TACs and adopted the EPA's list of 188 HAPs as TACs. The Hot Spots Act supplements the Tanner Act by



**TABLE IV.C-2 AIR QUALITY STANDARDS AND ATTAINMENT STATUS**

Pollutant	Averaging Time	CAAQS		NAAQS	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8-Hour	0.070 ppm	N	0.070 ppm	N
	1-Hour	0.09 ppm	N	Revoked in 2005	---
Carbon Monoxide	8-Hour	9.0 ppm	A	9 ppm	A
	1-Hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide	1-Hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	---	0.053 ppm	A
Sulfur Dioxide	24-Hour	0.04 ppm	A	0.14 ppm	A
	1-Hour	0.25 ppm	A	0.075 ppm	A
	Annual	---	---	0.030 ppm	A
Respirable Particulate Matter (PM <sub>10</sub> )	Annual	20 µg/m <sup>3</sup>	N	---	---
	24-Hour	50 µg/m <sup>3</sup>	N	150 µg/m <sup>3</sup>	U
Fine Particulate Matter (PM <sub>2.5</sub> )	Annual	12 µg/m <sup>3</sup>	N	12 µg/m <sup>3</sup>	U/A
	24-Hour	---	---	35 µg/m <sup>3</sup>	N
Sulfates	24-Hour	25 µg/m <sup>3</sup>	A	---	---
	30-Day	1.5 µg/m <sup>3</sup>	A	---	---
Lead	Calendar Quarter	---	---	1.5 µg/m <sup>3</sup>	A
	Rolling 3-Month	---	---	0.15 µg/m <sup>3</sup>	A
Hydrogen Sulfide	1-Hour	0.03 ppm	U	---	---
Vinyl Chloride	24-Hour	0.010 ppm	U	---	---
Visibility Reducing Particles	8 Hour (10:00 to 18:00 PST)	---	U	---	---

Notes: A = Attainment; N = Nonattainment; U = Unclassified; “---” = not applicable; ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter; PST = Pacific Standard Time.

Source: Bay Area Air Quality Management District (BAAQMD), 2017. Air Quality Standards and Attainment Status. Available at: <http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status>, accessed May 30, 2019. Last updated January 5, 2017.

requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

### **b. Bay Area Air Quality Management District Responsibilities**

The following sections describe the existing regional regulatory environment related to air quality.

The BAAQMD is primarily responsible for ensuring that the NAAQS and CAAQS are attained and maintained in the SFBAAB. The BAAQMD fulfills this responsibility by adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits, inspecting stationary sources of air pollutants, responding to citizen complaints, and monitoring ambient air quality and meteorological conditions. The BAAQMD also awards grants to reduce motor vehicle emissions and conducts public education campaigns and other activities associated with improving air quality within the SFBAAB.

The demolition of existing buildings and structures are subject to BAAQMD's Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing), which limits asbestos emissions from demolition or renovation of structures and the associated disturbance of asbestos-containing waste material generated or handled during these activities. The rule addresses the national emissions standards for asbestos and contains additional requirements. The rule requires the lead agency and its contractors to notify the BAAQMD of any regulated renovation or demolition activity. The notification must include a description of the affected structures and the methods used to determine the presence of asbestos-containing materials. All asbestos-containing material found on site must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, which includes specific requirements for surveying, notification, removal, and disposal of materials that contain asbestos. Implementation of Regulation 11, Rule 2 ensures that asbestos-containing materials are disposed of appropriately and safely.

The BAAQMD's CEQA Guidelines<sup>7</sup> include thresholds of significance to assist lead agencies in evaluating and mitigating air quality impacts under CEQA. The BAAQMD's thresholds establish levels at which emissions of ozone precursors (ROG and NO<sub>x</sub>), PM<sub>10</sub>, PM<sub>2.5</sub>, TACs, and odors could cause significant air quality impacts. The scientific soundness of the thresholds is supported

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<sup>7</sup> Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report.<sup>8</sup>

### c. Bay Area Clean Air Plan

In accordance with the California Clean Air Act, the BAAQMD is required to prepare and update an air quality plan that outlines measures by which both stationary and mobile sources of pollutants can be controlled to achieve the NAAQS and CAAQS in areas designated as nonattainment. In April 2017, the BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 CAP).<sup>9</sup> The 2017 CAP includes 85 control measures to reduce ozone precursors, particulate matter, TACs, and greenhouse gases (GHGs). The 2017 CAP was developed based on a multi-pollutant evaluation method that incorporates well-established studies and methods of quantifying health benefits; air quality regulations; computer modeling and analysis of existing air quality monitoring data and emissions inventories; and traffic and population growth projections prepared by the Metropolitan Transportation Commission and the Association of Bay Area Governments, respectively.

### d. Antioch General Plan

The following existing policies and actions from the City's General Plan<sup>10</sup> are related to air quality and are applicable to the Project.

*Policy 7.4.2: Non-Motorized Transportation Policies*

- a. Design new residential neighborhoods to provide safe pedestrian and bicycle access to schools, parks and neighborhood commercial facilities.
- b. Design intersections for the safe passage of pedestrians and bicycles through the intersection.
- c. Provide street lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area, and that contributes to vehicular, pedestrian, and bicycle safety.
- d. Maintain roadway designs that maintain mobility and accessibility for bicyclists and pedestrians.
- e. Integrate multi-use paths into creek corridors, railroad rights-of-way, utility corridors, and park facilities.
- f. Provide, as appropriate, bicycle lanes (Class II) or parallel bicycle/pedestrian paths (Class I) along all arterial streets and high volume collector streets, as well as along major access routes to schools and parks.
- g. Design new roadway bridges to meet Caltrans standards for bridges involving State highways, including bicycle lanes on all new bridges along Circulation Element roadways. Where provision of bicycle lanes is not feasible, undertake measures to provide alternative routes and to prohibit bicycle riding on bridge walkways.
- h. Require the provision of bicycle parking and other support facilities (e.g., racks or lockers) as part of new office and retail developments and public facilities.

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<sup>8</sup> Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report; California Environmental Quality Act Thresholds of Significance, October.

<sup>9</sup> Bay Area Air Quality Management District (BAAQMD), 2017. 2017 Clean Air Plan: Spare the Air, Cool the Climate, April 19.

<sup>10</sup> LSA, 2003. City of Antioch General Plan, November 24.

## IV. SETTING, IMPACTS, AND MITIGATION MEASURES

## C. AIR QUALITY

- i. Where shopping facilities are located adjacent to residential areas, provide direct access between residential and commercial uses without requiring pedestrians and bicyclists to travel completely around the commercial development.
- j. Permit the sharing or parallel development of pedestrian walkways with bicycle paths, where this can be safely accomplished, in order to maximize the use of public rights-of-way.
- k. Orient site design in non-residential areas to allow for safe and convenient pedestrian access from sidewalks, transit and bus stops, and other pedestrian facilities, in addition to access through required parking facilities.
- l. Require the construction of attractive walkways in new residential, commercial, office, and industrial developments, including provision of shading for pedestrian paths.
- m. Maximize visibility and access for pedestrians, and encourage the removal of barriers for safe and convenient movement of pedestrians.
- n. Ensure that the site design of new developments provides for pedestrian access to existing and future transit routes and transit centers.
- o. Pave walks and pedestrian pathways with a hard, all-weather surface that is easy to walk on. Walks and curbs should accommodate pedestrians with disabilities. Walks within open space areas should have specially paved surfaces that blend with the surrounding environment.
- p. In general, design walks to provide a direct route for short to medium distance pedestrian trips, and to facilitate the movement of large numbers of pedestrians. Meandering sidewalks are appropriate in areas where the natural topography or low-density land uses lend themselves to informal landscapes.

*Policy 10.6.2: Air Quality Policies**Construction Emissions*

- a. Require development projects to minimize the generation of particulate emissions during construction through implementation of the dust abatement actions outlined in the CEQA Handbook of the Bay Area Air Quality Management District.

*Mobile Emissions*

- b. Require developers of large residential and non-residential projects to participate in programs and to take measures to improve traffic flow and/or reduce vehicle trips resulting in decreased vehicular emissions. Examples of such efforts may include, but are not limited to the following.
  - Development of mixed-use projects, facilitating pedestrian and bicycle transportation and permitting consolidation of vehicular trips.
  - Installation of transit improvements and amenities, including dedicated bus turnouts and sufficient rights-of-way for transit movement, bus shelters, and pedestrian easy access to transit.
  - Provision of bicycle and pedestrian facilities, including bicycle lanes and pedestrian walkways connecting residential areas with neighborhood commercial centers, recreational facilities, schools, and other public areas.
  - Contributions for off-site mitigation for transit use.
  - Provision of charging stations for electric vehicles within large employment-generating and retail developments.
- c. Budget for purchase of clean fuel vehicles, including electrical and hybrid vehicles where appropriate, and, if feasible, purchasing natural gas vehicles as diesel powered vehicles are replaced.
- d. Support and facilitate employer-based trip reduction programs by recognizing such programs in environmental mitigation measures for traffic and air quality impacts where their ongoing implementation can be ensured, and their effectiveness can be monitored.

*Stationary Source Emissions*

- e. As part of the development review process for non-residential development, require the incorporation of best available technologies to mitigate air quality impacts.

- f. Provide physical separations between (1) proposed new industries having the potential for emitting toxic air contaminants and (2) existing and proposed sensitive receptors (e.g., residential areas, schools, and hospitals).
- g. Require new wood burning stoves and fireplaces to comply with EPA and BAAQMD approved standards.

*Policy 10.8.2: Energy Resource Policies*

- a. Continue to implement Title 24 of the State Building Code, and provide incentives to encourage architects and builders to exceed the energy efficiency standards of Title 24 through increased use of passive, solar design and day-lighting.
- b. Promote the use of site design, landscaping, and solar orientation to decrease the need for summer cooling and winter heating.
- c. Where feasible, incorporate recycled materials in new construction.
- d. Encourage the installation of energy-efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.
- e. Facilitate the installation of environmentally acceptable forms of distributed generation,<sup>11</sup> where such systems can be safely and economically provided.
- f. Maintain City physical facilities so as to ensure that optimum energy conservation is achieved.
- g. Promote purchasing of energy-efficient equipment based on a fair return on investment and use energy-savings estimates as one basis for purchasing decisions for major energy-using devices.
- h. Promote coordination of new public facilities with transit services and nonmotorized transportation facilities, including bicycles, and design structures to enhance transit, bicycle, and pedestrian use.
- i. The City shall review all development plans prior to approval to guarantee that energy conservation and efficiency standards of Title 24 are met and are incorporated into the design of the future proposed project.

### 3. Impacts and Mitigation Measures

This section analyzes environmental impacts related to air quality that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project.

#### a. Significance Criteria

Implementation of the Project would result in a significant air quality impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.

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<sup>11</sup> "Distributed generation" encompasses various small-scale types of electrical generation, such as microturbines, fuel cells, photovoltaics, cogeneration (reuse of waste heat) and other sources of electrical power that can be effectively located within office parks, industrial facilities, and other large buildings.

4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

**b. Analysis Approach**

The following sections provide an evaluation and analysis of the potential impacts of the Project for each of the criteria of significance listed above and potential cumulative impacts. There are no new or existing policies related to air quality in the Environmental Hazards Element or EJ Element components of the Project. There are no existing air quality policies in the Housing Element component of the Project; however, the updated Housing Element includes new air quality policies that would reduce potential air quality impacts related to future development under the Project, as described in the sections below. Future development under the Project would also be supported by existing air quality policies in other chapters of the General Plan (Policies 7.4.2, 10.6.2, and 10.8.2), which are listed above. Therefore, no air quality related impacts from updating the Housing Element, Environmental Hazards, and EJ Elements would occur.

Potential air quality impacts associated with future development under the Project are evaluated in accordance with the BAAQMD’s CEQA Guidelines.<sup>12</sup> For communitywide planning documents (e.g., general plans), BAAQMD recommends that local governments demonstrate compliance with the plan-level thresholds summarized in Table IV.C-3, below.

**TABLE IV.C-3 BAAQMD’S PLAN-LEVEL THRESHOLDS OF SIGNIFICANCE FOR AIR QUALITY**

<b>Impact Analysis</b>	<b>Threshold</b>
Criteria Air Pollutants and Precursors	<b>Construction:</b> None <b>Operational:</b> Consistency with current air quality plan and projected vehicle miles travelled or vehicle trip increase is less than or equal to projected population increase.
Local Community Risk and Hazards	Land use diagram identifies special overlay zones around existing and planned sources of TACs and PM <sub>2.5</sub> , including special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways, and plan identifies goals, policies, and objectives to minimize potentially adverse impacts.
Odors	Identify locations of odor sources in plan; identify goals, policies, and objectives to minimize potentially adverse impacts.

Source: Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

For individual housing developments proposed under the Project, the BAAQMD recommends using their project-level thresholds of significance to identify levels at which individual projects

<sup>12</sup> Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

could cause significant air quality impacts related to emissions of ozone precursors (ROG and NOx), PM<sub>10</sub>, PM<sub>2.5</sub>, and TACs. The BAAQMD’s recommended project-level thresholds are summarized in Table V.C-4.

**TABLE IV.C-4 BAAQMD’S PROJECT-LEVEL THRESHOLDS OF SIGNIFICANCE FOR AIR QUALITY**

Impact Analysis	Pollutant	Threshold
Regional Air Quality (Construction)	ROG	54 pounds/day (average daily emission)
	NOx	54 pounds/day (average daily emission)
	Exhaust PM <sub>10</sub>	82 pounds/day (average daily emission)
	Exhaust PM <sub>2.5</sub>	54 pounds/day (average daily emission)
	Fugitive dust (PM <sub>10</sub> and PM <sub>2.5</sub> )	Best management practices
Regional Air Quality (Operation)	ROG	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	NOx	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
	Exhaust PM <sub>10</sub>	82 pounds/day (average daily emission) 15 tons/year (maximum annual emission)
	Exhaust PM <sub>2.5</sub>	54 pounds/day (average daily emission) 10 tons/year (maximum annual emission)
Local Community Risks and Hazards (Operation and/or Construction)	Exhaust PM <sub>2.5</sub> (project)	0.3 µg/m <sup>3</sup> (annual average)
	TACs (project)	Cancer risk increase > 10 in one million Chronic hazard index > 1.0
	Exhaust PM <sub>2.5</sub> (cumulative)	0.8 µg/m <sup>3</sup> (annual average)
	TACs (cumulative)	Cancer risk > 100 in one million Chronic hazard index > 10.0

Note: ROG = reactive organic gases; NOx = oxides of nitrogen; PM<sub>10</sub> = coarse particulate matter; PM<sub>2.5</sub> = fine particulate matter; µg/m<sup>3</sup> = micrograms per cubic meter  
 Source: Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

**c. Findings**

**(1) Consistency with the Bay Area Clean Air Plan (Criterion 1)**

The BAAQMD’s 2017 CAP is the applicable air quality plan for projects located in the SFBAAB. Consistency may be determined by evaluating whether the Project supports the primary goals of the 2017 CAP, including applicable control measures contained within the 2017 CAP, and would not conflict with or obstruct implementation of any 2017 CAP control measures. The primary goals of the 2017 CAP are the attainment of ambient air quality standards and reduction of population exposure to air pollutants for the protection of public health in the Bay Area.

The 2017 CAP includes control measures that aim to reduce air pollution and GHGs from stationary, area, and mobile sources. The control measures are organized into nine categories: stationary sources, transportation, buildings, energy, agriculture, natural and working lands, waste, water, and super-GHG pollutants (e.g., methane, black carbon, and fluorinated gases). As described in Table IV.C-5, the Project would be consistent with applicable control measures from the 2017 CAP. Therefore, the Project would not conflict with or obstruct implementation of the applicable air quality plan, and the impact would be less than significant.

**TABLE IV.C-5 PROJECT CONSISTENCY WITH BAAQMD'S 2017 CAP**

Control Measures	Proposed Project Consistency
Stationary Source	The stationary source measures, which are designed to reduce emissions from stationary sources, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD's Permit and Inspection programs. Future development in the city would be subject to the BAAQMD's permitting requirements for stationary sources. Therefore, the Project would be consistent with the stationary source control measures.
Transportation	The transportation control measures are designed to reduce vehicle trips, use, miles traveled, idling, or traffic congestion for the purpose of reducing vehicle emissions. Implementation of General Plan policies 7.4.2 and 10.6.2 support the use of non-motorized transportation to reduce VMT. Therefore, the Project would be consistent with the transportation control measures.
Energy	The energy control measures are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures primarily apply to electrical utility providers, the energy control measures are not applicable to the Project. However, it should be noted that General Plan Policy 10.8.2 encourages developers to exceed the Title 24 Energy Efficiency Standards. Also, the electricity in the city is currently supplied by Pacific Gas and Electric Company, which supplies 93 percent of its electric power mix from a combination of renewable and carbon-free sources. <sup>a</sup>
Buildings	The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters but has limited authority to regulate buildings themselves. Therefore, the building control measures focus on working with local governments that have authority over local building codes to facilitate adoption of best practices and policies to control GHG emissions. Future projects within the city will be required to meet the minimum code efficiency requirements for the Title-24 Building Energy Efficiency Standards. Therefore, the Project would be consistent with the buildings control measures.
Agriculture	The agriculture control measures are designed to primarily reduce emissions of methane. Since the Project does not include any agricultural activities, the agriculture control measures are not applicable to the Project.
Natural and Working Lands	The control measures for the natural and working lands sector focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban-tree plantings. Since the



**TABLE IV.C-5 PROJECT CONSISTENCY WITH BAAQMD’s 2017 CAP**

Control Measures	Proposed Project Consistency
	Project does not include the disturbance of any rangelands or wetlands, the natural and working lands control measures are not applicable to the Project.
Waste Management	The waste management measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. Future development under the Project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the Project would be consistent with the waste management control measures.
Water	The water control measures to reduce emissions from the water sector will reduce emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the water control measures are not applicable to the Project.
Super GHGs	The super-GHG control measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual developments, the super-GHG control measures are not applicable to the Project.

<sup>a</sup> Pacific Gas and Electric, 2022. Exploring Clean Energy Solutions. Available at: [https://www.pge.com/en\\_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page](https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page), accessed May 30, 2022. Source: Bay Area Air Quality Management District (BAAQMD), 2017. 2017 Clean Air Plan: Spare the Air, Cool the Climate, April 19.

**(2) Emissions of Criteria Air Pollutants (Criterion 2)**

*Plan-Level Emissions*

According to the BAAQMD’s plan-level thresholds, operational-related criteria air pollutant and precursor impacts would be less than significant if the projected rate of increase in vehicle miles traveled (VMT) is less than or equal to the rate of increase in population. The BAAQMD considers reductions in VMT a key strategy for achieving the federal and State ambient air quality standards for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>.

The existing 2020 residential population and the 2040 residential population in the city are described under *Section IV.M, Population and Housing*. The total residential VMT in the city for 2020 and 2040 are described under *Section IV.B, Transportation*. The estimated net increase in residential population and residential VMT are summarized in Table IV.C-6.

Using 2020 as a baseline year, the city’s population with full buildout of the Project is anticipated to increase 13 percent. At full buildout of the Project, the existing citywide VMT is anticipated to

increase 9 percent. As a result, the Project’s induced VMT and associated criteria air pollutant emissions would increase at a lower rate than the population growth. Therefore, implementation of the Project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and this impact would be less than significant at the plan level.

**TABLE IV.C-6 SUMMARY OF BASELINE AND PLUS PROJECT POPULATION AND VEHICLE MILES TRAVELED**

	<b>Baseline Conditions (2020)</b>	<b>Baseline Conditions (2020) + Project</b>	<b>Net Increase</b>
Population <sup>a</sup>	115,327	130,059	13%
Vehicle Miles Travelled <sup>b</sup>	4,304,870	4,678,455	9%

<sup>a</sup> See 2020 population reported in Table IV.M-1 and minimum population increase (14,732) at full buildout associated with the Project reported in Section IV.M, *Population and Housing*.

<sup>b</sup> See 2020 Baseline and 2020 + Project VMT reported in Table IV.B-4 in Section, IV.B, *Transportation*.

***Project-Level Construction Emissions***

Construction activities for future residential developments under the Project would generate criteria air pollutant emissions that could potentially affect regional air quality. During construction, the primary pollutant emissions of concern would be ROG, NOx, PM10, and PM2.5 from the exhaust of off-road construction equipment and on-road construction vehicles related to worker vehicles, vendor trucks, and haul trucks. In addition, fugitive dust emissions of PM10 and PM2.5 would be generated by soil disturbance and demolition activities, and fugitive ROG emissions would result from the application of architectural coatings and paving.

The generation of fugitive dust PM10 and PM2.5 emissions from soil disturbance and demolition activities could result in a cumulatively considerable net increase in regional PM10 and PM2.5 concentrations. General Plan Policy 10.6.2 (a) requires future development projects to implement the BAAQMD’s recommended dust controls measures during construction. The BAAQMD considers implementation of best management practices (BMPs) to control dust during construction sufficient to reduce potential impacts to a less-than-significant level. Implementation of dust control measures under General Plan Policy 10.6.2 would satisfy the BAAQMD’s requirement for BMPs during construction. Therefore, the increase in PM10 and PM2.5 concentrations from dust generated during construction activities for housing developments under the Project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.

**Impact AIR-1: Construction of residential projects with more than 114 single-family units or 240 multi-family units has the potential to result in criteria air pollutant and precursor**

**emissions above the Bay Area Air Quality Management District's (BAAQMD's) recommended thresholds of significance for construction. (S)**

The generation of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from the exhaust of off-road construction equipment and on-road vehicles and fugitive ROG emissions from the application of architectural coatings and paving could result in a cumulatively considerable net increase in criteria air pollutants. According to the BAAQMD's screening criteria,<sup>13</sup> construction of individual residential developments with more than 114 single-family units or more than 240 multi-family units could potentially exceed the BAAQMD's project-level thresholds of significance for criteria air pollutants (see Table IV.C-4). According to the Housing Inventory Sites, there are about 12 sites where construction of single-family housing could exceed 114 units and about three sites where construction of multi-family housing could exceed 240 units.

To address construction emissions of criteria air pollutant emissions from future housing developments, the following mitigation measure should be implemented:

**Mitigation Measure AIR-1: Residential Construction Controls for Criteria Air Pollutants.**

For construction of residential projects with more than 114 single-family units or 240 multi-family units, the project applicant shall retain a qualified air quality consultant to identify measures to reduce the project's criteria air pollutant and precursor emissions below the Bay Area Air Quality Management District's (BAAQMD's) recommended thresholds of significance. Emission reduction measures may include, but are not limited to, the use of off-road equipment with engines that meet the Environmental Protection Agency's Tier 4 emission standards or engines retrofitted with the most effective Verified Diesel Emissions Control Strategy (VDECS) certified by the California Air Resources Board (CARB). Quantified emissions and identified reduction measures shall be submitted to the City (and the Air District if specifically requested) for review and approval prior to the issuance of building permits and the approved criteria air pollutant reduction measures shall be implemented during construction.

In addition, the project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified criteria air pollutant reduction measures (if any). The Emissions Plan shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:

- An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification

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<sup>13</sup> Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.

- A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract. (LTS)

Implementation of **Mitigation Measure-AIR-1** would ensure that the generation of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from the exhaust of off-road construction equipment and on-road vehicles and fugitive ROG emissions for residential developments under the Project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment.

Implementation of the General Plan policies and **Mitigation Measure-AIR-1** would ensure that the construction of individual residential developments under the Project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and this impact would be less than significant at the project level.

### *Project-Level Operation Emissions*

**Impact AIR-2: Operation of residential projects with more than 325 single-family units or 451 multi-family units has the potential to result in criteria air pollutant and precursor emissions above the Bay Area Air Quality Management District's (BAAQMD's) recommended thresholds of significance for operations. (S)**

Operation of future residential developments under the Project would generate criteria air pollutant emissions that could potentially affect regional air quality. During operation, the primary pollutant emissions of concern would be ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from mobile sources, energy use, area sources (e.g., consumer products and architectural coatings), and stationary sources. It is possible that individual development projects, if large enough, could result in significant effects related to emissions of criteria air pollutants, even if the overall plan-level analysis is determined to have a less-than-significant impact.

According to the BAAQMD's screening criteria,<sup>14</sup> operation of an individual residential development with more than 325 single-family units or more than 451 multi-family units could potentially exceed the BAAQMD's project-level thresholds of significance for criteria air

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<sup>14</sup> Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act Air Quality Guidelines, May.

pollutants (see Table IV.C-4). According to the Housing Sites Inventory, there is only one site where single-family housing could exceed 325 units and there are no sites where multi-family housing would exceed 451 units.

To address potential operation emissions of criteria air pollutant emissions from future housing developments, the following mitigation measure should be implemented:

**Mitigation Measure AIR-2: Residential Operation Controls for Criteria Air Pollutants.** For operation of residential projects with more than 325 single-family units or 451 multi-family units, the project applicant shall retain a qualified air quality consultant to identify measures to reduce the project's criteria air pollutant and precursor emissions below the BAAQMD's recommended thresholds of significance. Emission reduction measures may include, but are not limited to, implementation of a transportation design management plan, compliance with electric vehicle requirements in the most recently adopted version of CALGreen Tier 2, or excluding natural gas appliances or natural gas plumbing in the building design. Quantified emissions and identified reduction measures shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. (LTS)

Implementation of **Mitigation Measure-AIR-2** would ensure that operation of individual residential developments under the Project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment, and this impact would be less than significant at the project level.

### **(3) Exposure of Sensitive Receptors to Toxic Air Contaminants during Construction (Criterion 3)**

**Impact AIR-3: Future residential development within the city has the potential to generate TACs and PM<sub>2.5</sub> emissions from vehicle trips and emergency generators (if required), which could substantially contribute to the existing poor air quality in the city and expose sensitive receptors to substantial pollutant concentrations. (S)**

As discussed above in *Section IV.C.1.c Existing Sources and Levels of Local Air Pollution*, the BAAQMD's Planning Healthy Places guidance<sup>15</sup> has mapped local areas with elevated levels of TAC and/or PM<sub>2.5</sub> pollution (Figure IV.C-1, as updated by BAAQMD). As part of the BAAQMD's Planning Healthy Places guidance, the BAAQMD will maintain and update mapping of local air pollution over time. At present, areas with elevated air pollution are currently mapped in the vicinity of stationary sources predominantly located near the waterfront and mobile sources

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<sup>15</sup> Bay Area Air Quality Management District (BAAQMD), 2016. Planning Healthy Places; A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning, May.

located along SR-4, Lone Tree Way, and Hillcrest Avenue. These areas of elevated air pollution exceed an excess cancer risk of 100 in a million or PM<sub>2.5</sub> concentrations of 0.8 micrograms per cubic meter, or are located within 500 feet of a freeway, 175 feet of a major roadway (>30,000 annual average daily traffic), or 500 feet of a ferry terminal. Future residential development within the city would generate TACs and PM<sub>2.5</sub> emissions from vehicle trips and emergency generators (if required), which could substantially contribute to the existing poor air quality in the city and expose sensitive receptors to substantial pollutant concentrations. According to the Office of Environmental Health Hazard Assessment (OEHHA), exposure to local air pollutants from projects lasting less than 6 months should not be evaluated due to the uncertainty in assessing cancer risk from very short-term exposures.<sup>16</sup>

Based on the guidance from BAAQMD and OEHHA, the following mitigation measures include the following requirements to address health risks related to the generation of TACs and PM<sub>2.5</sub> during construction and operation of future housing developments under the Project:

**Mitigation Measure AIR-3a: Residential Construction Controls for Diesel Particulate Matter.** For construction of residential projects with a construction duration greater than 6 months that are located in an area defined as needing “Best Practices” or “Further Study” on the BAAQMD’s Planning Healthy Places Map (<https://www.baaqmd.gov/plans-and-climate/planning-healthy-places>), the project applicant shall apply one of the following two measures:

1. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with current guidance from the Office of Environmental Health Hazard Assessment to determine the health risks to sensitive receptors exposed to diesel particulate matter (DPM) from project construction emissions. The HRA shall be submitted to the City (and BAAQMD if specifically requested) for review and approval. If the HRA concludes that the health risks are at or below acceptable levels, then DPM reduction measures are not required. If the HRA concludes that the health risks exceed acceptable levels, DPM reduction measures shall be identified to reduce the health risks to acceptable levels. Identified DPM reduction measures shall be submitted to the City for review and approval prior to the issuance of building permits and the approved DPM reduction measures shall be implemented during construction.

OR

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<sup>16</sup> Office of Environmental Health Hazard Assessment (OEHHA), 2015. Guidance Manual for Preparation of Health Risk Assessments. February.

2. All off-road diesel equipment shall be equipped with the most effective VDECS available for the engine type (Tier 4 engines automatically meet this requirement) as certified by CARB. The equipment shall be properly maintained and tuned in accordance with manufacturer specifications.

In addition, the project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified DPM reduction measures (if any). The Emissions Plan shall be submitted to the City (and BAAQMD if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:

- An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.
- A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract. (LTS)

**Mitigation Measure AIR-3b: Residential Emergency Generators.** Require all emergency generators for new residential development projects (if required) to use best available control technology for air pollutant emissions, such as using engines that meet the Environmental Protection Agency's Tier 4 Final emission standards or are battery powered. (LTS)

Implementation of **Mitigation Measure-AIR-3a** and **AIR-3b** would ensure that impacts from future residential developments under the Project would be less than significant related to plan- and project-level generation of TACs and PM<sub>2.5</sub>.

#### **(4) Odors (Criterion 4)**

Future residential developments under the Project would not be expected to generate significant odors because residences do not include the handling or generation of noxious materials. Therefore, the Project would have no impact related odors and other emissions.

### **d. Cumulative Air Quality Impacts**

#### **(1) Criteria Pollutants**

According to the BAAQMD, regional air pollution is largely a cumulative impact. No single project is sufficient in size to independently create regional nonattainment of ambient air quality

standards. As described above in *Section IV.C.3.c.(2), Emissions of Criteria Air Pollutants (Criterion 2)*, emissions of criteria air pollutants from the Project would not result in a significant impact at the plan- or project-level with implementation of **Mitigation Measures AIR-1 and AIR-2**. Therefore, the cumulative impact from the Project would be less than significant for criteria air pollutant emissions.

## **(2) Toxic Air Contaminants**

The BAAQMD's Planning Healthy Places map of local air pollution (Figure IV.C-1, as updated by BAAQMD) and **Mitigation Measures AIR-3a** and **AIR-3b** function as an overlay zone with specific requirements for residential construction to reduce the generation TACs and PM<sub>2.5</sub> in areas with elevated air pollution. Therefore, impacts associated with implementation of the Project would be less than significant related to the cumulative air quality impacts of TACs.

## **(3) Odors**

As described above in *Section V.C.3.c.(4), Odors (Criterion 4)*, future residential developments under the Project would not be expected to generate significant odors because residences do not include the handling or generation of noxious materials. Therefore, impacts associated with implementation of the Project would be less than significant related to the cumulative air quality impacts of odors and other emissions.



## D. GREENHOUSE GAS EMISSIONS

This section describes the existing greenhouse gas (GHG) conditions in the city of Antioch and its vicinity; discusses the regulations and policies pertinent to GHGs; and assesses the potentially significant impacts to the environment that could result from implementation of the Project and its associated development.

### 1. Setting

This section provides background information on greenhouse gas emissions and summarizes the existing environmental setting related greenhouse gasses (GHGs) within the city of Antioch.

#### a. Climate Change and GHG Emissions

Climate change refers to change in the Earth's weather patterns, including the rise in temperature due to an increase in heat-trapping GHGs in the atmosphere. Existing GHGs allow about two-thirds of the visible and ultraviolet light from the sun to pass through the atmosphere and be absorbed by the Earth's surface. To balance the absorbed incoming energy, the surface radiates thermal energy back to space at longer wavelengths primarily in the infrared part of the spectrum. Much of the thermal radiation emitted from the surface is absorbed by the GHGs in the atmosphere and is re-radiated in all directions. Since part of the re-radiation is back toward the surface and the lower atmosphere, the global surface temperatures are elevated above what they would be in the absence of GHGs. This process of trapping heat in the lower atmosphere is known as the greenhouse effect.

An increase of GHGs in the atmosphere affects the energy balance of the Earth and results in a global warming trend. Increases in global average temperatures have been observed since the mid-20th century and have been linked to observed increases in GHG emissions from anthropogenic sources. The primary GHG emissions of concern are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). Other GHGs of concern include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>), but their contribution to climate change is less than 1 percent of the total GHGs that are well-mixed (i.e., that have atmospheric lifetimes long enough to be homogeneously mixed in the troposphere).<sup>1</sup> Each GHG has a different global warming potential. For instance, CH<sub>4</sub> traps about 21 times more heat per molecule than CO<sub>2</sub>. As a result, emissions of GHGs are reported in metric tons of carbon dioxide equivalents (CO<sub>2</sub>e), wherein each GHG is weighted by its global warming potential relative to CO<sub>2</sub>.

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<sup>1</sup> Intergovernmental Panel on Climate Change (IPCC), 2013. Climate Change 2013; the Physical Science Basis; Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

Ice-core records of historical atmospheric CO<sub>2</sub> concentrations, which currently extend back about 800,000 years, indicate that CO<sub>2</sub> concentrations naturally fluctuate between glacial and interglacial periods. According to the Intergovernmental Panel on Climate Change (IPCC), over the past few hundred years the atmospheric concentrations of CO<sub>2</sub> have increased to unprecedented levels compared to previous fluctuations in CO<sub>2</sub> concentrations observed over the past 800,000 years due to anthropogenic sources. In 2011, concentrations of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O exceeded the pre-industrial era (before 1750) by about 40, 150, and 20 percent, respectively.<sup>2</sup> Based on measurements of the Earth's global average surface temperature, eight of the top 10 warmest years on record since 1880 have occurred in the last decade.<sup>3</sup>

The global increases in CO<sub>2</sub> concentration are due primarily to fossil fuel combustion and land use change (e.g., deforestation). The dominant anthropogenic sources of CH<sub>4</sub> are from ruminant livestock, fossil fuel extraction and use, rice paddy agriculture, and landfills, while the dominant anthropogenic sources of N<sub>2</sub>O are from ammonia for fertilizer and industrial activity. Emissions of HFCs, PFCs, and SF<sub>6</sub> are not naturally occurring; they originate from industrial processes such as semiconductor manufacturing, their use as refrigerants and other products, and electric power transmission and distribution.<sup>4</sup>

### **b. Existing GHG Emission and Projections**

In 2019, the California Air Resources Board (CARB) estimated that transportation was responsible for about 40 percent of California's GHG emissions, followed by industrial sources and electrical power generation at about 21 percent and 14 percent, respectively.<sup>5</sup> In 2015, 85 million metric tons of CO<sub>2</sub>e was emitted from anthropogenic sources within the San Francisco Bay Area Air Basin (SFBAAB). Emissions of CO<sub>2</sub> dominate the GHG inventory in the SFBAAB, accounting for about 90 percent of the total CO<sub>2</sub>e emissions reported.<sup>6</sup> The 2015 GHG emissions in the SFBAAB are summarized in Table IV.D-1.

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<sup>2</sup> Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

<sup>3</sup> National Aeronautics and Space Administration (NASA), 2022. 2021 Tied for 6th Warmest Year in Continued Trend, NASA Analysis Shows. Available at: <https://climate.nasa.gov/news/3140/2021-tied-for-6th-warmest-year-in-continued-trend-nasa-analysis-shows/>, accessed May 18, 2022. Posted January 13.

<sup>4</sup> Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

<sup>5</sup> California Air Resources Board (CARB), 2021. California Greenhouse Gas Emissions for 2000 to 2019—Trends of Emissions and Other Indicators, July 28.

<sup>6</sup> Bay Area Air Quality Management District (BAAQMD), 2017. Final 2017 Clean Air Plan, April 19.

**TABLE IV.D-1 SAN FRANCISCO BAY AREA 2015 GHG EMISSIONS INVENTORY**

<b>Pollutant</b>	<b>Percent</b>	<b>CO<sub>2e</sub> (MMT/Year)</b>
CO <sub>2</sub>	90	76.5
CH <sub>4</sub>	4	3.4
N <sub>2</sub> O	2	1.7
HFC, PFC, SF <sub>6</sub>	4	3.4
<b>Total</b>	<b>100</b>	<b>85</b>

Note: MMT = million metric tons

Source: Bay Area Air Quality Management District (BAAQMD), 2017. Final 2017 Clean Air Plan, April 19.

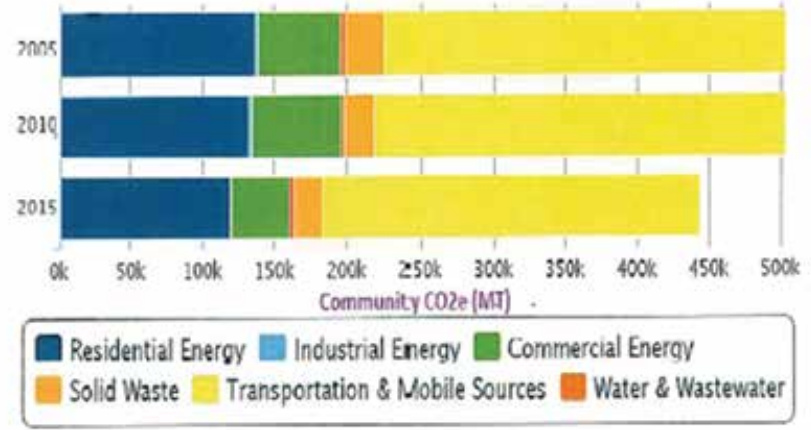
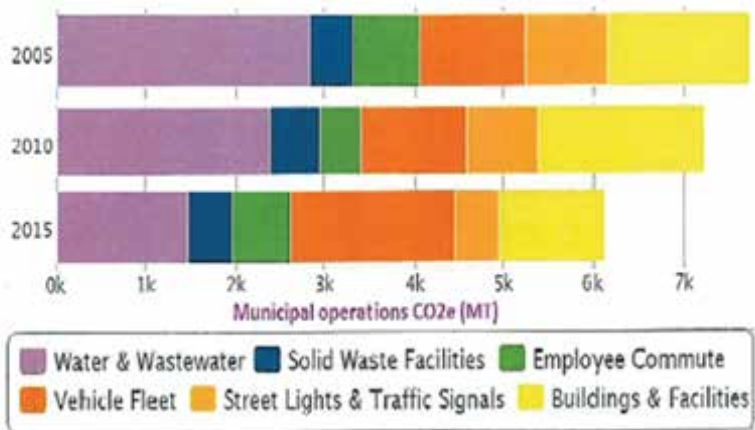
The City’s GHG inventories for the years 2005, 2010, and 2015 are summarized in Figure IV.D-1 for various land-use sectors. The results of the GHG inventory between 2005 and 2015 show an emission reduction of about 21 percent from municipal operations and about 12 percent from community operations.

**c. Effects of GHG Emissions**

According to the BAAQMD, some of the potential effects of increased GHG emissions and associated climate change may include loss of snowpack (affecting water supply), more frequent extreme weather events, more large forest fires, more drought years, and sea level rise. In addition, climate change may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health.<sup>7</sup>

In October 2018, the IPCC published a special report on potential long-term climate change impacts based on the projected increases in temperature due to global climate change. The IPCC report found that we are already seeing the consequences of global warming due to a 1 degree Celsius (°C) increase in pre-industrial levels, such as extreme weather, rising sea levels, and diminishing Arctic sea ice. Global warming is likely to reach 1.5°C above pre-industrial levels

<sup>7</sup> Bay Area Air Quality Management District (BAAQMD), 2017. Final 2017 Clean Air Plan, April 19.



Source: City of Antioch, 2016.

Figure IV.D-1  
City of Antioch GHG Emissions Trends

between 2030 and 2050 if it continues to increase at the current rate. Some of the impacts due to ongoing global warming could be avoided by limiting future global warming to 1.5°C compared to 2°C. For example, by limiting global warming to 1.5°C or lower, the likelihood of an Arctic Ocean free of sea ice in summer would be ten times lower compared to the likelihood under the scenario of 2°C increase. Beyond the 1.5°C threshold, there would be significant increases in the risk associated with long-lasting or irreversible changes, such as the loss of ecosystems. The IPCC states that to limit the global warming to 1.5°C, rapid transitions are needed in land, energy, industry, building, transport, and urban sectors to reach the goal of carbon neutrality by 2050, which means that the Earth's anthropogenic GHG emissions each year would be removed completely through carbon offsetting, sequestration, or other means.<sup>8</sup>

## 2. Regulatory Setting

This section describes the existing federal, State, and local regulatory frameworks related GHG emissions.

### a. Federal Regulations

The following section describes the existing federal regulatory environment related to GHG emissions.

#### (1) Federal Climate Action Goals

The United States (U.S.) participates in the United Nations Framework Convention on Climate Change. In 1998, the U.S. signed the Kyoto Protocol, which would have required reductions in GHGs; however, the protocol did not become binding in the U.S. as it was never ratified by Congress. Instead, the federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. In 2002, the U.S. announced a strategy to reduce the GHG intensity of the American economy by 18 percent over a 10-year period from 2002 to 2012. In 2015, the U.S. submitted its "intended nationally determined contribution" to the framework convention, which targets to cut net GHG emissions by 26 to 28 percent below 2005 levels by 2025.

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the federal Clean Air Act and the 1990 amendments to it. On April 2, 2007, the U.S. Supreme Court ruled that CO<sub>2</sub> is an air pollutant as defined under the Clean Air Act, and that the EPA has the authority to

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<sup>8</sup> Intergovernmental Panel on Climate Change (IPCC), 2018. IPCC Press Release, Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments, October 8.

regulate emissions of GHGs.<sup>9</sup> The EPA made two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act, as follows:

- **Endangerment Finding:** The current and projected concentrations of the six key well-mixed GHGs (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, they were a prerequisite for implementing GHG emissions standards for vehicles.

## (2) Federal Vehicle Emission Regulations

The EPA has established national GHG emission and fuel economy regulations for vehicles that would achieve substantial GHG emissions reductions along with reductions in other criteria pollutants. Some of the key EPA regulations related to GHG emissions from vehicles are summarized below:

- In May 2010, EPA in collaboration with the National Highway Traffic Safety Administration (NHTSA), finalized national GHG emission and fuel economy standards for light-duty vehicles for the model years 2012 to 2016.
- In August 2012, EPA and NHTSA extended the national GHG emission and fuel economy standards for light-duty vehicles for the model years 2017 to 2025. Combined with the 2012 to 2016 standards, the regulation will result in vehicles emitting 50 percent less than 2010 levels in 2025.
- In August 2016, EPA and NHTSA finalized national GHG emission and fuel economy standards for medium- and heavy-duty vehicles that would cover model years 2018 to 2027 for certain trailers and model years 2021 to 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks.
- In April 2020, EPA and NHTSA finalized updated Corporate Average Fuel Economy (CAFE) and GHG emissions standards for passenger cars and light trucks and established new standards, covering model years 2021 through 2026.
- In December 2021, EPA finalized revised national GHG emissions standards for passenger cars and light trucks for model years 2023 to 2026, which are expected to result in average fuel economy label values of 40 mile per gallon.

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<sup>9</sup> Massachusetts, et al. v. U.S. Env'tl. Prot. Agency, et al. (2007) 549 U.S. 497.

## b. State Regulations

The following section describes the existing State of California regulatory environment related to GHG emissions.

California has set ambitious GHG emission reduction targets for the next 30 years. As described below, the State has implemented a range of regulatory programs to help achieve statewide climate action goals.

### (1) California Climate Action Goals

California has established the following long-term climate action goals:

- **Assembly Bill (AB) 32:** Reduce GHG emissions to 1990 levels by 2020.
- **Senate Bill (SB) 32:** Reduce GHG emissions to 40 percent below 1990 levels by 2030.
- **Executive Order B-55-18:** Carbon neutrality as soon as possible, but no later than 2045.
- **Executive Order S-3-05:** Reduce GHG emissions to 80 percent below 1990 levels by 2050.

It should be noted that executive orders are legally binding only on State agencies and have no direct effect on local government or the private sector.

### (2) California Vehicle Emission Regulations

California has established statewide GHG emission and fuel economy regulations for vehicles that align with or supersede the national standards. The key State regulations related to GHG emissions from vehicles are summarized below:

- The Pavley Regulations (AB 1493), as amended in 2009, required a 30 percent reduction in state GHG emissions from new passenger vehicles from 2009 through 2016.
- The Advanced Clean Cars Program extends the Pavley Regulations beyond 2016 and established a technology mandate for zero-emission vehicles.
- The Low-Carbon Fuel Standard (Executive Order S-1-07), as amended in 2019, requires a 20 percent reduction in the carbon intensity of California's transportation fuels by 2030.
- SB 375 establishes regional GHG reduction targets from passenger vehicles for the years 2020 and 2035 by requiring metropolitan planning organizations (MPOs) to develop and implement Sustainable Communities Strategies that align regional transportation planning efforts with regional housing allocation needs.

### **(3) California Energy Efficiency Regulations**

California has established statewide energy efficiency regulations, including programs that increase the statewide procurement of renewable energy. The key State regulations related to GHG emissions from energy use are summarized below:

- The Renewable Portfolio Standard Program, as updated in 2018 (SB 100), requires the State to procure 60 percent of its electricity from renewable sources by 2030 and 100 percent from carbon-free sources by 2045.
- Title 24 Building Efficiency Standards are updated every three years with the long-term vision to support zero-net energy for all new single-family and low-rise residential buildings by 2020 and new high-rise residential and nonresidential buildings by 2030.
- Title 24 California Green Building Standards, referred to as the CALGreen Code, aim to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental air quality.

### **(4) California Cap-and-Trade Program**

The Cap-and-Trade Program is a key element of California's strategy to reduce GHG emissions from covered entities<sup>10</sup> that are responsible for about 85 percent of California's GHG emissions. The program establishes a declining limit on major sources of GHG emissions throughout California, and it creates a powerful economic incentive for significant investment in cleaner and more efficient technologies. CARB creates allowances equal to the total amount of permissible GHG emissions (i.e., the "cap"). Each year, fewer allowances are created and the annual cap declines. As a result, the annual auction reserve price for allowances increases which creates a steady and sustained carbon price signal to incentivize actions to reduce GHG emissions and enable a smooth transition to a cleaner economy.

### **(5) California's Short-Lived Climate Pollutant Reduction Strategy**

The Short-Lived Climate Pollutant (SLCP) Reduction Strategy is California's plan for reducing emissions of high global-warming potential gases with short atmospheric lifetimes.<sup>11</sup> SLCPs

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<sup>10</sup> The program's covered entities include electric power plants, fuel distributors (natural gas and petroleum), and large industrial facilities that emit more than 25,000 million tons of CO<sub>2</sub>e per year.

<sup>11</sup> California Air Resources Board (CARB), 2017. Short-Lived Climate Pollutant Reduction Strategy, March.



include methane, HFCs, and anthropogenic black carbon. In accordance with SB 1383, the SLCP Reduction Strategy has set the following targets for statewide reductions in SLCP emissions:

- 40 percent below 2013 levels by 2030 for methane and HFCs.
- 50 percent below 2013 levels by 2030 for anthropogenic black carbon.

The SLCP Reduction Strategy also provides specific direction for reductions from dairy and livestock operations and from landfills by diverting organic materials.

## **(6) California's Climate Change Scoping Plan**

In December 2008, CARB adopted the Climate Change Scoping Plan to identify how the State can achieve its 2020 climate action goal under AB 32. In 2017, CARB updated the Scoping Plan to identify how the State can achieve its 2030 climate action goal under SB 32, and substantially advance toward its 2050 climate action goal under Executive Order S-3-05. The 2017 Scoping Plan includes the regulatory programs identified above, such as the Advanced Clean Cars Program, Low-Carbon Fuel Standard, Renewable Portfolio Standard Program, energy efficiency standards, SLCP Reduction Strategy, and Cap-and-Trade Program.<sup>12</sup>

### **c. Local Regulations**

The following section describes the existing local regulatory environment related to GHG emissions.

The BAAQMD is the regional government agency that regulates sources of GHG emissions within the SFBAAB. The BAAQMD established a climate protection program that includes measures that promote energy efficiency, reduce regional vehicle miles traveled (VMT), and develop alternative sources of energy, all of which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. The BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

#### **(1) BAAQMD 2017 Clean Air Plan**

The BAAQMD and other air districts prepare clean air plans in accordance with the State and federal Clean Air Acts. In April 2017, the BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate, which is a comprehensive plan to improve Bay Area air quality and protect public health through implementation of a control strategy designed to reduce emissions and

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<sup>12</sup> California Air Resources Board (CARB), 2017. California's 2017 Climate Change Scoping Plan, November.

ambient concentrations of harmful pollutants. The 2017 Clean Air Plan also includes measures designed to reduce GHG emissions.

## **(2) Antioch Climate Action Plans**

On May 24, 2011, the City Council approved the Community Climate Action Plan and Municipal Climate Action Plan. Both plans provided GHG emissions inventories for the year 2005. The community GHG inventory included emissions from energy use, transportation, and waste production within Antioch. The municipal GHG inventory was a subset of the community inventory, and included emissions derived from internal government operations only.

The Community Climate Action Plan identified GHG reduction strategies that the City can use to reduce overall GHG emissions from community operations by 25 percent by 2020 relative to 2005 levels. The Community Climate Action Plans identifies GHG reduction strategies under three broad categories: 1) Land use and transportation, 2) Green building and energy, and 3) Education and behavior.<sup>13</sup>

The Municipal Climate Plan identified measures and policies that the City can use to reduce overall GHG emissions from municipal operations by 25 percent by 2020, 50 percent by 2030, and 80 percent by 2050 relative to 2005 levels. The measures and policies address GHG emissions associated with energy use, transportation, solid waste production, water use, and wastewater production.<sup>14</sup>

## **(3) Antioch Climate Action Resilience Plan**

The Climate Action and Resilience Plan (CARP) was adopted by City Council on May 12, 2020, as an update to the 2011 Community Climate Action Plan in order to begin preparing the Antioch community for extreme weather events such as drought, flooding, and heat waves that are expected to intensify in the future and to reduce the community's reliance on carbon-based energy sources. The CARP identifies actions that would build resilience to climate challenges based on three broad categories: 1) adaptation to climate related changes, 2) mitigation of GHG emissions, and 3) community development for building strong communities that can withstand the climate challenge. Some of the CARP strategies include green infrastructure (e.g., green roofs, parks and trees, urban agriculture), cooling technology (e.g., cool pavement, reflective roofs, solar panel canopies), and energy infrastructure (microgrids and community choice aggregation).<sup>15</sup>

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<sup>13</sup> City of Antioch, 2011. Antioch Community Climate Action Plan.

<sup>14</sup> City of Antioch, 2011. 2011 Municipal Climate Action Plan.

<sup>15</sup> City of Antioch, 2020. The Climate Action and Resilience Plan. May 6.

#### (4) Antioch Building Codes

The City has adopted the following codes related to GHG emissions and energy use of buildings for future projects:

- 2019 California Building Code;
- 2019 California Green Building Standards Code (CALGreen Code); and
- 2019 California Energy Code.

#### (5) Antioch General Plan

The following existing policies and actions from the City's General Plan<sup>16</sup> are related to GHG emissions and are applicable to the Project.

*Policy 7.4.2: Non-Motorized Transportation Policies*

- a. Design new residential neighborhoods to provide safe pedestrian and bicycle access to schools, parks and neighborhood commercial facilities.
- b. Design intersections for the safe passage of pedestrians and bicycles through the intersection.
- c. Provide street lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area, and that contributes to vehicular, pedestrian, and bicycle safety.
- d. Maintain roadway designs that maintain mobility and accessibility for bicyclists and pedestrians.
- e. Integrate multi-use paths into creek corridors, railroad rights-of-way, utility corridors, and park facilities.
- f. Provide, as appropriate, bicycle lanes (Class II) or parallel bicycle/pedestrian paths (Class I) along all arterial streets and high-volume collector streets, as well as along major access routes to schools and parks.
- g. Design new roadway bridges to meet Caltrans standards for bridges involving State highways, including bicycle lanes on all new bridges along Circulation Element roadways. Where provision of bicycle lanes is not feasible, undertake measures to provide alternative routes and to prohibit bicycle riding on bridge walkways.
- h. Require the provision of bicycle parking and other support facilities (e.g., racks or lockers) as part of new office and retail developments and public facilities.
- i. Where shopping facilities are located adjacent to residential areas, provide direct access between residential and commercial uses without requiring pedestrians and bicyclists to travel completely around the commercial development.
- j. Permit the sharing or parallel development of pedestrian walkways with bicycle paths, where this can be safely accomplished, in order to maximize the use of public rights-of-way.
- k. Orient site design in non-residential areas to allow for safe and convenient pedestrian access from sidewalks, transit and bus stops, and other pedestrian facilities, in addition to access through required parking facilities.
- l. Require the construction of attractive walkways in new residential, commercial, office, and industrial developments, including provision of shading for pedestrian paths.
- m. Maximize visibility and access for pedestrians and encourage the removal of barriers for safe and convenient movement of pedestrians.
- n. Ensure that the site design of new developments provides for pedestrian access to existing and future transit routes and transit centers.

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<sup>16</sup> LSA, 2003. City of Antioch General Plan, November 24.

- o. Pave walks and pedestrian pathways with a hard, all-weather surface that is easy to walk on. Walks and curbs should accommodate pedestrians with disabilities. Walks within open space areas should have specially paved surfaces that blend with the surrounding environment.
- p. In general, design walks to provide a direct route for short to medium distance pedestrian trips, and to facilitate the movement of large numbers of pedestrians. Meandering sidewalks are appropriate in areas where the natural topography or low-density land uses lend themselves to informal landscapes.

*Policy 10.6.2: Air Quality Policies**Mobile Emissions*

- b. Require developers of large residential and non-residential projects to participate in programs and to take measures to improve traffic flow and/or reduce vehicle trips resulting in decreased vehicular emissions. Examples of such efforts may include but are not limited to the following.
  - Development of mixed-use projects, facilitating pedestrian and bicycle transportation and permitting consolidation of vehicular trips.
  - Installation of transit improvements and amenities, including dedicated bus turnouts and sufficient rights-of-way for transit movement, bus shelters, and pedestrian easy access to transit.
  - Provision of bicycle and pedestrian facilities, including bicycle lanes and pedestrian walkways connecting residential areas with neighborhood commercial centers, recreational facilities, schools, and other public areas.
  - Contributions for off-site mitigation for transit use.
  - Provision of charging stations for electric vehicles within large employment-generating and retail developments.

*Policy 10.7.2: Water Resources Policies*

- b. Require new development to be equipped with drought tolerant landscaping and water conservation devices.

*Policy 10.8.2: Energy Resource Policies*

- a. Continue to implement Title 24 of the State Building Code, and provide incentives to encourage architects and builders to exceed the energy efficiency standards of Title 24 through increased use of passive, solar design and day-lighting.
- b. Promote the use of site design, landscaping, and solar orientation to decrease the need for summer cooling and winter heating.
- c. Where feasible, incorporate recycled materials in new construction.
- d. Encourage the installation of energy-efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.
- e. Facilitate the installation of environmentally acceptable forms of distributed generation<sup>17</sup>, where such systems can be safely and economically provided.
- f. Maintain City physical facilities so as to ensure that optimum energy conservation is achieved.
- g. Promote purchasing of energy-efficient equipment based on a fair return on investment, and use energy-savings estimates as one basis for purchasing decisions for major energy-using devices.
- h. Promote coordination of new public facilities with transit services and nonmotorized transportation facilities, including bicycles, and design structures to enhance transit, bicycle, and pedestrian use.

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<sup>17</sup> "Distributed generation" encompasses various small-scale types of electrical generation, such as microturbines, fuel cells, photovoltaics, cogeneration (reuse of waste heat) and other sources of electrical power that can be effectively located within office parks, industrial facilities, and other large buildings.

- i. The City shall review all development plans prior to approval to guarantee that energy conservation and efficiency standards of Title 24 are met and are incorporated into the design of the future proposed project.

The following policies and actions from the City's Housing Element would relate to GHG emissions and are applicable to the Project.

*Housing Element Policy 4.1.* Provide incentives for energy conservation measures in new housing by providing information on programs available through PG&E.

*Housing Element Action 4.1.1: Encourage Energy Conservation.* Continue to pursue funding sources and program partnerships for energy saving and conservation. Encourage developers to utilize energy-saving designs and building materials.

Responsible Agency: City Building Official, Community Development Department, in association with energy providers.

Implementation Schedule: Ongoing.

Non-Quantified Objective: Minimize costs of space heating and cooling in new and existing dwelling units.

Funding Source: General Fund, developers, energy providers.

*Housing Element Action 4.1.2: Water Conservation Program.* As part of the development review process, ensure that new residential development meets City standards and guidelines for conserving water through provision of drought-tolerant landscaping, and the utilization of reclaimed wastewater when feasible. Continue to encourage water conservation through City's Water Efficient Landscape Ordinance that conforms to the State's model ordinance.

Responsible Agency: Community Development Department, City Engineer, and Building Official.

Implementation Schedule: Ongoing, project-based.

Non-Quantified Objective: Conservation of water resources.

Funding Source: General Fund

*Housing Element Action 4.1.3: Green Building Encouragement.* Continue to encourage "green building" practices in new and existing housing development and neighborhoods. The City will continue to provide information on green building programs and resources on the City website and at City Hall. The City shall continually analyze current technologies and best practices and update the informational material as necessary. The City will continue to promote the Energy Upgrade California program, which provides incentives for energy-saving upgrades to existing homes.

Responsible Agency: Community Development Department

Implementation Schedule: Ongoing.

Non-Quantified Objective: Encourage green building practices.

Funding Source: General Fund.

### 3. Impacts and Mitigation Measures

This section analyzes environmental impacts related to GHG emissions that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project.

Please note that this analysis relies on several existing and “as proposed” General Plan policies to ensure impacts are reduced to the greatest extent feasible. As a part of the Project, individual elements of the existing General Plan are being updated or added. In a corresponding effort, many of their associated objectives and policies are also being modified and added. As such, many of the objective and policy numbers have changed when compared to the existing General Plan. Where applicable, both the existing and proposed objective and/or policy numbers are given at first reference. After first reference, any referenced General Plan policy is provided as proposed.

#### **a. Significance Criteria**

Implementation of the Project would result in a significant GHG impact if it would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs.

#### **b. Analysis Approach**

The following sections provide an evaluation and analysis of the potential impacts of the Project for each of the criteria of significance listed above and potential cumulative impacts. There are no new or existing policies related to GHGs in the Environmental Justice (EJ) Element component of the Project. In the updated Housing Element, there is an existing policy (Housing Element Policy 4.1) that would reduce potential GHG impacts related to future development under the Project; however, there are no new GHG policies proposed. In the updated Environmental Hazards Element, there are no existing policies related to GHG emissions; however, there are new policies that would reduce potential GHG impacts related to future development under the Project, as described in the sections below. Future development under the Project would also be supported by existing GHG policies in other chapters of the General Plan (Policies 7.4.2, 10.6.2, and 10.8.2), which are listed above. Therefore, no GHG related impacts from updating the Housing Element, Environmental Hazards Element, and EJ Element would occur.

On April 20, 2022, the BAAQMD adopted updated CEQA thresholds of significance for determining whether a proposed project would have a significant impact related to GHG emissions.<sup>18</sup> Climate change is not caused by any individual emissions source but by a large number of sources around the world emitting GHGs that collectively create a significant

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<sup>18</sup> Bay Area Air Quality Management District (BAAQMD), 2022. Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans. April.

cumulative impact. CEQA requires agencies in California to analyze such impacts by evaluating whether a proposed project would make a “cumulatively considerable” contribution to the significant cumulative impact on climate change. The BAAQMD’s updated GHG thresholds of significance are intended to assist public agencies in determining whether proposed projects would make a cumulatively considerable contribution to global climate change, as required by CEQA.

For communitywide planning documents (e.g., general plans), BAAQMD recommends that local governments evaluate such plans based on whether they will be consistent with the State’s long-term climate action goals. The BAAQMD strongly recommends that local governments adopt qualified climate action plans to document specific strategies and implementation measures to achieve the statewide climate action goals. The BAAQMD recommends that local governments demonstrate compliance with at least one of the plan-level thresholds for GHG emissions summarized in Table IV.D-2, below.

**TABLE IV.D-2 BAAQMD’S GHG THRESHOLDS OF SIGNIFICANCE FOR PLANS (MUST INCLUDE A OR B)**

Option	Threshold
A	Meet the State’s goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045.
B	Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

Source: Bay Area Air Quality Management District (BAAQMD), 2022. Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans, April.

A proposed plan that meets at least one of the thresholds summarized in Table IV.D-2 will support the State’s ability to achieve its climate goals and thus will have a less-than-significant impact on GHG emissions. The City’s current climate action plans do not meet the criteria under State CEQA Guidelines Section 15183.5(b) and do not identify community-wide measures that can be implemented to achieve the required GHG emissions targets of 40 percent below 1990 levels by 2030 and support the State’s goal of achieving carbon neutrality by 2045. Therefore, the Project cannot currently demonstrate compliance with option B of the plan-level thresholds.

To demonstrate compliance with option A of the plan-level thresholds without a qualified climate action plan, the BAAQMD recommends implementing the following project-level design elements for typical residential, commercial, and retail land use projects:

- a. The Project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).

- b. The Project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
- c. Achieve a reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
  - Residential projects: 15 percent below the existing VMT per capita.
  - Office projects: 15 percent below the existing VMT per employee.
  - Retail projects: no net increase in existing VMT.
- d. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

In the absence of an adopted climate action plan that is certified to meet the criteria of CEQA Guidelines Section 15183.5 and designed to achieve the statewide long-term climate action goals, the BAAQMD's recommended project-level design elements for typical land use projects are used in this analysis.

## c. Findings

### (1) Greenhouse Gas Emissions (Criterion 1)

Development under the Project could result in a cumulatively considerable increase in GHG emissions. The updated Environmental Hazards Element includes the following new policies to address GHG emissions from future housing developments:

*Policy 11.7.2 (c): Climate Action Design Elements.* Require new residential, commercial, and retail land use developments to demonstrate compliance with the Bay Area Air Management District's recommended design elements to support long-term climate action goals, if feasible:

- The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
- The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
- Achieve a reduction in project-generated vehicle miles travelled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
  - Residential projects: 15 percent below the existing VMT per capita.
  - Office projects: 15 percent below the existing VMT per employee.
  - Retail projects: no net increase in existing VMT.



- Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

*Policy 11.7.2 (d): Climate Action Plans.* Consider updating the City's climate action plans to meet the criteria under State CEQA Guidelines Section 15183.5(b) and identify community-wide measures that can be implemented to achieve the statewide GHG emissions targets of 40 percent below 1990 levels by 2030 and support the State's goal of achieving carbon neutrality by 2045. The updated climate action plans should include a checklist to help future development projects demonstrate how they will support long-term climate action goals. The GHG reduction measures identified in the updated climate action plans would supersede the Bay Area Air Management District's recommended design elements described in Policy 11.7.2 (c).

*Policy 11.7.2 (e): Climate Action and Resilience Plan.* Require new development to incorporate strategies identified in the City's current Climate Action and Resilience Plan to increase community resiliency to increasing natural hazard events associated with climate change, such as flooding, drought, and extreme heat.

Implementation of updated General Plan Policies 11.7.2 (c) and 11.7.2 (d) would comply with Options A and B of the BAAQMD's recommend plan-level thresholds of significance (see Table IV.D-2) and ensure that future development under the Project would not result in a cumulatively considerable contribution to global climate change. Implementation of updated General Plan Policy 11.7.2 (e) (e.g., green infrastructure and cooling technology) would ensure that future housing developments do not result in wasteful, inefficient, or unnecessary energy usage. In addition, implementation of existing General Plan Policies 7.4.2, 10.6.2, 10.7.2, 10.8.2, and Housing Element Policy 4.1 would help to reduce GHG emissions from transportation, energy use, and water use.

Overall, implementation of the existing and updated General Plan Policies related to GHG emissions would comply with the BAAQMD's recommended plan-level thresholds of significance and future development under the Project would have a less-than-significant impact related to GHG emissions.

## **(2) Greenhouse Gas Plans, Policies, or Regulations (Criterion 2)**

The 2017 Climate Change Scoping Plan identifies numerous regulations and programs the State will use to achieve its 2030 climate action goal, and substantially advance toward its 2050 climate action goal. As discussed above, implementation of updated General Plan Policies 11.7.2 (c) and 11.7.2 (d) would ensure that future development under the Project supports the State's long-term climate action goals. In addition, implementation of updated General Plan Policy 11.7.2 (e) and existing Policies 7.4.2, 10.6.2, 10.7.2, 10.8.2, and Housing Element Policy 4.1 would help to reduce GHG emissions associated with transportation, energy use, and water use. As a result, future development under the Project would be consistent with, and would not hinder, the 2017 Scoping Plan and associated regulations and programs to achieve statewide climate action goals. The Project would have a less-than-significant impact on applicable plans and regulations adopted for the purposes of reducing the emissions of GHGs.

#### **d. Cumulative Greenhouse Gas Emissions Impacts**

GHG impacts are, by their nature, cumulative impacts because one project by itself cannot significantly contribute to or cause global climate change. The thresholds of significance used in this analysis pertain to a project's contribution to cumulative impacts and whether the Project's contribution is cumulatively considerable. See *Section IV.D.3.c, Findings*, for more discussion.

## E. ENERGY

This section describes the current energy conditions in the city of Antioch; discusses the regulations and policies pertinent to energy use; and assesses the potentially significant impacts to the environment that could result from implementation of the Project and its associated development.

### 1. Setting

This section provides background information on energy and summarizes the existing environmental setting related to energy within the City of Antioch.

#### a. Electricity and Natural Gas

Pacific Gas and Electric Company (PG&E) is the primary provider of natural gas and electricity in the city of Antioch. PG&E produces or buys energy from conventional and renewable sources. In 2021, approximately 93 percent of the electricity came from greenhouse gas free resources, including renewables, nuclear, and large hydroelectric power. Approximately 50 percent of the electricity came from renewable resources that qualify under the California Renewable Portfolio Standard.<sup>1</sup>

#### b. Transportation Fuels

Transportation accounts for a major portion of California's overall energy consumption. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. Diesel fuel is the second largest transportation fuel used in California, representing about 17 percent of total fuel sales behind gasoline. Nearly all heavy duty-trucks, delivery vehicles, buses, trains, ships, boats, barges, farm, construction, and heavy-duty military vehicles and equipment have diesel engines.<sup>2</sup>

### 2. Regulatory Setting

This section describes the existing federal, State, and local regulatory frameworks related to energy.

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<sup>1</sup> Pacific Gas and Electric (PG&E), 2022. Exploring Clean Energy Solutions. Available at: [https://www.pge.com/en\\_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page](https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page), accessed May 30, 2022.

<sup>2</sup> California Energy Commission (CEC), 2022. Transportation Energy. Available at: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy>, accessed June 7, 2022.

## **a. Federal Regulations**

The following section describes the existing federal regulatory environment related to energy.

### **(1) National Energy Conservation Policy Act**

The National Energy Conservation Policy Act (NECPA) is the foundation for federal-level conservation and efficiency goals and requirements related to energy use. The NECPA was a result of the energy crisis during the mid-1970s and was signed into law in 1978. As passed, the NECPA promoted three major roles for the federal government in energy conservation: setting energy-efficiency standards; disseminating information about energy conservation opportunities; and improving efficiencies of federal buildings.

### **(2) National Energy Policy Act of 2005**

The National Energy Policy Act addresses energy production in the U.S. in the following aspects: energy efficiency, renewable energy, oil and gas, coal, tribal energy, nuclear matters and security, vehicles and motor fuels, hydrogen, electricity, energy tax incentives, hydropower and geothermal, and climate change technology. The Energy Policy Act of 2005 granted the Federal Energy Regulatory Commission the responsibilities and the authority to oversee the nation's electricity transmission grid, ensure fair competition in the wholesale power markets, and provide rate incentives to promote electric transmission investment, among other duties.

### **(3) Corporate Average Fuel Economy Standards**

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (EPA) jointly administer the Corporate Average Fuel Economy standards. The U.S. Congress has specified that the Corporate Average Fuel Economy standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.

## **b. State Regulations**

The following section describes the existing State of California regulatory environment related to energy.

As described in *Section IV.D, Greenhouse Gas Emissions*, many of the State regulations that are designed to reduce greenhouse gas emissions are based on measures that promote energy

conservation, energy efficiency, and renewable energy. Some of these key regulations are also described below.

### **(1) Warren-Alquist Act**

The Warren-Alquist Act of 1975 is the legislation that created the California Energy Commission. The Act enables the California Energy Commission to formulate and adopt the nation's first-ever energy conservation standards for buildings constructed and appliances sold in California. The California Energy Commission was also directed to create a research and development program with a focus on fostering non-conventional energy sources.

### **(2) California Energy Action Plan**

California's 2008 Energy Action Plan Update updates the 2005 Energy Action Plan II, which is the State's principal energy planning and policy document. The plan maintains 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 to promote energy efficiency, demand response (i.e., reducing customer energy usage during peak periods to address power system reliability and support the best use of energy infrastructure), and use of renewable power sources. To the extent that these strategies are unable to satisfy increasing energy and capacity needs, the plan supports clean and efficient fossil-fuel fired generation.

### **(3) Renewable Portfolio Standard**

In 2002, under Senate Bill (SB) 1078, the State enacted the Renewable Portfolio Standard (RPS) program, which aims to increase the percentage of renewable energy in California's electricity mix to 20 percent of retail sales by 2017. The RPS timeline was accelerated in 2006 under SB 107 and expanded in 2011, 2015, 2018 under SB X1-2, SB 350, and SB 100, respectively. The RPS program currently requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 60 percent by 2030. In addition, SB 100 sets a planning goal that 100 percent of total retail sales of electricity in California come from eligible renewable energy resources and zero-carbon resources by December 31, 2045.

### **(4) Title 24 Building Efficiency Standards**

The State regulates energy consumption under Title 24 Building Standards Code, Part 6 of the California Code of Regulations (also known as the California Energy Code). The Title 24 Building Energy Efficiency Standards were developed by the California Energy Commission and apply to

energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and nonresidential buildings. The California Energy Code is updated every three years, with the most recent iteration (2019) effective as of January 1, 2020, and the next version (2022) planned to go into effect on January 1, 2023. The California Energy Commission's long-term vision is that future updates to the California Energy Code will support zero-net energy for all new residential and commercial buildings by 2030.

### **(5) Title 24 California Green Building Standards Code**

Title 24 Building Standards Code, Part 11 of the California Code of Regulations is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental air quality.

#### **c. Local Regulations**

The following section describes the existing local regulatory environment related to energy.

### **(1) Antioch Building Codes**

The City has adopted the following codes related to GHG emissions and energy use of buildings for future projects:

- 2019 California Building Code;
- 2019 California Green Building Standards Code (CALGreen Code); and
- 2019 California Energy Code.

### **(2) Antioch General Plan**

The following existing policies and actions from the City's General Plan<sup>3</sup> are related to energy use and are applicable to the Project.

*Policy 7.4.2: Non-Motorized Transportation Policies*

- a. Design new residential neighborhoods to provide safe pedestrian and bicycle access to schools, parks and neighborhood commercial facilities.
- b. Design intersections for the safe passage of pedestrians and bicycles through the intersection.

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<sup>3</sup> LSA, 2003. City of Antioch General Plan, November 24.

- c. Provide street lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area, and that contributes to vehicular, pedestrian, and bicycle safety.
- d. Maintain roadway designs that maintain mobility and accessibility for bicyclists and pedestrians.
- e. Integrate multi-use paths into creek corridors, railroad rights-of-way, utility corridors, and park facilities.
- f. Provide, as appropriate, bicycle lanes (Class II) or parallel bicycle/pedestrian paths (Class I) along all arterial streets and high volume collector streets, as well as along major access routes to schools and parks.
- g. Design new roadway bridges to meet Caltrans standards for bridges involving State highways, including bicycle lanes on all new bridges along Circulation Element roadways. Where provision of bicycle lanes is not feasible, undertake measures to provide alternative routes and to prohibit bicycle riding on bridge walkways.
- h. Require the provision of bicycle parking and other support facilities (e.g., racks or lockers) as part of new office and retail developments and public facilities.
- i. Where shopping facilities are located adjacent to residential areas, provide direct access between residential and commercial uses without requiring pedestrians and bicyclists to travel completely around the commercial development.
- j. Permit the sharing or parallel development of pedestrian walkways with bicycle paths, where this can be safely accomplished, in order to maximize the use of public rights-of-way.
- k. Orient site design in non-residential areas to allow for safe and convenient pedestrian access from sidewalks, transit and bus stops, and other pedestrian facilities, in addition to access through required parking facilities.
- l. Require the construction of attractive walkways in new residential, commercial, office, and industrial developments, including provision of shading for pedestrian paths.
- m. Maximize visibility and access for pedestrians, and encourage the removal of barriers for safe and convenient movement of pedestrians.
- n. Ensure that the site design of new developments provides for pedestrian access to existing and future transit routes and transit centers.
- o. Pave walks and pedestrian pathways with a hard, all-weather surface that is easy to walk on. Walks and curbs should accommodate pedestrians with disabilities. Walks within open space areas should have specially paved surfaces that blend with the surrounding environment.
- p. In general, design walks to provide a direct route for short to medium distance pedestrian trips, and to facilitate the movement of large numbers of pedestrians. Meandering sidewalks are appropriate in areas where the natural topography or low-density land uses lend themselves to informal landscapes.

*Policy 9.4.1.* Provide incentives for energy conservation measures in new housing by providing information on programs available through PG&E.

*Action 9.4.1.1: Encourage Energy Conservation.* Continue to pursue funding sources and program partnerships for energy saving and conservation. Encourage developers to utilize energy-saving designs and building materials.

Responsible Agency: City Building Official, Community Development Department, in association with energy providers

Implementation Schedule: Ongoing

Non-Quantified Objective: Minimize costs of space heating and cooling in new and existing dwelling units.

Funding Source: General Fund, developers, energy providers

*Action 9.4.1.2. Water Conservation Program.* As part of the development review process, ensure that new residential development meets City standards and guidelines for conserving water through provision of drought-tolerant landscaping, and the utilization of reclaimed wastewater when feasible. Continue to encourage water conservation through City's Water Efficient Landscape Ordinance that conforms to the State's model ordinance.

Responsible Agency: Community Development Department, City Engineer, and Building Official

Implementation Schedule: Ongoing, project-based

Non-Quantified Objective: Conservation of water resources

Funding Source: General Fund

*Action 9.4.1.3: Green Building Encouragement.* Continue to encourage “green building” practices in new and existing housing development and neighborhoods. The City will continue to provide information on green building programs and resources on the City website and at City Hall. The City shall continually analyze current technologies and best practices and update the informational material as necessary. The City will continue to promote the Energy Upgrade California program, which provides incentives for energy-saving upgrades to existing homes.

Responsible Agency: Community Development Department

Implementation Schedule: Ongoing

Non-Quantified Objective: Encourage green building practices

Funding Source: General Fund

*Policy 10.6.2: Air Quality Policies*

*Construction Emissions*

a. Require development projects to minimize the generation of particulate emissions during construction through implementation of the dust abatement actions outlined in the CEQA Handbook of the Bay Area Air Quality Management District.

*Mobile Emissions*

- b. Require developers of large residential and non-residential projects to participate in programs and to take measures to improve traffic flow and/or reduce vehicle trips resulting in decreased vehicular emissions. Examples of such efforts may include, but are not limited to the following.
- Development of mixed use projects, facilitating pedestrian and bicycle transportation and permitting consolidation of vehicular trips.
  - Installation of transit improvements and amenities, including dedicated bus turnouts and sufficient rights-of-way for transit movement, bus shelters, and pedestrian easy access to transit.
  - Provision of bicycle and pedestrian facilities, including bicycle lanes and pedestrian walkways connecting residential areas with neighborhood commercial centers, recreational facilities, schools, and other public areas.
  - Contributions for off-site mitigation for transit use.
  - Provision of charging stations for electric vehicles within large employment-generating and retail developments.
- c. Budget for purchase of clean fuel vehicles, including electrical and hybrid vehicles where appropriate, and, if feasible, purchasing natural gas vehicles as diesel powered vehicles are replaced.
- d. Support and facilitate employer-based trip reduction programs by recognizing such programs in environmental mitigation measures for traffic and air quality impacts where their ongoing implementation can be ensured, and their effectiveness can be monitored.

*Stationary Source Emissions*

- e. As part of the development review process for non-residential development, require the incorporation of best available technologies to mitigate air quality impacts.
- f. Provide physical separations between (1) proposed new industries having the potential for emitting toxic air contaminants and (2) existing and proposed sensitive receptors (e.g., residential areas, schools, and hospitals).
- g. Require new wood burning stoves and fireplaces to comply with EPA and BAAQMD approved standards.

*Policy 10.8.2: Energy Resource Policies*

- a. Continue to implement Title 24 of the State Building Code, and provide incentives to encourage architects and builders to exceed the energy efficiency standards of Title 24 through increased use of passive, solar design and day-lighting.



- b. Promote the use of site design, landscaping, and solar orientation to decrease the need for summer cooling and winter heating.
- c. Where feasible, incorporate recycled materials in new construction.
- d. Encourage the installation of energy-efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.
- e. Facilitate the installation of environmentally acceptable forms of distributed generation<sup>4</sup>, where such systems can be safely and economically provided.
- f. Maintain City physical facilities so as to ensure that optimum energy conservation is achieved.
- g. Promote purchasing of energy-efficient equipment based on a fair return on investment, and use energy-savings estimates as one basis for purchasing decisions for major energy-using devices.
- h. Promote coordination of new public facilities with transit services and nonmotorized transportation facilities, including bicycles, and design structures to enhance transit, bicycle, and pedestrian use.
- i. The City shall review all development plans prior to approval to guarantee that energy conservation and efficiency standards of Title 24 are met and are incorporated into the design of the future proposed project.

### 3. Impacts and Mitigation Measures

This section analyzes environmental impacts related to energy use that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project.

#### a. Significance Criteria

Implementation of the Project would result in a significant energy impact if it would:

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

#### b. Analysis Approach

The following sections provide an evaluation and analysis of the potential impacts of the Project for each of the criteria of significance listed above and potential cumulative impacts. There are no new or existing policies related to energy in the Environmental Hazards and Environmental Justice (EJ) Element components of the Project. In the updated Housing Element, there is an existing policy (General Plan Policy 9.4.1) that promotes energy conservation and green building design for future development under the Project; however, there are no new energy policies proposed. Future development under the Project would also be supported by existing energy

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<sup>4</sup> "Distributed generation" encompasses various small-scale types of electrical generation, such as microturbines, fuel cells, photovoltaics, cogeneration (reuse of waste heat) and other sources of electrical power that can be effectively located within office parks, industrial facilities, and other large buildings.

policies in other chapters of the General Plan (General Plan Policies 7.4.2, 10.6.2, and 10.8.2), which are listed above. Therefore, no energy related impacts from updating the Housing Element, Environmental Hazards Element, and EJ Element would occur.

### **c. Findings**

#### **(1) Energy Consumption (Criterion 1)**

Energy would be used in the forms of fossil fuels and electricity during construction and operation of future developments under the Project. During construction, contractors have an economic incentive to avoid any wasteful, inefficient, or unnecessary consumption of fuel. During operation, buildings would be predominantly powered by electricity and natural gas, and vehicles would be powered predominantly by gasoline and diesel. Implementation of General Plan Policies 9.4.1 and 10.8.2 promote energy efficiency and conservation that would reduce energy use in new development. Implementation of General Plan Policies 7.4.2 and 10.6.2 promote non-motorized transportation and reduced vehicle trips, respectively, which would reduce the use of transportation fuels associated with new development. Compliance with the General Plan policies would ensure that future developments under the Project would not result in wasteful, inefficient, or unnecessary energy consumption, and this impact would be less than significant.

#### **(2) Plans for Renewable Energy and Energy Efficiency (Criterion 2)**

The Project would be subject to energy efficiency and conservation requirements under the Title 24 Building Efficiency Standards and CALGreen Code. Operation of the Project would not interfere with the current RPS program requirements for investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 60 percent by 2030. The current 2019 Title 24 Building Efficiency Standards also require newly constructed single-family and low-rise multifamily buildings to install rooftop photovoltaic systems. General Plan Policy 10.8.2.a encourages architects and builders to exceed the Title 24 energy efficiency standards through increased use of passive, solar design, and daylighting, and General Plan Policy 10.8.2 (i) requires the City to review all development plans prior to approval to guarantee that energy conservation and efficiency standards of Title 24 are met and are incorporated into the design of the proposed development. Therefore, compliance with existing regulations and the General Plan policies would ensure that future developments under the Project provide beneficial support to existing renewable energy and energy efficiency programs. Thus, the Project would not conflict with any state or local plans for renewable energy or energy efficiency and this impact is less than significant.

#### **d. Cumulative Air Quality Impacts**

Energy impacts are, by their nature, cumulative impacts because one project by itself cannot significantly contribute to or cause significant environmental effects. See above *Section IV.E.3.c, Findings*, for more discussion.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

E. ENERGY

## F. CULTURAL AND TRIBAL RESOURCES

This section describes the potential impacts of the Project on cultural and tribal cultural resources. Cultural resources are sites, buildings, structures, objects, and districts that may have traditional or cultural value for their historical significance. Examples of cultural resources include pre-contact (Native American) and historic-period archaeological sites, and historic buildings and bridges of architectural significance. Tribal cultural resources can include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe.<sup>1</sup> CEQA requires agencies considering projects that are subject to discretionary action to consider the potential impacts on cultural resources and tribal cultural resources that may occur from project implementation (see Section 15064.5 and Appendix G of the CEQA Guidelines).

This section describes the baseline conditions for cultural resources in the Project area, including tribal cultural resources, and the pertinent State and local laws and regulations related to cultural resources. Potentially significant impacts that could result from Project implementation are described, and mitigation measures to reduce these impacts to less-than-significant levels are identified, as appropriate. A vast majority of the information provided in this section is a result of extensive background research which is provided in a technical memorandum included in Appendix C of this EIR.

### 1. Setting

This section describes the methods used to establish the baseline conditions for cultural resources and tribal cultural resources; provides a brief historical overview of the Project area; and describes the cultural resources identified in the Project site and vicinity, as well as their significance under CEQA.

#### a. Methods

##### (1) California Historic Resources Inventory System

A search of the California Historical Resources Information System (CHRIS) from the Northwest Information Center (NWIC) located at Sonoma State University, California was completed on May 23, 2022. This search included a review of the entire city. Results of the record search indicate that 305 previous studies have been completed within the city (see Appendix C, Table A-1).

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<sup>1</sup> California Public Resources Code Section 21074.

The NWIC also reported that 155 cultural resources have been recorded within the city as shown in Table IV.F-1. Of these, three resources, Riverview Union High School (historic built environment), Black Diamond Mines (historical archaeological site), and Shannon-Williamson Ranch (multi-component historical archaeological site/historic built environment resource) are listed in the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR). A fourth NRHP/CRHR listed resource, Roswell Butler Hard House (historic built environment) is listed in the Built Environment Resource Database (BERD).

**TABLE IV.F-1 SUMMARY OF CULTURAL RESOURCES BY TYPE**

<b>Resource Type</b>	<b>No. of Resources</b>
Prehistoric Archaeological Site	7
Historic Archaeological Site	31
Multi-Component Site	3
Historic Built Environment	114
<b>Total</b>	<b>155</b>

Source: Appendix C.

## **(2) Other Sources**

In addition to the NWIC records search, a variety of sources were consulted in May 2022 to obtain information regarding the cultural context of the city, as shown in Table IV.F-2. Sources included the NRHP, CRHR, BERD, California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI).

## **(3) Local Historic Societies**

On April 1, 2022, requests for information were sent via United States Postal Service (USPS) to the Antioch Historical Society and the Contra Costa County Historical Society. On April 5, 2022, a letter response was sent via email from the Contra Costa County Historical Society Executive Director, Michael C. McCarron. Mr. McCarron states that the historical society lacks “the wherewithal to provide such information without compensation for our research time.” While the Society’s History Center is open to the public, research conducted by the Society’s staff would cost \$50 per hour. No further attempt was made to contact the Contra Costa County Historical Society. On April 12 and May 25, 2022, two additional attempts were made to contact the Antioch Historical Society via electronic mail.

The 2019 Historic Resource Inventory for the Antioch Area as prepared by the Contra Costa County Conservation and Development, Community Development Division is provided in Appendix C.

**TABLE IV.F-2 ADDITIONAL SOURCES CONSULTED**

Source	Results	Resource Description
National Register of Historic Places (NRHP)	Positive; Roswell Butler Hard House (NRHP No. 93001020) 1S	Roswell Butler Hard was a prominent Antioch resident who served as a Contra Costa County supervisor from 1866 to 1868, county Sheriff from 1867 to 1869, and as mayor of Antioch. Hard built his home along the San Joaquin River. After Hard’s death the home was subdivided into three units and an addition was built in 1923. This is one of the only homes in the Late Victorian Italianate style to survive in the area (Roadtrippers 2022a)
	Riverview Union High School Building (NRHP No. 98001243) 1S	The Riverview Union High School was Contra Costa County’s first high school. It opened in 1911, drawing students from as far away as Oakley and Pittsburgh. The two-story building is of red brick with a flat roof and quoin wall design. The school closed in 1931 and then was used by the Bureau of Reclamation during the Central Valley Project. The Riverview Fire Protection District acquired the building as its headquarters in 1965 but the building remained unused until 1994. Purchased in 1999, the building is the home of the Antioch Historical Society (Roadtrippers 2022b)
	Black Diamond Mines (NRHP No. 91001425) 1S	As California’s largest coal mining operation, the Black Diamond Mines produced nearly four million tons of coal. Workers from around the world from were drawn to its five towns, Nortonville, Somersville, Stewartville, West Hartley, and Judsonville from the 1860s to ca. 1900. Nortonville and Somersville townsites later produced sand for the Hazel-Atlas Glass Company in Oakland, and Nortonville mine supplied casting to the Columbia Steel Works (East Bay Regional Park District 2022).
	Shannon-Williamson Ranch (Williamson Ranch) 1S	The Williamson family was granted a homestead in 1874, having moved to the Antioch area in 1867. The Ranch operated from 1875-1949. The current ranch house was built to replace the original house that burned down in 1895. The two-story Italianate house, three barns, several outbuildings, and a small orchard survive from the time of the working ranch (Roadtrippers 2022c).

**TABLE IV.F-2 ADDITIONAL SOURCES CONSULTED**

Source	Results	Resource Description
California Register of Historical Resources (CRHR)	Positive; Roswell Butler Hard House (NRHP No. 93001020) 1S	See descriptions above
	Riverview Union High School Building (NRHP No. 98001243) 1S	
	Black Diamond Mines (NRHP No. 91001425) 1S	
	Shannon-Williamson Ranch (Williamson Ranch) 1S	
Built Environment Resource Directory (BERD)	Positive; Roswell Butler Hard House (NRHP No. 93001020) 1S	See descriptions above
	Riverview Union High School Building (NRHP No. 98001243) 1S	
	Black Diamond Mines (NRHP No. 91001425) 1S	
	Shannon-Williamson Ranch (Williamson Ranch) 1S	
California Historical Landmarks (CHL)	Positive; Mount Diablo Coal Field (5/13/1980)	
California Points of Historical Interest (CPHI)	Negative	
Bureau of Land Management (BLM) General Land Office Records	Positive; See appendices, Appendix C, Table C-1 (BLM 2022)	
Caltrans Bridge Inventory	Negative	

Source: Appendix C.

#### **(4) Native American Consultation**

A Sacred Lands File (SLF) search was requested from the Native American Heritage Commission (NAHC) on March 31, 2022. On April 24, 2022, the NAHC responded that the SLF search was completed with negative results and provided a list of seven tribes that may have information about the city (see Appendix D). The City of Antioch completed Native American consultation in accordance with Assembly Bill (AB) 52 and Senate Bill (SB) 18. The two responses to notification letters are summarized below.



On December 1, 2021, Corrina Gold, Tribal Chair for The Confederated Villages of Lisjan Tribe responded that the "Tribe would like to consult on the General Plan Update for the City of Antioch. The Tribe is requesting a copy of the General Plan and the DEIR. Once that is received the Tribe can move forward with the consultation process."

On November 30, 2021, Cultural Preservation Department staff of the Wilton Rancheria responded that they determined the city lies within the Tribe's ancestral territory. They continued saying "The Tribe at this point in time has no concerns, however if potential tribal cultural resources (TCRs), archaeological resources, other cultural resources, articulated, or disarticulated human remains are discovered during construction, the Applicant should immediately stop construction and notify the appropriate Federal, State Agencies and the Tribe." The Tribe also provided additional details for the handling of cultural remains and notification of the Tribe and requisite officials.

## **b. Historical Context**

The following subsection describes the historical context for the city of Antioch from prehistoric setting to present day. As described above, the vast majority of the information provided in this section is a result of extensive background research which is provided in a technical memorandum included in Appendix C of this EIR.

### **(1) Prehistoric Setting**

Early archaeological surveys in the San Francisco Bay Area (Bay Area) were conducted by Nels Nelson in 1907 and 1908 and resulted in the identification of over 400 "shell heaps, earth mounds, and a few minor localities that cannot be termed anything but temporary camp sites". Nelson recorded more than 100 shellmounds along the bay shore of Alameda and Contra Costa counties, including some of the most important sites in central California, and mapped 18 sites in San Francisco County. Three sites in the northeast bay provided the basis for the initial study of cultural change in central California. These sites include the Emeryville shellmound (CA-ALA-309) in Alameda County, and two sites in Contra Costa County, the Ellis Landing site (CA-CCO-295) and the Fernandez site (CA-CCO-259), which is located slightly inland in Rodeo Valley.

Also, during the early 1900s, Llewellyn L. Loud described and mapped the remains of a dozen mounds at the north end of the Santa Clara Valley. Many of the mounds were located within the Rancho Posolmi and had already been disturbed or destroyed by farming activities or construction. Loud's excavations at CA-SCL-1, often referred to as the Castro Mound or Ponce site, were among earliest and most extensive in the area. Among the cultural remains documented in the large mound midden were two house floors and 61 burials, many with mortuary items. Compared to other Bay Area mounds from the same period, Loud noted a

difference in the number and type of shellfish remains in the assemblages from the South Bay sites.

The studies in the Bay Area conducted in the early 1900s on the northern, eastern, and southern bay shores formed the basis for an initial study of cultural change in the Bay Area and the Sacramento–San Joaquin Delta and led to the later development of the Central California Taxonomic System (CCTS). The CCTS is the result of efforts of several researchers (e.g., Beardsley 1948, 1954; Heizer 1949) and has been further refined over the succeeding decades. The tripartite CCTS classification scheme defines three temporal periods (Early, Middle, and Late) that are marked by changes in distinct artifact types, subsistence orientation, and settlement patterns. The generalized periods are associated with regionally based cultural patterns. As employed by researchers in the Bay Area (e.g., Hylkema 2002; Lightfoot and Luby 2002; Milliken et al. 2007), these periods and associated patterns are outlined in Table IV.F-3.

**TABLE IV.F-3      ARCHAEOLOGICAL TIME PERIODS AND PATTERNS IN THE BAY AREA**

<b>Period</b>	<b>Cultural Pattern</b>	<b>Timeframe</b>
Early Period	Millingstone Pattern	11,000–5500 years before present (B.P.)
	Windmill Pattern <sup>a</sup>	5500–2500 B.P.
Middle Period	Berkeley Pattern	2500–1000 B.P.
Late Period	Augustine Pattern	1000 B.P. to Historic Contact

<sup>a</sup> The presence of the Windmill Pattern during the Early Period in the Bay Area is controversial (e.g., Bennyhoff 1994; Bennyhoff and Fredrickson 1969; Gerow 1974; Gerow with Force 1968; Heizer 1949; Moratto 1984) and may be referred to elsewhere as the Lower Berkeley Pattern (e.g., Milliken et al. 2007).

Source: Appendix C.

### **Early Period (11,000-2500 B.P.)**

Archaeological evidence is rare of occupation in the Bay Area dating earlier than 6,000 years ago during the Early Holocene when sea levels were dramatically lower than today. It is likely that sea-level rise and Holocene alluvial deposits, which are up to 33 feet (10 meters) thick in some locations around the Bay region, buried many prehistoric sites in this area. One of the oldest cultural deposits in the Bay Area is located at Tulare Hill. The Metcalf site (CA-SCL-178) was discovered 3.3 meters below the surface in buried soil at the mouth of Metcalf Creek and the earliest occupation layer dates to 11,050–9475 cal B.P.<sup>2</sup> At another South Bay Millingstone site in Santa Clara County (CA-SCL-65), two flexed burials were found beneath cairns of millingstones dating between 7,500 and 7,000 years ago. Along with the Sand Hill Bluff shellmound on the

<sup>2</sup> The raw radiocarbon dates have been calibrated (cal) to provide calendar dates.

peninsula coast of Santa Cruz County (CA-SCR-7), the artifact assemblages in these Millingstone Pattern sites include large numbers of handstones and milling slabs, as well as core and flake tools.

Windmill Pattern sites in the Sacramento Valley and Sacramento–San Joaquin Delta often contain manos and metates (grinding stones), as well as many mortar fragments, large obsidian concave base and stemmed projectile points, rectangular *Olivella* beads, perforated and phallic charmstones, ventrally extended burials, and a westerly orientation of graves. Artifact assemblages from the South Bay peninsula, such as from CA-SCL-354 in the Los Altos foothills, including *Olivella* rectangular beads (type L1) and Rossi square-stemmed and large side-notched projectile points, imply that characteristics of Windmill assemblages were present.

### **Middle Period (2500-1000 B.P.)**

The Berkeley Pattern is found throughout the Bay region during the Late Holocene. The earliest assemblages attributable to this pattern are coeval with the Windmill Pattern, including the lower levels of the West Berkeley site (CA-ALA-307) in Alameda County and the University Village site (CA-SMA-77) in San Mateo County. Artifacts typical of the Berkeley Pattern include spire-topped (Types A1a and A1b) *Olivella* shell beads, bone tubes and beads, bird-bone whistles, quartz crystals, serrated mammal scapulas, and ground bone awls. Projectile points are commonly contracting stemmed and lanceolate types, some of which are made from obsidian. Burials are variable flexed and semi-flexed with inconsistent orientation, and there is an increase in mortuary items, particularly during the late Middle Period, compared to few mortuary items identified during the Early Period in Bay Area sites.

Milling implements include large and small boulder or cobble mortars and various types of pestles, suggesting small seeds or acorns formed an important part of the diet. In the South Bay, processing of hard seeds continued to be important throughout this period, as evidenced by the number of milling slabs and handstones in the artifact assemblages from this area. Other plant resources included hazel nuts, cattail seeds, grass, and soaproot bulbs; the latter were roasted in earth ovens. Faunal analyses indicate the diet during this period was rich and varied, with a variety of small and large mammals, fish, and birds, as well as mussel, oyster, and clam.

Shellfish species exploited varied depending on location within the Bay Area. Along the West Bay in San Mateo County and the East Bay of Alameda County, bay mussels, oyster and clam are more prevalent. In contrast, horn snail, oyster, and bay mussel are the principal shellfish recovered from South Bay mounds. Large accumulations of shellfish remains, or “shellmounds,” formed over hundreds, or even thousands, of years through accretion at village sites fronting the Bay that were reused seasonally or year-round. Numerous shellmounds contain hundreds of burials as well as ceremonial items, house floors, hearths and storage pits, indicating they were used as burial, ceremonial, and residential places.

The well-known Emeryville shellmound (CA-ALA-309) and Ellis Landing site (CA-CCO-295) also date to this period. Within the former Rancho Posolmi, radiocarbon dates obtained from excavations conducted in 2008 in the mound initially recorded in 1912 by Loud indicate CA-SCL-12/H was occupied throughout the late Early Period and Middle Period (3300–2400 B.P.) with some evidence of Late to Historic Period occupation. During the recent excavations, a variety of cultural materials, including lithic flakes and tools, shellfish, faunal bone, and human remains, were recovered from intact occupation components at depths up to 1.8 meters below the surface. CA-SCL-12/H also included the gravesite of Lope Yñigo, who is among the few Native Americans that were awarded Mexican land grants.

### **Late Period (1000 B.P. to Historic Contact)**

In the Bay Area, the Augustine Pattern follows the “golden age of shell mound communities” of the Berkeley Pattern (Lightfoot and Luby 2002:276). A number of changes in subsistence, foraging, and land use patterns that begin to reflect the use pattern known from Historic Period Native American groups in the area is evident. The pattern is identified by the introduction of bow and arrow technology, the use of harpoons, and tubular tobacco pipes. There is an increase in the intensity of subsistence exploitation that correlates directly with population growth, and greater emphasis is placed on the procurement and processing of vegetal foods, especially acorns, as evidenced in the increase of milling tools, especially the mortar and pestle. Both coiled and twined basketry were used as domestic and ceremonial items.

Population size and the number of settlements increased during this period, although the large shellmound villages of the Berkeley Pattern were apparently no longer favored residential places and many were abandoned. The dry conditions during the Medieval Climatic Anomaly (MCA), which produced droughts across the West between about A.D. 650–850 and A.D. 1150–1250, may be related to the abandonment of shellmound villages as primary residential locations. Settlement strategies were apparently reorganized and focused on a dispersed pattern, with the establishment of both coastal and interior habitation areas, coinciding with the exploitation of seasonally available resources.

The Augustine Pattern ushers in a time of status differentiation and the rise of secret societies and cults and associated traits. Exchange networks, with the use of clamshell disk beads as a form of currency, expanded during this period. Exchange items included magnesite, steatite, *Olivella* beads, and obsidian. Compared to the Middle Period, the use and occurrence of shell beads with burials blossomed. *Haliotis* banjo pendants may represent the introduction and spread of the Kuksu cult, beginning during the transition from the Middle to Late Period in the Bay Area. The magnitude of non-dietary *Olivella* shells in coastal sites during the Late Period, coupled with a concomitant increase of the shells in mortuary contexts throughout central California during this

period, attests to the rise of both exchange networks and status differentiation, with coastal peoples supplying the shells to the interior groups.

## **(2) Ethnography-Miwok**

### **Linguistics**

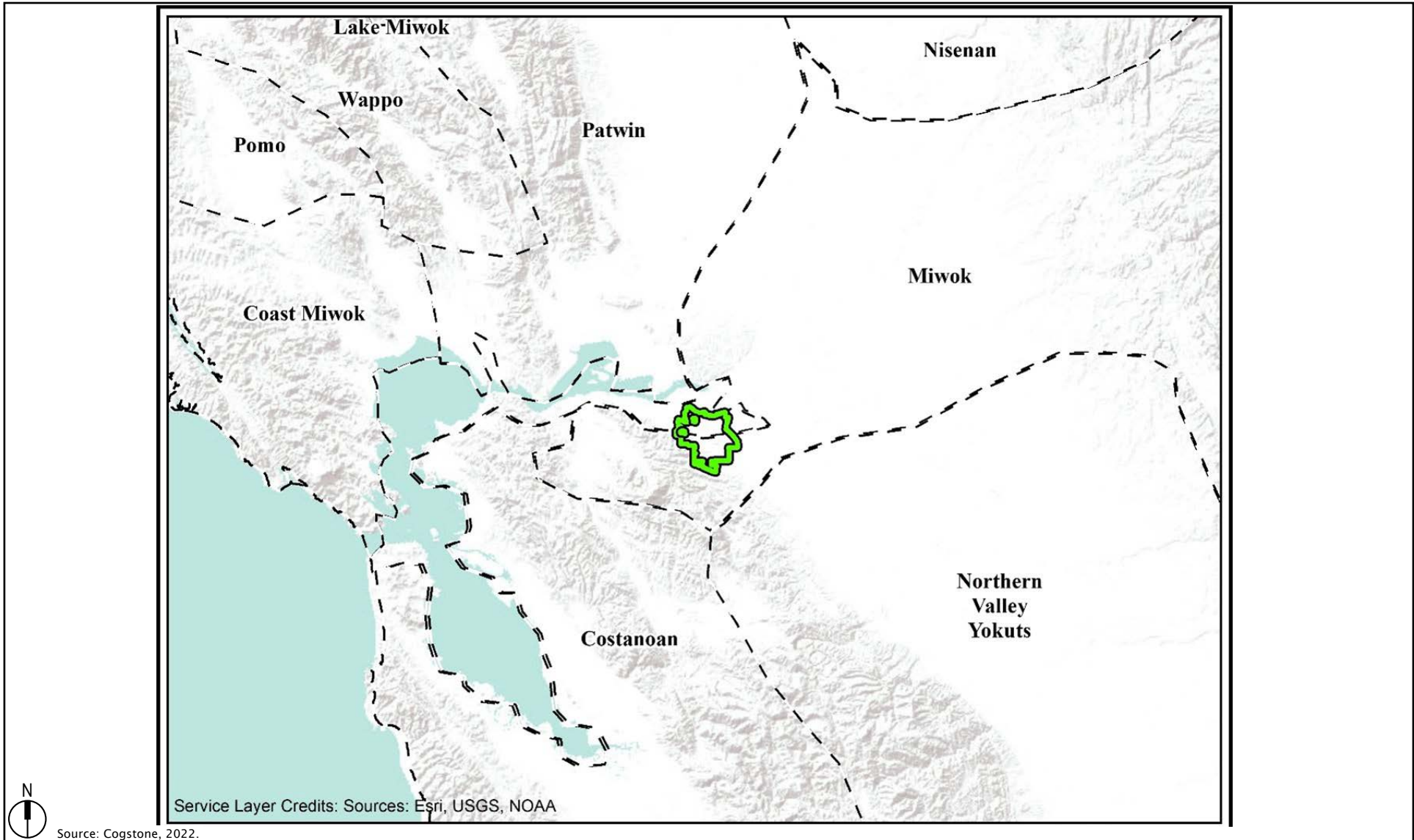
Historically, the city of Antioch is located near the western edge of the traditional tribal territory of the Plains Miwok, as shown in Figure IV.F-1. Together with the Central Sierra, Southern Sierra, Northern Sierra, and Saclan Miwok, they make up the five distinct linguistic groups of the Eastern Miwok division. The three Sierra Miwok languages are structurally similar, with the principal differences between them being phonetic. However, native speakers of Southern Sierra claim that they do not understand much of the Central or Northern dialects. Barrett stated there was clearly some divergence between the speech of individuals from the areas within Yosemite, Mariposa, and the extreme southern limit of Miwok territory. Speakers from Mariposa say that they barely understand Miwok speakers from Yosemite, which is approximately 40 miles away. Miwokan languages comprise one branch of the Penutian language family, and form within that a subgroup with the Ohlone languages. The pre-contact combined estimate of Miwok speakers is approximately 19,500 for all dialects.

### **Tribal Territory**

The traditional territory of the Plains Miwok includes the Sacramento and Joaquin Valleys and stretches to the base of the Sierra Nevada Mountains. Tribelets averaged approximately 300 to 500 individuals and controlled specific lands and natural resources within those territories. Each tribelet's territory included a main village, and smaller satellite villages comprised of familial groups.

### **Village Structure and Habitations**

The principal Miwok village would generally contain a large semi-subterranean structure or a smaller circular brush structure that served as the dance house or community center, multiple family dwellings, acorn granaries, conical shaped sweathouses, and a winter grinding house. Individual family dwellings varied. Generally, homes were either aboveground conical houses made with tule-matting, grass or brush, or roofed with sawed lumber shingles, or semi-subterranean pole and earth covered lodges. Sierra and Plains Miwok traditionally resided in the Sierra Foothills and lowlands in the Fall and Winter, and generally moved into the high Sierras only for summer hunting and resource gathering. Mountain shelters were meant to be temporary and were simple lean-tos constructed of bark over a sapling framework.





-  Land Grant
-  Project Location

Figure IV.F-1  
Tribal Boundary Map

## Food and Resource Usage

Similar to many other Native American groups in California, the Miwok utilized all aspects of food resource collection within their territory. While their diet was supplemented by fish, shellfish, waterfowl, and large and small mammals, acorns were the primary food staple. Acorns from the prevalent valley oak (*Quercus lobata*) as well as blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizeni*) and black oak (*Quercus kelloggii*) were the most commonly used and preferred by the Miwok. Acorns were gathered in the autumn, dried, and stored until needed. Before they were eaten, the acorn was cracked, the meat removed, and ground into a dry flour. To remove bitter tannins, the acorn flour was leached, placed carefully in a sand basin, and water poured over it for several hours. The leached flour was then mixed with water in a watertight cooking basket. Hot stones were placed in the basket, stirred constantly, and after about 20 minutes, the acorn mush boiled, thickened, and cooked. Additionally, large and small animals were regularly hunted by the Miwok. These included mule deer, tule elk, pronghorn, rabbits, squirrels, beaver, and woodrats. Salmon were an important fish resource, along with sturgeon and lamprey.

## Tools

The Miwok employed a variety of tools, implements, and enclosures for hunting and collecting natural resources. These included cedar wood bows, small mammal snares and traps, fish nets, and enclosures or blinds for birds and small game. On navigable rivers, a canoe or raft would be crafted from tule reeds and willow branches. They made both twined and coiled basketry and used woven burden baskets for seed, root, or nut transportation, processing or long-term seasonal storage. Tools used for processing food resources included bedrock mortars, cobblestone pestles, anvils, and portable stone mortars and pestles to grind or mill acorns and seeds. During food preparation, a variety of knives, leaching and boiling baskets, woven strainers and winnowers, and woven drying trays, among others, were employed. Earthen-made ovens were used to bake a type of bread made of acorn meal. Barrett and Gifford (1933) note the Miwok used a range of material types for stone tool manufacture, including obsidian, jasper, chalcedony, flint and chert. Like other California tribes, a variety of stone tools, including arrow points, knife blades, scrapers, choppers, axes, files and drills were implemented and used. Stone tool usage and production dropped off drastically after the 1850s in Southern Sierra Miwok territory, as steel implements became more popular and widely available from trade with recent settlers and miners.

## Contact

Kroeber (1925) estimates that around the year 1770, there were an estimated 9,000 combined Plains and Sierra Miwok. Native American population in the plains came into contact with Spanish explorers in the late 1700s as the Franciscan missions sought to convert interior peoples with the dwindling of coastal indigenous populations. Soon after the discovery in 1848 of gold in

the Sierran foothills and the ensuing Gold Rush, the number of non-indigenous peoples into Miwok territory increased exponentially. Population estimates show a momentous decline in Eastern Miwok numbers from nearly 20,000 in 1805 to only 3,000 by 1856. With the resulting loss of the majority of their traditional lands, population numbers, and experiencing drastic alterations of their traditional lifeways, surviving Miwok labored for the growing mining, ranching, farming, and lumber industries. During the first half of the 1900s, the federal government acquired lands and established *rancherias* (reservations) from two acres to more than 300 acres, for the Plains, Northern Sierra and Central Sierra Miwok. Between 1934 and 1972, the U.S. Bureau of Indian Affairs terminated relations with most of these rancherias, but beginning in 1984, status to the majority has been restored.

### **Present Day Miwok**

At present, there are eight federally recognized tribal rancherias with Eastern Miwok populations. These include: Auburn Rancheria (Sierran Miwok, Placer County), Buena Vista (Plains Miwok, Amador County), Chicken Ranch (Central Sierra division of Eastern Miwok, Tuolumne County), Lone (Northern Sierra and Plains Miwok, Amador County), Jackson (Northern Sierra and Plains Miwok, Amador County), California Valley (formerly Sheep Ranch; Northern Sierra Miwok, Calaveras County), Shingle Springs (Plains Miwok, El Dorado County), Tuolumne (Central Sierra Miwok, Tuolumne County), and Wilton Rancheria (Plains and Sierra Miwok, Sacramento County).

## **(3) Historic Setting**

### **Spanish Period (1769-1822)**

The earliest European explorations of California occurred in 1542, when Juan Rodríguez Cabrillo and his party landed near Point Loma near San Diego. Cabrillo had been tasked by the Spanish monarch with exploration of the western United States interior. Interaction with the native population was initiated, but intensive exploration and colonization of California by Spain did not occur until the 1700s.

In 1769, the Spanish developed plans to build three towns and four presidios (forts) along the California coastline stretching from San Diego northward to Monterey. The town sites, established between 1777 and 1797, included present-day Los Angeles, San Jose, and a small town near Santa Cruz named Branciforte. The presidios were established at San Diego, Santa Barbara, Monterey, and San Francisco. Under Spain, the borderlands were colonized as defenses against the intrusion of the English, French, Dutch, and Russians, with the Manila trade an important item for protection in California. They were held by two typical institutions: the mission and the presidio.



Mission San Diego Alcalá was founded in 1769, the first of 21 Franciscan missions built along the coast on the El Camino Real between San Diego and Sonoma. The goals of the missions were tri-fold: they established a Spanish presence on the west coast, provided a way to Christianize native peoples, and served to exploit native population as laborers. The mission system severely disrupted socio-political structure of the native population, especially those living in close proximity.

Arrival of the Franciscan missionaries during the Spanish period resulted in far-reaching alterations in Native American lifeways. These shifts included high mortality rates and social changes due to the introduction of European diseases and customs. Due to the high mortality rates, many Native American villages were abandoned, with inhabitants fleeing to the missions because “As the Native Americans watched the Europeans remain healthy during the epidemics, they began to view disease as a form of divine punishment for human transgressions and “Believing that the Christian God held a power greater than their own, the Natives willingly joined the Spanish missions”.

The native population decreased because of a series of epidemics, and their traditional lifestyle was severely altered as neophytes were converted to Christianity and forced to work for the mission.

### **Mexican Period (1822-1847)**

After Mexico gained independence from Spain in 1821, the Mission lands were secularized under the Secularization Act of 1833, but much of the land was transferred to political appointees. A series of large land grants that transferred Mission properties to private ownership were awarded by the Governors of California—Juan B. Alvarado, Manuel Micheltoarena and Pío Pico—between 1840 and 1846. Ranches and farms were established throughout the San Diego region during this period.

### **American Period (1848-present)**

The Mexican-American war followed on the heels of the Bear Flag Revolt of June 1846. General Andrés Pico and John C. Frémont signed the Articles of Capitulation in December 1847, and with the signing of the Treaty of Guadalupe Hidalgo in February 1848, hostilities ended and Mexico relinquished California to the United States. Under the treaty, Mexico ceded the lands of present-day California, New Mexico, Arizona, and Texas to the United States for \$15 million. Within two years following the treaty, California applied for admission as a state.

The northwest area of the city of Antioch overlaps with the boundaries of the former Spanish/Mexican land grant of Rancho Los Medanos, as shown in Figure IV.F-2. The name *Los Medanos* (meaning “the sand-banks”) was given to two adjoining ranchos in the late 1830s due to the

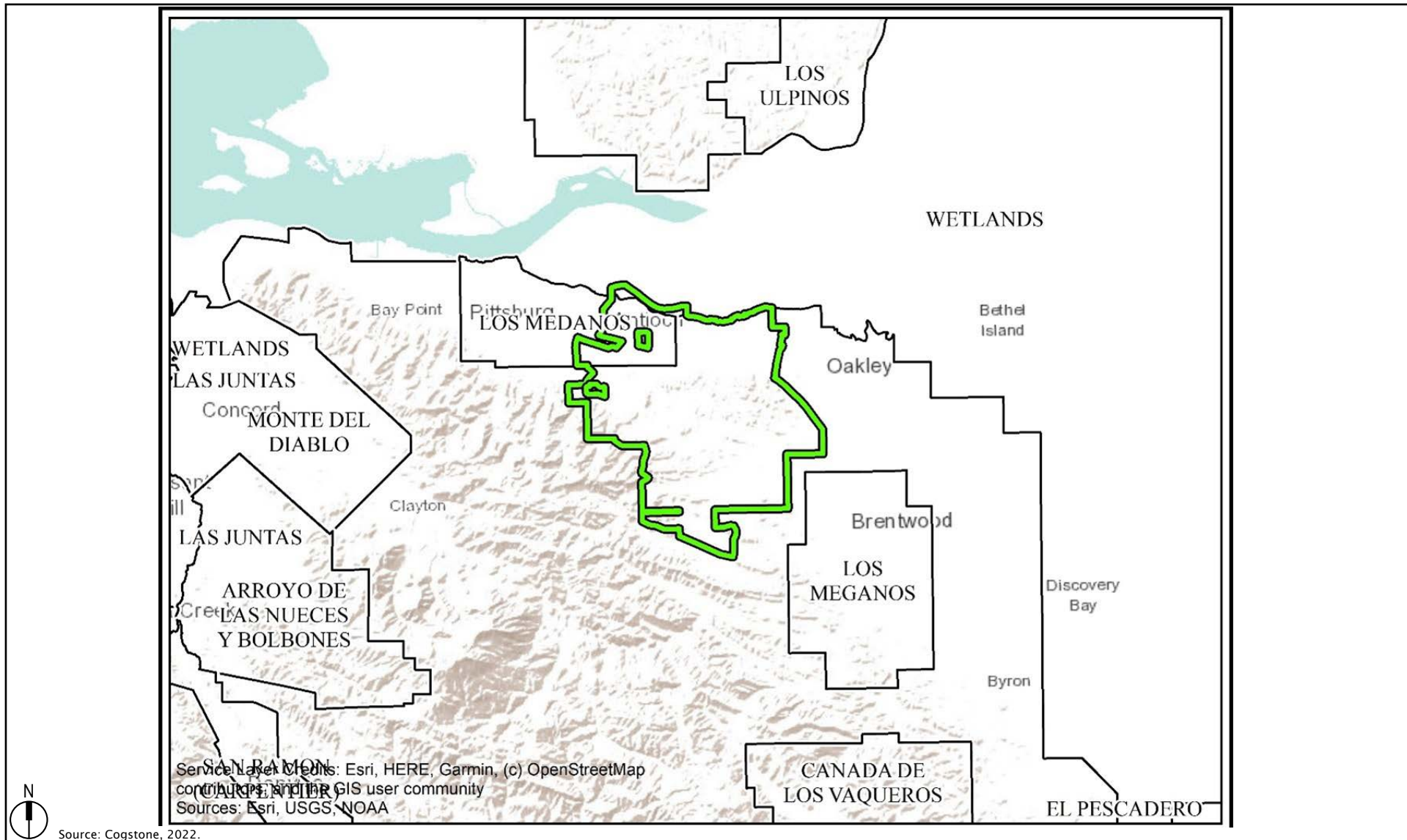


Figure IV.F-2  
Land Grants Map

presence of nearby sand dunes. Rancho Los Medanos (consisting of approximately 8,500 to 10,000 acres) was granted to brothers Jose Antonio Mesa and Jose Miguel Garcia by then Mexican Governor of California Juan B. Alvarado in 1839. The rancho was sold in 1849 to Colonel Jonathan Drake Stevenson who had the land surveyed to establish a settlement which would become known as Black Diamond (name later changed to Pittsburg in 1911). By this time, the rancho was commonly referred to as the "New York Ranch". Col. Stevenson would later sell the rancho to the San Francisco banking firm Louis Pioche and Company, who would then convey the rancho grant to railroad builder Lester Ludyah Robinson, in 1872. Per his last will and testament, in 1892, the rancho went to Robinson's sister, Sophia Cutter, following his death. However, in 1900 the Bank of California, which held the mortgage on the rancho foreclosed on the property.

### **City of Antioch**

The earliest known European exploration of the Antioch area occurred in 1772 with the arrival of a Spanish expedition sent to survey potential new mission sites. In 1776, a second major expedition, led by Captain Juan Bautista de Anza and Padre Pedro, traveled along Suisun Bay before returning to Monterey. In 1811, the shoreline of what would become Contra Costa County and the Delta areas was surveyed under the command of Sgt. Jose Antonio Sanchez and Padre Ramon Abella.

The founding of Antioch is credited to William Wiggin Smith who traveled to California in 1849 with his twin brother and their respective families in the search for gold. That year, the owner of the Mexican land grant Rancho Los Medanos (Dr. John Marsh; also the first permanent American resident in Contra Costa County), offered the Smith brothers a portion of his land in exchange for \$500 if they would establish a settlement there. The brothers accepted the offer and built their homes in what would become Antioch's downtown area. Names of local areas such as Smith's Landing and Smith's Point were often also used as informal names for the future city.

In 1851, William Smith organized a picnic for the town's residents in order to discuss a name for their community. The name Antioch was chosen as a biblical reference to the town on Syria where "the Christians were first named". Antioch was incorporated on February 6, 1872, and was the first city to do so in Contra Costa County. In 1875, the City's board of trustees oversaw the drilling of multiple wells and reserved all water rights in the area for the benefit of their community. The following year, a 30,000-gallon water tank was constructed to supply water to the Empire Railroad.

During the early decades of Antioch, city limits were defined by the San Joaquin River to the north, A Street to the east, O Street to the west, and Tenth Street to the south. These boundaries were updated by the 1930s, as an increase in population had settled south of Tenth Street. In the 1950s, the Fibreboard Research patented a method of applying wax coatings to cardboard

containers which resulted in the modern container for milk, juice, and ice cream. This development led to Antioch's accolade as "the home of the milk carton".

## **2. Regulatory Setting**

This section describes the existing federal, State, and local regulatory frameworks related to cultural and tribal resources.

### **a. Federal Regulations**

The following section describes the existing federal regulatory environment related to cultural and tribal resources.

#### **(1) Historic Preservation Act of 1966**

Enacted in 1966, the National Historic Preservation Act (NHPA) declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer (SHPO), provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assist Native American tribes in preserving their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

NHPA establishes the nation's policy for historic preservation and sets in place a program for the preservation of historic properties by requiring federal agencies to consider effects to significant cultural resources (i.e., historic properties) prior to undertakings.

#### **(2) National Register of Historic Places**

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment." The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, or association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: It is associated with the lives of persons who are significant in our past.

Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

### **(3) Section 106 of the Federal Guidelines**

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP and that the ACHP and SHPO must be afforded an opportunity to comment, through a process outlined in the ACHP regulations at 36 Code of Federal Regulations (CFR) Part 800, on such undertakings.

### **(4) Native American Graves Protection and Repatriation Act (NAGPRA) of 1990**

The NAGPRA of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

## **b. State Regulations**

The following section describes the existing State of California regulatory environment related to cultural and tribal resources.

### **(1) California Environmental Quality Act**

CEQA states that: It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed project and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

CEQA declares that it is state policy to: "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

### **(2) California Register of Historical Resources**

The California Register of Historical Resources (CRHR) is a listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing on the National Register, including properties evaluated under Section 106, and State Historical Landmarks No. 770 and above. The California Register statute specifically provides that historical resources listed, determined eligible for listing on the California Register by the State Historical Resources Commission, or resources that meet the California Register criteria are resources which must be given consideration under CEQA (see above). Other resources, such as resources listed on local registers of historic registers or in local surveys, may be listed if they are determined by the State Historic Resources Commission to be significant in accordance with criteria and procedures to be adopted by the Commission and are nominated; their listing in the California Register is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state or national level under one or more of the following four criteria:

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;
1. It is associated with the lives of persons important to local, California, or national history;
2. 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
3. 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 to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance.

Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

### **(3) California Administrative Code, Title 14, Section 4308**

This section states that "No person shall remove, injure, deface or destroy any object of paleontological, archeological or historical interest or value."

### **(4) Tribal Cultural Resources**

As of 2015, CEQA Guidelines Section 21084.2 establishes 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". In order to be considered a "tribal cultural resource," a resource must be either:

4. Listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or
5. A resource that the lead agency chooses, in its discretion, to treat as a tribal cultural resource.

To help determine whether a project may have such an effect, the lead agency must consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. If a lead agency determines that a

project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. CEQA Guidelines Section 20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

### **(5) California Public Resources Code**

California Public Resources Code, Section 5097.5 states that no person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands (lands under state, county, city, district or public authority jurisdiction, or the jurisdiction of a public corporation), except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

### **(6) Native American Human Remains**

Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with state law as reviewed below.

In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.

#### **c. Local**

The following section describes the existing local regulatory environment related to cultural and tribal resources.



## (1) Antioch General Plan

The following policy from the City's General Plan<sup>3</sup> are related to cultural and tribal resources and are applicable to the Project.

### *Policy 10.9.2: Cultural Policies*

- a. Require new development to analyze, and therefore avoid or mitigate impacts to archaeological, paleontological, and historic resources. Require surveys for projects having the potential to impact archaeological, paleontological, or historic resources. If significant resources are found to be present, provide mitigation in accordance with applicable CEQA guidelines and provisions of the California Public Resources Code.
- b. If avoidance and/or preservation in the location of any potentially significant cultural resource is not possible, the following measures shall be initiated for each impacted site:
  - A participant-observer from the appropriate Indian Band or Tribe shall be used during archaeological testing or excavation in the project site. Prior to the issuance of a grading permit for the project, the project proponent shall develop a test-level research design detailing how the cultural resource investigation shall be executed and providing specific research questions that shall be addressed through the excavation program. In particular, the testing program shall characterize the site constituents, horizontal and vertical extent, and, if possible, period of use. The testing program shall also address the California Register and National Register eligibility of the cultural resource and make recommendations as to the suitability of the resource for listing on either Register. The research design shall be submitted to the City of Antioch for review and comment. For sites determined, through the Testing Program, to be ineligible for listing on either the California or National Register, execution of the Testing Program will suffice as mitigation of project impacts to this resource.
  - After approval of the research design and prior to the issuance of a grading permit, the project proponent shall complete the excavation program as specified in the research design. The results of this excavation program shall be presented in a technical report that follows the City's outline for Archaeological Testing. The Test Level Report shall be submitted to the City for review and comment. If cultural resources that would be affected by the project are found ineligible for listing on the California or National Register, test-level investigations will have depleted the scientific value of the sites and the project can proceed.
  - If the resource is identified as being potentially eligible for either the California or National Register, and project designs cannot be altered to avoid impacting the site, a Treatment Program to mitigate project effects shall be initiated. A Treatment Plan detailing the objectives of the Treatment Program shall be developed. The Treatment Plan shall contain specific, testable hypotheses relative to the sites under study and shall attempt to address the potential of the sites to address these research questions. The Treatment Plan shall be submitted to the City for review and comment.
  - After approval of the Treatment Plan, the Treatment Program for affected, eligible sites shall be initiated. Typically, a Treatment Program involves excavation of a statistically representative sample of the site to preserve those resource values that qualify the site as being eligible for the California or National Register. At the conclusion of the excavation or research program, a Treatment Report shall be developed. This data recovery report shall be submitted to the City for review and comment.

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<sup>3</sup> LSA, 2003. City of Antioch General Plan, November 24.

- c. When existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate reposition, and file a report with the Community Development Department documenting any paleontological resources found during site grading.
- d. As a standard condition of approval for new development projects, require that if unanticipated cultural or paleontological resources are encountered during grading, alteration of earth materials in the vicinity of the find be halted until a qualified expert has evaluated the find and recorded identified cultural resources.
- e. Preserve historic structures and ensure that alterations to historic buildings and their immediate settings are compatible with the character of the structure and the surrounding neighborhood.

### **3. Impacts and Mitigation Measures**

This section analyzes and describes potential environmental impacts related to cultural and tribal resources that could result from the implementation of the goals and policies set forward in the Project, as well as reasonably foreseeable development expected to occur under the Project's implementation.

#### **a. Significance Criteria**

The Project would have a significant impact on cultural resources if it would:

6. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.
7. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
8. Disturb any human remains, including those interred outside of formal cemeteries.

The Project would have a significant impact on tribal cultural resources if it would:

9. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: (i) Listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or (ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

A discussion of these criteria is included in the impact analysis below. If an impact on a historical, archaeological, or tribal cultural resource is significant, CEQA requires feasible measures to

minimize the impact.<sup>4</sup> Mitigation of significant impacts under the criteria listed above must lessen or eliminate the physical impact that the project would have on the resource.

## **b. Findings**

### **(1) Historical Resources Impacts (Criterion 1)**

The locations of all Historic Built Environment resources that have been determined to be significant at the national or local level in the city of Antioch are shown in Figure IV.F-3. These significant historic built environment sites cluster north of West 10<sup>th</sup> Street between A Street and L Street with few such resources elsewhere. Additional built environment surveys that systematically investigate other areas north of California State Route (SR-) 4, especially areas adjacent to the San Joaquin River, are likely to be valuable for planning purposes in the future.

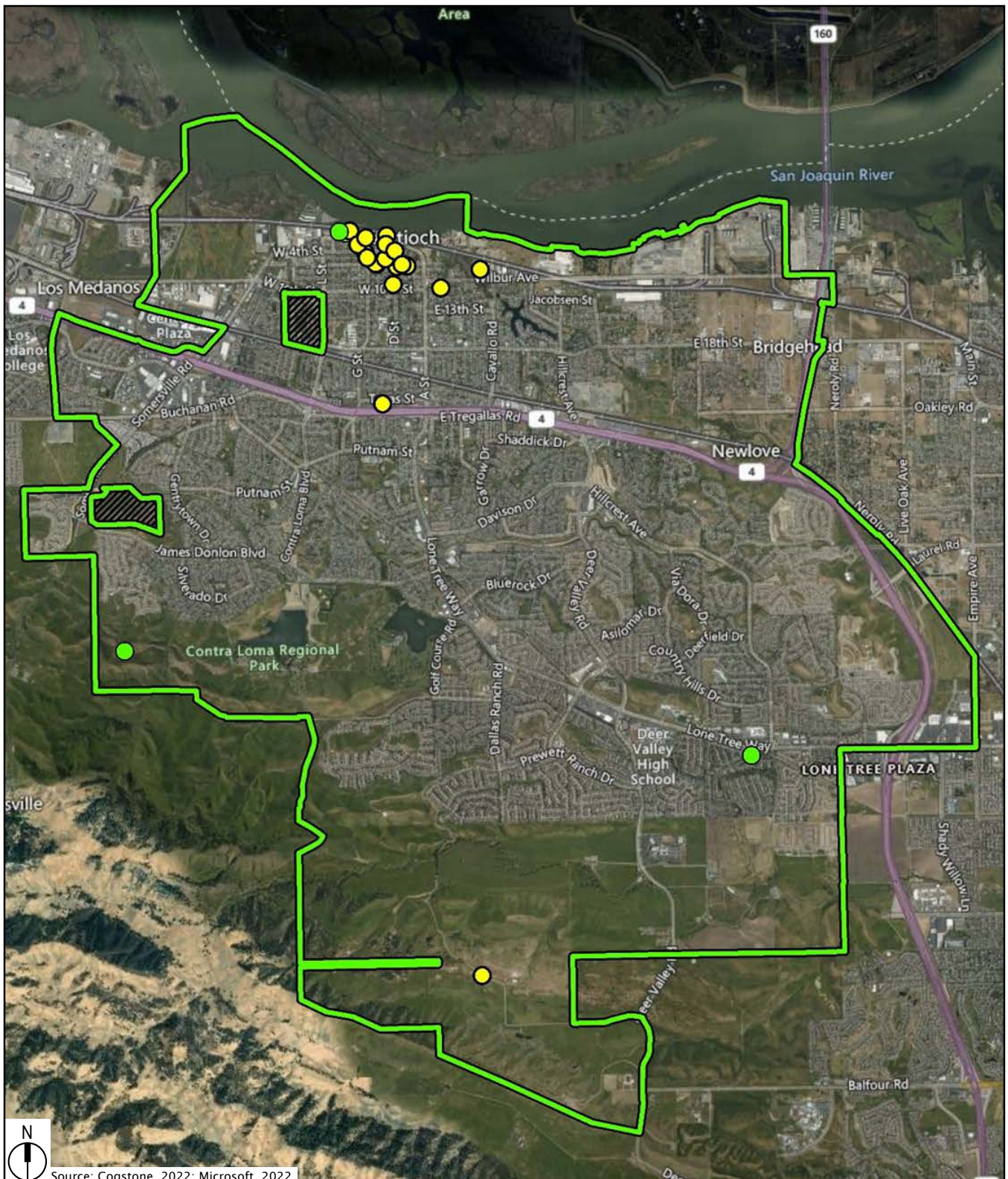
None of the proposed development sites as a part of the Housing Inventory Sites are listed as significant national or local historic resources. In addition, any future development would be subject to applicable General Plan Policy 10.9.2 related to preservation of cultural resources, which requires new development to analyze and mitigate any potential impacts related to archaeological, paleontological, and historic resources. Adherence to this policy would ensure that future development and implementation of the Project would result in less-than-significant impacts related to historical resources.

### **(2) Archaeological Resources and Human Remains (Criteria 2 and 3)**

Prehistoric site locations are confidential to protect them from vandalism and all known sites were mapped to help establish sensitivity rankings. Seven prehistoric archaeological sites are recorded in and are dispersed across the city; however, three could be better described as isolates as they have fewer than five artifacts, consist of artifacts of only a single material type, or both. Elsewhere in the region, prehistoric sites are common near water sources such as bays and rivers. However, much of Antioch's riverside was developed prior to CEQA's enactment in 1970 and any resources present were likely impacted by this construction. Developed areas within 0.5-miles of the San Joaquin River are assessed to have low to moderate sensitivity for prehistoric archaeological resources due to construction disturbance while undeveloped areas are assessed to have moderate sensitivity. The remainder of the city is assessed to have generally low sensitivity for undiscovered prehistoric resources.

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<sup>4</sup> California Code of Regulations, Title 14 Section 15126.4 (a)(1).







-  Land Grant
-  Project Location
-  Local Significance
-  National Significance

Figure IV.F-3  
Historic Built Environment

Historic-aged archaeological sites are most commonly located within the undeveloped south-most quarter and in the northern portion of the city, north of California SR-4, as shown in Figure IV.F-4. This southern portion is considered to be moderately sensitive for intact buried cultural deposits as are undeveloped areas north of California SR-4. Developed areas north of this highway are assessed to have low to moderate sensitivity due to previous ground disturbance. The remainder of the city is assessed to have low sensitivity for intact buried historic-aged sites.

No information has been found that provides additional cultural sensitivity information specifically related to human remains, including human remains that may be interred outside of formal cemeteries. As such the area that are sensitive for human remains coincide with the areas that are sensitive for prehistoric or historic archaeological sites.

Only one development site is known to overlap with a sensitive archeological area (site #112). However, this does not eliminate the potential for the discovery of previously unknown archeological sites during individual project construction across the city. Thus, the potential for discovery of previously unidentified archaeological resources associated with future development could occur. These future developments would be subject to applicable General Plan Policy 10.9.2 related to preservation of cultural resources, which requires new development to analyze and mitigate any potential impacts related to archaeological, paleontological, and historic resources. Adherence to this policy would ensure that future development and implementation of the Project would result in less than significant impacts related to archeological resources.

### **(3) Tribal Cultural Resources (Criterion 4)**

As described above, a search of the Sacred Lands File (SLF) for the city by the Native American Heritage Commission (NAHC) completed on April 24, 2022, indicated that there are no sacred lands known to the NAHC within the city of Antioch. The SLF is a living database with new sacred lands constantly being added. For this reason, new searches of the SLF should be completed on a project-by-project basis.

Consistent with the requirements AB 52 and SB 18, the City of Antioch completed Native American consultation. The two responses to notification letters are summarized below.

On December 1, 2021, Corrina Gold, Tribal Chair for The Confederated Villages of Lisjan Tribe responded that the "Tribe would like to consult on the General Plan Update for the City of Antioch. The Tribe is requesting a copy of the General Plan and the DEIR. Once that is received the Tribe can move forward with the consultation process."

On November 30, 2021, Cultural Preservation Department staff of the Wilton Rancheria responded that they determined the city lies within the Tribe's ancestral territory. They continued saying "The Tribe at this point in time has no concerns, however if potential tribal

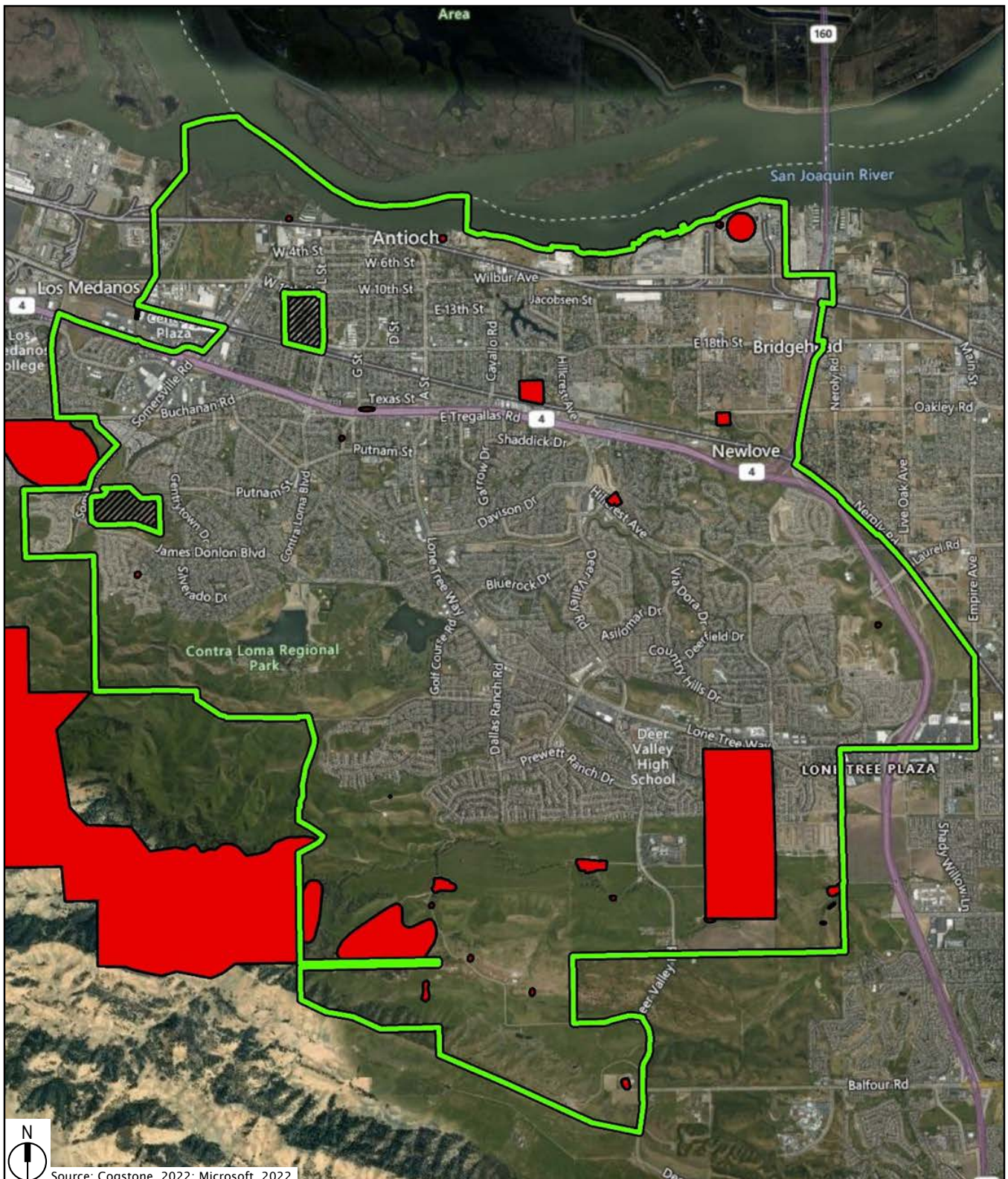


Figure IV.F-4  
Historical Archaeological Sites

cultural resources (TCRs), archaeological resources, other cultural resources, articulated, or disarticulated human remains are discovered during construction, the Applicant should immediately stop construction and notify the appropriate Federal, State Agencies and the Tribe.” The Tribe also provided additional details for the handling of cultural remains and notification of the Tribe and requisite officials.

Based on information provided in consultation with tribes, no known tribal resources would be affected; however, this does not eliminate the potential for the discovery of previously unknown tribal resources during individual project construction. Thus, the potential for discovery of previously unidentified tribal resources associated with future development could occur. These future developments would be subject to applicable General Plan Policy 10.9.2 related to preservation of cultural resources, which requires new development to analyze and mitigate any potential impacts related to archaeological, paleontological, and historic resources. Adherence to this policy would ensure that future development and implementation of the Project would result in less-than-significant impacts related to archeological resources. Furthermore, in the event that future development projects encountered human remains, in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods. Adherence with these State and local policies would ensure that impacts related to tribal resources would remain less than significant.

### **c. Cumulative Cultural and Tribal Cultural Resources Impacts**

The geographic area of concern for cumulative cultural and tribal resources impacts is the city. The intensification of land uses caused by future development under the Project together with other development projects in the area could result in the increased potential impact and discovery of both identified and unidentified cultural, archeological, and tribal resources, and thereby create a cumulative effect on these resources. However, as described above, future development would be subject to applicable federal, State, and local policies such as General Plan Policy 10.9.2 which would ensure that any potential impacts related to archaeological, paleontological, and historic resources remains less than significant.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

F. CULTURAL AND TRIBAL RESOURCES



## **G. AESTHETICS**

This section describes the current aesthetics conditions in the city of Antioch; discusses the regulations and policies pertinent to aesthetics resources; and assesses the potentially significant impacts to the environment that could result from implementation of the Project and its associated development.

### **1. Setting**

This section provides background information on aesthetics and summarizes the existing environmental setting related to aesthetics within the city.

#### **a. Scenic Resources**

Located along the San Joaquin-Sacramento River Delta and at the foothills of the Diablo Mountains in the Eastbay region of the San Francisco Bay Area, the City of Antioch boasts a number of scenic vistas and other resources which contribute to the overall existing aesthetic setting of the city. These resources are described below.

##### **(1) San Joaquin River**

The San Joaquin-Sacramento River Delta serves as the northern boundary to the city but also as an important scenic resource and landmark, providing scenic vistas, natural view corridors and outdoor recreation opportunities to residents and visitors. The western portion of the city's riverfront is largely dedicated to parks and open space including the Corteva Wetlands Preserve, the City of Antioch Boating Marina, and historic downtown all of which provide view corridors of the River. To the east, the riverfront transitions to more industrial oriented, employment generating uses as well as additional parks and open space like the Antioch Dunes National Wildlife Refuge. North-south roadways such as Somersville Road, A Street, Contra Coma Boulevard, Lone Tree Way, Hillcrest Avenue, and State Route (SR-) 160 all provide motorists with views of the San Joaquin River.

##### **(2) Downtown Antioch**

The city's downtown, located along the San Joaquin Riverfront, reflects the city's historic prominence in the 19<sup>th</sup> and 20<sup>th</sup> centuries as a shipping point in California's early cattle and mining industries. Encompassing approximately 0.75 square miles in area, downtown is organized into a traditional street grid and boasts a mix of residential and commercial uses in a highly walkable, pedestrian-oriented environment. Residential neighborhoods within downtown consist of an eclectic mix of building styles from the turn of the century as well as contemporary building styles and higher density apartment buildings. Throughout downtown, neighborhoods are interspersed

with institutional, cultural and/or historic buildings such as churches, lodges and theatres which serve as landmarks, and contribute to the visual character of historic downtown. A few of these landmarks are included below:

- El Campanil Theatre
- Riverview Lodge Restaurant
- Riverview Fire District Building
- Roswell Butler Hard House
- The Lynn House
- Beedee Lumber Building

### **(3) Mount Diablo, Ridgelines and Foothills**

Mount Diablo is located approximately 6 miles southwest of the city but with an elevation of 3,557 feet the mountain and its ridgelines and foothills serve as scenic resources and characteristic landmarks to the city. Views of Mount Diablo can be seen from the San Joaquin Riverfront, but north-south roadways such as Somersville Road, A Street, Contra Coma Boulevard, Lone Tree Way, Hillcrest Avenue, and SR-160 all provide motorists with scenic views of the Range as well. Contra Loma Regional Park, located in the southwest corner of the city provides public outdoor recreation opportunities near the Mountain's foothills.

#### **b. Scenic Vistas / View Corridors**

##### **(1) SR-160 – Eligible California State Scenic Highway Corridor**

State Road 160 bisects the eastern portion of the city and connects the city to Sacramento to the north and to the Sierra foothills and neighboring city of Brentwood to the southeast. In addition to serving as critical transportation infrastructure, SR-160 also provides unique and valuable view corridors of the Diablo Mountain Ranges to the south of the city of Antioch as well as the San Joaquin-Sacramento River Delta to the north. Because of this the segment of the roadway between Sacramento and Brentwood is designated as an "eligible" roadway by the State of California's Scenic Highway Program operated by the California Department of Transportation (Caltrans). The Scenic Highway Program identifies state highways that together with adjacent scenic corridors contribute to the overall scenic beauty of the State of California.<sup>1</sup>

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<sup>1</sup> California Department of Transportation, 2019. California State Scenic Highway System Map. Available at: <https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>, accessed June, 8, 2022.

## **(2) Other View Corridors**

In addition to SR-160, there are various roadway corridors throughout the city which provide view corridors of the San Joaquin River, Mount Diablo ridgelines and the city's various other scenic resources. These include:

- Lone Tree Way
- Hillcrest Avenue
- Somersville Road
- SR-4
- A Street
- James Donlon Boulevard
- Deer Valley Road
- Empire Mine Road

### **c. Existing Sources of Light and Glare**

Lighting is an essential part of the built environment and is often necessary to provide a safe and secure setting for residents. However, if not thoughtfully considered during design, lighting and/or glare from urban uses have the potential to “spillover” and disrupt adjacent uses or degrade either daytime or nighttime views.

Existing sources of light and glare in the city include those common in urbanized areas such as building lights – both interior and exterior, signage, public streetlights, vehicular use area lighting, and automotive lights.

## **2. Regulatory Setting**

This section describes the existing federal, State, and local regulatory frameworks related to aesthetics.

### **a. Federal and State Regulations**

The following section describes the existing federal and state regulatory environment related to aesthetics.

#### **(1) California Scenic Highway Program.**

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect the scenic value of the state's highway corridors from change, which would diminish the aesthetic value of lands adjacent to these corridors. SR-160 which connects the city of Antioch to

Sacramento to the north and Brentwood to the southeast, is designated an “eligible” corridor on the State’s Scenic Highway Map. The City has not applied to the California Department of Transportation to officially designate SR-160 a scenic highway. Subsequently, the City has also not prepared or adopted a Scenic Corridor Protection Plan as required by State Statute to encourage quality development that does not degrade the scenic value of the SR-160 corridor.

Roadways determined to be “eligible” for official Scenic Highway designation must undergo the formal designation process which includes the local governing body performing a visual assessment of the roadway, submitting a proposal to Caltrans for consideration, and adoption of a local Corridor Protection Program as required by State Statute. Corridor Protection Programs are a plan adopted by local governments to demonstrate protection of the appearance of the scenic corridor. The Program generally regulates the land generally adjacent to the highway right-of-way and oversees permitted land uses and intensities, detailed land and site planning, control of outdoor advertising, careful attention to earthmoving and landscaping, and the design and appearance of structures and equipment. The City has not applied to the California Department of Transportation to officially designate SR-160 a scenic highway. Subsequently, the City has also not prepared or adopted a Scenic Corridor Protection Plan as required by State Statute that regulates development adjacent to the scenic roadway.

## **b. Local Regulations**

The following section describes the existing local regulatory environment related to aesthetics.

### **(1) City of Antioch General Plan**

#### **Chapter 4.0, Land Use**

Chapter 4.0 of the City’s General Plan, the Land Use Element, is the cornerstone of the City’s General Plan as it directs growth and development to suitable locations throughout the city while maintaining the economic, social, physical and environmental health of the community. This Chapter focuses on organizing the physical built environment of Antioch into logical, functional patterns that also consider the visual and aesthetic character of the city. The Land Use Element establishes various land use designations that are strategically located throughout the city to permit compatible development consistent with the goals, objectives, and policies of the General Plan.

##### *Policy 4.4.6.2: Western Antioch Commercial Focus Area*

- a. Areas designated “Commercial” on Figure 4.3 shall comply with the provisions of the Western Antioch Commercial land use category (see Table 4.A).
- b. Areas designated “Regional Commercial” on Figure 4.3 shall comply with the provisions of the Regional Commercial land use category (see Table 4.A).

- c. Areas designated "High Density Residential" in Figure 4.3 shall comply with the provisions of the High Density Residential land use category (see Table 4.A).
- d. An urban design plan should be prepared for the entire Western Antioch Commercial Focus Area. The design plan should define a design theme; set specific architectural, sign, landscape, and streetscape design standards for the corridor; and select specific designs for public improvements such as street lighting, special paving sections at intersections, and street furniture.
- e. A façade improvement program should also be undertaken for existing commercial uses within this Focus Area.

*Policy 4.4.6.3: Eastern Waterfront Employment Area*

- a. Areas designated "Eastern Employment Business Park" in Figure 4.4 are intended for employment-generating uses compatible with a location adjacent to residential neighborhoods as a transition from other industrial uses. Appropriate land use types are set forth in Table 4.A. The maximum allowable intensity shall be an FAR of 0.55.
- b. The "Commercial" area identified in Figure 4.4 shall comply with the provisions of the Neighborhood Commercial Land Use designation (see Section 4.4.1.2).
- c. Areas designated "Multi-Family Residential" in Figure 4.4 shall comply with the provisions of the High Density Residential land use category (see Section 4.4.2.2 of the Land Use Element).
- d. The "General Industrial" area identified in Figure 4.4 shall comply with the provisions of the General Industrial land use category described in Section 4.4.1.3 of the Land Use Element.
- e. The "Light Industrial" area identified in Figure 4.4 shall comply with the provisions of the Light Industrial land use category described in Section 4.4.1.3 of the Land Use Element.
- f. The "Regional Commercial" area identified in Figure 4.4 shall comply with the provisions of the Regional Commercial land use category described in Section 4.4.1.2 of the Land Use Element.
- g. The "Marina/Supporting Uses" area identified in Figure 4.4 shall comply with the provisions of the Marina/Supporting Uses land use category described in Section 4.4.1.2 of the Land Use Element.
- h. The "Open Space" area identified in Figure 4.4 shall comply with the provisions of the Open Space land use category described in Section 4.4.1.4 of the Land Use Element.
- i. Work with property owners and the California Department of Toxic Substances Control to facilitate clean up of existing brownfields within the industrial properties between Wilbur Avenue and the San Joaquin River.
- j. If a rail transit stop can be established along the BNSF line west of the Route 160 freeway, development of a high-density cluster of retail, office, and residential uses adjacent to the proposed site would be appropriate. Such development could occur as an integrated, mixed-use project at densities as high as an FAR of 1.0 for non-residential uses and up to 35 units per acre for the residential portion of such mixed-use development. As part of the development of sites adjacent to the freeway interchanges at Wilbur Avenue and East 18th Street, establish community gateway monumentation is to be provided, including distinctive signage and landscaping, expressing the theme of Antioch as "Gateway to the Delta." Such signage and monumentation must portray a high-quality design image for the City.
- k. As a condition of new development or redevelopment of properties along the San Joaquin River between Rodgers Point and the existing marina at the SR 160 freeway, explore requiring dedication and improvement of a riverfront trail and linear park.

*Policy 4.4.6.5L "A" Street Interchange*

- a. Areas designated "Commercial" in Figure 4.6 shall comply with the provisions of the Neighborhood Commercial Land Use designation (see Section 4.4.1.2).
- b. Areas designated "Commercial/Office" in Figure 4.6 shall comply with the provisions of the Neighborhood/Community Commercial Land Use designation (see Section 4.4.1.2). The land uses that are considered to be appropriate for areas designated "Commercial/Office" in Figure 4.6 are those identified for "A" Street Commercial/ Office in Table 4.A.

- c. Areas designated "Office" in Figure 4.6 shall comply with the provisions of the Office Land Use designation (see Section 4.4.1.3). In addition to the uses identified as being appropriate within the Office designation, Religious Assembly uses would also be appropriate.
- d. Areas designated "Residential" in Figure 4.6 shall comply with the provisions of the Low Medium Density Residential Office Land Use designation (see Section 4.4.1.1).
- e. An urban design plan should be prepared for this Focus Area. The plan should define a design theme; set specific architectural, sign, landscape, and streetscape design standards for the corridor; and select specific designs for public improvements such as street lighting, special paving sections at intersections, and street furniture.
- f. A signage and façade improvement program should also be undertaken for commercial uses within this Focus Area.
- g. To provide visual emphasis to specific locations, commercial and office buildings should be limited to two stories in height, except at the intersection of 18th Street, where three story structures with distinctive architecture ("signature buildings) are encouraged.
- h. The City should, if feasible, expand Antioch Development Agency Project Area 1 or establish a new redevelopment project area for the "A" Street Interchange Focus Area. The primary purpose of such a redevelopment project would be to:
- assist in the conversion of existing residential dwellings to commercial and office uses;
  - assist residents with relocation costs;
  - assist area businesses in financing façade and sign improvements.
- i. Assist in funding improvements within the public right-of-way (e.g., streetscape improvements, special paving at intersections, street furniture).
- j. Facilitate the consolidation of parcels along "A" Street as a means of encouraging new, high quality, pedestrian-oriented commercial and office development.

*Policy 4.4.6.6: Western Gateway*

- a. The Western Gateway Focus Area is intended for office uses northwest of Delta Fair Boulevard, along with existing multifamily residential and public uses on the opposite side of the roadway.
- b. Areas designated "Office" on Figure 4.7 shall comply with the provisions of the Office land use designation (see Section 4.4.1.3).
- c. Areas designated "High Density Residential" on Figure 4.7 shall comply with the provision of the High Density Residential land use designation (see Section 4.4.1.3)
- d. Adequate separation shall be maintained between new multi-family uses and existing residential neighborhoods. If parking areas are located along the residential edge, sufficient noise mitigation shall be provided.
- e. As part of the development of this Focus Area, community gateway monumentation is to be established at the northwest corner of Delta Fair and Century Boulevards, including distinctive signage and landscaping and expressing the theme of Antioch as "Gateway to the Delta." Such signage and monumentation must portray a high quality design image for the City.

*Policy 4.4.6.8: East Lone Tree Specific Plan Area.*

- a. The maximum development intensity for the East Lone Tree Specific Plan area shall be as follows:
- Single-Family Residential: 1,100 dwelling units, developed within the areas shown as "Residential/Open Space" in Figure 4.9, subject to the provisions of the Low and/or Medium Low Density Residential land use category described in Section 4.4.1.1 of the Land Use Element.
  - Multi-Family Residential: 250 dwelling units, developed within the areas shown as "Residential/Open Space" in Figure 4.9, subject to the provisions of the High Density Residential land use category described in Section 4.4.1.1 of the Land Use Element.
  - Commercial/Office: 1,135,000 square feet, developed within the areas shown as "Office/Retail," "Regional Retail," or "Regional Retail/ Employment Generating Lands" in Figure 4.9. Such development may include a mix

of uses that comply with the provisions of the Regional Retail land use category described in Section 4.4.1.2 or the Office land use category described in Section 4.4.1.3 of the Land Use Element.

- Business Park/Industrial: 2,152,300 square feet, developed within the areas shown as "Regional Retail/Employment Generating Lands" in Figure 4.9. Such development may include a mix of uses that comply with the provisions of the Business Park or Light Industrial land use categories described in Section 4.4.1.3 of the Land Use Element.
- b. Land uses within the area shown as Open Space/Public in Figure 4.9 may include a mix of uses that comply with the provisions of the Open Space or Public/Institutional land use category described in Section 4.4.1.4 of the Land Use Element.
- c. If a regional mall can be attracted to the East Lone Tree Specific Plan area, the land area devoted to regional retail may be expanded as necessary to accommodate this use.
- d. Should the Antioch Unified School District not purchase land within the East Lone Tree Focus Area for a new high school as provided in State law, the area may be developed consistent with the East Lone Tree Focus Area Residential/Open Space designation.
- e. The physical extent of the office/retail area along in the southwest quadrant of the Laurel Road interchange may be expanded, should the market support additional office/commercial development.
- f. With implementation smart growth principles and the introduction of a rail transit stop in the vicinity of the Focus Area, the Commercial/Employment area located adjacent to the transit stop, may be developed as a mixed-use area, incorporating high intensity, residential, commercial, and office uses. Such development could occur at densities as high as an FAR of 1.0 for non-residential uses and mixed-use buildings, up to 20 units per acre for residential areas. Residential development should incorporate residential village themes, providing identifiable neighborhood areas within the Focus Area. The identity of individual neighborhoods should be reinforced with differing architectural styles and location within the community.
- g. Development of an appropriate level of pedestrian and bicycle circulation throughout the community is to be provided, including pathways connecting the each residential neighborhood, as well as non-residential and recreational components of the community. Development of the East Lone Tree Specific Plan area should also provide recreational trail systems for jogging and bicycling, including areas for hiking and mountain biking.
- h. Public services and facilities, including needed on-site and off-site facilities, shall be provided and financed by the project as needed to meet the public services performance standards set forth in the Growth Management Element for each increment of project development.
- i. Project development shall provide full mitigation of impacts on school facilities to the Antioch Unified School District, Brentwood Union School District, and Liberty Union High School District to offset demands for new school facilities created by future development within each district.
- j. Project entry, streetscape, and landscape design elements are to be designed to create and maintain a strong identification of the East Lone Tree Specific Plan area as an identifiable "community."

*Chapter 5.0, Community Image and Design: Chapter 5 of the City's General Plan, the Community Image and Design Element, relates to preservation of the city of Antioch's distinct aesthetic and visual character, both of which contribute to the underlying livability and economic vitality of the city. Together with the Land Use Element, this Chapter of the General Plan addresses the visual quality and character of Antioch's existing built environment.*

*Policy 5.3: Goals of the Community Image and Design Element*

Create a community design theme and a visual identity for Antioch, recognizing its local as "Gateway to the Delta.

- Sustain Antioch's identity as "Gateway to the Delta" and provide the visual character of a unique, desirable living environment;
- Contribute to the City's economic development objectives and assist in achieving a local balance between jobs and housing by appealing to investors who value municipal commitments to quality development that will protect private sector investments in their projects;

- Offer incentives for new residential, commercial, office, business park, and industrial developments to achieve excellence and make a positive contribution to the community because the quality of the project will be matched or exceeded by subsequent projects;
- Stimulate development of pedestrian-friendly, appealing enclaves, and provide accessibility for bicyclists;
- Provide a vehicle for reinforcing Antioch's heritage through compatible design and preservation/reuse of historic resources;
- Enhance the quality of existing developed areas as they mature over time, eliminating perceived differences in the quality of newer and older portions of the community;
- Stimulate ongoing pride in Antioch by its citizens and those who work in the community; and
- Help to communicate to others what kind of community Antioch believes itself to be.

*Policy 5.4.2: General Design Policies*

- a. Base the City's review of public and private projects on the following general design principles.
  - Innovative design, regardless of its style, is more important to the achievement of "quality" than the use of predetermined themes.
  - "High quality" comes from the explicit consideration of all aspects of development design. It is in design details that "quality" is ultimately manifested.
  - Designers need to respect community goals and needs, as well as address their client's economic objectives.
  - Individual buildings and developments are not isolated entities, but are part of a larger district and community into which they must fit. While innovation and individual expression are sought, compatibility of design elements is also important.
  - Standardized design solutions, "corporate architecture," and "off the shelf models" cannot always be depended upon. What worked before or was accepted elsewhere may not work or be acceptable in the proposed application in Antioch.
  - Architectural styles, landscaping, and project amenities should complement surrounding development, and convey a sense of purpose, not expediency.
  - All building elevations visible to the public should be given equal attention and detail.
  - The same design solution, no matter how well done, when repeated too often or over too large an area, can become boring, lose its effectiveness, and no longer communicate "quality."
- b. Incorporate Antioch's "Gateway to the Delta" theme and reminders of its community heritage into the design of new residential, commercial, employment-generating, and recreational development, as well as into public facilities.
  - Incorporate nautical/waterway, gateway/entry, industrial or ranching themes into the design details of new developments and community facilities, such as building architecture, signage, lighting standards, site paving and landscaping, street furniture (e.g., benches, trash enclosures and receptacles), fencing, and placement of murals and sculpture in public locations.
  - Maintain a consistent design theme throughout each development project. Each individual development project and area within the project should portray an identifiable design theme.
  - Select tree species that are appropriate to their specific applications (e.g., providing shade, framing long-distance views of the San Joaquin River or Mt. Diablo, or framing short-distance views of new development).
- c. Maintain View Corridors from public spaces to natural ridgelines and landmarks such as Mount Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies.
  - Recognizing that new development will inevitably result in some loss of existing views, as part of the City's review of development and commercial and industrial landscape plans, minimize the loss of views from public spaces.
  - Important view corridors to be protected include Somerville Road, Lone Tree Way, Hillcrest Avenue, SR 4, SR 160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road.



- d. Strengthen and emphasize community focal points, visual landmarks and features contributing to Antioch's identify using design concepts and standards implemented through the zoning ordinance, design guidelines and design review process and specific plan and planned community documents.
- e. Create a framework of public spaces at the neighborhood, community, and regional scale.
- Provide for new open space opportunities throughout the City, especially in neighborhoods having minimal access to open space. This includes exploring the potential for creek corridors, bicycle and pedestrian paths, and new small open space and conservation areas.
  - Provide an open space network linked by pedestrian and bicycle paths, which preserves and enhances Antioch's significant visual and natural resources.
  - Provide sitting areas within parks and along pedestrian and bicycle paths.
  - Restore the San Joaquin Riverfront as a linear park and multi-use trail from the westerly City limits to Rodger's Point/Fulton Shipyard.
  - Utilize existing creeks, such as Sand Creek, as linear parks, providing pedestrian and bicycle paths.
  - Views along utility corridors should be retained and enhanced through the use of planting materials to frame and focus views and to provide a sense of orientation.
- f. Provide for consistent use of street trees to identify City streets, residential neighborhoods, commercial and employment districts, and entry points to the City.
- Select species that enhance the pedestrian character of, and convey a distinctive and high quality visual image for the City's streets; are drought-tolerant, fire- and pest-resistant; and complement existing street trees.
  - Use changes in tree species, scale, color and spacing to differentiate the roadway types identified in the Circulation Element.
  - Use a consistent palette of street trees to distinguish Antioch from other communities, and to distinguish individual areas within the community (e.g., Rivertown, East Lone Tree, "A" Street Corridor) from each other.
  - Street trees should relate to the scale, function, and visual importance of the area in which they are located, establishing a hierarchy of street trees for entry locations, intersections, and activity centers.
  - *Major accent trees* are to be located at City and community entry locations, key intersections, and major activity centers (e.g., County East Mall, Prewett Family Park).
  - *Street Trees* should be selected as a common tree for street frontages. A single species may be selected for all residential neighborhoods or different species to distinguish different neighborhoods from each other. Within residential neighborhoods, street trees should be full, providing shade and color. In commercial districts, the trees should provide shade but be more transparent at the motorist and pedestrian levels to promote views of stores fronts and visual interaction of pedestrians. Within employment districts street trees should provide shade and screening and be used to frame views of buildings and building entries.
- g. Maintain common community design elements throughout the City.
- Provide a system of well-designed directional signage, facilitating wayfinding to community features such as shopping areas, marinas, parks, and civic buildings.
  - Incorporate common design elements in community features such as roadway landscaping, streetlights, street signs, traffic lights, and community directional signage.
  - Use design variations in landscaping, street light standards, and street signs as a means of defining special design districts (e.g., Rivertown, Somersville Road and "A" Street corridors).
- h. Wherever feasible, existing above-ground utility lines should be placed underground.
- i. Preserve and strengthen Rivertown as a vital and attractive place.
- Promote activity along Rivertown streets through attractive building designs with street level activity and facade windows, public art, and other landscaping elements that are pedestrian-friendly.
  - Maintain views of the San Joaquin River from buildings within Rivertown, where they are available, by placing windows rather than solid walls along the river side of buildings.
  - Avoid blank parking garage building frontages.
  - Orient buildings along the first street inland from the San Joaquin River toward the river to enhance pedestrian and bicycle activity.

## IV. SETTING, IMPACTS, AND MITIGATION MEASURES

## G. AESTHETICS

- Utilize murals to enhance the design quality of existing large blank walls (e.g., Campanile Theater).
  - Seek opportunities for small public spaces throughout Rivertown to provide for the comfort of pedestrians and bicyclists, enhance street level activity, and provide sitting areas and protection from the sun and rain. Small left-over spaces between buildings, at street corners, at the edges of parking lots, or along the edges of sidewalks can thus become attractive and lively additions to the street scene.
- j. Within multi-family, commercial, office and business parks, and industrial developments, screen enclosures, loading areas, mechanical equipment, and outdoor storage areas from view from public streets, and, as appropriate, from other public views.
- Ground mounted equipment incidental to multi-family, commercial, office, and business park development shall be appropriately screened with solid walls, trellises, and/or landscaping. Equipment location should be away from the front of the building, and screening must be similar to adjacent architecture and materials.
  - Refuse collection areas are to be large enough to accommodate storage of recyclable materials, and be screened with a solid perimeter wall using materials and colors compatible with those of the adjacent structures. Refuse collection areas should be located on an interior building side yard, and are to be roofed if the contents of the area are visible from a freeway.
  - Loading docks and areas, as well as trash enclosure areas shall be screened from public view areas. When there is adjacent residential development, loading and trash enclosure areas shall be physically separated and screened from adjacent residential structures.
  - Service areas, including storage, special equipment, outdoor work areas, and loading areas, should be screened from public view with landscaping and architectural elements.
  - Screen utility equipment and communication devices so that the project will appear free of all such devices.
- k. Prohibit roof-mounted equipment (with the exception of small satellite dishes and solar panels) for single-family residential development consistent with FCC regulations.
- New residential uses should be prewired so as to allow for the placement of satellite dishes in a manner that is integrated with the building design, and avoids placement of dishes on chimneys or above the roof line.
  - Where required for commercial, office, and industrial development, screen roof mounted equipment and cellular antennas completely from public view on all sides. Particular attention shall be given to the sides visible from freeways, with the intent of minimizing the need for screening devices to the greatest extent possible.
- l. Screening of roof-mounted equipment and cellular antennas, where provided, should be an integral part of the building design and not appear as a tacked-on afterthought. Ground-mounted mechanical equipment (with appropriate wall or landscape screening) is encouraged as an alternative to roof mounting.
- m. All roof screens must be solid and continuous. Continuous grills or louvers must cover equipment. Roof screens will be sheathed in a matching or complementary material to the exterior building material.
- n. Utilize streetlights in commercial, office, and business park areas that are pedestrian-oriented, attractively designed, compatible in design with other street furniture, and provide adequate visibility and security.
- o. Design onsite lighting to improve the visual identification of adjacent structures.
- Within commercial areas, lighting should also help create a festive atmosphere by encouraging evening use of areas by pedestrians.
  - Within commercial and industrial development, provide design features such as screened walls, landscaping, setbacks, and lighting restrictions between the boundaries of adjacent residential land use designations to reduce the impacts of light and glare.
  - In all projects, lighting fixtures should be attractively designed and of a low profile to complement the overall design theme of the project within which they are located.
  - On-site lighting shall create a safe environment, adhering to established crime prevention standards, but shall not result in nuisance levels of light or glare on adjacent properties. Limit sources of lighting to the minimum required to ensure safe circulation and visibility.
- p. Lighting should accommodate night use of streets and promote security while complying with the provision of a dark night sky. Streetscape areas that are used by pedestrians at night should be well lit. Within rural and open

space areas, limit street lighting to intersections and other locations that are needed to maintain safe access (e.g., sharp curves).

q. The design of new developments shall protect residents' privacy by avoiding placement of windows directly opposite each other and avoiding windows overlooking the yard areas of adjacent residences to the maximum feasible extent.

r. New multi-family, commercial, office, and business park developments shall emphasize pedestrian level activities by utilizing the following techniques.

- design projects so as to have a central plaza or main visual focus which is oriented toward pedestrians;
- incorporate plaza areas which can be used as informal gathering places;
- install "street furniture" (benches, bus shelters, planters, bike racks, trash receptacles, newspaper racks, water fountains, and bollards) to create and enhance small plazas and similar open spaces within urban areas; and
- within commercial, office, business park, and industrial developments, encourage architectural styles that provide covered verandas and other similar pedestrian-oriented shade features.

s. Where needed, undertake active programs to minimize or prohibit through traffic from using neighborhood collectors and local streets. Visual deterrents to through traffic will be emphasized, using physical deterrents only as a last resort.

*Policy 5.4.3: Community Entries and Gateway Policies*

a. Develop gateways at key locations in the City, ranging in scale as appropriate with their importance. Gateways should be developed identifying entrances to the City, neighborhood groups or development projects, and to single buildings. Gateway improvements should include enriched paving; raised medians; decorative signage and monument pylons; landscaping; appropriately scaled lighting; public art; and other features such as freestanding banners on poles, banners hung from existing light standards, or graphic elements attached to private buildings, as appropriate.

b. Enhance the appearance of the City's major entries through streetscape improvements, City entry monumentation, and special landscape design, and special design criteria. Provide City entry monumentation at the following locations.

- 10th Street (Pittsburg-Antioch Highway) at the western city limits
- Buchanan Road at the western city limits (Standard Oil Road)
- Lone Tree Way at the easterly city limits (Empire Avenue)
- SR 4 at the western city limits
- SR 4 Bypass at the Lone Tree Way interchange
- SR 160 at the south bank of the San Joaquin River
- Deer Valley Road at the southern edge of the City

Entry monumentation at these locations should include monument signs portraying the "Gateway to the Delta" theme and City logo; enriched paving; raised medians (where feasible); public art; landscaping with seasonal color and trees of a "grand" scale; appropriate lighting; and other features such as freestanding banners on poles, banners hung from existing light standards, or graphic elements attached to private buildings, as appropriate.

c. Provide gateways to specific districts/communities within Antioch through streetscape improvements, entry monumentation, and special landscape design at the following locations.

- SR 4/Somersville Road interchange (entry into "auto row" and Rivertown to north and County East Mall to the south).
- Entries into Rivertown at the SR 4 interchanges with "A" Street and "L" Street, and the intersections of "L" Street and 10th Street, "A" Street at 6th Street, 4th Street at "L" Street, and Somersville Road at 4th Street SR 160 interchanges at Wilbur Avenue and 10<sup>th</sup> Street ( entries into eastern employment areas) Hillcrest Avenue north of the SR 4 freeway (entry into the Hillcrest Station Area Focus Area)
- Primary entries into the Sand Creek Specific Plan Focus Area
- Primary entries into the East Lone Tree Specific Plan Focus Area
- Future primary entries into the Roddy Ranch Focus Area

- Future primary entries into the Ginocchio Property Focus Area

These gateways should include enriched paving; raised medians (where feasible); decorative signage; landscaping with seasonal color; appropriately scaled lighting; public art; and other features such as freestanding banners on poles, banners hung from existing light standards, or graphic elements attached to private buildings, as appropriate. The gateway at the SR 4/SR 160 interchange would consist of a single, tall monument structure.

- d. Provide enhanced project entries into single family residential neighborhoods and multi-family, commercial, office, and business part developments.

*Policy 5.4.4: Streetscapes*

- a. Provide Street trees and streetscape landscaping that is appropriate to the character of the community and the desired character of the adjacent land use.

- b. Provide functional travel routes for pedestrians, and, where designated, bicyclists, hikers, and joggers that are buffered from automobile traffic.

- c. Use a landscaping buffer to transition between automobile traffic lanes and developed sites adjacent to the street while maintaining safe sight distances.

- d. Provide visually attractive and physically comfortable environments where people pause, gather, wait, meet, and relax, that are integrated with similar environments of adjacent private property.

- e. Design streetscape plantings to serve a variety of different functions: climate and glare control, aesthetics, and architectural enhancement, erosion protection, and delineation of space.

- Plant palettes and irrigation systems shall be designed to be water efficient. The emphasis in plant selection should be on native and naturalized plants.

- Where they are relevant to landscaping issues, cultural, environmental, and historical considerations should be incorporated into the plant palette for the streetscape.

- Landscape plans should account for the size of plants when they are mature so as to avoid an overgrown appearance, while still providing appropriate coverage and a quality visual appearance, including an appropriate amount of mature landscaping, when first planted.

- Landscape plans shall protect necessary sight visibility triangles for all transportation modes and avoid conflicts with utilities.

- Plants that are selected for roadside areas should be able to thrive in a roadside environment, including its high levels of reflected heat and glare, as well as vehicle air pollutant emissions.

- Plants selected for use in the streetscape should be easy to maintain and replace, while providing seasonal color.

- Trees should be used to provide scale, unify unrelated elements, and provide overhead and vertical planes to create sheltered spaces, provide shade and block winds, and either screen undesirable views or enhance desirable views.

- Shrubs should be used to provide mid-level vertical planes for creating space, screen or enhance views, direct/guide circulation, and provide a protective barrier between pedestrian and vehicular circulation.

- Groundcovers should be used to provide ground level visual interest and direct/guide pedestrian and bicycle circulation.

- f. The design and location of street furniture should avoid conflicts with driver sight lines and utilities.

- g. Where a distinctive street character is important, such as along "A" Street and Somersville Road, the types and colors of lighting fixtures used should contribute to that character.

- h. Pedestrian furniture (benches, planter seating, trash containers, drinking fountains, etc.) should embellish pedestrian gathering places (places for sitting, meeting people, relaxing, people watching, etc.). It should be compatible with the streetscape theme, durable, easily maintained and easily replaced. As pedestrian furniture is both in the public right-of-way and on private property, the style and placement of furniture should be coordinated on public and private property, and should avoid blocking travel on the sidewalk

*Policy 5.4.5: Freeway Corridor Design Policies*

- a. Work with Caltrans to screen views of residential development adjacent to the Route 4 freeway with dense landscape treatments, allowing only glimpses or short breaks to points of interest and commercial sites.
- b. Landscaped setbacks for structures and parking areas along freeways are to be provided to soften the appearance of development along the freeway right-of-way. These setbacks are to be of a sufficient distance and density, and are to be designed to make the landscaping, rather than the development, the dominant visual feature for freeway motorists.
- c. Structures adjacent to freeways are to be set back various distances from the freeway right-of-way to avoid flat, straight walls at the edge of a fixed setback line.
- d. Project site plans may be oriented either to the freeway or to the adjacent street, but in either case should provide an equal amount of site amenities throughout the project. Buildings should not turn their backs completely to either the freeway or adjacent street(s).
- e. Buildings visible from the freeway, regardless of their orientation, are to be designed to provide the same level of architectural detail on the freeway elevation as on other elevations of the building.

*Policy 5.4.6: General Architectural Design Policies*

- a. The size, height, bulk, and location of buildings are to be managed in relation to the size of the parcel and overall site design to avoid a crowded appearance, and preserve a visual appearance of openness.
- b. Building forms and elevations should create interesting roof silhouettes, strong patterns of light and shadow, and integral architectural detail. Box-like structures and flat monotonous facades are to be avoided.
- c. Encourage a harmonious appearance of new development with the surrounding environment and existing developments based on the compatibility of individual structures rather than one specific style of architecture.
- d. Uniform materials and compatible style should be evident within a development project in all exterior elevations. Secondary accent materials and colors should be used to highlight building features and provide visual interest.
- e. Encourage the rehabilitation of older structures within neighborhoods to preserve the City's history, and to facilitate a diversity of architectural styles in the City.

*Policy 5.4.7: Residential Development*

- a. Design new residential development in identifiable neighborhood units, with neighborhood shopping facilities, parks and recreational facilities, and schools provided as an integral component of neighborhood design.  
*Streets.* Street design should route through traffic around, rather than through new neighborhoods. Neighborhood streets should be quiet, safe, and amenable to bicycle and pedestrian use. Within new subdivisions, single-family residences should be fronted on short local streets (generally with 50 or fewer dwelling units along them), which should, in turn, feed onto local collectors (two-lane streets without dwelling units fronting on them), and then onto the master planned roadways illustrated in the Circulation Element (Figure 7.1).  
*Schools, Parks, and Recreation Areas.* Elementary schools, as well as parks and recreational areas, including joint-use school/park sites, should be contained as near the center of the neighborhood as is feasible.  
*Neighborhood Commercial Areas.* Neighborhood commercial centers should be located at the periphery of residential neighborhoods, and be designed such that residents can gain vehicular, bicycle, and pedestrian access to the centers directly from the neighborhood. Connections. Individual neighborhoods should be provided with pathways and open spaces connecting residences to school and recreational facilities, thereby facilitating pedestrian and bicycle access. Neighborhood Character. Residential neighborhoods should be designed to maintain a distinct character through the use of neighborhood signage, streetscapes, architectural styles and variations, natural topographic variations, and landscape buffers.
- b. Provide recognizable variations in front and side yard setbacks within single-family residential neighborhoods.
- c. To reduce architectural massing, two-story dwelling units should incorporate one-story elements, with the shortest and lowest side of a corner residential dwelling unit oriented toward the side street.

- d. Within multi-family and small lot single-family developments, cluster residential buildings around open space and/or recreational features.
- e. In higher density projects with tuck-under parking and/or opposing garages, avoid the monotony of long parking corridors by turning individual units and/or staggering and landscaping parking areas.
- f. Provide each unit of a multi-family development project with some unique elements to create a sense of place and identity.
  - Individual units within a project should be distinguishable from each other, and should have separate entrances and entry paths, where feasible.
  - The common space of each cluster of dwelling units should be designed to provide differences in size, dimensions, grading, and site furniture.
  - Every dwelling unit shall be provided with a usable private garden area, yard, patio, or balcony.

*Policy 5.4.11: Infill Development*

- a. Unless the specific purpose is to change the visual appearance of an area due to its outdated or deteriorated character: The scale of proposed infill development should not overpower neighboring developments. The perceived intensity and character of infill buildings should be similar to that of the existing neighborhood. Infill development should appear to be an integral part of the intended character of the neighborhood.
- b. Where single family residences dominate the existing street scene, infill development should feature single family elements along the street, with additional density behind.
- c. Setbacks for infill development should respect existing street setbacks.
- d. By using variations in building height, roof lines, facade articulation, grade definition, the overall perceived mass of proposed infill projects can be effectively reduced to be compatible with existing development. Other techniques to provide appropriate scale relationships include: Vary building setbacks and massing of large structures along major streets to provide visual interest. Detail multi-story buildings so as to reduce their vertical appearance. Provide a greater level of architectural detailing at the ground level than at upper levels.

*Policy 5.4.12: Development Transitions and Buffering Policies*

- a. Minimize the number and extent of locations where non-residential land use designations abut residential land use designations. Where such land use relationships cannot be avoided, strive to use roadways to separate the residential and non-residential uses.
- b. Ensure that the design of new development proposed along a boundary between residential and non-residential uses provides sufficient protection and buffering for the residential use, while maintaining the development feasibility of the non-residential use. The burden to provide buffers and transitions to achieve compatibility should generally be on the second use to be developed. Where there is bare ground to start from, both uses should participate in providing buffers along the boundary between them.
- c. Provide appropriate buffering to separate residential and non-residential uses, using one or more of the following techniques as appropriate.
  - Increase setbacks along roadways and common property lines between residential/non-residential uses. Provide a heavily landscaped screen along the roadway or common property line separating residential and non-residential use.
  - Locate noise-generating activities such as parking areas; loading docks; and service, outdoor storage, and trash collection areas as far from residential uses as possible.
  - Where a multifamily residential use is located adjacent along a common property line with a non-residential use, locate the noise-generating activities of both uses (e.g., parking areas; loading docks; and service, outdoor storage, and trash collection areas) along the common property line.
  - Design the residential area with cul-de-sacs running perpendicular to and ending at the non-residential use, facilitating greater separation of residential and non-residential structures than would be possible if residential streets ran parallel to the boundary of the non-residential use.

- d. Where a difference in residential density is indicated on the General Plan land use map, the size of parcels and character of development facing each other across a street or along a common property line should be similar, creating a transition between the densities in each area.
- e. Where multi-family development is located adjacent to a single-family neighborhood, appropriate buffering is to be provided.
- Increase setbacks for multi-family development along common property lines with single family development.
  - Provide a heavy landscaped screen along the property line of the multi-family use.
  - Locate noise-generating activities such as parking and trash collection areas as far from the single family neighborhood area as possible.
- f. The transition from lower to higher residential density should occur within the higher density area.
- g. Uninterrupted fences and walls are to be avoided, unless they are needed for a specific screening, safety, or sound attenuation purpose.
- h. Where they are needed, fences or walls should relate to both the site being developed and surrounding developments, open spaces, streets, and pedestrian ways.
- i. Fencing and walls should respect existing view corridors to the greatest extent possible.
- j. Fencing and walls should incorporate landscape elements or changes in materials, color, or texture in order to prevent graffiti, undue glare, heat, or reflecting, or aesthetic inconsistencies.

*Policy 5.4. 15: Landscaping*

- a. Landscape design should accent the overall design theme and help to reinforce the pedestrian scale of the project. This could be accomplished through the use of structures, arbors, and trellises that are appropriate to the particular architectural style of the project. Pedestrian amenities should be provided throughout the project including benches, trash receptacles, and lighting.
- b. The use of water efficient landscape materials and the installation of appropriate irrigation systems are required. This does not mean that the landscape is brown, displays a "desert" theme, or is devoid of plants. However, it does mean that a well designed landscape shall be provided which produces the same lush appearance as other non-water efficient landscapes, but requires less water and maintenance. Where consistent with the site's design theme, native and naturalized species should be featured in the site's landscape design.
- c. Whenever landscaping of the public parkway is required it should be designed in coordination with the project's on-site landscaping to provide an integrated design concept along street frontages.
- d. Project entries should be designed as special statements reflective of the character of the project in order to establish identity for tenants, and visitors. Accent planting, specimen trees, enhanced paving, and project entry signs should be used to reinforce the entry statement.
- e. Landscaping should be designed as an integral part of the overall site plan design. Landscaping and open spaces should not be relegated to pieces of the site left over after buildings, parking, and circulation have been laid out.

## Chapter 10, Resource Management

Chapter 10 of the City's General Plan, Resource Management relates to the conservation and use of the City of Antioch's various environmental resources including open space, biological resources, air quality, water resources, cultural resources, and energy resources. All of these resources combine to contribute to major aspects of the city's natural setting. One of the primary goals of the Resource Management Element is to conserve and enhance the unique, natural beauty of Antioch's physical setting and control expansion of urban development by protecting open space.

*Policy 10.3.2: Open Space Policies*

- a. Establish a comprehensive system of open space that is available to the public, including facilities for organized recreation; active informal play; recreational travel along formal, natural, and riverfront trails; passive recreation; and enjoyment of the natural environment.
- b. Implement the design standards of the Community Image and Design Element so as to maintain views of the San Joaquin River, Mount Diablo and its foothills, Black Diamond Mines Regional Preserve and other scenic features, and protect the natural character of Antioch's hillside areas as set forth in the Community Image and Design Element .
- c. Maintain the shoreline of the San Joaquin River as an integrated system of natural (wetlands) and recreational (trails and viewpoints) open space as set forth in the Land Use Element and Public Services and Facilities Element.
- d. Where significant natural features are present (e.g., ridgelines, natural creeks and other significant habitat areas, rock outcrops, and other significant or unusual landscape features), require new development to incorporate natural open space areas into project design. Require dedication to a public agency or dedication of a conservation easement, preparation of maintenance plans, and provision of appropriate long-term management and maintenance of such open space areas.
- e. Require proposed development projects containing significant natural resources (e.g. sensitive or unusual habitats, special-status species, habitat linkages, steep slopes, cultural resources, wildland fire hazards, etc.) to prepare Resource Management Plans to provide for their protection or preservation consistent with the provisions of the Antioch General Plan, other local requirements, and the provisions of State and Federal law. The purpose of the Resource Management Plan is to look beyond the legal status of species at the time the plan is prepared, and provide a long-term plan for conservation and management of the natural communities found onsite. Resource Management Plans shall accomplish the following.
  - Determine the significance of the resources that are found onsite and their relationship to resources in the surrounding area, including protected open space areas, habitat linkages and wildlife movement corridors;
  - Define areas that are to be maintained in long-term open space based on the significance of onsite resources and their relationship to resources in the surrounding area, and
  - Establish mechanisms to ensure the long term protection and management of lands retained in open space.
- f. Encourage public access to creek corridors through the establishment of trails adjacent to riparian resources, while maintaining adequate buffers between creeks and trails to protect sensitive habitats, special-status species and water quality to the maximum extent feasible.
- g. Where feasible, incorporate preserve and protect significant existing natural features as part of the design of new development projects rather than removing them. Where preservation of natural features is not feasible, introduce natural elements into project design. Impacts to significant natural features that cannot be preserved or reintroduced into the project design onsite shall be mitigated off-site.

*Policy 10.5.2: Open Space Transitions and Buffers Policies*

- a. Minimize the number and extent of locations where residential, commercial, industrial, and public facilities land use designations abut lands designated for open space and protected resource areas (e.g., lands with conservation easements or set aside as mitigation for development impacts). Where such land use relationships cannot be avoided, use buffers and compatible uses to buffer and protect open space and protected resources from the adverse effects of residential, commercial, industrial and public facilities development.
- b. Ensure that the design of development proposed along a boundary with open space or protected resources provides sufficient protection and buffering for the open space and protected resources. The provision of buffers and transitions to achieve compatibility shall occur as part of the proposed development.
- c. In designing buffer areas, the following criteria shall be considered and provided for (when applicable) within the buffer areas to avoid or mitigate significant impacts.
  - Aesthetics: How will development affect views from adjacent open space areas? What are the sensitive land uses and resources within open space areas and how might they be affected by changes in the visual



environment? Light and Glare: Will a proposed development result in increased light or glare in open space areas that would impact open space uses or wildlife habitats within that open space?

- Noise: Will noise generated by the proposed development affect the public's quiet enjoyment of public open space? What are the sensitive noise receptors in open space areas and how can impacts on those sensitive receptors be avoided or mitigated? Can noise-generating uses be located away from noise sensitive areas?
- Fire Safety: How will development affect the risk of fire on adjacent open space and resource areas? How would development affect or be affected by existing fire abatement practices on adjacent open space and resource areas, including livestock grazing, prescribed fire, plant pest management, mowing, disking, ecological restoration and other practices?
- Public Safety: How will development adjacent to open space or resource areas increase the risk of vandalism, trespass, and theft in adjacent open space and resource areas?
- Habitat Management: How will proposed development affect habitat values on adjacent open space and resource areas? How will development prevent the spread of introduced animals and plant pests into adjacent open space and resource areas? How will proposed development affect wildlife migration corridors between or within open space and/or resource areas?
- Public Access Management: How will development adjacent to public open space and resource areas affect the maintenance of existing public facilities, such as roads, trails, fences, gates and restrooms? How might development adjacent to open space or resource areas facilitate illegal public access?
- Buffer Management: How can appropriate management of lands that are set aside as buffers between development and open space or resource areas be ensured?

## **(2) City of Antioch Municipal Code**

### **Title 5, Chapter 1: Public Nuisances and Abatement**

The City of Antioch's public nuisance and abatement regulations are intended to provide for a comprehensive method for the identification and abatement of public nuisances within the city to protect the health, welfare and safety of residents and to promote the maintenance of real property or improve the livability, appearance and social and economic conditions of the city.

### **Title 9, Chapter 5: Zoning**

Title 9, Chapter 5 of the City of Antioch's Municipal Code includes the City's zoning regulations which promote the health, safety, and welfare of the general public by implementing the City's General Plan. More specifically the zoning regulations aid in providing a guide for physical development within the city by establishing a series of zoning districts which allow for development of various uses and intensities at different locations throughout the city.

*Policy 9-5.1205: Established Tree Preservation and/or Removal in Conjunction with Property Development*

Subsection 9-5.1205 encourages the preservation of existing trees and outlines the conditions which allow for the removal of trees in conjunction with property development.

(A) Request for tree removal incorporated into regular development application. If any established trees are on the subject property, the following information shall be provided with the regular development application.

(1) A site plan showing the existing topography with location of all established trees, clearly labeling those trees which are proposed for either saving or removal.

(2) A description of all established trees on the property, including the size (in diameter), estimated height, species, and relative condition (i.e., healthy vs. in decline).

(3) A written statement requesting permission to remove the subject tree(s) providing the reason for the request.

(B) Action on tree removal request by decision-making body. Approval or denial of the tree removal request will be made as part of the regular development application process. As part of the discretionary project review process, the decision-making body may require the preservation of a tree proposed for removal and conversely may condition the removal of a tree. Decisions to preserve and/or remove will be based on the following factors:

(1) The highest priority will be placed on the preservation of landmark and indigenous trees as defined by this chapter. Mature and established trees shall generally be preserved in respective order, although tree appearance, species and aesthetic compatibility with the proposed project are additional factors to be considered.

(2) Permission to remove tree(s) species that do not or will not contribute to the aesthetic value of the proposed project may typically be granted. The provision of shade and context of the landscape design are both to be considered.

(3) While the city may require some more modifications to a proposed site plan, if the retention of a tree would severely limit the development potential of a property when compared to neighboring property, its removal may be permitted. In order for such tree removal to be granted, the applicant must document, with alternative plans and cost estimates, how the tree preservation would unduly burden the property and development.

(C) Need of an expert opinion. Anytime during the project review process, the City may commission a certified arborist, at the applicant's expense, to provide a report on the health of a tree that the applicant requests permission to remove solely for reasons based on the alleged health of the tree such as the creation of a hazard to future circulation, buildings and/or utilities. Other factors may include the relative health and the age of the tree and its likelihood of long-term survival.

(D) Appeal. As with all discretionary approvals and/or conditions of the Zoning Administrator, Planning Commission and the Design Review Board, requirements for tree preservation and/or removal may be appealed as stipulated in this chapter.

(E) Required plus prior to initiating development. Prior to the granting of a building and/or grading permit, the applicant shall provide a site plan showing all protected trees as defined by this chapter. There is to be no excavation within the drip line of such trees with the drip line to be clearly shown in all grading and layout plans.

(F) Special circumstances to allow grading within the drip line. Although it is always preferable to avoid grading within the drip line, there may be special circumstances where grading may be permitted, such as when the preservation of a tree would otherwise not be possible. The permission to grade within the drip line is not to be seen as a routine procedure for protected trees, but as an alternative to removing trees that would otherwise be removed.

(1) Required plans and additional arborist studies. There is to be no excavation within the drip line of such trees unless specific plans are to be submitted to the Department of Community Development staff that indicates how grading within the drip is to be carried out without critically harming the tree. Additional arborist's studies must be provided to support the grading proposed.

(2) Bonding for protected trees where grading will occur within the drip line. Prior to the granting of a building and/or grading permit, the developer shall post a bond for each protected tree at which grading will occur within the drip line. The bonding schedule will be as listed under section "bonds and penalties." The City will conduct ongoing inspections during the course of the grading to assure adherence to approved plans. Should the tree(s) die "during the course of property development" as defined by this chapter, the bond shall be forfeited to the City and used for tree replacement. A percentage of the bond will be retained in either case to assure tree survival for up to five years after the issuance of a certificate of occupancy.

(G) Protection of trees during construction. Unless specific exceptions are granted prior to the initiation of construction, all construction activity and traffic shall be prohibited from the area within the drip line of a protected tree. Should the tree(s) die "during the course of property development" as defined by this chapter, the applicable penalties of this chapter shall be levied.

(H) Damage of protected tree during construction. Should a protected tree be damaged during site development, the developer shall administer all reasonable methods of treatments as approved by the Director of Community Development. The repair of the damage shall be at the expense of the developer. In addition, the City may require the posting of a bond pursuant to the requirements of this section.

(I) Need for re-hearing of a project. Any time after initial approval of a site plan by either the Zoning Administrator, Planning Commission and/or City Council, an applicant's request to remove a "protected tree" as shown on the approved site plan will require a hearing. A new public hearing will be held on the issue of tree removal and the applicant will be required to re-notice the surrounding property owners as stipulated in this chapter.

(J) Replacement of trees that were legally removed.

(1) All trees that are legally removed shall be replaced according to the following schedule:

- Each established tree: two 24-inch box trees.
- Each mature tree: two 48-inch box trees.

(2) Legally removed indigenous and land-mark trees shall be replaced by boxed specimens at a rate and size to be established by the decision-making body at the time of regular development application approval.

(K) Requirement of subsequent owners to maintain trees. All future owners of parcels on which trees were required to be maintained, (as a condition of approval) shall be responsible for continued maintenance of such trees. Buyers of property with such trees, as well as buyers of new all single-family homes, shall be given disclosure notices from the owner and/or developer of this requirement, and all other responsibility of tree management and/or preservation as required by this chapter.

(L) Previously approved projects. Projects having tentative map, final development plan, use permit, and/or design review approval prior to the effective date of this chapter are not subject to this section of the chapter, unless those pre-existing approvals expire.

*Policy 9-5.2607: Site Plan and Design Review Required*

(A) Site plan and design review shall be required for the following:

(1) Any new building or construction proposed in any zoning district, except for single-family homes in the RE, RR, RTR, R-4, and R-6 Districts;

(2) An existing building for which exterior remodeling is proposed in any zoning district, except for single-family homes in the RB, RR, RTR, R-4, and R-6 Districts; and

(3) New signs as required per Article 5, Chapter 5, Title 9 in this Municipal Code.

(B) In addition, the Council may refer any matter concerning aesthetic site planning or design consideration to the Commission for review and recommendation.

(C) A building permit shall not be issued until design approval has been obtained for those structures for which approval is required as provided in this article.

*Policy 9-5.2609: Design Guidelines*

(A) The Planning Commission shall have the authority to develop and recommend for Council approval design guidelines to establish criteria for the review of those matters required to come before the Commission. The guidelines may include criteria for site planning, landscape treatment, building design, and signs.

(B) The Citywide Design Guidelines, prepared by Downtown Solutions and dated October 2009, are herein incorporated by reference. The Zoning Administrator, the Planning Commission and the City Council shall adhere to the adopted guidelines, as amended, in site plan and design review as required in § 9-5.2607, and no such application shall be approved unless it complies with the adopted guidelines, unless findings can be made pursuant to division (C) of this section. Findings are not required to be made for development applications deemed complete prior to the adoption of this section. In circumstances where conflicts arise between the design guidelines and specific requirements of the zoning ordinance, then the design guidelines shall supersede the zoning ordinance requirements.

(C) In order to grant a waiver from adopted design guidelines, the Zoning Administrator, Planning Commission or the City Council shall find at least one of the following:

(1) That because of special circumstances applicable to the subject property, including, but not limited to, size, shape, topography, location or surroundings, the strict application of the design guidelines is not feasible; or

(2) That the overall project has a quality design, the majority of the project is consistent with the design guidelines and minor discrepancies with the design guidelines will not create a development that is undesirable or unsightly; or

(3) That the project features a unique theme or style that is not addressed in the design guidelines, but the overall project is of such extraordinary design quality that the project will not create a development that is undesirable or unsightly.

*Policy 9-5.2703: Required Findings*

(A) The Planning Commission or the Zoning Administrator, as the case may be, shall approve an application for a use permit or variance as it was applied for or in modified form as required by the reviewing and approving body.

(B) On the basis of the application, plans, materials, and testimony submitted, the Planning Commission or the Zoning Administrator shall find all of the following:

(1) For use permits.

(a) That the granting of such use permit will not be detrimental to the public health or welfare or injurious to the property or improvements in such zone or vicinity;

(b) That the use applied for at the location indicated is properly one for which a use permit is authorized;

(c) That the site for the proposed use is adequate in size and shape to accommodate such use, and all yard spaces, walls, fences, parking, loading, landscaping, and other features required, to other uses in the neighborhood.

(d) That the site abuts streets and highways adequate in width and pavement type to carry the kind of traffic generated by the proposed use; and

(e) That the granting of such use permit will not adversely affect the comprehensive General Plan.

(2) For variances.

(a) That there are exceptional or extraordinary circumstances or conditions applicable to the property involved, or to the intended use of the property, that do not apply generally to the property or class of use in the same zone or vicinity.

(b) That the granting of such variance will not be materially detrimental to the public health or welfare or injurious to the property or improvements in such zone or vicinity;

(c) That because of special circumstances applicable to the subject property, including size, shape, topography, location, or surroundings, the strict application of the zoning provisions is found to deprive the subject property of privileges enjoyed by other properties in the vicinity under the identical zone classifications; and

(d) That the granting of such variance will not adversely affect the comprehensive General Plan.

(3) For Design Review and Administrative Use Permit. No findings are necessary for Design Review Board action or for administrative use permits.

### **(3) Multi-Family Objective Design Standards (ODS)**

As part of the Housing Element Update, the City of Antioch will adopt Objective Design Standards (ODS) that will be utilized in the review of by-right, ministerial development of the various housing sites identified by the Housing Inventory Sites (Sites Inventory) pursuant to State Law. These ODS have been prepared concurrently with the Housing Element and will be adopted with the Housing Element to facilitate development of Housing Sites identified by the Project. The ODS includes site and building design requirements with standards related to but not limited to the following topics: landscaping and open space, circulation and access, building placement

and orientation, parking, lighting, building massing, façade articulation, building frontages and entries, building materials, roof design, and neighborhood design.

### **3. Impacts and Mitigation Measures**

This section analyzes the impact related to Aesthetics that would result from implementation of the Project.

#### **a. Significance Criteria**

Implementation of the Project would result in a significant aesthetics resources impact if it would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

#### **b. Findings**

##### **(1) Scenic Vistas, Resources, and Regulations Governing Quality (Criteria 1, 2 and 3)**

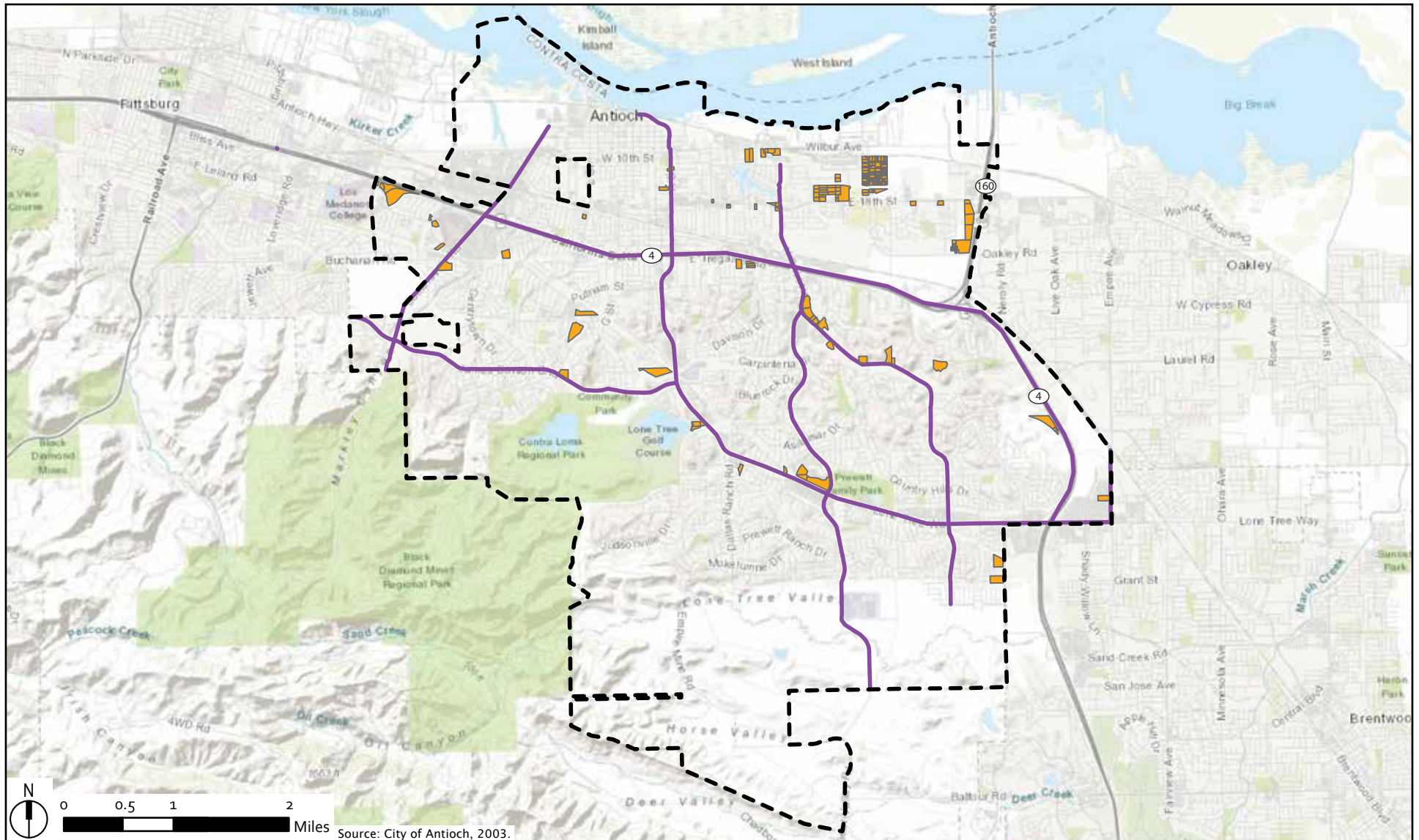
Scenic vistas are views that are considered to possess visual and aesthetic qualities of high value to the city of Antioch as a community. Typically, these vistas offer views of scenic resources, which are usually natural features that contribute to the overall visible scenery and typography of a community. As described within the above Environmental Setting, while most of the city is urbanized, two of the most prominent scenic resources in the city is that of Mount Diablo and its related ridgelines and foothills, and the San Joaquin-Sacramento River Delta. Located south of the city of Antioch, Mount Diablo and its related ridgelines and foothills are visible even from the northernmost parts of the city along the riverfront and therefore serve as a scenic resource, and backdrop to the city. Similarly, the confluence of the San Joaquin and Sacramento Rivers along the city's northern municipal boundary, serves as another scenic resource which has helped Antioch earn its nickname as the "Gateway to the Delta".

Both Mount Diablo and its related ridgelines and foothills, as well as the San Joaquin-Sacramento Rivers are visible from various vantage points or vistas throughout the city. These vistas include public open spaces like parks and recreation areas including Contra Loma Regional Park located in the southwestern corner of the city, as well as the Corteva Wetlands Preserve, the City of Antioch Boating Marina, Riverfront promenade and linear park, and the Antioch Dunes National Wildlife Refuge located along the riverfront in the northern portion of the city. Scenic vistas also include public roadways throughout the city, as outlined within Section 5.4.2 (c) of the City's General Plan regarding Community Design, including Somerville Road, Lone Tree Way, Hillcrest Avenue, SR-4, SR-160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road.

Adoption and implementation of the Project would result in the potential for residential development at increased densities and intensities throughout the city of Antioch. This increased development potential is anticipated to be developed in existing urbanized areas of the city, and along major roadway corridors throughout the city within these areas. Properties included in the Sites Inventory are not proposed within the hillside areas of the city; however, several properties included in the Sites Inventory identified by the Project are proposed to be located along roadways which are identified within the City's General Plan as offering unique view corridors of scenic resources. These include Sites 105-108, 181, and 182 located along SR-160; Sites 113, 115, and 137 located along SR-4; Sites 111, 126, 153, 156-159, 161, and 171 located along Hillcrest Avenue; Sites 116-118 located along Deer Valley Road; Sites 151 and 163 located along James Donlon Boulevard and Sites 116-119, 141, 142 located along Lone Tree Way (see Figure IV.G-1).

Additionally, implementation of the Project result in changes to the zoning that would accommodate increased development densities and intensities on the possible properties included in the Sites Inventory and allow for development of the sites with multifamily development within the allowed density range. Most of the candidate sites are currently zoned for low-density residential, agricultural residential, or commercial uses. Future development associated with the Housing Element Update could result in the development of high-density residential uses currently vacant or underutilized parcels with areas of the city that are currently and/or are planned for urban land uses.

Future development of properties included in the Sites Inventory identified as part of the Project would be subject either ministerial or discretionary review, dependent on the proposed housing development. Developments eligible for ministerial review pursuant to State Law would be reviewed by City Staff for consistency with the multi-family ODS described above. Development not eligible for ministerial review will be reviewed discretionally by City Staff and the City's Planning Commission pursuant to the design review process and guidelines described within Policy 9-5.2607, Policy 9-5.2609, and Policy 9-5.2703 of the City's zoning code. The City's design review process would also be utilized to ensure development occurs consistently with the City's



-  City Boundary
-  Housing Sites
-  View Corridor

Figure IV.G-1  
City of Antioch View Corridors

General Plan policies, many of which are related to scenic quality, including General Plan Policies 5.4.2, 5.4.5, 5.4.6, 5.4.11, 5.4.12, 10.3.2, and 10.5.2.

Both ministerial and discretionary review would ensure design and location of any future development projects are compatible with surrounding development and the City's scenic vistas, resources, and natural features. Accordingly, there would be no conflicts between development proposed by the Project and existing regulations governing scenic quality and no impacts are anticipated. Further, due to existing and proposed regulations governing scenic quality, no impacts to scenic resources and vistas will be generated and no mitigation measures are required.

## **(2) Light and Glare (Criterion 4)**

Development of properties included in the Sites Inventory may introduce new sources of light and/or glare. However, due to properties included in the Sites Inventory being primarily located in existing urbanized areas of the city, any new lighting and/or glare would not exceed that of existing conditions discussed above in *Section IV.G.1, Setting*, above. Additionally, development of properties included in the Sites Inventory will be required to be reviewed for consistency with existing and proposed policies related to light and glare as included within *Section IV.G.2, Regulatory Setting*, above. Development of properties included in the Sites Inventory would be subject either ministerial or discretionary review dependent on the proposed housing development, as described above. Developments eligible for ministerial review pursuant to State Law would be reviewed by City staff for consistency with the multi-family ODS described above. Development not eligible for ministerial review would be subject to discretionary review by City staff and the City's Planning Commission pursuant to the design review process and guidelines described within Policy 9-5.2607, Policy 9-5.2609, and Policy 9-5.2703 of the City's zoning code. These policies include provisions intended to prevent and mitigate any potential adverse impacts of development identified by the Project, including sources of light and glare. Accordingly, impacts would remain less than significant.

### **c. Cumulative Aesthetics Impacts**

The development of the future properties included in the Sites Inventory was determined to result in less-than-significant impacts to the existing visual character and quality of the city and surrounding area. Future projects considered in the cumulative scenario would generally be subject to the City's underlying zoning standards that include regulations pertaining to permitted uses, minimum lot dimensions, and maximum building height, City design standards, and the General Plan policies described previously. Future development projects would likely be located where similar existing uses occur, and as such, would not entail a significant visual change such that the existing visual character or quality of project sites and their surroundings would be substantially degraded. As such, the proposed development of properties included in the Sites



Inventory would not result in cumulative significant impacts that would degrade the existing visual character or quality of the area and its surroundings. Potential cumulative impacts would be less than significant.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

G. AESTHETICS

## H. BIOLOGICAL RESOURCES

This section describes the biological resources present or potentially present in the city of Antioch and discusses potential impacts to these resources that could result from implementation of the Project.

Biological resources were identified through a literature review of existing information and aerial imagery, focusing on properties in the Housing Inventory Sites (Sites Inventory). The review provided information on the biological resources in the vicinity, the extent of known sensitive natural communities and jurisdictional waters, and the distribution and habitat requirements of special-status species that have been reported from or are considered to have some likelihood to occur in the Antioch vicinity. This included review of the occurrence records of the California Natural Diversity Data Base (CNDDDB) of the California Department of Fish and Wildlife (CDFW), designated critical habitat for listed special-status species, wetlands mapped by the U.S. Fish and Wildlife Service (USFWS) as part of the National Wetland Inventory.

### 1. Setting

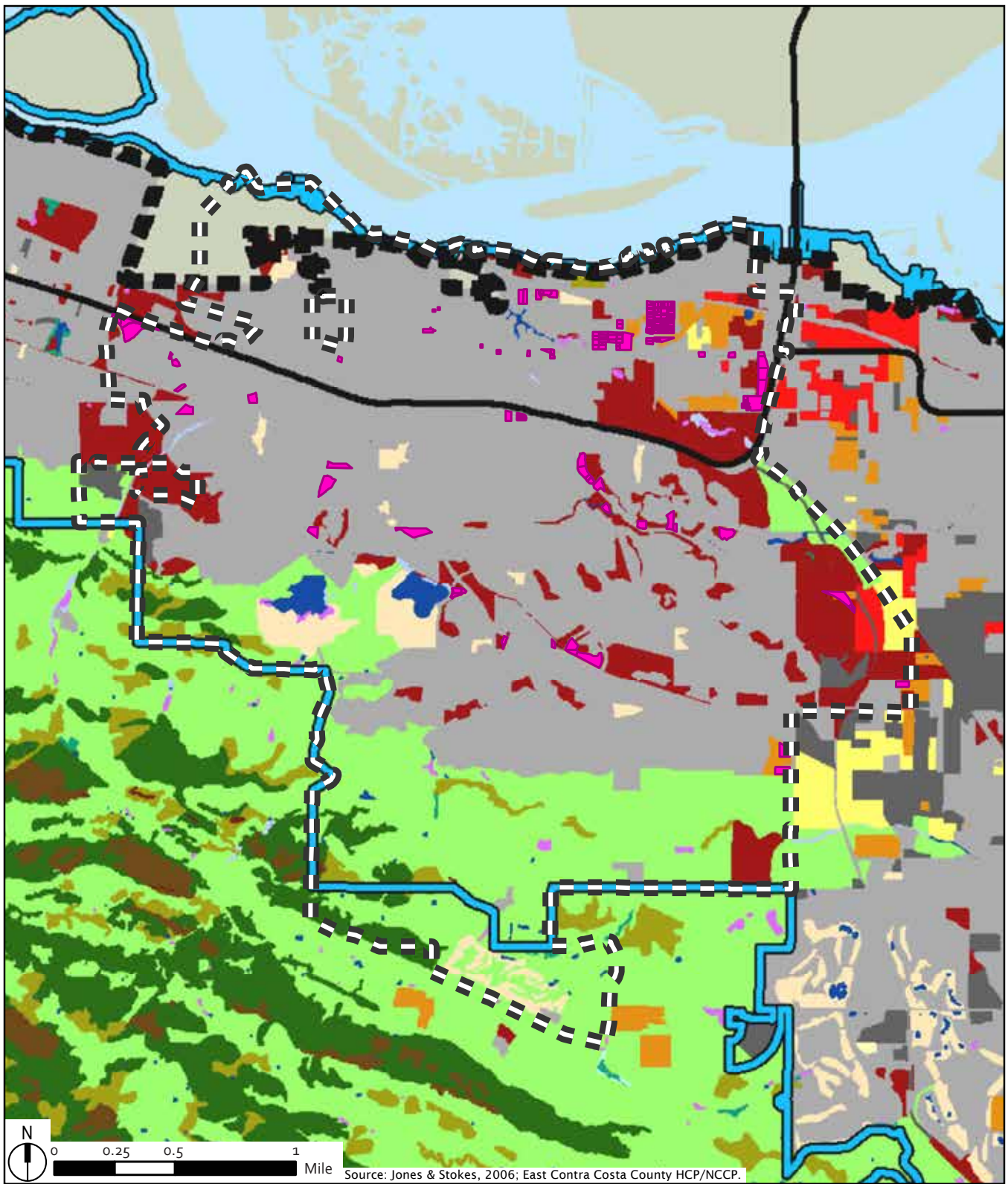
This section provides a summary of biological resources in the city (also referred to herein as the "Project Area"). Urban and suburban development occupies most of the Project Area. The southern rolling hills support a natural cover of grasslands, with areas of oak savannah, oak woodland, and chapparal. Planted cover occurs in improved parks and the remaining areas of vineyards and orchard crops in the Project Area. Marshland and riparian habitat occurs in some locations along the northern shoreline of the Delta and along creeks and other drainages in the Project Area.

Figure IV.H-1 shows the extent of urbanization and various landcover types in the Project Area, based on mapping prepared as part of the East County Habitat Conservation Plan/Natural Community Conservation Plan (ECHCP/NCCP).<sup>1</sup> The following provides a summary of the various habitat types in the Project Area, together with information on typical wildlife associated with these habitats. Much of the setting discussion below is extracted from the Biological Resources section of the Antioch General Plan Update EIR<sup>2</sup> given the descriptions still characterize cover and habitat conditions in the Project Area, although some information has been updated to provide the latest data on the known distribution of special-status species and other sensitive resources.

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<sup>1</sup> Jones & Stokes, 2006. East Contra Cost County Habitat Conservation Plan and Natural Community Conservation Plan, prepared for Esat Contra Costa County Habitat Conservation Plan Association, October.

<sup>2</sup> LSA Associates, Inc., 2003. Draft Genal Plan Update Environmental Impact Report, City of Antioch, prepared for City of Antioch, July.



- |                  |                     |               |                    |               |
|------------------|---------------------|---------------|--------------------|---------------|
| City Boundary    | Chaparral           | Oak woodland  | Ruderal            | Wetland       |
| Housing Sites    | Cropland            | Orchard       | Seasonal wetland   | Wind turbines |
| Alkali grassland | Grassland           | Pasture       | Slough/channel     |               |
| Alkali wetland   | Landfill            | Pond          | Turf               |               |
| Aquatic          | Non-native woodland | Riparian      | Urban/future urban |               |
| Aqueduct         | Oak savanna         | Rock outcrops | Vineyard           |               |

Figure IV.H-1  
Land Cover

## a. Habitat Types within the Project Area

### (1) Urban

Urban developed land, both residential and industrial, occupies most of the Project Area. Developed areas tend to provide little to no habitat for most native wildlife and plants due to the conversion of natural habitat to roads, buildings, impervious surfaces and ornamental landscaping. Tree species commonly found in landscaped yards and in the parks and landscaping within the Project Area include coast redwood (*Sequoia sempervirens*), London planetree (*Platanus acerifolia*), Australian tea tree (*Leptospermum laevigatum*), southern magnolia (*Magnolia grandiflora*), deodar cedar (*Cedrus deodara*), Monterey pine (*Pinus radiata*), eucalyptus (*Eucalyptus* spp.), and native coast live oak (*Quercus lobata*), among others.

Wildlife species found in urbanized areas are tolerant of on-going disturbances and human presence, and often considered pests that are capable of utilizing limited food sources. Landscaped areas can provide cover, foraging, and nesting habitat for bird species that have adapted to urban environments and are tolerant of disturbances and human presence. Many of the wildlife species found in urban areas are non-native, such as racoon, Virginia opossum, Norway rat, house mouse, red fox, house finch and English sparrow, among others. Native wildlife such as Pacific treefrog, western fence lizard, alligator lizard, mallard, burrowing owl, barn swallow, Brewer's blackbird, California scrub jay, Anna's hummingbird, and myotis bat may remain where suitable foraging and breeding habitat conditions remain in otherwise urbanized areas.

### (2) Grasslands

Non-native annual grassland forms the dominant natural cover in the Project Area outside urbanized lands. Most of these have historically been used for grazing and support a cover of annual introduced grasses and forbs. Depending on the degree of disturbance or overgrazing, they may be infested with thistles and other invasive species. The most common species in non-native grassland in the Antioch area include wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), yellow star thistle (*Centaurea solstitialis*), filaree (*Erodium* sp.), and mustards (*Brassica* and *Hirschfeldia* sp.). A few native species that are strong competitors, such as fiddleneck (*Amsinkia* spp.), bluedicks (*Dichelostemma capitatum*), lupine (*Lupinus* spp.), California poppy (*Eschscholzia californica*), and owl's clover (*Castilleja exserta* and *C. densiflora*) do persist among the non-native plants. Where the vegetation is thin due to poor or shallow soils, other native grass species such as purple needle grass (*Nassella pulchra*) and possibly special-status species can remain. Remnant stands of native grasslands occur in scattered locations in the southern hillsides of the Project Area and may be considered a sensitive natural community type by the

CDFW where native cover and species diversity is high enough because of the loss of native grasslands from overgrazing and other disturbance over the past 150 years in California.

Vacant urban land that has been graded or highly disturbed is scattered throughout the Antioch Project Area. These lands generally contain ruderal (weedy) species like yellow star thistle, wild oats, wild barleys (*Hordeum* spp.), ripgut brome, bindweed (*Convolvulus arvensis*), prickly wild lettuce (*Lactuca serriola*), mustards, Italian rye grass (*Lolium multiflorum*), bristly oxtongue (*Picris echinoides*), curly dock (*Rumex crispus*), Bermuda grass (*Cynodon dactylon*), and tobacco tree (*Nicotiana glauca*). Relict native species (and potentially even special-status species) can possibly exist in small patches on these vacant lands.

In addition to stands of native grasslands, two other unique grassland types are found in the Project Area – Alkali meadows and vernal pools. Both are considered seasonal wetland types, but they are found in low lying areas and topographic depressions.

Alkali meadows typically have visible salt crust on the soil surface, and support species tolerant of saline conditions. Dominant species typically include Mediterranean barley (*Hordeum marinum*), saltgrass (*Distichlis spicata*), alkali heath (*Frankenia salina*), California goldfields (*Lasthenia californica*), toad rush (*Juncus bufonius*), sand spurrey (*Spergularia* spp.), alkaliweed (*Cressa truxillensis*), alkali mallow (*Malvella leprosa*), and Mayweed (*Anthemis cotula*). This unique seasonal wetland habitat type is also known to support a number of special-status species like brittlescale (*Atirplex depressa*), and San Joaquin spearscale (*A. joaquiniana*).

Vernal pools are seasonal wetlands that typically occur in depressions within grasslands. These depressions collect water during the winter and spring rains and dry once the rains cease. As the ponds dry in the spring, a succession of different plant species bloom around the edges of the pool. A high-quality vernal pool will display concentric rings of different colors of flowers in bloom in midspring. Because vernal pools tend to be isolated from each other, they may possess a unique flora that includes special-status plants like the Contra Costa goldfields (*Lasthenia conjugans*), a federally endangered species. Vernal pools are also habitat for special-status animals like the California tiger salamander (*Ambystoma californiense*), fairy shrimp (*Branchinecta* sp., *Linderiella occidentalis*), and tadpole shrimp (*Lepidurus packardii*).

Typical plant species associated with vernal pools in the Antioch area include rabbit's foot grass (*Polypogon monspeliensis*), Fremont goldfields (*Lasthenia fremontii*), valley popcorn flower (*Plagiobothrys stipitatus*), dwarf woolyheads (*Psilocarpus brevissimus*), flat-faced downinga (*Downingia pulchella*), brass-buttons (*Cotula coronopifolia*), and sand-spurrey (*Spergularia marina*). Alkaline vernal pools may have a slightly different plant composition. Vernal pools are most likely to be found in the rolling grasslands of the southern portion of the Project Area.

Many species of wildlife use grasslands for foraging and breeding, such as western meadowlark, savannah sparrow, western fence lizard, gopher snake, Bottas pocket gopher, California vole, California ground squirrel, and striped skunk among many others. Black-tailed deer browse on perennial grasses, forbs, and shrubs in the grassland, and grey fox and coyote hunt for small mammals and other prey. A number of predatory birds rely on the insects and smaller mammals and birds of the grasslands as an important source of prey. These include American kestrel, red-tailed hawk, turkey vulture, great-horned owl, barn owl, and loggerhead shrike, among others.

### **(3) Agricultural Lands**

Agricultural uses of land in the Project Area include hayfields, vineyards, almond orchards, and walnut orchards. Farm homes, agricultural buildings, and corrals are included in this category. Most of the agricultural lands are found along the eastern edge of the Project Area, but they can also be found scattered among the more urban areas as reflected by the mapped vineyards, orchards and pastureland in Figure IV.H-1.

Agricultural lands do not typically provide habitat for native plants and typically have relatively low habitat values for most wildlife. The margins of agricultural fields that abut undisturbed areas may support some native species that are tolerant of disturbance, but mostly, these areas are unsuitable for native plant species. Likewise, agricultural areas typically have limited value to native wildlife due to the routine disturbance required for maintenance and production. Depending on the crop and the season however, wildlife may make use of agricultural areas on an occasional basis. Birds may find suitable foraging habitat in newly tilled soil and small mammals may find food and cover in grain crops. The edges of agricultural fields, where disturbance is minimized, may provide opportunities for burrowing animals such as California ground squirrels and burrowing owls.

### **(4) Oak Woodlands**

Blue oak woodland is found on north-facing slopes and in shady ravines in the Mt. Diablo foothills. Besides the dominant blue oak (*Quercus douglasii*), a scattering of other trees may be present, including the gray or foothill pine (*Pinus sabiniana*), interior live oak (*Q. wizlizenii*), California buckeye (*Aesculus californica*), and hoptree (*Ptelea crenulata*). The understory conditions vary from native or non-native grassland to thickets of shrubs and vines such as manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), coyote brush (*Bacharus pilularis*), poison oak (*Toxicodendron diversilobum*), and saplings of live oak and buckeye.

Valley oak woodlands once dominated the edges of the Central Valley in vast park-like stands but have largely been replaced by agricultural fields and urbanization. Stands of valley oak are still found in Contra Loma Regional Park and other locations in the southern portion of the Project

Area. Valley oak woodlands generally support a grassland understory, typically with scattered saplings where grazing hasn't suppressed regeneration.

Oak woodlands are important habitat for numerous common and special-status wildlife species. Black-tailed deer, western scrub-jays, and acorn woodpeckers are common inhabitants of this habitat type. Numerous bird species use the trees for nesting, roosts, and foraging, including a number of raptor species.

## **(5) Riparian Scrub and Woodland**

Riparian vegetation refers to the native scrub or woodland occurring along streams and riverbanks. In riparian areas, the roots of trees and other vegetation can easily reach the water table. Riparian vegetation used to be found along most perennial and intermittent streams in the Project Area and along the San Joaquin River. This vegetation type has become rare due to disturbance by cattle, riverfront development, and the filling or channelizing of small streams in urban areas. Today, two kinds of riparian vegetation are found in the Project Area—scrub and woodland cover.

Central coast riparian scrub is dense and brushy riparian cover, dominated by willows (*Salix* spp.). Other tree species in the riparian scrub can include coast live oak, northern California black walnut (*Juglans californica* var. *hindsii*), blue elderberry (*Sambucus mexicana*), and white alder (*Alnus rhombifolia*). The dense understory may include coyote brush, mule fat (*Baccharis salicifolia*), and California blackberry (*Rubus ursinus*). Exotic invasives in the riparian scrub in the Antioch area include black locust (*Robinia pseudo-acacia*), wattle (*Acacia* sp.), and Himalayan blackberry (*Rubus discolor*).

Riparian woodland has more large trees, fewer willows, and a slightly more open understory than riparian scrub. In the Antioch area, riparian woodland may be composed of northern California black walnut, eucalyptus species, coast live oak, blue elderberry, willow species, cottonwood (*Populus fremontii*), mule fat, tobacco tree, naturalized tree of heaven (*Ailanthus altissima*), and escaped almond trees (*Prunus dulcis*).

Riparian areas provide important breeding and foraging habitat for many species of birds, mammals, reptiles, and amphibians. The federally listed California red-legged frog (*Rana aurora draytonii*) occurs near creeks in the Project Area and the State-listed Swainson's hawk (*Buteo swainsoni*) has been known to nest in large trees such as cottonwoods that grow along creeks. Riparian areas also provide cover for wildlife and serve as important movement corridors. The cover typically provided by the riparian corridors allows animals to move between habitat areas even if the intervening areas are less suitable.



## (6) Scrub and Chaparral

Chaparral and sage scrub habitat are found in the southwestern portion of the Project Area, on steep south and southeast facing slopes in the Mt. Diablo foothills. Stands of black sage scrub are dominated by California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), and sticky monkey-flower (*Mimulus aurantiacus*) that can grow to a height of 6 feet. Associated species include interior goldenbush (*Ericarmeria linearifolia*), woolly paintbrush (*Castilleja foliolosa*), deerweed (*Lotus scoparius*), and goldback fern (*Pentagramma triangularis*).

Chamise chaparral is also found in the Mt. Diablo foothills on high ridgetops and dry south-facing slopes. Dominated by a single species, chamise (*Adenostoma fasciculatum*), the chamise chaparral is often dense with very little understory. Where the chamise has been opened up by cattle grazing, the understory can be more developed, consisting of annual grasses like wild oats, brome grasses, and wild barleys, and native species such as coffee fern (*Pellaea andromedifolia*), gilia (*Gilia capitata*), man-root (*Marah fabaceus*), death camas (*Zigadenus fremontii*), interior goldenbush, yerba santa (*Eriodictyon californica*), woolly paintbrush, and the special-status Diablo rock-rose (*Helianthella castanea*).

Wildlife associated with these habitat types include western fence, gopher snake, king snake, skink, western rattle snake, rufous-sided towhee, California thrasher, and California quail. These habitat types are particularly important for the federal and State-listed Alameda whipsnake (*Masticophis lateralis euryxanthus*). Chaparral and scrub habitats for the core habitat for Alameda whipsnake, which also utilizes the surrounding grasslands, oak woodlands, and riparian habitats. Alameda whipsnake may be found in the scattered stands of scrub and chaparral in the southwestern hillsides of the Project Area.

## (7) Stabilized Interior Dunes

The Antioch Dunes along the banks of the San Joaquin River in the northern portion of the Project Area, contain a unique assemblage of plant and animal species, several of which are found nowhere else in the world. The groundcover is formed by scattered grasses and forbs, some of which reach shrub size. The federally endangered Antioch Dunes evening-primrose (*Oenothera deltoides* ssp. *howellii*) and Contra Costa wallflower (*Erysimum capitatum* ssp. *angustatum*) are restricted to this habitat type, together with more common species such as California croton (*Croton californicus*), California matchweed (*Gutierrezia californica*), nude buckwheat (*Eriogonum nudum* var. *auriculatum*), and telegraph weed (*Heterotheca grandiflora*), together with scattered willows (*Salix* spp.) and coast live oak trees.

A number of special-status animals occurs in this dune habitat, the most sensitive of which are the insects such as the federally endangered Lange's metalmark butterfly (*Apodemia mormo langei*). Other sensitive insect species that occur in the dunes include the Antioch efferian

robberfly (*Efferia antiochi*), the Antioch multilid wasp (*Myrmosula pacifica*), Middlekauf's shieldback katydid (*Idiostatus middlekaufi*), and the Antioch andrenid bee (*Perdita scituta antiochensis*). Silvery legless lizard (*Aniella pulchra pulchra*), recognized by the CDFW as a Species of Special Concerns, also occurs in the dunes.

## **(8) Wetlands and Aquatic Habitat**

A variety of freshwater and brackish water wetlands occur within the Project Area. As described above, these include stands of the riparian scrub and woodlands found along creeks and seasonal alkali meadows and vernal pools found in grasslands. Other wetland types include seasonal wetlands, freshwater marsh and brackish water marsh, which are summarized below.

Seasonal wetlands and ponds hold water for only part of the year and may be dry most of the year. Representative species associated with seasonal wetlands in the Antioch area include ryegrass (*Lolium* sp.), popcorn flower (*Plagiobothrys* sp.), curly dock, hyssop loosestrife (*Lythrum hyssopifolium*), Baltic rush (*Juncus balticus*), Pacific foxtail (*Alopecurus saccatus*), and flowering quillwort (*Lilaea scilloides*). If the wetlands have been disturbed, they may contain thistles, gumplant (*Grindelia* sp.), bristly oxtongue, and dallis grass (*Paspalum dilatatum*).

Freshwater seeps may be found in grasslands or associated with areas of freshwater marsh. They typically contain permanently wet or moist soil and support species such as sedges (*Carex* spp.) and rushes (*Juncus* spp.). If water pools sufficiently, they may support aquatic watercress (*Rorripa nasturtium aquaticum*).

Coastal and valley freshwater marshes are wet year-round and can be found along perennial drainages and the perimeter of permanent ponds and lakes in the Project Area. They typically contain cattails (*Typha* spp.), sedges, rushes, willows, bulrushes (*Scirpus* spp.), and common tule (*Scirpus acutus*).

Coastal brackish marshes are wet year-round and are found along the banks of the San Joaquin River at the northern edge of the Project Area. Most of the freshwater marsh plant listed above can be found in Antioch's brackish marshes. Other species associated with brackish marshes include salt-tolerant emergents like hardstem bulrush (*Scirpus acutus* var. *occidentalis*), California bulrush (*Scirpus californicus*), water smartweed (*Polygonum punctatum*), three-square bulrush (*Scirpus pungens*), saltgrass, and common reed (*Phragmites australis*). Where pickleweed (*Salicornia* sp.) is present, coastal brackish marshes may contain suitable habitat for the State and federally endangered salt marsh harvest mouse (*Reithrodontomys raviventris*). Other special-status species associated with the coastal brackish marsh in the Project Area include Ridgeway's rail (*Rallus longirostris obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), Suisun song sparrow (*Melospiza melodia maxillaris*) and western pond turtle (*Clemmys marmorata*).

In addition to areas supporting marshlands, unvegetated aquatic habitat occurs as open waters along the San Joaquin River and permanent water bodies in the Project Area, such as natural or man-made lakes, ponds, and reservoirs. Due to water depth, rooted plants are absent in areas of open water, but this habitat is important for wildlife and fish. The San Joaquin River is used as a movement corridor, for foraging, and as breeding habitat for a variety of native and non-native fish including special-status species such as steelhead (*Oncorhynchus mykiss*), Chinook salmon (*Oncorhynchus tshawytscha*), and delta smelt (*Hypomesus transpacificus*), as well as more common sports fishery species such as striped bass (*Morone saxatilis*). Waterbirds and waterfowl use the lakes and river waters for foraging, breeding, and stopover resting areas during migration.

### **b. Sensitive Natural Communities**

Sensitive natural communities are natural community types considered by the CDFW to have a high inventory priority because of their rarity and vulnerability to disturbance and loss. Although sensitive natural communities have no legal protective status under the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA), they are provided some level of consideration under CEQA. The level of significance of a project's impact on any particular sensitive natural community depends on that natural community's relative abundance and rarity.

Natural communities are ranked based on rarity and threat with the Vegetation Classification and Mapping Program (VegCAMP) tool of the Biogeographic Data Branch of CDFW. Based on records maintained by CNDDDB of the CDFW, no well-developed occurrences of sensitive natural communities have been reported from the Project Area. The CDFW considers the following vegetation types known or suspected to occur in the Project Area to be of high inventory and are considered sensitive natural community types: native grasslands, vernal pools, stabilized interior dunes, seasonal wetlands, freshwater seeps, freshwater marshes, brackish marshes, alkaline meadows and seeps, valley oak woodlands, and riparian woodlands.

### **c. Special-Status Species**

Special-status species are plants and animals that are legally protected under the State and/or Federal Endangered Species Acts or other regulations, as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Listed species often represent

constraints to development, when proposed development would result in “take”<sup>3</sup> of these species. A number of species known to occur in the Antioch vicinity are protected pursuant to federal and/or State of California endangered species laws or have been designated Species of Special Concern by CDFW. For the purposes of this EIR, special-status species include:

- Plant and wildlife species listed as rare, threatened, or endangered under the federal or State endangered species acts;
- Species that are candidates for listing under either federal or state law;
- Species formerly designated by the USFWS as Species of Concern or designated by CDFW as a California Species of Special Concern (SSC);
- Species protected by the federal Migratory Bird Treaty Act (16. U.S.C. 703-711) and provisions in the California Fish and Game Code; and/or
- Species such as candidate species that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines.

As discussed above under the various habitat types, a number of special-status species are known to occur or have the potential to occur in the Project Area. Data on the known distribution of special-status species is available from the CNDDDB of the CDFW, the California Native Plant Society (CNPS) Electronic Inventory of rare and endangered vascular plants and in California (Inventory), and species lists prepared by the USFWS as part of their Information for Planning and Conservation (IPaC) program. Figures IV.H-2 and IV.H-3 show the distribution of special-status plant and animal species respectively in the Antioch vicinity according to records maintained by the CNDDDB. A summary of these special-status plant and animal species is provided below.

- Special-Status Plants

As indicated in Figure IV.H-2, a total of 34 special-status plant species have been reported by the CNDDDB from the vicinity of the Project Area. Most of these are broad generalized occurrences that are based on historic collection records that may have been extirpated where urbanization has occurred. This provides an indication of the previous range and potential for additional occurrences in the area. Most of the more precise occurrences are from more recent collections associated with the Antioch Dunes habitat along San Joaquin River frontage to the north and the rolling grasslands to the south. Detailed information on the name, status, preferred habitat, known locations, and blooming period of the 19 species considered to have the highest potential

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<sup>3</sup> “Take” as defined by FESA means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect” a threatened or endangered species. “Harm” is further defined by USFWS to include killing or harming of wildlife by significant obstruction of essential behavior patterns (i.e., breeding, feeding, or sheltering) through significant habitat modification or degradation. CDFW also considers the loss of listed species’ habitat as take.

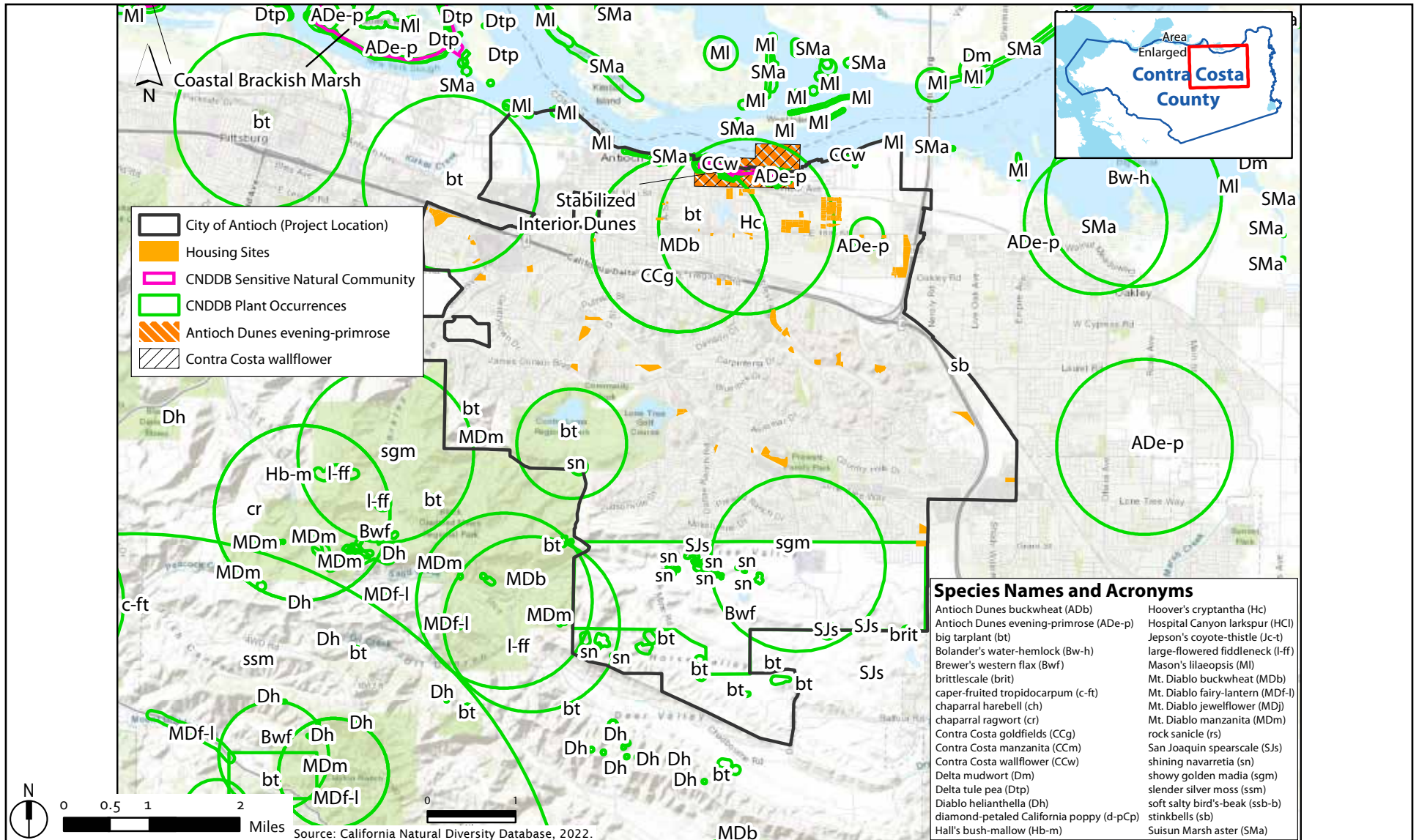


Figure IV.H-2  
 Special-Status Plant Species and Critical Habitats  
 Antioch Housing, Environmental Hazards, and EJ Elements EIR

**SCREENCHECK DRAFT**  
 (NOTE TO CITY: GRAPHIC TO BE IMPROVED IN NEXT DRAFT)

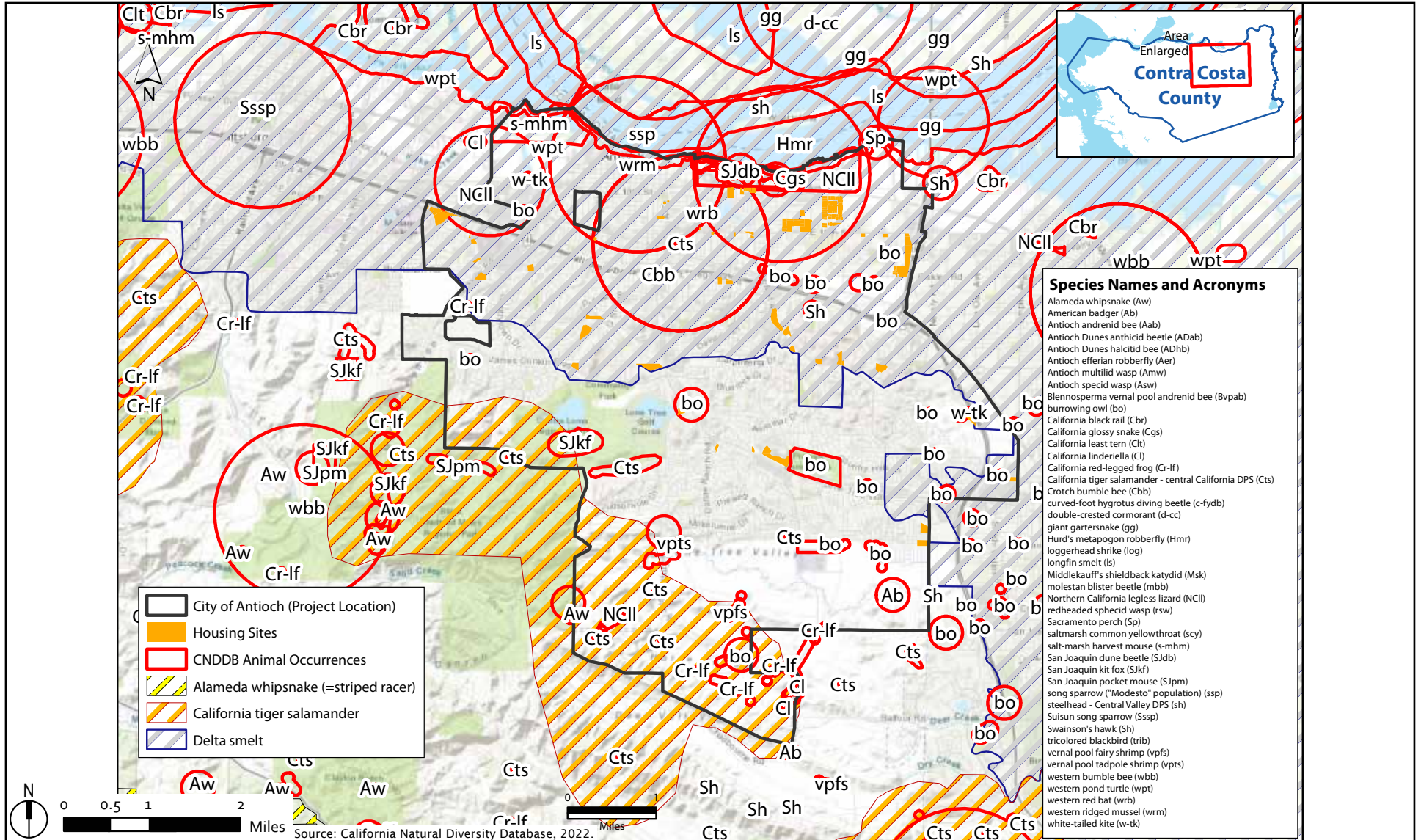


Figure IV.H-3  
 Special-Status Animal Species and Critical Habitats  
 Antioch Housing, Environmental Hazards, and EJ Elements EIR

for occurrence in the Project Area is provided in Table 4.4.A contained in Appendix E, which is excerpted from the Antioch General Plan Update EIR.<sup>4</sup> Updated status on each of the special-status plant species shown in Figure IV.H-2 is provided in the Summary Table Report also contained in Appendix E, based on data from the CNDDDB. Where suitable habitat is present in remaining natural areas, detailed field surveys by a qualified botanist is typically required to provide confirmation on presence or absence of any special-status plant species from a particular location.

As indicated in Figure IV.H-2, official critical habitat for Antioch Dunes evening-primrose and Contra Costa wallflower has been designated for historic interior dunes habitat in the northern portion of the Project Area. These endemic species are associated with the natural dunes that formed along the historic shoreline of the San Joaquin River delta system. Most of the dunes have been disturbed, but about 55 acres were protected in 1980 by the USFWS with formation of the Antioch Dunes National Wildlife Refuge, where invasive species control and restoration efforts have been focused to retain and enhance essential habitat characteristics for the endemic plant and animal species associated with this habitat.

### **(1) Special-Status Animals**

As indicated in Figure IV.H-3, a total of 45 special-status animal species have been reported by the CNDDDB from the vicinity of the Project Area. These include a combination of broad, generalized occurrences based on historic collection records, as well as more recent records, some with very locationally-specific occurrences that are still presumably present. These varied occurrence records provide an indication of the known range and potential for additional occurrences in the surrounding area. Specific records include occurrences of burrowing owl, California tiger salamander, California red-legged frog, and western pond turtle, among others. Detailed information on the name, status, preferred habitat, known locations, and blooming period of the 39 species considered to have the highest potential for occurrence in the Project Area is provided in Table 4.4.A contained in Appendix E, which is excerpted from the Antioch General Plan Update EIR. These include information on 8 invertebrates, 4 fish, 6 amphibians and reptiles, 16 birds, and 5 mammals. Updated status on each of the special-status animal species shown in Figure IV.H-3 is provided in the Summary Table Report also contained in Appendix E, based on data from the CNDDDB. Where suitable habitat is present in remaining natural areas, detailed field surveys by a qualified biologist is typically required to provide confirmation on presence or absence of any special-status animal species from a particular location.

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<sup>4</sup> LSA Associates, Inc., 2003. Draft Genal Plan Update Environmental Impact Report, City of Antioch, prepared for City of Antioch, July.

As indicated in Figure IV.H-3, critical habitat for Delta smelt extends over the northern half of the Project Area and for California tiger salamander over the southwestern portion. Critical habitat for Alameda whipsnake occurs within about 5 miles to the southwest of the Project Area. Much of the urbanized lands of Antioch have been identified as critical habitat for Delta smelt, presumably as a way of emphasizing the importance of runoff to habitat viability in the receiving waters of the San Joaquin River and Delta ecosystem.

#### **d. Regulated Waters**

Regulated waters are wetlands, unvegetated open waters and riparian habitats that fall under State and federal laws, as discussed further below. Wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level because of their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and their water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the U.S. Army Corps of Engineers (USACE) and USFWS, which generally define wetlands through consideration of three criteria: hydrology, soils and vegetation.

As discussed above under Wetlands and Aquatic Habitat, regulated waters in the Project Area include the San Joaquin River, creeks and other drainages, lakes and ponds, and areas of seasonal wetlands. Creeks within the Project Area include East Antioch Creek, West Antioch Creek, Sand Creek, and Deer Creek. As regulated waters, all tend to be of relatively high value and modifications require authorization from appropriate State and federal agencies, as discussed further below under Regulatory Setting.

## **2. Regulatory Setting**

This section describes the existing federal, State, and local regulatory frameworks related to biological resources.

### **a. Federal Regulations**

The following section describes the existing federal regulatory environment related to biological resources.

#### **(1) Federal Endangered Species Act**

USFWS, National Oceanic and Atmospheric Administration (NOAA), and National Marine Fisheries Service (NMFS) are responsible for implementation of federal Endangered Species Act (FESA). The act protects fish and wildlife species that are listed as threatened or endangered, and



their habitats. “Endangered” species, subspecies, or distinct population segments are those that are in danger of extinction through all or a significant portion of their range, and “threatened” species, subspecies, or distinct population segments are likely to become endangered in the near future.

Section 9 of the FESA prohibits the “take” of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species’ recovery. “Take” is defined as an action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule has been defined with regard to take at the time of listing. Under Section 9 of the FESA, the take prohibition applies only to wildlife and fish species. Section 7 of the FESA requires that all federal agencies address whether proposed activities may jeopardize listed species and critical habitat and defines certain federal activities that may be exempt from the Section 9 take prohibitions.<sup>5</sup> Section 10 of the FESA defines conditions where take of a listed species may be allowed as a result of implementing a nonfederal action. Section 10 requires the issuance of an incidental take permit before any nonfederal action may be taken that would potentially take an individual of an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan (HCP), which would offset the impact of taking that may occur by providing for the overall preservation of the affected species through specific mitigation measures. Additional information on the Yolo HCP/NCCP is described further below under Local Regulatory Environment.

FESA and National Environmental Protection Act (NEPA) Section 404 guidelines prohibit the issuance of wetland permits for projects that would jeopardize the existence of threatened or endangered wildlife or plant species. As defined in Section 7 of the FESA, the U.S. Army Corps of Engineers (Corps) must consult with the USFWS and NMFS when threatened or endangered species may be affected by a proposed project to determine whether issuance of a Section 404 permit would jeopardize the species.

The USFWS also designates critical habitat for threatened and endangered species listed under the FESA. Critical habitats are areas occupied by the species, located within a specific geographic region determined to be critical for survival, and protected from adverse modification. No critical habitats were identified for federally threatened or endangered species in the Plan Area and Plan Area vicinity.<sup>6</sup>

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<sup>5</sup> U.S. Fish and Wildlife Services (USFWS), 1973. Endangered Species Act of 1973. Available at: <https://www.fws.gov/sites/default/files/documents/endangered-species-act-accessible.pdf>, accessed June 10, 2022.

<sup>6</sup> U.S. Fish and Wildlife Services (USFWS), 2018. Threatened and Endangered Species Active Critical Habitat Report. Available at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>, accessed January 29, 2019.

## **(2) Migratory Bird Treaty Act**

The USFWS is also responsible for implementing the Migratory Bird Treaty Act (MBTA). The MBTA implements a series of treaties between the United States (U.S.), Mexico, and Canada that provide for the international protection of migratory birds. Wording in the MBTA makes it clear that most actions that result in taking or possession (permanent or temporary) of a protected species can be a violation of the Act. On December 27, 2017, the Interior Department (DOI) issued an opinion that the MBTA only applies to the intentional and not the inadvertent take of species protected under the Act. The word “take” is defined as meaning “pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.” However, this opinion from the DOI is only the latest interpretation from the current Administration of the MBTA. This legal opinion is contrary to the long-standing interpretation for over 40 years that held the MBTA strictly prohibits the intentional or incidental killing of birds or destruction of their nests when in active use.

## **(3) Clean Water Act**

The Corps regulates discharge of dredged or fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). “Discharge of fill material” is defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 C.F.R. 328.3(b)].

Furthermore, jurisdictional “Waters of the U.S.” can be identified where they exhibit a defined bed and bank and ordinary high-water mark (OHWM). The OHWM is defined by the Corps as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” [33 C.F.R. Section 328.3(e)].

## **b. State Regulations**

The following section describes the existing State of California regulatory environment related to biological resources.

### **(1) California Endangered Species Act**

The California Endangered Species Act (CESA) (State Fish and Game Code (FGC) Section 2050 et seq.) was enacted in 1984 and establishes State policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve projects that jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect a species that is on the federal and State lists, compliance with the FESA satisfies the CESA if the CDFW determines that the federal incidental take authorization is consistent with the CESA under FGC Code Section 2080.1. For projects that would result in take of a species that is only State listed, the project proponent must apply for a take permit under Section 2081(b).

### **(2) California Native Plant Protection Act**

The California Native Plant Protection Act (CNPPA) of 1977 prohibits importation of rare and endangered plants into California, "take" of rare and endangered plants, and sale of rare and endangered plants. The CESA defers to the CNPPA, which ensures that State-listed plant species are protected when State agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the CNPPA are not protected under the CESA but rather under CEQA.

The California Native Plant Society (CNPS) is a non-governmental conservation organization dedicated to the preservation of native flora in California. The CNPS has been involved in assembling, evaluating, and distributing information on special-status plant species in the State, as listed in the *Inventory of Rare and Endangered Plants of California* (2001 and electronic inventory update). CNPS has updated their rating system for the rarity of special-status plants, and now include both a California Rare Plant Rank and a Threat Rank. CEQA requires government agencies to consider environmental impacts of discretionary projects and to avoid or mitigate them where possible. Under Section 15380, CEQA provides protection for both State-listed species and for any other species which can be shown to meet the criteria for State listing. The CDFW recognizes that special-status plants with a California Rare Plant Rank of 1A (Presumed extinct in California), 1B (Rare, threatened, or endangered in California and elsewhere), and 2 (Rare and endangered in California, but are more common elsewhere) in the CNPS Inventory consist of plants that, in a majority of cases, would qualify for listing and these species should be addressed under CEQA review. In addition, the CDFW recommends, and local

governments may require, protection of species which are regionally significant, such as locally rare species, disjunct populations, essential nesting and roosting habitat for more common wildlife species, or plants with a CNPS California Rare Plant Rank of 3 (Plant species for which additional data is needed – a review list) and 4 (Plant species of limited distribution - a watch list).

### **(3) California Fish and Game Code**

Through the State Fish and Game Code, the CDFW provides protection from “take” for a variety of species. The CDFW also protects streams, water bodies, and riparian corridors through the Streambed Alteration Agreement process under Section 1601 to 1606 of the FGC. The FGC stipulates that it is “unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake” without notifying the Department, incorporating necessary mitigation, and obtaining a Streambed Alteration Agreement. CDFW’s jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

Plant and wildlife species receive additional consideration during the CEQA process. Species that may be considered for review are included on a list of California “Species of Special Concern” or SSC species developed by the CDFW. These species are broadly defined as animals that are of concern to the CDFW because of population declines and restricted distribution, and/or because they are associated with habitats that are declining in California. These species are sometimes inventoried in the CNDDDB, focusing on nesting, roosting, and congregation sites for non-listed species. In addition, wildlife species designated as “Fully Protected” or “Protected” may not be taken or possessed without a permit from the Fish and Game Commission and/or the CDFW.

FGC Section 3503.5 prohibits “take,” possession, or destruction of any raptor (e.g., bird of prey species in the orders Falconiformes and Strigiformes), including their nests or eggs. Violations of this law may include destruction of active raptor nests as a result of tree removal and disturbance to nesting pairs by nearby human activity that causes nest abandonment and reproductive failure.

Several provisions in the FGC provide for the protection of birds and bird nests in active use. Unless the FGC or its implementing regulations provide otherwise, under California law it is unlawful to:

- Take a bird, mammal, fish, reptile, or amphibian (FGC Section 2000);
- Take, possess, or needlessly destroy the nest or eggs of any bird (FGC Section 3503);
- Take, possess, or destroy any bird of prey in the orders Strigiformes (owls) and Falconiformes (such as falcons, hawks and eagles) or the nests or eggs of such bird (FGC Section 3503.5);
- Take or possess any of the 13 fully protected bird species listed in FGC Section 3511;

- Take any non-game bird (i.e., bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird) (FGC Section 3800);
- Take or possess any migratory non-game bird as designated in the MBTA or any part of such bird, except as provided by rules or regulations adopted by the DOI under the MBTA (FGC Section 3513);

Take, import, export, possess, purchase, or sell any bird (or products of a bird), listed as an endangered or threatened species under the CESA unless the person or entity possesses an Incidental Take Permit or equivalent authorization from CDFW (FGC Section 2050 et seq.).

#### **(4) State Regulated Waters**

In addition to waters regulated by the CDFW under the Streambed Alteration Agreement process, the Regional Water Quality Control Board (RWQCB) is responsible for implementing Section 401 of the CWA and for upholding state water quality standards. Pursuant to Section 401 of the Act, projects that apply for a Corps permit for discharge of dredge or fill material, and projects that qualify for a Nationwide Permit must obtain water quality certification. The RWQCB has taken an increasing role over regulating wetlands that are hydrologically isolated following the U.S. Supreme Court decision in 2001 regarding the case Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC), which limits the jurisdictional authority of the Corps under Section 404. These hydrologically isolated features are now often regulated by the RWQCB under authority of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act.

#### **(5) McAteer-Petris Act**

The McAteer-Petris Act was adopted to protect San Francisco Bay as a natural resource for the benefit of the public and to encourage development compatible with this protection. The San Francisco Bay Conservation and Development Commission (BCDC) is authorized by the McAteer-Petris Act to analyze, plan, and regulate San Francisco Bay and its shoreline. BCDC implements the San Francisco Bay Plan and regulates filling and dredging in the bay, its sloughs and marshes, and certain creeks and their tributaries. BCDC jurisdiction includes the waters of San Francisco Bay as well as a shoreline band that extends inland 100 feet from the high tide line. Any fill, excavation of material, or substantial change in use within BCDC jurisdiction requires a permit from BCDC.

#### **c. Local Regulations**

The following section describes the existing local regulatory environment related to biological resources.

## (1) City of Antioch General Plan

The following existing policies and actions from the City of Antioch's (City) General Plan<sup>7</sup> are related to biological resources and are applicable to the Project.

### Resource Management Element

#### *Policy 10.3.1: Open Space Objective*

Maintain, preserve and acquire open space and its associated natural resources by providing parks for active and passive recreation, trails, and by preserving natural, scenic, and other open space resources.

#### *Policy 10.3.2: Open Space Policies*

- a. Establish a comprehensive system of open space that is available to the public, including facilities for organized recreation; active informal play; recreational travel along formal, natural, and riverfront trails; passive recreation; and enjoyment of the natural environment.
- b. Implement the design standards of the Community Image and Design Element so as to maintain views of the San Joaquin River, Mount Diablo and its foothills, Black Diamond Mines Regional Preserve and other scenic features, and protect the natural character of Antioch's hillside areas as set forth in the Community Image and Design Element.
- c. Maintain the shoreline of the San Joaquin River as an integrated system of natural (wetlands) and recreational (trails and viewpoints) open space as set forth in the Land Use Element and Public Services and Facilities Element.
- d. Where significant natural features are present (e.g., ridgelines, natural creeks and other significant habitat areas, rock outcrops, and other significant or unusual landscape features), require new development to incorporate natural open space areas into project design. Require dedication to a public agency or dedication of a conservation easement, preparation of maintenance plans, and provision of appropriate long-term management and maintenance of such open space areas.
- e. Require proposed development projects containing significant natural resources (e.g. sensitive or unusual habitats, special-status species, habitat linkages, steep slopes, cultural resources, wildland fire hazards, etc.) to prepare Resource Management Plans to provide for their protection or preservation consistent with the provisions of the Antioch General Plan, other local requirements, and the provisions of State and Federal law. The purpose of the Resource Management Plan is to look beyond the legal status of species at the time the plan is prepared, and provide a long-term plan for conservation and management of the natural communities found onsite. Resource Management Plans shall accomplish the following.
  - Determine the significance of the resources that are found onsite and their relationship to resources in the surrounding area, including protected open space areas, habitat linkages and wildlife movement corridors;
  - Define areas that are to be maintained in long-term open space based on the significance of onsite resources and their relationship to resources in the surrounding area, and
  - Establish mechanisms to ensure the long-term protection and management of lands retained in open space.
- f. Encourage public access to creek corridors through the establishment of trails adjacent to riparian resources, while maintaining adequate buffers between creeks and trails to protect sensitive habitats, special-status species and water quality to the maximum extent feasible.

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<sup>7</sup> LSA, 2003. City of Antioch General Plan, November 24.

- g. Where feasible, incorporate preserve and protect significant existing natural features as part of the design of new development projects rather than removing them. Where preservation of natural features is not feasible, introduce natural elements into project design. Impacts to significant natural features that cannot be preserved or reintroduced into the project design onsite shall be mitigated off-site.

*Policy 10.4.1: Biological Resources Objective*

Preserve natural streams and habitats supporting rare and endangered species of plants and animals.

*Policy 10.4.2: Biological Resources Policies*

- a. Comply with the Federal policy of no net loss of wetlands through avoidance and clustered development. Where preservation in place is found not to be feasible (such as where a road crossing cannot be avoided, or where shore stabilization or creation of shoreline trails must encroach into riparian habitats), require 1) on-site replacement of wetland areas, 2) off-site replacement, or 3) restoration of degraded wetland areas at a minimum ratio of one acre of replacement/restoration for each acre of impacted onsite habitat, such that the value of impacted habitat is replaced.
- b. Preserve in place and restore existing wetlands and riparian resources along the San Joaquin River and other natural streams in the Planning Area, except where a need for structural flood protection is unavoidable.
- c. Require appropriate setbacks adjacent to natural streams to provide adequate buffer areas ensuring the protection of biological resources, including sensitive natural habitat, special-status species habitats and water quality protection.
- d. Through the project approval and environmental review processes, require new development projects to protect sensitive habitat areas, including, but not limited to, oak woodlands, riparian woodland, vernal pools, and native grasslands. Ensure the preservation in place of habitat areas found to be occupied by state and federally protected species.
  - If impacts to sensitive habitat areas are unavoidable, appropriate compensatory mitigation shall be required off-site within eastern Contra Costa County. Such compensatory mitigation shall be implemented through the provisions of a Resource Management Plan ("RMP") as described in Policy 10.3.2.e, except where, in the discretion of the Community Development Director, an RMP is not necessary or appropriate due to certain characteristics of the site and the project. Among the factors that are relevant to determining whether an RMP is necessary or appropriate for a given project are the size of the project and the project site, the location of the project (e.g., proximity to existing urban development or open space), the number and sensitivity of biological resources and habitats on the project site, and the nature of the project (e.g., density and intensity of development).
  - Where preserved habitat areas occupy areas that would otherwise be graded as part of a development project, facilitate the transfer of allowable density to other, non-sensitive portions of the site.
- e. Limit uses within preserve and wilderness areas to resource-dependent activities and other uses compatible with the protection of natural habitats (e.g., passive recreation and public trails).
- f. Through the project review process, review, permit the removal of healthy, mature oak trees on a case-by-case basis only where it is necessary to do so.
- g. Preserve heritage trees throughout the Planning Area.
- h. Within areas adjacent to preserve habitats, require the incorporation of native vegetation and avoid the introduction of invasive species in the landscape plans for new development.
- i. Design drainage within urban areas so as to avoid creating perennial flows within intermittent streams to prevent fish and bullfrogs from becoming established within a currently intermittent stream.
- j. Whenever a biological resources survey is undertaken to determine the presence or absence of a threatened or endangered species, or of a species of special concern identified by the U.S. Fish and Wildlife Service or the California Department of Fish and Game, require the survey to follow established protocols for the species in question prior to any final determination that the species is absent from the site.

*Policy 10.5.2: Open Space Transitions and Buffers Policies*

- a. Minimize the number and extent of locations where residential, commercial, industrial, and public facilities land use designations abut lands designated for open space and protected resource areas (e.g., lands with conservation easements or set aside as mitigation for development impacts). Where such land use relationships cannot be avoided, use buffers and compatible uses to buffer and protect open space and protected resources from the adverse effects of residential, commercial, industrial and public facilities development.
- b. Ensure that the design of development proposed along a boundary with open space or protected resources provides sufficient protection and buffering for the open space and protected resources. The provision of buffers and transitions to achieve compatibility shall occur as part of the proposed development.
- c. In designing buffer areas, the following criteria shall be considered and provided for (when applicable) within the buffer areas to avoid or mitigate significant impacts.
  - Aesthetics: How will development affect views from adjacent open space areas? What are the sensitive land uses and resources within open space areas and how might they be affected by changes in the visual environment?
  - Light and Glare: Will a proposed development result in increased light or glare in open space areas that would impact open space uses or wildlife habitats within that open space?
  - Noise: Will noise generated by the proposed development affect the public's quiet enjoyment of public open space? What are the sensitive noise receptors in open space areas and how can impacts on those sensitive receptors be avoided or mitigated? Can noise-generating uses be located away from noise sensitive areas?
  - Fire Safety: How will development affect the risk of fire on adjacent open space and resource areas? How would development affect or be affected by existing fire abatement practices on adjacent open space and resource areas, including livestock grazing, prescribed fire, plant pest management, mowing, disking, ecological restoration and other practices?
  - Public Safety: How will development adjacent to open space or resource areas increase the risk of vandalism,
  - Habitat Management: How will proposed development affect habitat values on adjacent open space and resource areas? How will development prevent the spread of introduced animals and plant pests into adjacent open space and resource areas? How will proposed development affect wildlife migration corridors between or within open space and/or resource areas?
  - Public Access Management: How will development adjacent to public open space and resource areas affect the maintenance of existing public facilities, such as roads, trails, fences, gates and restrooms? How might development adjacent to open space or resource areas facilitate illegal public access?
  - Buffer Management: How can appropriate management of lands that are set aside as buffers between development and open space or resource areas be ensured?

## **(2) City of Antioch Municipal Code**

### **City of Antioch Tree Ordinance**

The City has a Tree Preservation Ordinance (Section 9-5.1205) that applies to any established tree on property within the city. A tree removal permit or approval for tree removal as part of a development application is require for trees regulated under the Tree Preservation Ordinance. As defined in Section 9-5.203, an "established tree" is any tree which is at least 10 inches in diameter, as measured 4.5 feet above natural or finished grade.



### 3. Impacts and Mitigation Measures

This section analyzes the impact related to biological resources that would result from implementation of the Project. It begins with the criteria of significance, establishing the thresholds to determine whether an impact is significant. The latter part of this section describes the biological resources impacts associated with the Project and identifies mitigation measures to address these impacts as needed.

#### a. Significance Criteria

Implementation of the Project would result in a significant impact to biological resources if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife, or United States Fish and Wildlife Service.
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

#### b. Analysis Approach

The potential impacts resulting from the adoption and implementation of the Project were evaluated based on a review of the following sources.

- California Department of Fish and Wildlife (CDFW) Biogeographic Information and Observation System (BIOS) data.
- Records from the California Natural Diversity Database (CNDDDB), maintained by the CDFW.

- California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California.
- National Oceanic and Atmospheric Administration (NOAA) maps of designated Critical Habitat.
- U.S. Fish and Wildlife Service (USFWS) maps of designated Critical Habitat.
- Literature from local government agencies, such as the City of Antioch and Contra Costa County including the Antioch General Plan, the General Plan EIR, and the ECCHCP/NCCP.
- Academic literature, reports, and maps regarding natural resources in the Antioch and Contra Costa County vicinities.

This available documentation was used together with review of aerial imagery and roadway reconnaissance of the parcels identified in the Sites Inventory to provide an indication of the possible presence of sensitive resources, potential significance, and degree to which policies in the Resource Management Element of the City's General Plan would serve to protect them, as discussed further below.

### **c. Findings**

#### **(1) Sensitive or Special Status Species (Criterion 1)**

Local, regional, State, and federal regulations provide varying levels of protection for special-status species, depending on several factors, including: legal protective status, rarity and distribution, the magnitude of the potential impact on essential habitat, specific occurrence and overall population levels, and take of individual plants or animals. Activities requiring discretionary approvals by local, regional, State, and federal agencies provide for the greatest oversight because each potential future development that could occur from implementation of the Project must be evaluated for their potential impact on special-status species and other sensitive biological resources. This includes further review of parcels identified for residential use in the Sites Inventory, where warranted.

As discussed above, numerous special-status plant and animal species are known or suspected to occur in the Project Area. These special-status species occupy a range of habitat types but are typically no longer found in urbanized areas, which now characterize most of the Project Area and parcels in the Sites Inventory. Occurrences of special-status plant and animal species from the CNDDDB inventory, indicated in Figures IV.H-2 and IV.H-3, which overlap parcels in the Sites Inventory and other areas designated for future development under the General Plan, are generally from historic records that predate the urbanization of the Project Area. The potential for occurrence of special-status species in developed areas is generally very remote in comparison

to undeveloped lands that contain essential habitat characteristics for the range of species known from the Project Area vicinity.

While the potential for adverse impacts on special-status species is relatively low, there remains a varying potential for loss or disruption to special-status species remaining in the Project Area due to conversion of areas of natural habitat, removal of trees and other vegetation, increases in light and noise, and other modifications and disturbance associated with future development that could occur as a result of the Project. Development in locations abutting or in the vicinity of open space lands or water resources, where special-status species are more likely to remain, could potentially result in a significant impact or inadvertent loss unless further review and adequate controls implemented where a potential conflict could occur.

However, the policies in the Resource Management Element of the City's General Plan call for avoidance of sensitive resources such as special-status species and require that a Resource Management Plan (RMP) be prepared where potential impacts could occur. Where natural habitat remains that could support special-status species, wetlands, and other sensitive resources, further detailed studies and assessment would be performed to verify presence or absence. General Plan Policy 10.3.2 (e) requires that proposed development projects containing significant resources prepare an RMP to provide for their protection or appropriate mitigation. General Plan Policy 10.4.2 (d) requires the protection of sensitive resources and ensure the preservation of habitat occupied by State and federally protected species. General Plan Policy 10.4.2 (j) requires that surveys conducted to confirm presence or absence of special-status species be conducted in accordance with established protocols. General Plan Policy 10.5.2 (b) addresses the need for buffers where development is proposed in proximity to open space or protected resources.

The location and nature of development considered under the Project would continue to be guided by the Antioch General Plan and Zoning Code. Future housing projects would continue to be reviewed through the City's entitlement process and CEQA to ensure consistency with local, State, and federal regulations and all General Plan goals and policies intended to protect sensitive biological resources. Development under the Project would be performed in accordance with the General Plan policies discussed above, which would ensure that potential impacts on special-status species would be less than significant.

## **(2) Riparian habitat or other sensitive natural community (Criterion 2)**

Future development could result in direct or indirect impacts on sensitive natural communities if these resources are not adequately identified and protected. Direct impacts occur as a result of converting natural habitat to development, including construction of new structures, creating impervious surfaces for roadways and parking, and culverting of natural drainages. Sensitive natural communities in the Project Area include native grasslands, vernal pools, stabilized interior

dunes, seasonal wetlands, freshwater seeps, freshwater marshes, brackish marshes, alkaline meadows and seeps, valley oak woodlands, and riparian woodlands. Most of the parcels in the Sites Inventory have been disturbed by past grading and development and the potential for sensitive natural communities is generally very remote. However, there remains a potential for presence of sensitive natural communities on some parcels in the Sites Inventory, and in other locations where future development could occur where natural habitat remains in the Project Area.

As discussed above in Criterion 1, policies in the Resource Management Element of the City's General Plan call for avoidance of sensitive resources such as sensitive natural communities and require that a RMP be prepared where potential impacts could occur. Where natural habitat remains that could support sensitive natural communities, further detailed studies and assessment would be performed to verify presence or absence. Implementation of General Plan Policies 10.3.2 (e), 10.4.2 (d), and 10.4.2 (j) would serve to ensure that occurrences of sensitive natural communities are identified, avoided, or adequately mitigated. Development under the Project would be performed in accordance with the General Plan policies discussed above, which would ensure that potential impacts on sensitive natural communities would be less than significant.

### **(3) Regulated Waters (Criterion 3)**

Future development could result in direct or indirect impacts on regulated waters if these resources are not adequately identified and protected. Direct impacts would occur as a result of converting natural habitat to development, filling or wetlands, and culverting of natural drainages. Most of the parcels in the Sites Inventory have been disturbed by past grading and development and do not appear to support well-developed wetlands. However, a few of the parcels in the Sites Inventory are located adjacent to creeks and other drainages, and there remains a potential for presence of seasonal wetlands or other regulated waters on these parcels and in other locations in the Project Area.

As discussed above in Criteria 1, policies in the Resource Management Element of the City's General Plan call for avoidance of sensitive resources such as regulated waters and require that a RMP be prepared where potential impacts could occur. Where necessary, further detailed studies and assessment would be performed to verify presence or absence of regulated waters in accordance with General Plan Policies 10.3.2 (e), 10.4.2 (d), and 10.4.2 (j). General Plan Policy 10.4.2 calls for compliance with federal policy related to wetland and riparian habitat protection, and calls for avoidance, replacement, or restoration as necessary to ensure the value of impacted habitat is replaced. Development under the Project would be performed in accordance with the General Plan policies discussed above, which would ensure that potential impacts on sensitive natural communities would be less than significant.

#### **(4) Movement of Fish and Wildlife Species (Criterion 4)**

Development and land use activities associated with implementation of the Project would generally be in urbanized areas with few wildlife corridors or locations where wildlife is already acclimated to human activity. Wildlife species typically found in urbanized and ruderal habitats would be displaced or lost as a result of site grubbing and grading, but these species are relatively common and this impact would be considered less than significant. However, the Project Area does contain some habitat that could be adversely affected by new development if adequate controls are not implemented, particularly along creeks and other drainages, or adjacent to open space and undeveloped lands.

Where natural habitat remains that could contain important wildlife habitat or serve as important habitat linkages for wildlife movement, further detailed studies and assessment would be performed to verify presence or absence. Implementation of General Plan Policies 10.3.2 (e), 10.4.2 (d), and 10.4.2 (j) would serve to ensure that occurrences of sensitive natural communities are identified, avoided, or adequately mitigated. Development under the Project would be performed in accordance with the General Plan policies discussed above, which would ensure that potential impacts on wildlife movement opportunities would be less than significant.

#### **(5) City of Antioch Policies (Criterion 5)**

Future development under the Project would be implemented consistent with other elements of the City's General Plan, including the relevant goals and policies in the Resource Management Element. Implementation of General Plan Policies 10.3.2 (e), 10.4.2 (d), and 10.4.2 (j) would serve to ensure that sensitive biological and wetland resources are identified and protected as part of future development, and no substantial conflicts are anticipated as discussed above with regard to special-status species, sensitive natural communities and regulated waters.

Future development would also be subject to the provisions of the City's Tree Preservation Ordinance. Many of the parcels in the Sites Inventory contain trees that would qualify as a regulated size, and a tree removal permit or approval for tree removal would be required as part of a development application where avoidance is not feasible. Compliance with the City's General Plan and Tree Preservation Ordinance would ensure that no conflicts with local plans and policies would occur and that potential impacts on tree resources would be less-than-significant.

#### **(6) Habitat Conservation Plan or Natural Community Conservation Plan (Criterion 6)**

The East Contra Costa County HCP/NCCP was adopted by the participating agencies and became effective in 2008. The City of Antioch opted out as a participating agency. The HCP/NCCP is

intended to provide a coordinated, regional approach to special-status species conservation and development regulation. A total of 28 species are covered under the HCP/NCCP, including California red-legged frog, California tiger salamander, Alameda whipsnake, San Joaquin kit fox, vernal pool tadpole shrimp, and burrowing owl, among others. The HCP/NCCP provides streamlined permits from the USFWS and CDFW for covered species for new urban development projects and a variety of public infrastructure projects.

This criterion is not applicable to the Project because there are no adopted habitat conservation plans or natural community conservation plans within the Project Area. Therefore, there would be no impact related to a conflict with an adopted Habitat Conservation Plan or Natural Community Conservation Plan.

#### **d. Cumulative Biological Resource Impacts**

The potential impacts on biological resources tend to be site-specific, and the overall cumulative effects would be dependent on the degree to which significant vegetation and wildlife resources are present on a particular development site, and if present, the degree to which they are avoided or potential impacts are addressed through various forms of mitigation. This includes potential impacts on well-developed native vegetation (e.g., marshlands, native grasslands, oak woodlands, and riparian scrub and woodland, etc.), populations of special-status plant or animal species, and wetland features (including freshwater marsh, seasonal wetlands and drainages).

To some degree, cumulative development contributes to an incremental reduction in the amount of existing natural wildlife habitat, particularly for birds and larger mammals. Habitat for species intolerant of human disturbance can be lost as development encroaches into previously undeveloped areas, disrupting or eliminating movement corridors and fragmenting the remaining suitable habitat retained within parks, public and private open space, and or undeveloped properties. New cumulative development in the Project Area could result in further conversion of existing natural habitats to urban and suburban conditions, limiting the existing habitat values of the surrounding area.

Adoption and anticipated development under the Project, as well as other future projects within the cumulative geographic context of the Project Area, would be required to comply with local, State, and federal laws and policies and all applicable permitting requirements of the regulatory and oversight agencies intended to address potential impacts on sensitive biological resources. Environmental review of specific development proposals within the Project Area should serve to ensure that important biological resources are identified, avoided or adequately mitigated for where potential impacts are unavoidable, and would serve to prevent any significant adverse development-related impacts.

Because the City's relevant General Plan policies would serve to reduce any potential biological impacts within the Project Area to a less-than-significant level, the Project would not make a cumulatively considerable contribution to any significant cumulative impacts on special-status species, sensitive natural communities, or regulated waters. The impacts associated with implementation of the Project would not contribute to a cumulative reduction of important wildlife habitat or impede wildlife movement opportunities. Accordingly, the Project would make a less than cumulatively considerable contribution to significant cumulative impacts on biological resources.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

H. BIOLOGICAL RESOURCES



## I. GEOLOGY AND SOILS

This section describes the current geologic and seismic conditions in the city and vicinity of Antioch and analyzes how implementation of the Project and its associated development may affect these conditions.

### 1. Setting

This section describes the geologic and seismic environment of the city based on published geologic reports and maps from the U.S. Geological Survey (USGS), California Geological Survey (CGS), and other sources.

#### a. Geologic Conditions

The geology, topography, soils, and groundwater conditions for the city are described below.

##### (1) Geology and Topography

The city of Antioch is located within the Coast Ranges geomorphic province, a relatively geologically young and seismically active region.<sup>1,2</sup> The Coast Ranges are mountain ranges (ranging in elevation from 2,000 to 6,000 feet above sea level) and valleys that trend northwest, approximately parallel to the San Andreas fault, from near the Oregon border to southern California. The only major break in the Coast Ranges is the depression containing San Francisco Bay within which the city is located.

Antioch consists of two general topographic areas: the Lowland Area and the Upland Area. The Lowland Area generally corresponds to the northern estuarine and flatland soils near the San Joaquin River, and the Upland Area includes the more southern hillside soils. Elevations in the Lowland Area generally range from near sea level to about 100 feet above mean sea level (msl) and contain slopes that range from 0 to 15 percent. The Upland Area includes moderate to steeply sloping hills and is generally located south of the Lowland Area. Elevations in the Upland Area generally range from about 100 feet msl to peaks that approach 1,900 feet msl in the southern portion of the city. Hillside slopes range from 2 to 75 percent. The Lone Tree Valley is a low-lying subarea situated within the southern portion of the Upland Area with elevations ranging from 160 to 300 msl.<sup>3</sup>

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<sup>1</sup> California Geological Survey (CGS), 2002. California Geomorphic Provinces, Note 36.

<sup>2</sup> Norris, Robert M. and Robert W. Webb, 1976. Geology of California, 2nd Edition. J. Wiley & Sons, Inc.

<sup>3</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

Based on USGS regional mapping of the San Francisco Bay region, the Lowland Area is underlain primarily by Pleistocene to Holocene alluvium and Quaternary beach sand, and the Upland Area is underlain primarily by Paleocene to Pliocene sedimentary rocks. Lone Tree Valley is underlain by Holocene alluvium.<sup>4</sup> The alluvium in the Lowland Area consists mainly of unconsolidated floodplain deposits with sand, silt, gravel, and clay irregularly interstratified. The Upland Area consists primarily of northward tilted sedimentary rocks, including coal-bearing Domingene Formation in the southwestern portion of the city.<sup>5</sup>

## **(2) Historic Coal Mining**

The Black Diamond area coal deposits (within the Domingene Formation) are located in the southwestern portions of the city. Past mining activities followed two principal coal seams to a depth of more than 550 feet below ground surface (bgs). By 1890, more than 85 percent of the total coal reserve at the Black Diamond region had been mined.<sup>6</sup>

Access tunnel and ventilation shafts constructed as part of the mining operation were generally located at the head of ravines, where erosion had naturally worn away portions of the hillside overlying the coal. Most access tunnels were well documented and have been relocated and sealed over the years. Ventilation shafts are more numerous, and their locations are poorly documented. These shafts were typically sealed through construction of timber floors placed about 10 feet bgs and then backfilled to grade during closure of the mine. The timber floors deteriorate over time, and ventilation shafts can collapse creating soil slumps. The remaining mine openings provide a connection to a labyrinth of subsurface tunnels that can be subject to cave-ins. Carbon monoxide or methane gas may also be present in the tunnels.<sup>7</sup>

Mines present a risk of collapse and surface subsidence in areas overlying and surrounding tunnels and shafts. The potential for collapse and subsidence depends on many factors including the type of mining that was conducted, the depth and size of the mined area, the strength of surrounding materials, the length of time since the mining occurred, the condition of mine shoring, seismic activity, and infiltration of water.

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<sup>4</sup> Graymer et al., 2006. Geologic Map of the San Francisco Bay Region.

<sup>5</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>6</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>7</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

### (3) Soils

Native soil in the Lowland Area of the city can be roughly divided into two parts: the western and eastern portions of the city. The western portion consists mainly of well-drained Rincon clay loam with moderate shrink-swell potential, and a slight erosion hazard that is situated among other soils that occupy small areas and have similar shrink-swell potential but are poorly drained. The eastern portion consists of Delhi sand, which tends to be excessively drained soil with low shrink-swell potential. Runoff from Delhi sand is slow to very slow, with only slight erosion when the soil is tilled and exposed. An organic rich soil referred to as "joice muck" borders the San Joaquin River in areas of the eastern portion of the Lowland Area. Joice muck is a poorly drained soil that is affected by high groundwater and has a high capacity to shrink but has low swell potential. Rincon clay loam, Zamoral silty clay loam, and urbanized land also border the San Joaquin River.<sup>8</sup>

The native soils of the Upland Area of the city are characterized as various clay, clay loam, loam, and loamy sand. Shrink-swell varies from low to high, depending upon soil type. Erosion potential is moderate to very high in soils including Altamont clay, Diablo clay, Lodo clay loam, and San Ysidro loam. Erosion may occur as either gully erosion, where runoff is concentrated in swales and ravines, or as sheet erosion down straight slopes. Erosion carries soil into local streams, increasing sediment loads and degrading water quality. Lone Tree Valley is composed primarily of Rincon clay loam and Capay clay, and thus shares the properties of the Lowland Area.<sup>9</sup>

### (4) Groundwater

The majority of the city is within the westernmost portion of the East Contra Costa Subbasin of the San Joaquin Valley Groundwater Basin. Two primary aquifer zones are identified in the East Contra Costa Subbasin: an unconfined to semi-confined Shallow Zone and a semi-confined to confined Deep Zone, with clay layers separating the two. These aquifers are composed of alluvial deposits. The Shallow Zone extends from ground surface to a less permeable material (i.e., clay and silt) generally to a depth of less than 150 feet. The Deep Zone directly underlies the shallow zone, is the primary production zone for public supply wells (generally 200-400 feet in depth) and extends to a maximum depth of 1,200 feet. The depth to shallow groundwater has been observed at a depth of approximately 10 feet in one well located in the Lowland area of the city, the regional shallow groundwater flow direction generally follows the topography and flows from the Upland Area in the southern portion of the city towards the Delta to the north.<sup>10</sup>

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<sup>8</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, Calidornia, July.

<sup>9</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, Calidornia, July.

<sup>10</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

## b. Seismic Conditions

The entire San Francisco Bay Area (Bay Area) is located within the San Andreas Fault Zone, a complex of active faults (faults that show evidence of rupture within the past 11,000 years). Numerous historic earthquakes have been generated in northern California on faults within the San Andreas Fault Zone. This level of active seismicity results in relatively high seismic risk in the Bay Area. Regional faults near the city are shown on Figure IV.I-1.<sup>11</sup> The active faults near the city include the Clayton-Marsh Creek-Greenville Fault located approximately 4 miles to the southwest, the Concord-Green Valley Fault located approximately 10 miles to the west, the Calaveras Fault located approximately 14 miles to the southwest, the Hayward Fault located approximately 22 miles to the southwest, and the San Andreas Fault located approximately 30 miles to the southwest of the city. Faults located in the vicinity of the city that are not considered active under Alquist-Priolo Earthquake Fault Zoning Act include the Davis Fault, which intersects the eastern portion of the city, and the Kirby Hills Fault located approximately 5 miles to the northwest.

The Working Group on California Earthquake Probabilities and the USGS have predicted a 33 percent probability of a Moment Magnitude ( $M_w$ )<sup>12</sup> 6.7 or greater earthquake on the Hayward Fault between 2014 and 2043, a 22 percent chance on the San Andreas Fault, and a total probability of 72 percent that an earthquake of  $M_w$  6.7 or greater will occur on one of the regional Bay Area faults during that time.<sup>13</sup>

### (1) Surface Rupture

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. Surface rupture generally can be assumed to occur along an active or potentially active major fault trace. The city does not contain any active faults<sup>14</sup> or faults mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act.<sup>15,16</sup>

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<sup>11</sup> California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California, Available at: <https://maps.conservation.ca.gov/cgs/fam/>, accessed April 29, 2022.

<sup>12</sup>  $M_w$ , as opposed to Richter Magnitude, is now commonly used to characterize seismic events.  $M_w$  is determined from the physical size (area) of the rupture of the fault plane, the amount of horizontal and/or vertical displacement along the fault plane, and the resistance to rupture of the rock type along the fault.

<sup>13</sup> United States Geological Survey (USGS), 2016. Earthquake Outlook for the San Francisco Bay Region 2014-2043, USGS Fact Sheet 2016-3020, revised August.

<sup>14</sup> California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California, Available at: <https://maps.conservation.ca.gov/cgs/fam/>, accessed April 29, 2022.

<sup>15</sup> California Geological Survey (CGS), 2019a. Earthquake Zones of Required Investigation, Antioch North Quadrangle, April 4.

<sup>16</sup> California Geological Survey (CGS), 2019b. Earthquake Zones of Required Investigation, Antioch South Quadrangle, April 4.

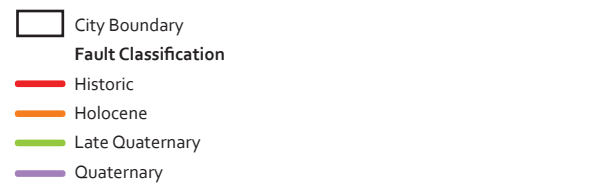
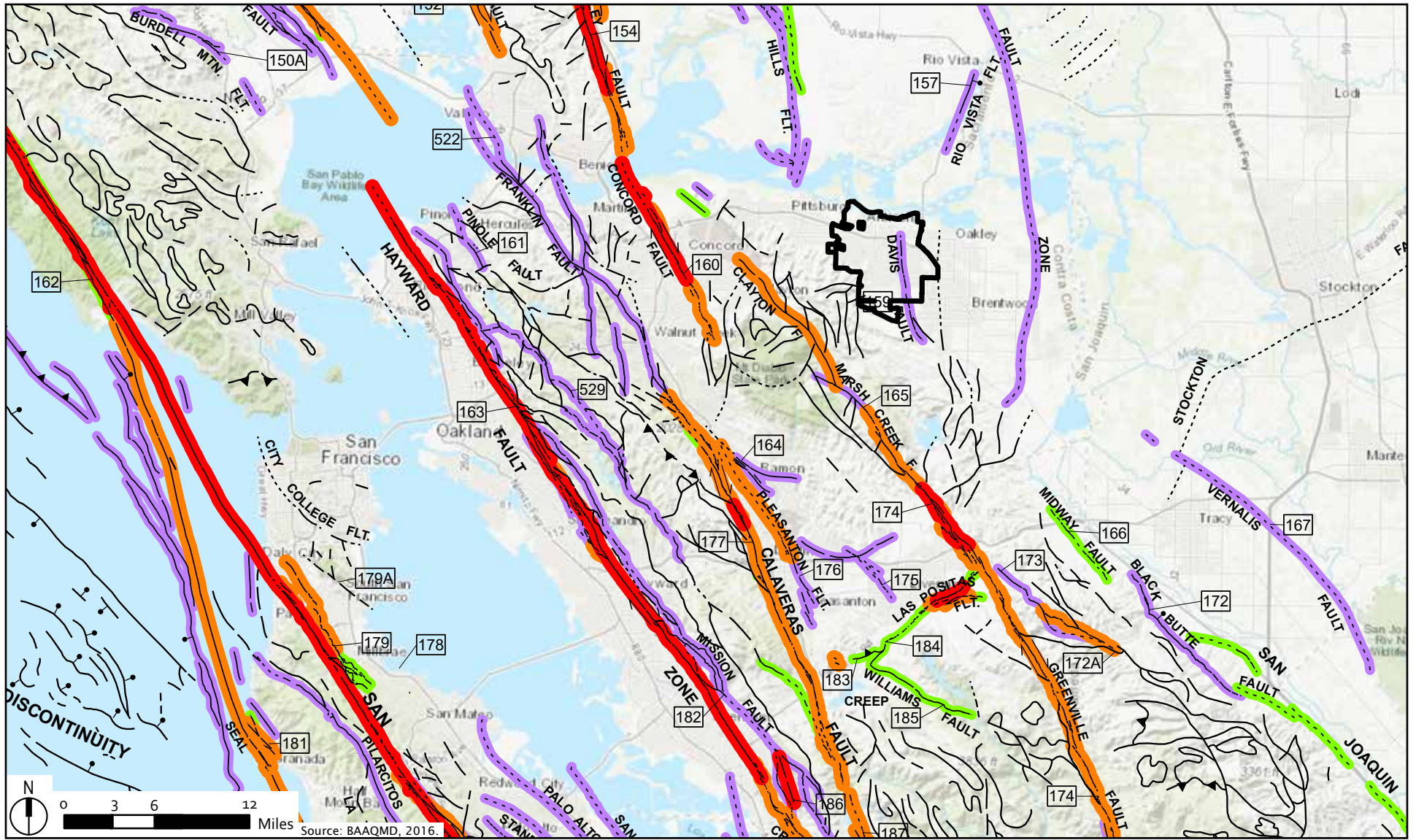


Figure IV.I-1  
Regional Faults

## (2) Ground Shaking

Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The Modified Mercalli Intensity (MMI) Scale is the most commonly used scale for measurement of the subjective effects of earthquake intensity (Table V.I-1). The MMI values range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from VI to XII can cause moderate to significant structural damage.<sup>17</sup>

Mapping of earthquake shaking scenarios by the Association of Bay Area Governments (ABAG)<sup>18</sup> indicates that a large earthquake on the Kirby Hills Fault would produce the maximum ground shaking intensities in the city with violent shaking (MMI IX) in the northwest corner of the city along the San Joaquin River, severe shaking (MMI VIII) in other areas along the San Joaquin River and in the northwest portion of the city, and very strong shaking (MMI VII) in other areas of the city. As discussed above, the Kirby Hills Fault is not active; therefore, the likelihood of an earthquake on this fault is low. The ABAG mapping indicates that a strong earthquake on the Greenville Fault could result in severe shaking (MMI VIII) along the San Joaquin River and very strong shaking (MMI VII) in other areas of the city; and a strong earthquake on the Hayward Fault could result in very strong shaking (MMI VII) along the San Joaquin River and strong shaking (MMI VI) in other areas of the city.

## (1) Liquefaction, Lateral Spreading, and Seismic Settlement

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. The potential for liquefaction-induced ground failure (e.g., loss of bearing strength, ground fissures, sand boils) depends on the thickness of the liquefiable soil layer relative to the thickness of the overlying non-liquefiable material. Areas within the city have been mapped by CGS as liquefaction hazard zones, including much of the

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<sup>17</sup> California Geological Survey (CGS), 2002b. How Earthquakes and Their Effects are Measured, Note 32.

<sup>18</sup> Association of Bay Area Governments (ABAG), 2022. Hazard Viewer Map, Available at: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8>, accessed April 19, 2022.

**TABLE V.I-1 MODIFIED MERCALLI INTENSITY (MMI) SCALE**

<b>MMI Value</b>	<b>Effects of Earthquake Intensity</b>
I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Board fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Source: CGS, 2002b. How Earthquakes and Their Effects are Measured, Note 32.

Lowland Area in the northern portion of the city, areas along creeks and valleys, including the Lone Tree Valley.<sup>19,20</sup> Liquefaction zones mapped by CGS are shown on Figure IV.I-2.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other “free” face, such as an excavation boundary. In a lateral spread failure, a layer of ground at the surface is carried on an underlying layer of liquefied material over a nearly flat surface toward a river channel or other bank. The lateral spreading hazard tends to mirror the liquefaction hazard for an area, assuming a free face is located nearby. Areas of the city that may be susceptible to lateral spreading include areas along the San Joaquin River where liquefaction zones are present near the free face of the riverbank, and areas where liquefaction zones are located near creeks, drainage canals, embankments, retaining walls, or other free faces.

Seismic settlement (also referred to as cyclic densification or differential compaction) can occur when non-saturated, cohesionless sand or gravel soil is densified by earthquake vibrations. When the degree of cyclic densification varies based on variations in soil types, differential (i.e., unequal) settlement may occur which can result in greater damaging to improvements compared to relatively equal settlement.

## **(2) Landslides**

Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep) on slopes of varying steepness. Areas susceptible to landslides are characterized by steep slopes and downslope creep of surface materials. Areas within the Upland Area of the city have been mapped by CGS as seismically induced landslide hazard zones, including much of the area located northwest of the Lone Tree Valley.<sup>21</sup> Seismically induced landslide hazard zones mapped by CGS are shown on Figure IV.I-2.

## **(3) Settlement, Differential Settlement, and Subsidence**

Settlement is the lowering of the land surface elevation as a result of loading (i.e., placing heavy loads, typically fill or structures), which often occurs with the development of a site. Settlement or differential (i.e., unequal) settlement could occur if buildings or other improvements are built on low-strength foundation materials (including imported non-engineered fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary

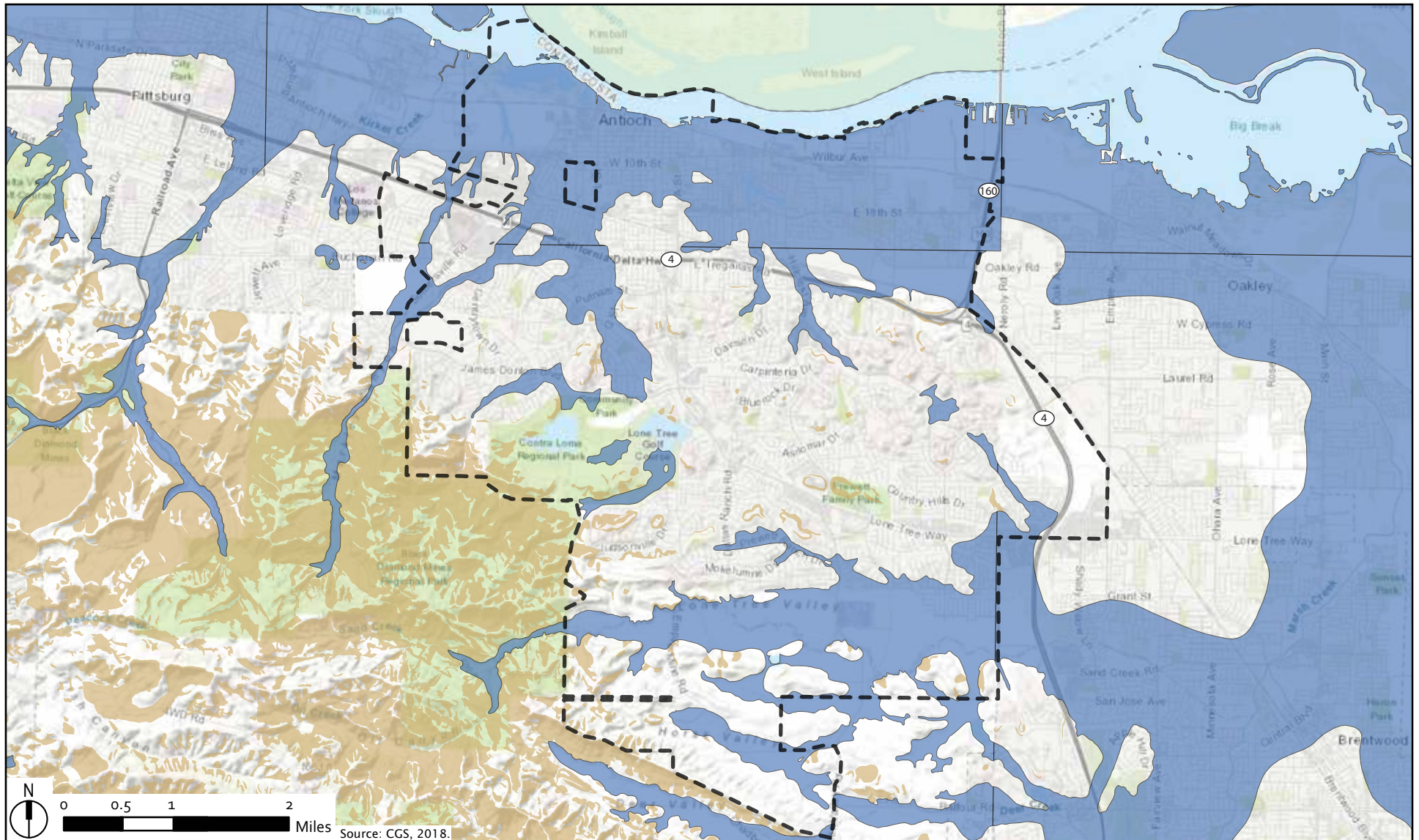
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<sup>19</sup> California Geological Survey (CGS), 2019a. Earthquake Zones of Required Investigation, Antioch North Quadrangle, April 4.

<sup>20</sup> California Geological Survey (CGS), 2019b. Earthquake Zones of Required Investigation, Antioch South Quadrangle, April 4.

<sup>21</sup> California Geological Survey (CGS), 2019b. Earthquake Zones of Required Investigation, Antioch South Quadrangle, April 4.





- City Boundary
- Liquefaction Zone
- Landslide Zone
- No Evaluation of Seismic Hazards

Figure IV.I-2  
CGS Seismic Hazard Zones

between native material and/or new engineered fill). Although settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. Loose or uncontrolled (non-engineered) fill and variable soil conditions may be present throughout the city.

Subsidence is the lowering of the land-surface elevation. The mechanism for subsidence is generally related to groundwater pumping and subsequent consolidation of loose aquifer sediments. The primary hazards associated with subsidence are increased flooding hazards and damage to underground utilities as well as above-ground structures. Other effects of subsidence include changes in the gradients of stormwater and sanitary sewer drainage systems for which the flow is gravity driven. Minor subsidence due to seasonal variation in groundwater levels is considered elastic subsidence. There is no historical evidence of inelastic land subsidence due to groundwater withdrawal in the East Contra Costa Subbasin.<sup>22</sup>

#### **(4) Expansive Soils**

Expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percent change of the soil volume. Shrink-swell potential is also influenced by the location of the soils; soils below the groundwater table maintain a steady moisture content and would therefore not be subject to shrink-swell effects. As a consequence of volume changes due to expansive soils, structural damage to buildings and infrastructure can occur if potentially expansive soils are not considered in project design and during construction. Expansive soils may be present in areas of the city where the clay content of soil is high, such as the western portion of the Lowland Area and areas near the San Joaquin River.

#### **c. Paleontological Conditions**

Paleontological resources include fossilized remains or traces of organisms, including plants, vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), and microscopic plants and animals (microfossils), including their imprints, from a previous geological period. Collecting localities and the geologic formations containing those localities are also considered paleontological resources as they represent a limited, non-renewable resource and once destroyed, cannot be replaced. The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on non-renewable paleontological resources. The SVP has helped define the value of paleontological resources and, in particular, states that significant paleontological

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<sup>22</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

resources are fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 years).<sup>23</sup>

The city contains the following geological formations: Pliocene Wolfskill, upper Miocene Neroly and San Pablo Group, middle Eocene Domengine and Markley, Paleocene Martinez, Jurassic to early Tertiary Franciscan Complex, and Great Valley Sequence. The formations listed above all contain marine and non-marine vertebrate and invertebrate fossils. These fossils represent a time period from Jurassic to Pliocene, spanning approximately 203 million years. Some of the fossils that may be contained in these formations are marine and non-marine clams, marine mammals, mammoths, primitive horses, and bison.<sup>24</sup>

Numerous fossils have been found within and collected from the soils and geologic formations underlying the city. Most of these collections are curated at California Academy of Sciences in San Francisco. The vertebrate fauna is curated at the University of California (UC) Museum of Paleontology at UC Berkeley. Fossils identified in the city include marine pelecypod and gastropod fossils collected from almost all of the sedimentary formations located in the city, and vertebrate fossils including mammoths, primitive horses, bison, rats, beaver-type creatures, and sloths.<sup>25</sup>

## 2. Regulatory Setting

This section describes the existing federal, State, and local regulatory frameworks related to geology and soils

### a. Federal Regulations

The following section describes the existing federal regulatory environment related to geology and soils.

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<sup>23</sup> Society of Vertebrate Paleontology (SVP), 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

<sup>24</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>25</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

## **(1) Federal National Earthquake Hazards Reduction Program**

The National Earthquake Hazards Reduction Program (NEHRP) was established by the US Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law 95-124. In establishing NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic NEHRP goals are:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide State, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

### **b. State Regulations**

The following section describes the existing State of California regulatory environment related to geology and soils.

#### **(1) California Alquist-Priolo Earthquake Fault Zoning Act**

The California Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972, and its main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active earthquake faults. The Alquist-Priolo Earthquake Fault Zoning Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of known active faults and to issue appropriate maps. "Earthquake Fault Zones" were called "Special Studies Zones" prior to January 1, 1994. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones. As mentioned above, the city is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active faults cross the city.

## **(2) California Seismic Hazards Mapping Act**

The Seismic Hazards Mapping Act of 1990 (Public Resources Code (PRC), Section 2690- 2699.6) directs the CGS to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the Seismic Hazards Mapping Act is to minimize loss of life and property through the identification, evaluation, and mitigation of seismic hazards. The Seismic Hazards Mapping Act was passed by the legislature following the 1989 Loma Prieta earthquake. As a result, CGS geologists gather existing geological, geophysical and geotechnical data from numerous sources to produce the Seismic Hazard Zone Maps. They integrate and interpret this data regionally in order to evaluate the severity of the seismic hazards and designate as Zones of Required Investigation those areas prone to ground shaking, liquefaction, and earthquake-induced landslides. Cities and counties are then required to use the Seismic Hazard Zone Maps in their land use planning and building permit processes. The Seismic Hazards Mapping Act requires that site-specific geotechnical investigations be conducted within Zones of Required Investigation to identify and evaluate seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy. The CGS has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides (primarily the Bay Area and the Los Angeles basin). The portions of the city mapped by CGS as liquefaction and landslide hazard zones are shown on Figure IV.1-2.

## **(3) California Building Standards Code**

The 2019 California Building Code, which refers to Part 2 of the California Building Standards Code in Title 24 of the California Code of Regulations, is based on the 2018 International Building Code, and is the most current State building code. The 2019 California Building Code covers grading and other geotechnical issues, building specifications, and non-building structures. The City of Antioch (City) has adopted the most current State building codes, as indicated in the City's Municipal Code Title 8 Chapter 1. The City's Building Division is responsible for reviewing plans, issuing building permits, and conducting inspections.

The California Building Code requires that a site-specific geotechnical investigation report be prepared by a licensed professional for proposed developments of one or more buildings greater than 4,000 square feet to evaluate geologic and seismic hazards. Buildings less than or equal to 4,000 square feet also are required to prepare a geologic engineering report, except for one-story, wood-frame, and light-steel-frame buildings that are located outside of the Alquist-Priolo Earthquake Fault Zones. The purpose of the geotechnical investigation is to identify seismic and geologic conditions that require project mitigation, such as ground shaking, liquefaction, differential settlement, and expansive soils. Based on the conditions of the site, the building code requires specific design parameters to ensure construction of buildings that will resist collapse during an earthquake. These design parameters do not protect buildings from all earthquake

shaking hazards but are designed to reduce hazards to a manageable level. Requirements for the geotechnical investigation are presented in Chapter 16 “Structural Design” and Chapter 18 “Soils and Foundation” of the 2019 California Building Code. Geotechnical investigation reports for individual projects within the city would be reviewed by the City’s Building Division prior to issuance of building permits.

#### **(4) CEQA Court Rulings on “Reverse CEQA”**

The California Supreme Court concluded in the *California Building Industry Association vs. Bay Area Air Quality Management District* (CBIA v. BAAQMD) decision, that “CEQA generally does not require an analysis of how existing environmental conditions will impact a project’s future users or residents.” The CBIA v. BAAQMD ruling provided for several exceptions to the general rule where an analysis of the effects of the environment on the project is warranted: 1) if the project would exacerbate existing environmental hazards (such as exposing hazardous waste that is currently buried); 2) if the project qualifies for certain specific exemptions (certain housing projects and transportation priority projects per PRC 21159.21 (f),(h); 21159.22 (a),(b)(3); 21159.23 (a)(2)(A); 21159.24 (a)(1),(3); or 21155.1 (a)(4),(6)); 3) if the project is exposed to potential noise and safety impacts on the project occupants due to proximity to an airport (per PRC 21096); and 4) school projects requiring specific assessment of certain environmental hazards (per PRC 21151.8).

### **c. Local Regulations**

The City’s General Plan policies and Municipal Code sections related to geology and soils are described below.

#### **(1) General Plan**

The following policies from the City’s General Plan<sup>26</sup> are related to geology, soils, and/or seismic hazards, and are applicable to the Project.

*Policy 5.4.14: Hillside Design Policies*

- a. Design hillside development to be sensitive to existing terrain, views, and significant natural landforms and features.
- b. Projects within hillside areas shall be designed to protect important natural features and to minimize the amount of grading. To this end, grading plans shall conform to the following guidelines.
  - *Slopes less than 25%:* Redistribution of earth over large areas may be permitted.
  - *Slopes between 25% and 35%:* Some grading may occur, but landforms need to retain their natural character. Padded building sites may be allowed, but split-level designs and clustering are encouraged as a means of avoiding the need for large, padded building areas.

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<sup>26</sup> LSA, 2003b. City of Antioch General Plan, November 24.

- *Slopes between 35% and 50%:* Development and limited grading can occur only if it can be clearly demonstrated that safety hazards, environmental degradation, and aesthetic impacts will be avoided. Structures shall blend with the natural environment through their shape, materials and colors. Impact of traffic and roadways is to be minimized by following natural contours or using grade separations. Encouraged is the use of larger lots, variable setbacks and variable building structural techniques such as stepped or post and beam foundations are required.
- *Slopes greater than 50%:* Except in small, isolated locations, development in areas with slopes greater than 50% should be avoided.
- c. Manufactured slopes in excess of five vertical feet (5') shall be landform graded. "Landform grading" is a contour grading method which creates artificial slopes with curves and varying slope ratios in the horizontal and vertical planes designed to simulate the appearance of surrounding natural terrain. Grading plans shall identify which slopes are to be landform graded and which are to be conventionally graded.
- d. The overall project design/layout of hillside development shall adapt to the natural hillside topography and maximize view opportunities to, as well as from the development.
- e. Grading of ridgelines is to be avoided wherever feasible, siting structures sufficiently below ridgelines so as to preserve unobstructed views of a natural skyline. In cases where application of this performance standard would prevent construction of any structures on a lot of record, obstruction of views of a natural skyline shall be minimized through construction techniques and design, and landscaping shall be provided to soften the impact of the new structure.
- f. Hillside site design should maintain an informal character with the prime determinant being the natural terrain. This can be accomplished by:
  - utilizing variable setbacks and structure heights, innovative building techniques, and retaining walls to blend structures into the terrain, and
  - allowing for different lot shapes and sizes.
- g. Buildings should be located to preserve existing views and to allow new dwellings access to views similar to those enjoyed from existing dwellings.
- h. Streets should follow the natural contours of the hillside to minimize cut and fill, permitting streets to be split into two one-way streets in steeper areas to minimize grading and blend with the terrain. Gul-de-sacs or loop roads are encouraged where necessary to fit the terrain. On-street parking and sidewalks may be eliminated, subject to City approval, to reduce required grading.
- i. Clustered development is encouraged as a means of preserving the natural appearance of the hillside and maximizing the amount of open space. Under this concept, dwelling units are grouped in the more level portions of the site, while steeper areas are preserved in a natural state.
- j. Project design should maximize public access to canyons, overlooks, and open space areas by:
  - providing open space easements between lots or near the end of streets or cul-de-sacs; and
  - designating public pathways to scenic vistas.
- k. Permit the use of small retaining structures when such structures can reduce grading, provided that these structures are located and limited in height so as not to be a dominant visual feature of the parcel.
  - Where retaining walls face public streets, they should be faced with materials that help blend the wall into the natural character of the terrain.
  - Large retaining walls in a uniform plane should be avoided. Break retaining walls into elements and terraces, and use landscaping to screen them from view.
- l. Lot lines shall be placed at the top of slopes to facilitate maintenance by the down slope owner, who has the greater "stake" in ensuring the continued integrity of the slope.
- m. The overall scale and massing of structures shall respect the natural surroundings and unique visual resources of the area by incorporating designs which minimize bulk and mass, follow natural topography, and minimize visual intrusion on the natural landscape.

## IV. SETTING, IMPACTS, AND MITIGATION MEASURES

## I. GEOLOGY AND SOILS

- The overall height of a building is an important aspect of how well it fits into the existing character of the neighborhood and its hillside environment. Houses should not be excessively tall so as to dominate their surroundings or create a crowded appearance in areas of small lots. Structures should generally be stepped down hillsides and contained within a limited envelope parallel to the natural grade, rather than "jutting out" over natural slopes.
- Building forms should be scaled to the particular environmental setting so as to complement the hillside character and to avoid excessively massive forms that fail to enhance the hillside character.
- Building facades should change plane or use overhangs as a means to create changing shadow lines to further break up massive forms.
- Wall surfaces facing towards viewshed areas should be minimized through the use of single story elements, setbacks, roof pitches, and landscaping.
- n. Collective mass rooflines and elements should reflect the naturally occurring ridgeline silhouettes and topographical variation, or create an overall variety, that blends with the hillside.
- o. Based upon the graphic principle that dark colors recede and light colors project, medium to dark colors which blend with the surrounding environment should be used for building elevations and roof materials in view-sensitive areas.
- p. Architectural style, including materials and colors, should be compatible with the natural setting. The use of colors, textures, materials and forms that will attract attention by contrasting or clashing with other elements in the neighborhood is to be avoided. No one dwelling should stand out.
- q. The interface between development areas and open space is critical and shall be given special attention. Slope plantings should create a gradual transition from developed slope areas into natural areas. By extending fingers of planting into existing and sculptured slopes, the new landscape should blend in with the natural vegetation.
- r. Planting along the slope side of a development should be designed to allow controlled views out, yet partially screen and soften the architecture. In general, 50 percent screening with plant materials should be accomplished.
  - Trees should be arranged in informal masses and be placed selectively to reduce the scale of long, steep slopes.
  - Shrubs should be randomly spaced in masses.
  - Skyline planting should be used along recontoured secondary ridgelines to recreate the linear silhouette and to act as a backdrop for structures.
  - Trees should be planted to create a continuous linear silhouette since gaps in the planting will not give the desired effect.
  - Trees that grow close to the height of structures should be planted between buildings to eliminate the open gap and blend the roof lines into one continuous silhouette.
  - For fire prevention purposes, a fuel modification zone shall be provided between natural open space and development.
- s. New development within hillside areas shall be conditioned upon:
  - the preparation and recordation of a declaration of covenants, conditions and restrictions providing for the development and maintenance of manufactured slopes;
  - in the case of a parcel map or subdivision, the subdivider's supplying a program and/or staff for preventive maintenance of major manufactured slope areas. Such program must be approved prior to approval of a final map, and shall include homeowner slope maintenance requirements and guidelines to be incorporated into the declaration of covenants, conditions, and restrictions.



*Policy 8.7.2: Storm Drainage and Flood Control Policies*

- a. Continue working with the Contra Costa County Flood Control District to ensure that runoff from new development is adequately handled.
- b. Require adequate infrastructure to be in place and operational prior to occupancy of new development, such that:
  - new development will not negatively impact the performance of storm drain facilities serving existing developed areas and the performance standards set forth in the Growth Management Element will continue to be met.
- c. Design flood control within existing creek areas to maximize protection of existing natural settings and habitat.
- d. Provide retention basins in recreation areas where feasible to reduce increases in the amount of runoff resulting from new development.
- e. Require new developments to provide erosion and sedimentation control measures to maintain the capacity of area storm drains and protect water quality.
- f. Require implementation of Best Management Practices in the design of drainage systems to reduce discharge of non-point source pollutants originating in streets, parking lots, paved industrial work areas, and open spaces involved with pesticide applications.

*Policy 10.7.2: Water Resources Policies**Water Supply*

- a. As part of the implementing the City's residential growth management program and its development review process for non-residential development, ensure that adequate long-term water supplies are available to serve the development being granted new allocations, including consideration of peak drought and peak fire fighting needs.
- b. Require new development to be equipped with drought tolerant landscaping and water conservation devices.
- c. Work with Delta Diablo Sanitation District to make reclaimed wastewater available for irrigation use. Where reclaimed wastewater can be made available at a reasonable cost, require the installation of dual water systems in development projects and public facilities, using reclaimed wastewater for irrigation.
- d. Protect, where possible, groundwater recharge areas, including protection of stream sides from urban encroachment.
- e. Oppose proposals with the potential to increase the salinity of the Delta and/or endanger the City's rights to divert water from the San Joaquin River.

*Water Quality*

- f. Participate in the Contra Costa Clean Water program to reduce storm water pollution and protect the water quality of the City's waterways.
- g. Require public and private development projects to be in compliance with applicable National Pollution Discharge Elimination System (NPDES) permit requirements and require the implementation of best management practices to minimize erosion and sedimentation resulting from new development.
- h. Participate in regional watershed planning efforts to enhance area water quality.
- i. Design drainage within urban areas to avoid runoff from landscaped areas and impervious surfaces from carrying pesticides, fertilizers, and urban and other contaminants into natural streams.

*Policy 10.9.2: Cultural Policies*

- a. Require new development to analyze, and therefore avoid or mitigate impacts to archaeological, paleontological, and historic resources. Require surveys for projects having the potential to impact archaeological, paleontological, or historic resources. If significant resources are found to be present, provide mitigation in accordance with applicable CEQA guidelines and provisions of the California Public Resources Code.

## IV. SETTING, IMPACTS, AND MITIGATION MEASURES

## I. GEOLOGY AND SOILS

- b. If avoidance and/or preservation in the location of any potentially significant cultural resource is not possible, the following measures shall be initiated for each impacted site:
- A participant-observer from the appropriate Indian Band or Tribe shall be used during archaeological testing or excavation in the project site.
  - Prior to the issuance of a grading permit for the project, the project proponent shall develop a test-level research design detailing how the cultural resource investigation shall be executed and providing specific research questions that shall be addressed through the excavation program. In particular, the testing program shall characterize the site constituents, horizontal and vertical extent, and, if possible, period of use. The testing program shall also address the California Register and National Register eligibility of the cultural resource and make recommendations as to the suitability of the resource for listing on either Register. The research design shall be submitted to the City of Antioch for review and comment. For sites determined, through the Testing Program, to be ineligible for listing on either the California or National Register, execution of the Testing Program will suffice as mitigation of project impacts to this resource.
  - After approval of the research design and prior to the issuance of a grading permit, the project proponent shall complete the excavation program as specified in the research design. The results of this excavation program shall be presented in a technical report that follows the City's outline for Archaeological Testing. The Test Level Report shall be submitted to the City for review and comment. If cultural resources that would be affected by the project are found ineligible for listing on the California or National Register, test-level investigations will have depleted the scientific value of the sites and the project can proceed.
  - If the resource is identified as being potentially eligible for either the California or National Register, and project designs cannot be altered to avoid impacting the site, a Treatment Program to mitigate project effects shall be initiated. A Treatment Plan detailing the objectives of the Treatment Program shall be developed. The Treatment Plan shall contain specific, testable hypotheses relative to the sites under study and shall attempt to address the potential of the sites to address these research questions. The Treatment Plan shall be submitted to the City for review and comment.
  - After approval of the Treatment Plan, the Treatment Program for affected, eligible sites shall be initiated. Typically, a Treatment Program involves excavation of a statistically representative sample of the site to preserve those resource values that qualify the site as being eligible for the California or National Register. At the conclusion of the excavation or research program, a Treatment Report shall be developed. This data recovery report shall be submitted to the City for review and comment.
- c. When existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate reposition, and file a report with the Community Development Department documenting any paleontological resources found during site grading.
- d. As a standard condition of approval for new development projects, require that if unanticipated cultural or paleontological resources are encountered during grading, alteration of earth materials in the vicinity of the find be halted until a qualified expert has evaluated the find and recorded identified cultural resources.
- e. Preserve historic structures and ensure that alterations to historic buildings and their immediate settings are compatible with the character of the structure and the surrounding neighborhood.

*Policy 11.3.2: Geology and Seismicity Policies**Seismicity*

- a. Require geologic and soils reports to be prepared for proposed development sites, and incorporate the findings and recommendations of these studies into project development requirements. As determined by the City of Antioch Building Division, a site-specific assessment shall be prepared to ascertain potential ground shaking impacts on new development. The site-specific ground shaking assessment shall incorporate up-to-date data from government and non-government sources and may be included as part of any site-specific

geotechnical investigation. The site-specific ground shaking assessment shall include specific measures to reduce the significance of potential ground shaking hazards. This The site-specific ground shaking assessment shall be prepared by a licensed geologist and shall be submitted to the City of Antioch Building Division for review and approval prior to the issuance of building permits. For the purpose of this policy, "development" applies to new structures and existing structures or facilities that undergo expansion, remodeling, renovation, refurbishment or other modification. This policy does not apply to second units or accessory buildings.

- b. Provide information and establish incentives for property owners to rehabilitate existing buildings using updated construction techniques to protect against seismic hazards.
- c. Encourage the purchase of earthquake insurance by residents and businesses.
- d. Encourage continued investigation by State agencies of geologic conditions within the Bay Area to update knowledge of seismic hazards and promote public awareness.
- e. Provide expedited review of any seismic-related revisions to the Uniform Building Code proposed by the State.
- f. Work with PG&E, pipeline companies, and industrial uses to implement measures to safeguard the public from seismic hazards associated with high voltage transmission lines, caustic and toxic gas and fuel lines, and flammable storage facilities.
- g. Require that engineered slopes be designed to resist seismically induced failure.
- h. Require that parcels overlying both cut and fill areas within a grading operation be over-excavated to mitigate the potential for seismically induced differential settlement.

#### *Other Geologic Conditions*

- i. Limit development in those areas which, due to adverse geological conditions, will be hazardous to the overall community and those who will inhabit the area.
- j. Require evaluations of potential slope stability for developments proposed within hillside areas, and incorporate the recommendations of these studies into project development requirements.
- k. Require specialized soils reports in areas suspected of having problems with potential bearing strength, expansion, settlement, or subsidence, including implementation of the recommendations of these reports into the project development, such that structures designed for human occupancy are not in danger of collapse or significant structural damage with corresponding hazards to human occupants. Where structural damage can be mitigated through structural design, ensure that potential soils hazards do not pose risks of human injury or loss of life in outdoor areas of a development site.
- l. Where development is proposed within an identified or potential liquefaction hazards area (as determined by the City), adequate and appropriate measures such as (but not limited to) designing foundations in a manner that limits the effects of liquefaction potential, and the alternative siting of structures in area with lower liquefaction risk, shall be implemented to reduce potential liquefaction hazards. Any such measures shall be submitted to the City of Antioch Building Division for review prior to the approval of the building permits.

#### *Historic Mineral Evaluation*

- m. As appropriate and necessary to protect public health and safety, abandoned mines shall be placed in natural open space areas, with appropriate buffer areas to prevent unauthorized entry.
- n. Within areas of known historic mining activities, site-specific investigations shall be undertaken prior to approval of development to determine the location of any remaining mine openings, the potential for subsidence of [sic] collapse, and necessary measures to protect public health and safety, and prevent the collapse or structural damage to structures intended for human occupancy due to mine-related ground failure or subsidence. Such measures shall be incorporated into project approvals.
- o. All identified mine openings shall be effectively sealed.
- p. Construction of structures for human occupancy shall be prohibited within areas found to have a high probability of surface collapse or subsidence, unless foundations are designed that would not be affected by such collapse or subsidence, as determined by site-specific investigations and engineered structural design.
- q. The locations of all oil or gas wells on proposed development sites shall be identified in development plans. Project sponsor of development containing existing or former oil or gas wells shall submit documentation

demonstrating that all abandoned pursuant to the requirements of the California Department to Conservation Oil, Gas, and Geothermal Resources.

*Policy 11.8.2: Disaster Response Policies.*

- a. Maintain and update the City's Emergency Response Plan, as required by State law.
- b. Disseminate disaster preparedness information to local residents and businesses, describing how emergency response will be coordinated, how evacuation, if needed, will proceed, and what residents and businesses can do to prepare for emergency situations. Provide information to the public about:
  - Environmental hazards existing in Antioch;
  - The costs of doing nothing to mitigate these hazards;
  - Why governmental agencies can not eliminate all hazards;
  - What the City does to assist;
  - What the City cannot do;
  - What the public can do to protect itself.
- c. Maintain an effective and properly equipped emergency operations center, along with trained personnel, for receiving emergency calls, providing initial response and key support to major incidents, meeting the demands of automatic and mutual aid programs, and maintaining emergency incident statistical data.
- d. Maintain ongoing emergency response coordination with surrounding jurisdictions.
- e. Encourage private businesses and industrial uses to be self-sufficient in an emergency by:
  - Maintaining a fire control plan, including onsite fire fighting capability and volunteer response teams to respond to and extinguish small fires; and
  - Identifying personnel who are capable and certified in first aid and CPR.
- f. Regularly review and clarify emergency evacuation plans for dam failure, fire, and hazardous materials releases.

## **(2) Municipal Code**

The City's Municipal Code sections related to geology and soils are discussed below.

- Section 8-1.01 of the Municipal Code adopts the most current State building codes, including the seismic design requirements of 2019 California Building Code.
- Section 9-4.513 requires that prior to the submission of a final subdivision map, the subdivider must file a preliminary soil report with the City unless the requirements is waived by the City Engineer based on their knowledge of soil qualities of the subdivision. The preliminary soil report must be prepared by a civil engineer who is registered by the state and must be based upon adequate test borings or excavations of every subdivision.
- Section 9-4.514 requires that if the preliminary soil report indicates the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects, a soil investigation of each lot in a subdivision must be prepared by a civil engineer who is registered by the state. The soil investigation report must be filed with the City Engineer and recommend corrective action to prevent structural damage.
- Section 9-4.515 indicates that the City Engineer shall approve the soil investigation if they determine that the recommended corrective action is likely to prevent structural damage to

each dwelling to be constructed on each lot in the subdivision, and the building permit shall be conditioned upon the incorporation of the approved recommended corrective action in the construction of each dwelling.

- Section 9-4.516 indicates that every final map approved pursuant to the provisions of this article shall be conditioned on compliance with City requirements for grading and erosion control, including the prevention of sedimentation or damages to off-site property.

### **3. Impacts and Mitigation Measures**

This section analyzes environmental impacts related to geology and soils that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project and identifies mitigation measures to address these impacts, as needed.

Please note that this analysis relies on several existing and “as proposed” General Plan policies to ensure impacts are reduced to the greatest extent feasible. As a part of the Project, individual elements of the existing General Plan are being updated or added. In a corresponding effort, many of their associated objectives and policies are also being modified and added. As such, many of the objective and policy numbers have changed when compared to the existing General Plan. Where applicable, both the existing and proposed objective/policy numbers are given at first reference. After first reference, any referenced General Plan objective/policy number is provided as proposed.

#### **a. Significance Criteria**

Implementation of the Project would result in a significant impact related to geology and soils if it would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: (1) rupture of a known earthquake fault, as delineated on the most recent Alquist–Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; (2) strong seismic ground shaking; (3) seismic-related ground failure, including liquefaction; and (4) landslides.
2. Result in substantial soil erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

4. 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.
5. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

### **b. Analysis Approach**

The following section provides an evaluation and analysis of the potential impacts of the Project for each of the criteria of significance listed above and potential cumulative impacts. The policies in the updated Environmental Hazards Element would remain the same as the existing policies related to geology and soils (General Plan Policies 11.4.2 (previously General Plan Policy 11.3.2) and 11.10.2 (previously General Plan Policy 11.8.2) which are listed above; therefore, no geology and soils related impacts from updating the Environmental Hazards Element would occur.

Based on the CEQA court rulings on "Reverse CEQA" described under *Section IV.I.2.b.4, CEQA Court Rulings on "Reverse CEQA,"* above, CEQA no longer considers the impact of the environment on a project (such as the impact of existing seismic hazards on new projects) to be an environmental impact, unless the project could exacerbate an existing environmental hazard. The Project would not exacerbate existing hazards related to surface fault rupture, seismic ground shaking or seismic related ground failure. As such, the following discussions of these seismic hazards are provided for informational purposes only.

### **c. Findings**

#### **(1) Surface Rupture (Criterion 1)**

Surface fault rupture occurs when the ground surface is broken due to fault movement during an earthquake. Fault rupture is generally expected to occur along known active fault traces. Areas susceptible to fault rupture are delineated by the CGS Alquist-Priolo Earthquake Fault Zones map and require specific geological investigations prior to development to reduce the threat to public health and safety and to minimize the loss of life and property posed by earthquake-induced ground failure. The city does not contain any known active faults<sup>27</sup> or faults mapped as subject to

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<sup>27</sup> California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California, Available at: <https://maps.conservation.ca.gov/cgs/fam/>, accessed April 29, 2022.

surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act.<sup>28,29</sup> Therefore, potential hazards related to surface fault rupture are considered negligible within the city and impacts are anticipated to be less than significant.

## **(2) Ground Shaking and Seismic-Related Ground Failure (Criterion 1)**

Development under the Project would increase the amount and density of residential land uses in the city. The intensification of land uses would increase the number of people and structures that could be directly or indirectly affected by seismic ground shaking and ground failure hazards. Based on regional mapping, developments within the city would be potentially subject to damage from seismic ground shaking, and seismic related ground failure including liquefaction, lateral spreading, and seismic settlement. Seismic related ground failure can result in damage to structures and other improvements (e.g., roadways and utilities) due to settlement, differential settlement and lateral displacement.

During a major earthquake on a regional fault, strong to violent ground shaking could occur in the city.<sup>30</sup> Areas within the city have been mapped by CGS as liquefaction hazard zones, including much of the Lowland Area in the northern portion of the city, areas along creeks and valleys, including the Lone Tree Valley.<sup>31,32</sup> The majority of the parcels identified in the Housing Sites Inventory are located within or intersected by areas mapped by CGS as liquefaction hazard zones as shown on Figure IV.I-2. Areas of the city that may be susceptible to lateral spreading include areas along the San Joaquin River where liquefaction zones are present near the free face of the riverbank, and areas where liquefaction zones are located near creeks, drainage canals, embankments, retaining walls, or other free faces. Areas of the city that may be susceptible to seismic settlement would include areas where non-saturated, cohesionless sand or gravel soil is located. Native soil throughout much of the city is clayey; however, sandy soil (Delhi sand) is present in the eastern portion of the Lowland Area of the city;<sup>33</sup> therefore, the potential for seismic settlement may be higher in this portion of the city. Non-saturated, cohesionless sand or

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<sup>28</sup> California Geological Survey (CGS), 2019a. Earthquake Zones of Required Investigation, Antioch North Quadrangle, April 4.

<sup>29</sup> California Geological Survey (CGS), 2019b. Earthquake Zones of Required Investigation, Antioch South Quadrangle, April 4.

<sup>30</sup> Association of Bay Area Governments (ABAG), 2022. Hazard Viewer Map, Available at: <https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcdo86fc8>, Accessed April 19, 2022.

<sup>31</sup> California Geological Survey (CGS), 2019a. Earthquake Zones of Required Investigation, Antioch North Quadrangle, April 4.

<sup>32</sup> California Geological Survey (CGS), 2019b. Earthquake Zones of Required Investigation, Antioch South Quadrangle, April 4.

<sup>33</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

gravel soil that may be susceptible to seismic settlement may also be present in fill materials in various locations in the city.

The risk to structures and improvements from seismic ground shaking and seismic related ground failure is reduced through adherence to the design and materials standards set forth in the California Building Code and recommendations in site-specific geotechnical reports. Site-specific geotechnical reports are required by the California Building Code for all structures except those that are less than or equal to 4,000 square feet and are one-story, wood-frame, or light-steel-frame buildings that are located outside of the Alquist-Priolo Earthquake Fault Zones. Site-specific geotechnical reports are required by the Seismic Hazards Mapping Act for any structures that would be located in Seismic Hazards Zones mapped by CGS, including liquefaction hazard zones (which would include areas susceptible to lateral spreading). Prior to developments within CGS mapped Seismic Hazard Zones, future project proponents must perform a site-specific geotechnical evaluation of seismic hazards which must include recommendations to mitigate the seismic hazards in accordance with the guidelines of CGS Special Publication 117A.<sup>34</sup> Preliminary soils reports are required by the City's Municipal Code Section 9-4.513 for any subdivision, except when the requirements is waived by the City Engineer. Section 9-4.515 of the City's Municipal Code indicates that the City Engineer shall approve the soil investigation if they determine that the recommended corrective action is likely to prevent structural damage to each dwelling to be constructed on each lot in the subdivision, and the building permit shall be conditioned upon the incorporation of the approved recommended corrective action in the construction of each dwelling. Implementation of General Plan policies would also reduce potential impacts related to seismic ground shaking and seismic related ground failure, including General Plan Policy 11.4.2 (a) which requires geologic and soils reports to be prepared for any proposed development sites, incorporating the findings and recommendations of these studies into project development requirements, and site-specific ground shaking assessment for proposed developments when required by the City's Building Division; General Plan Policy 11.4.2 (h) which requires that parcels overlying both cut and fill areas within a grading operation be over-excavated to mitigate the potential for seismically induced differential settlement; General Plan Policy 11.4.2 (i) which limits development in those areas which, due to adverse geological conditions, would be hazardous to the overall community and those who will inhabit the area; and General Plan Policy 11.4.2 (l) which requires that where development is proposed within an identified or potential liquefaction hazards area (as determined by the City), adequate and appropriate measures such as (but not limited to) designing foundations in a manner that limits the effects of liquefaction potential, and the alternative siting of structures in area with lower liquefaction risk, must be implemented to reduce potential liquefaction hazards.

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<sup>34</sup> California Geological Survey, 2008. Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Revised and Re-adopted September 11.



Implementation of other General Plan policies would also reduce potential impacts related to seismic ground shaking and seismic related ground failure in the city, including General Plan Policy 11.10.2 which requires the City to maintain and update the City's Emergency Response Plan<sup>35</sup>; General Plan Policy 11.4.2 (b) which requires the City to provide information and establish incentives for property owners to rehabilitate existing buildings using updated construction techniques to protect against seismic hazards; General Plan Policy 11.4.2 (d) which requires the City to encourage continued investigation by State agencies of geologic conditions within the Bay Area to update knowledge of seismic hazards and promote public awareness; General Plan Policy 11.4.2 (e) which requires the City to provide expedited review of any seismic-related revisions to the Uniform Building Code proposed by the State; and General Plan Policy 11.4.2 (f) which requires the City to work with PG&E, pipeline companies, and industrial uses to implement measures to safeguard the public from seismic hazards associated with high voltage transmission lines, caustic and toxic gas and fuel lines, and flammable storage facilities.

Development under the Project in accordance with recommendations from site-specific geotechnical investigations that would be prepared as required by the California Building Code, Seismic Hazards Mapping Act, and the City's General Plan and Municipal Code; and implementation of other General Plan policies as discussed above, would ensure that potential hazards related to seismic ground shaking and seismic related ground failure would be reduced to a less-than-significant level.

### **(3) Landslides (Criterion 1)**

Areas susceptible to landslides are characterized by steep slopes and downslope creep of surface materials. Areas within the Upland Area of the city have been mapped by CGS as seismically induced landslide hazard zones, including much of the area located northwest of the Lone Tree Valley.<sup>36</sup> Four of the parcels identified in the Housing Sites Inventory are intersected by areas mapped by CGS as seismically induced landslide hazard zones as shown on Figure IV.I-2, including the parcel located at 3195 Contra Loma Boulevard (Map Number 154 on Figure III-7 in *Chapter III, Project Description*), and the two parcels located at Lone Tree Way and Country Hills Drive and the parcel located at Lone Tree Way and Deer Valley Road (Map Numbers 116, 117, and 118, respectively, on Figure III-9 in *Chapter III, Project Description*).

Development in areas susceptible to landslides can present potential risks as structures and other improvements could be damaged by landslides. Development in areas susceptible to landslides

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<sup>35</sup> The City's current Emergency Response Plan is the Contra Costa County Hazard Mitigation Plan dated January, 2018, which includes county wide elements in Volume 1 and a City of Antioch specific element in Volume 2.

<sup>36</sup> California Geological Survey (CGS), 2019b. Earthquake Zones of Required Investigation, Antioch South Quadrangle, April 4.

can also exacerbate the risk of landslides occurring as grading and excavation activities can potentially destabilize existing slopes.

The risks associated with development in areas susceptible to landslides are reduced through adherence to recommendations in site-specific geotechnical reports. Site-specific geotechnical reports must be prepared for proposed developments as discussed under *Section IV.I.3.c.2, Ground Shaking and Seismic-Related Ground Failure (Criterion 1)*, above. This would include preparation of a site-specific geotechnical evaluation of landslide hazards which must include recommendations to mitigate the landslide hazards in accordance with the guidelines of CGS Special Publication 117A.<sup>37</sup>

Implementation of General Plan policies related to slope stability and development in hillside areas would also reduce potential impacts related to landslides, including General Plan Policy 5.4.14 (b) which limits the allowable amount of grading depending on the degree of steepness of hillside areas and encourages design methods that limit the amount of grading required for hillside areas; General Plan Policy 11.4.2 (g) which requires that engineered slopes be designed to resist seismically induced failure; General Plan Policy 11.4.2 (i) which limits development in those areas which, due to adverse geological conditions, would be hazardous to the overall community and those who will inhabit the area; and General Plan Policy 11.4.2 (j) which requires evaluations of potential slope stability for developments proposed within hillside areas, and incorporate the recommendations of these studies into project development requirements.

Development under the Project in accordance with recommendations from site-specific geotechnical investigations that would be prepared as required by the California Building Code, Seismic Hazards Mapping Act, and the City's General Plan and Municipal Code; and implementation of General Plan policies as discussed above, would ensure that the potential impacts related to landslides would be less than significant without additional mitigation.

#### **(4) Soil Erosion and Loss of Topsoil (Criterion 2)**

Soil erosion, which is discussed in detail in *Section IV.K, Hydrology and Water Quality*, could occur during grading and construction of developments under the Project. As described in *Section IV.K*, compliance with the State Water Resources Control Board's Construction General Permit, including the preparation and implementation of Stormwater Pollution Prevention Plans, would ensure that developments that would disturb 1-acre or more of land would result in less-than-significant impacts related to erosion or loss of topsoil during construction.

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<sup>37</sup> California Geological Survey, 2008. Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Revised and Re-adopted September 11.

Implementation of General Plan policies would further reduce the potential for erosion or loss of top soil to occur during grading and construction of developments under the Project, including General Plan Policy 5.4.14 (b) which limits grading in hillside areas; General Plan Policy 8.7.2 (e) which requires new developments to provide erosion and sedimentation control measures; and General Plan Policy 10.7.2 (g) which requires public and private development projects to be in compliance with applicable National Pollution Discharge Elimination System (NPDES) permit requirements, and requires the implementation of best management practices to minimize erosion and sedimentation.

Section 9-4.516 of the City's Municipal Code requires that approval of final subdivision maps be conditioned on compliance with City requirements for grading and erosion control, including the prevention of sedimentation or damages to off-site property.

During operation of developments under the Project, the developments would be covered with buildings, pavement surfaces, and landscaping, which would minimize the potential for post-development erosion. Therefore, compliance with Construction General Permit and implementation of the City's General Plan policies and Municipal Code would ensure that potential impacts related to erosion or loss of topsoil would be less than significant.

### **(5) Unstable Soil, Subsidence, and Collapse (Criterion 3)**

Unstable soils include loose, unconsolidated soils and clays that can undergo settlement under new loads such as fill material or structures. Such soils are often present in marshy areas or near the margins of bays, rivers, and creeks where silts, clay, and alluvial deposits occur in saturated environments. Undocumented fill materials (i.e., fill materials from unknown sources that may have been placed without appropriate compaction) may also be unstable and experience in settlement under new loads. Settlement and differential settlement of unstable soil can cause significant damage to buildings and other improvements over time.

The risks associated with development in areas of unstable soil are reduced through adherence to the design and materials standards set forth in the California Building Code and adherence to recommendations in site-specific geotechnical reports and soils reports. Site-specific geotechnical reports must be prepared for proposed developments as discussed above in Criterion 2.

Subsidence or collapse can result from the removal of subsurface water resulting in either catastrophic or gradual depression of the ground surface elevation. The primary hazards associated with subsidence are increased flooding hazards and damage to underground utilities as well as above-ground structures. The temporary dewatering of excavations (if needed) during construction of developments under the Project is the only removal of subsurface water anticipated to occur under the Project. Such dewatering would be localized, temporary, of

relatively low magnitude, and affect only the shallow groundwater. There is no historical evidence of inelastic land subsidence due to groundwater withdrawal in the East Contra Costa Subbasin, and surface water is the city's only source of water supply;<sup>38</sup> therefore, development under the Project would not create an increased demand on groundwater supplies which could contribute to subsidence.

Past mining activities occurred in the southwestern portions of the city. Soil surrounding mines can be unstable as the mines present a risk of collapse and surface subsidence in areas overlying and surrounding mine tunnels and shafts. None of the parcels identified in the Housing Sites Inventory are located in the southwestern portions of the city; therefore, development under the Project is not likely to be impacted by unstable soil near mines.

Implementation of General Plan policies would reduce the potential for impacts from unstable soils, subsidence, and collapse, including General Plan Policy 11.4.2 (k) which requires specialized soils reports in areas suspected of having problems with strength, settlement, or subsidence, and implementation of the recommendations of these reports into the project development such that structures designed for human occupancy are not in danger of significant structural damage or collapse, and where structural damage can be mitigated through structural design, it must be ensured that potential soils hazards do not pose risks of human injury or loss of life in outdoor areas of a development site; General Plan Policy 11.4.2 (n) which requires that within areas of known historic mining activities, site-specific investigations must be undertaken prior to approval of development to determine the location of any remaining mine openings, the potential for subsidence or collapse, and necessary measures to protect public health and safety, and prevent the collapse or structural damage to structures intended for human occupancy due to mine-related ground failure or subsidence; General Plan Policy 11.4.2 (o) which requires all identified mine openings to be effectively sealed; and General Plan Policy 11.4.2 (p) which prohibits construction of structures for human occupancy within areas found to have a high probability of surface collapse or subsidence, unless foundations are designed that would not be affected by such collapse or subsidence, as determined by site-specific investigations and engineered structural design.

Development under the Project in accordance with recommendations from site-specific geotechnical investigations that would be prepared as required by the California Building Code, Seismic Hazards Mapping Act, and the City's General Plan and Municipal Code; and implementation of General Plan policies as discussed above, would ensure that potential impacts related to unstable soil, subsidence, and collapse would be less than significant.

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<sup>38</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

## **(6) Expansive Soils (Criterion 4)**

Expansive soils may be present in areas of the city where the clay content of soil is high, such as the western portion of the Lowland Area and areas near the San Joaquin River. Development under the Project could include construction of structures and improvements in areas of expansive soils. If appropriate design and construction methods are not incorporated into developments, expansive soils could cause damage to structures and improvements. The risks of damage associated with development in areas with expansive soil is reduced through adherence to recommendations in site-specific geotechnical reports. Site-specific geotechnical reports must be prepared for proposed developments as discussed under *Section IV.1.3.c.2, Ground Shaking and Seismic-Related Ground Failure (Criterion 1)*, above.

Section 9-4.514 of the City's Municipal Code requires that if the preliminary soil report indicates the presence of critically expansive soils which, if not corrected, would lead to structural defects, a soil investigation of each lot in a subdivision must be prepared by a civil engineer who is registered by the state. The soil investigation report must be filed with the City Engineer and recommend corrective action to prevent structural damage. Section 9-4.515 of the City's Municipal Code indicates that the City Engineer shall approve the soil investigation if they determine that the recommended corrective action is likely to prevent structural damage to each dwelling to be constructed on each lot in the subdivision, and the building permit shall be conditioned upon the incorporation of the approved recommended corrective action in the construction of each dwelling. Implementation of General Plan Policy 11.4.2 (k) requires specialized soils reports in areas suspected of having problems with expansion, and implementation of the recommendations of these reports into the project development such that structures designed for human occupancy are not in danger of significant structural damage.

Development under the Project in accordance with recommendations from site-specific geotechnical investigations that would be prepared as required by the California Building Code, Seismic Hazards Mapping Act, and the City's General Plan and Municipal Code; and implementation of other General Plan policies as discussed above, would reduce potential impacts related to expansive soils to be less than significant.

## **(7) Septic Tanks or Alternative Wastewater Disposal (Criterion 5)**

Development under the Project would occur in areas where all developments would be able to tie into existing wastewater infrastructure. None of the developments would require the use of septic or other alternative wastewater disposal systems. Therefore, there would be no impacts related to use of septic systems or alternative wastewater disposal systems.

## **(8) Paleontological Resources or Unique Geologic Features (Criterion 6)**

Unique geologic features have not been identified in the city;<sup>39,40</sup> therefore, development under the Project would not impact unique geologic features. Numerous fossils have been collected from the city including marine pelecypod and gastropod fossils collected from almost all of the sedimentary formations located in the city, and vertebrate fossils including mammoths, primitive horses, bison, rats, beaver-type creatures, and sloths.<sup>41</sup> Development under the Project would involve construction activities that could adversely impact fossils. Such fossils, if present, could be identified during excavation activities. Implementation of General Plan policies would reduce the potential for impacts to paleontological resources, including General Plan Policy 10.9.2 (a) which requires surveys for projects having the potential to impact paleontological resources, and mitigation if significant resources are found to be present; General Plan Policy 10.9.2 (c) which requires that when a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities and document any paleontological resources found during site grading; and General Plan Policy 10.9.2 (d), which requires that if unanticipated paleontological resources are encountered during grading, alteration of earth materials in the vicinity of the find must be halted until a qualified expert has evaluated the find and recorded the identified resources.

Development under the Project would be performed in accordance with the General Plan policies discussed above, which would ensure that potential impacts to paleontological resources would be less than significant.

### **d. Cumulative Geology and Soils Impacts**

This section evaluates cumulative impacts on geology and soils. Potential impacts related to geology, soils, and paleontological resources generally do not extend far beyond an individual development's boundaries because each development may have unique geologic and paleontological considerations. Therefore, the potential for cumulative impacts is generally limited to individual development sites and adjacent sites. For this reason, potential impacts are typically confined to discrete spatial locations and do not combine to create a significant cumulative impact. The exception to this generalization would occur where a larger scale geologic events, such as a massive landslide or regional subsidence, that might affect an extensive area. As discussed under Criterion 3 above, development under the Project would be

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<sup>39</sup> LSA, 2003b. City of Antioch General Plan, November 24.

<sup>40</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>41</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

performed in accordance with recommendations from site-specific geotechnical investigations and General Plan policies that would address potential landslide hazards; therefore, development under the Project would not have a cumulatively considerable effect related to landslides. The geographic area considered for potential cumulative subsidence impacts is the East Contra Costa Subbasin of the San Joaquin Valley Groundwater Basin, which underlies the majority of the city. The temporary dewatering of excavations (if needed) during construction of developments under the Project is the only removal of subsurface water anticipated to occur under the Project. Such dewatering would be localized, temporary, of relatively low magnitude, and affect only the shallow groundwater, and therefore would not contribute to subsidence. There is no historical evidence of inelastic land subsidence due to groundwater withdrawal in the East Contra Costa Subbasin, and surface water is the city's only source of water supply;<sup>42</sup> therefore, development under the Project would not create an increased demand on groundwater supplies which could contribute to subsidence.

Therefore, cumulative impacts related to geology, soils, and paleontological resources associated with the Project would be less than significant.

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<sup>42</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

I. GEOLOGY AND SOILS



## J. HAZARDS AND HAZARDOUS MATERIALS

This section describes the current hazards and hazardous materials conditions in and near the city of Antioch and analyzes how implementation of the Project and its associated development may affect these conditions.

### 1. Setting

This section provides a brief description of the existing conditions related to hazards and hazardous materials in and near the city, including hazardous materials transport, use, and disposal; soil and groundwater contamination; hazardous building materials; airports; emergency response and evacuations plans; and wildfire hazards.

#### a. Hazardous Materials Transport, Use or Disposal

Hazardous materials are commonly used in the city including uses for manufacturing/industrial activities, service/maintenance industries, commercial facilities, pest/weed management, agriculture, medical facilities, schools, and households. Hazardous waste is a waste with properties that make it potentially dangerous or harmful to human health or the environment. Hazardous wastes can be liquids, solids, or contained gases, and can be the by-products of manufacturing processes, used materials (e.g., used oil), discarded unused commercial products (e.g., cleaning products or pesticides), or hazardous materials that are released into the environment.

In the city, the Delta Diablo Sanitation District (DDSD) operates the Delta Household Hazardous Waste Collection Facility. This facility collects hazardous wastes such as used oil and filters, anti-freeze, paints and stains, household batteries, electronic waste, mercury containing items, pharmaceuticals, pesticides, pool chemicals, and household cleaners for safe disposal at this facility.

The DDSD also operates a municipal wastewater treatment plant, which treats sanitary sewage collected by the sewer system. Not all pollutants can be completely removed by the DDSD wastewater treatment plant processes. To reduce the likelihood that certain pollutants do not enter the Delta, DDSD has established a Pretreatment Program, which consists of public education and regulation of certain businesses and industries. The Pretreatment Department works closely with commercial and industrial users to ensure that hazardous substances such as solvents, pesticides, metals, grease, petroleum, oil, and paints are not discharged into the sewer system.<sup>1</sup>

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<sup>1</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

Medical facilities, including clinics, hospitals, professional offices, blood and plasma centers, and medical research facilities generate a wide variety of hazardous substances. These substances may include contaminated medical equipment or supplies, infectious biological matter, prescription medicines, and radioactive materials used in medical procedures. The disposal of medical waste is achieved by on-site autoclaving of red-bagged waste (any medical waste that could possibly transmit a pathogen) and subsequently transported to a Class III landfill.<sup>2</sup>

Hazardous materials facilities within the city are permitted and inspected by the Contra Costa Health Services – Hazardous Materials Programs (CCHSHMP) including the Hazardous Waste Generator Program, Underground Storage Tank (UST) Program, Aboveground Petroleum Storage Act (APSA) Program, Hazardous Materials Business Plan (HMBP) Program, and California Accidental Release Prevention (CalARP) Program. Additional information regarding the Hazardous Materials Programs is presented below.

In addition, nearly all Antioch residents have some type of hazardous material in their homes. Examples include motor oil, paints, cleaners, aerosols, and pesticides. Household hazardous materials pose serious health issues for people who improperly use or dispose of these materials. Adverse environmental impacts can occur when household hazardous materials are disposed of in unlined sanitary landfills, where these materials may leach through the soil and contaminate groundwater.<sup>3</sup>

Although incidents can happen almost anywhere, certain areas of Antioch are at higher risk for inadvertent release of hazardous materials. Locations near roadways that are frequently used for transporting hazardous materials (e.g., SR-4) and locations near industrial facilities that use, store, or dispose of these materials have an increased potential for a release incident, as do locations along the freight railways.<sup>4</sup>

The Contra Costa County Fire Protection District (CCCFFPD) provides emergency response services to hazardous materials releases at fixed facilities and at railroad or roadway incidents. The CCHSHMP also has a Hazardous Materials Incident Response Team that provides services and technical assistance related to identification of unknown substances, health hazard information, cleanup oversight, drug labs, chemical spills, and hazardous materials releases. Facilities are required to notify the Hazardous Materials Incident Response Team when there is an incident.

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<sup>2</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>3</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>4</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

## b. Soil and Groundwater Contamination

In California, the status and location of hazardous materials release sites under regulatory oversight for assessment and/or remediation actions are reported on the State Water Resources Control Board (State Water Board) GeoTracker database and the Department of Toxic Substances Control (DTSC) EnviroStor database. The GeoTracker database includes leaking USTs (LUSTs) and Cleanup Program sites. In addition to known LUST sites, it is not uncommon for older USTs to have been abandoned in place with no documentation of location or abandonment technique. Cleanup Program sites are undergoing investigation and/or cleanup due to spills and leaks of hazardous materials that were used by various businesses and industries (e.g., dry cleaners), which can include heavy metals, solvents, petroleum compounds, and other hazardous materials. The EnviroStor database includes properties such as industrial/commercial sites, school sites, military bases, and waste disposal sites that are contaminated, or believed contaminated, with some level of toxic substances.

Hazardous materials release sites identified on GeoTracker and EnviroStor within the city are shown on Figure IV.J-1. Two sites that are located outside of the city are also shown on Figure IV.J-1 as they are located in close proximity to parcels identified in the Housing Sites Inventory near the western boundary of the city. Open sites shown on Figure IV.J-1 are still undergoing investigation and/or remediation. Closed sites shown on Figure IV.J-1 have completed investigation and/or remediation to the satisfaction of the regulatory agency(ies) providing oversight. In some cases, closed sites may be certified as having completed investigation and/or remediation; however, site management requirements or land use restrictions may be in place to ensure that residual contamination does not pose a risk to human health or the environment. In some cases, closed sites that do not have site management requirements or land use restrictions may have residual contamination that was considered acceptable at the time of case closure; however, the residual contamination could pose risks to human health or the environment based on more current information regarding contaminant exposure pathways (e.g., soil vapor intrusion) and toxicology, or if a change to a more sensitive land use is proposed (e.g., from industrial/commercial to residential).

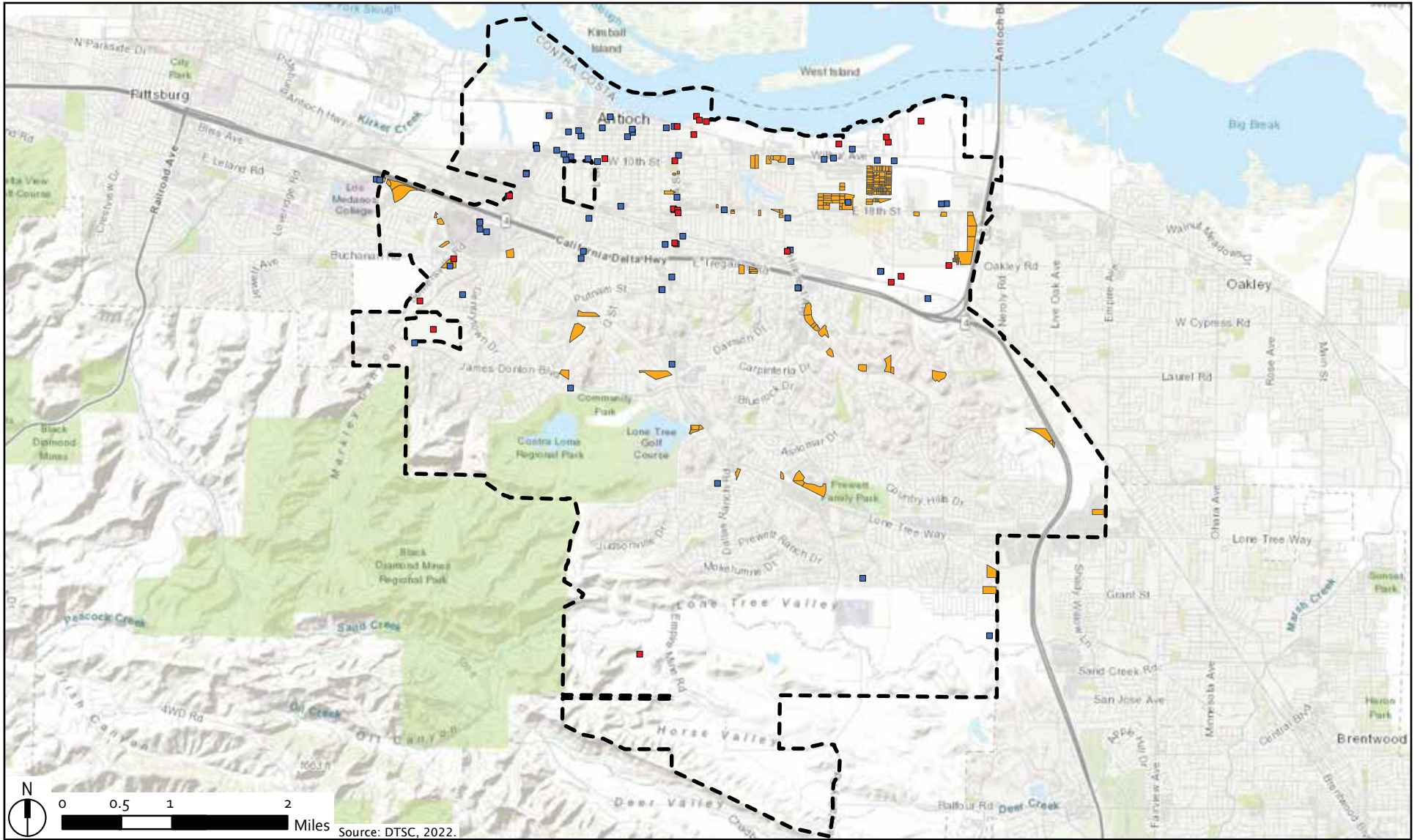
As of June 2022, the GeoTracker database<sup>5</sup> records identify 49 LUST sites and 25 Cleanup Program sites within the city. Of these sites, 6 LUST sites and 13 Cleanup Program sites remain open. As of June 2022, the EnviroStor database<sup>6</sup> records identify 14 sites in the city, of which 5 sites remain open.

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<sup>5</sup> State Water Board, 2022a. GeoTracker. Available at: <https://geotracker.waterboards.ca.gov/>, accessed June 1, 2022.

<sup>6</sup> Department of Toxic Substances Control (DTSC), 2022a. EnviroStor. Available at: <https://www.envirostor.dtsc.ca.gov/public/>, accessed June 1, 2022.

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



-  City Boundary
-  Housing Sites
- Release Sites**
-  Open
-  Closed

Figure IV.J-1

Hazardous Materials Release Sites

Antioch Housing, Environmental Hazards, and EJ Elements EIR

There are numerous parcels identified in the Housing Sites Inventory that are located in relatively close proximity to hazardous materials release sites in the city. Two of the parcels identified in the Housing Sites Inventory were identified as hazardous materials release sites and are discussed further below.

The parcel located at Somersville Road and Buchanan Road (identified as opportunity site 152 on Figure III-7) is identified as a Cleanup Program site on GeoTracker under the name PG&E Antioch Service Yard Southern Parcel with a "case closed" status as of December 1, 2016. According to information available on GeoTracker, the potential contaminants of concern at this property are benzene, diesel, ethylbenzene, gasoline, toluene, total petroleum hydrocarbons (TPH), and xylenes, and there is a Land Use Covenant that restricts the development or use of groundwater on the property due to residual contamination. This property was originally part of the larger PG&E Antioch Service Yard that includes an open Cleanup Program site located adjacent to the north of the property which is undergoing remedial action.<sup>7</sup>

The parcel located at 2101 East 18<sup>TH</sup> Street (identified as parcel 83 on Figure III-6) is identified as a Voluntary Agreement site on EnviroStor under the name Almond Orchard with a "certified" (i.e., closed) status as of June 13, 2005. According to information available on EnviroStor, the property was as historically used as an almond orchard and a groundwater supply well located on the property supplied water to the Gaylord Container Corporations West Mill and East Mill operations located on the northern side of Wilbur Avenue. No contaminants were detected above residential cleanup goals at the property.<sup>8</sup>

In addition to the known hazardous materials release sites in the city discussed above, there is the potential for previously unidentified hazardous materials contamination to be present in the city, particularly in areas of past or existing commercial or industrial land use; areas adjacent to or intersected by existing/former hazardous materials pipelines or railroad tracks/yards (railroad tracks/yards are commonly contaminated with heavy metals, petroleum hydrocarbons and polycyclic aromatic hydrocarbons [PAHs]); and areas adjacent to major roadways (where aerially deposited lead from past vehicle emissions can be present in shallow soil). There is also the potential for previously unidentified contamination to be present in areas of the city due to past agricultural land uses and placement of fill materials as discussed below.

There is a long history of agricultural production in Antioch. Agricultural activities typically include the storage and periodic application of pesticides, herbicides, and fertilizers, as well as the storage and use of fuels and solvents. The infiltration of these substances may leach into local

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<sup>7</sup> State Water Board, 2022b. GeoTracker Webpage for PG&E Antioch Service Yard Southern Parcel. Available at: [https://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T1000009571](https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T1000009571), accessed June 2, 2022.

<sup>8</sup> Department of Toxic Substances Control (DTSC), 2022b. EnviroStor Webpage for Almond Orchard. Available at: [https://www.envirostor.dtsc.ca.gov/public/profile\\_report.asp?global\\_id=07010011](https://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=07010011), accessed June 2, 2022.

groundwater supplies, presenting an elevated risk of groundwater contamination.<sup>9</sup> Residual impacts from agricultural chemicals such as organochlorine pesticides (OCPs) and heavy metals (e.g., lead and arsenic) could also be present in shallow soil in areas of the city that were historically used for agriculture.

Soil and groundwater contamination can be present in areas where fill materials have been placed. Fill materials from unknown sources could be contaminated with various hazardous materials (e.g., pesticides, heavy metals, petroleum compounds). Fill materials historically placed in low lying areas (particularly near historically industrial areas) often contain contaminants such as heavy metals, petroleum compounds, and PAHs that may be associated with the presence of construction rubble/debris in the fill or the dumping of hazardous waste byproducts from past industrial/manufacturing operations.

### **c. Hazardous Building Materials**

Hazardous materials are commonly found in building materials (particularly within older buildings) that may be affected by demolition and renovation activities under the Project. The city includes many buildings that may contain hazardous building materials such as lead-based paint, asbestos containing materials (ACMs), polychlorinated biphenyls (PCBs) containing materials and equipment, and mercury containing lights and devices.

Asbestos is a known human carcinogen that was commonly used in building materials until the early 1980s. In 1989, the U.S. Environmental Protection Agency (U.S. EPA) issued a final rule banning most asbestos-containing products. In 1991, this regulation was overturned and as a result of the Court's decision, the 1989 asbestos regulation only bans new uses of asbestos in products that would be initiated for the first time after 1989 and bans the following specific asbestos-containing products: flooring felt, rollboard, and corrugated, commercial, or specialty paper.<sup>10</sup> Asbestos-containing products remain in use within the United States, and include some roof and non-roof coatings and other asbestos-containing building materials.<sup>11</sup> Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification

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<sup>9</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>10</sup> U.S. Environmental Protection Agency (U.S. EPA), 2022a. Asbestos Ban and Phase-Out Federal Register Notices. Available at: <https://www.epa.gov/asbestos/asbestos-ban-and-phase-out-federal-register-notice>, accessed June 1, 2022.

<sup>11</sup> U.S. Environmental Protection Agency (U.S. EPA), 2017. Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos, February. Available at: <https://www.epa.gov/sites/production/files/2017-02/documents/asbestos.pdf>, accessed June 1, 2022.

requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

Prior to 1978, lead compounds were commonly used in exterior and interior paints. Due to its health effects, the application of lead-based paint on residential structures was banned in 1978; however, lead-based paint can be found in commercial or industrial structures, regardless of construction date (because its use is still allowed in commercial and industrial applications).<sup>12</sup>

PCBs were historically used as coolants and lubricants in transformers, capacitors, heating/cooling equipment, and other electrical equipment, and were also used as plasticizers in paints, plastics, rubber products, and caulking. PCBs have been demonstrated to cause cancer and a variety of other adverse health effects in animals, including effects on the immune system, reproductive system, nervous system, and endocrine system. Although manufacturing of PCBs has been banned in the United States since 1979, they may still be found in older electrical equipment and other building materials such as light ballasts and caulking. PCBs or PCBs-contaminated items require proper off-site transport and disposal at a facility that can accept such wastes, in accordance with the Toxic Substances Control Act (TSCA) of 1976 and other federal and State regulations. PCBs in manufactured materials such as caulking may also move directly into adjoining materials, particularly porous materials such as wood, concrete, and other types of masonry.<sup>13</sup>

The U.S. EPA has indicated that there was potential widespread use of PCB-containing building materials in buildings built or renovated between about 1950 and 1979. Prior to removal, U.S. EPA recommends PCB testing of caulk and other building materials that are going to be removed to determine what protections are needed during removal and to determine proper disposal requirements.<sup>14</sup>

Fluorescent lighting tubes and ballasts, computer displays, and several other common items containing hazardous materials (including mercury, a heavy metal) are regulated as “universal wastes” by the State of California. Universal waste regulations allow common, low-hazard wastes

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<sup>12</sup> Department for Toxic Substances Control (DTSC), 2006. Interim Guidance Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers, June 9 (Revised).

<sup>13</sup> U.S. Environmental Protection Agency (U.S. EPA), 2015a. PCBs in Building Materials – Questions & Answers, July 28. Available at: [https://www.epa.gov/sites/production/files/2016-03/documents/pcbs\\_in\\_building\\_materials\\_questions\\_and\\_answers.pdf](https://www.epa.gov/sites/production/files/2016-03/documents/pcbs_in_building_materials_questions_and_answers.pdf), accessed June 1, 2022.

<sup>14</sup> U.S. Environmental Protection Agency (U.S. EPA), 2015b. Practical Actions for Reducing Exposure to PCBs in Schools and Other Buildings, Guidance for school administrators and other building owners and managers, July 28. Available at: [https://www.epa.gov/sites/production/files/2016-03/documents/practical\\_actions\\_for\\_reducing\\_exposure\\_to\\_pcbs\\_in\\_schools\\_and\\_other\\_buildings.pdf](https://www.epa.gov/sites/production/files/2016-03/documents/practical_actions_for_reducing_exposure_to_pcbs_in_schools_and_other_buildings.pdf), accessed June 1, 2022.

to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed by DTSC hazardous waste rules.

#### **d. Airports**

The city is located approximately 9.5 miles northwest of Byron Airport and 10.5 miles east of Buchanan Field Airport. The city is not located within the Airport Influence Area of Byron Airport or Buchanan Field Airport.<sup>15</sup>

#### **e. Emergency Response and Evacuations Plans**

The City maintains an Emergency Plan addressing response to disasters, including but not limited to earthquakes, floods, fires, hazardous spills or leaks, major industrial accidents, major transportation accidents, major storms, airplane crashes, environmental response, civil unrest, and national security emergencies. Emergency operations centers are maintained at the City's central police facility and at the City water treatment plant.<sup>16</sup>

The Emergency Plan indicates that Antioch would experience casualties, significant property damage, and utility service interruptions following a major Bay Area earthquake. The potentially catastrophic effects of an earthquake on the Hayward Fault would more than likely exceed the response capabilities of both the City and the County.<sup>17</sup>

The Emergency Plan outlines the general authority, organization, and response actions for City staff to undertake when disasters happen. The objectives of the plan are to reduce life, injury, and property losses through effective management of emergency forces, and accomplish the following.<sup>18</sup>

- Identifies who is in charge during disaster response and clarifies who does what.
- Lists the necessary jobs for disaster response and what each person is to do.
- Ensures survivability and availability of government services, or the continuity of government.
- Helps to understand the City's emergency organization.
- Provides guidance for disaster education and training.

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<sup>15</sup> Shutt Moen Associates, 2000. Contra Costa County Airport Land Use Compatibility Plan, December 13.

<sup>16</sup> LSA, 2003b. City of Antioch General Plan, November 24.

<sup>17</sup> LSA, 2003b. City of Antioch General Plan, November 24.

<sup>18</sup> LSA, 2003b. City of Antioch General Plan, November 24.



## f. Wildfire

The California Department of Forestry and Fire Protection (CAL FIRE) maps identify fire hazard severity zones in State and local responsibility areas for fire protection. The city is not located within or near a very high fire hazard severity zone for either State or local responsibility areas.<sup>19</sup> There are moderate and high fire hazard severity zones located in the southern portion of the city and in areas adjacent to the south and southwest of the city.<sup>20</sup>

As the city expands development into hillside areas, urban development will begin to encroach into areas of more rugged topography with flammable vegetation. Over time, all of California's wildlands will burn, as they are naturally prone to do. However, various human factors increase risks for fire occurrence, and that wildland fires will be larger, more intense and damaging, cost more to fight, and take a larger toll (in economic and non-economic terms) than would otherwise occur naturally.<sup>21</sup>

## 2. Regulatory Setting

This section describes the existing federal, State, regional, and local regulatory frameworks related to hazards and hazardous materials.

### a. Federal Regulations

The following section describes the existing federal regulatory environment related to hazards and hazardous materials.

#### (1) United States Environmental Protection Agency

The U.S. Environmental Protection Agency (U.S. EPA) is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials and hazardous waste. The federal regulations are primarily codified in Title 40 of the Code of Federal Regulations (CFR). The legislation includes the Resource Conservation and Recovery Act of 1976 (RCRA); the Toxic Substances Control Act of 1976; the Superfund Amendments and Reauthorization Acts of 1986; and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. The U.S. EPA provides oversight for site

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<sup>19</sup> California Department of Forestry and Fire Protection (CAL FIRE), 2009. Very High Fire Hazard Severity Zones in LRA, Contra Costa County, January 7.

<sup>20</sup> TetraTech, 2018. Contra Costa County Hazard Mitigation Plan, Volume 2—Planning Partner Annexes, Draft Final, January.

<sup>21</sup> LSA, 2003b. City of Antioch General Plan, November 24.

investigation and remediation projects, and has developed protocols for sampling, testing, and evaluation of solid wastes.

## **(2) Resource Conservation and Recovery Act**

RCRA is a combination of the first federal solid waste statutes and all subsequent amendments mandated by Congress. RCRA establishes the framework for a national system of solid waste control. Subtitle D of the Act is dedicated to non-hazardous solid waste requirements, and Subtitle C focuses on hazardous solid waste. Solid waste includes solids, liquids and gases and must be discarded to be considered waste. Under Subtitle C of RCRA, U.S. EPA has developed a comprehensive program to ensure that hazardous waste is managed safely from the moment it is generated to its final disposal (cradle-to-grave) and may authorize states to implement key provisions of hazardous waste requirements in lieu of the federal government. If a state program does not exist, U.S. EPA directly implements the hazardous waste requirements in that state. Subtitle C regulations set criteria for hazardous waste generators, transporters, and treatment, storage and disposal facilities. This includes permitting requirements, enforcement and corrective action or cleanup.<sup>22</sup>

## **(3) Comprehensive Environmental Response, Compensation, and Liability Act**

Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) in 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The purpose of CERCLA is to identify and clean up chemically contaminated sites that pose a significant environmental health threat. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List. Long-term cleanup actions can be conducted only at sites listed on the National Priorities List.<sup>23</sup>

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<sup>22</sup> U.S. Environmental Protection Agency (U.S. EPA), 2022b. Resource Conservation and Recovery Act (RCRA) Overview, Available at: <https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-overview>, accessed June 3, 2022.

<sup>23</sup> U.S. Environmental Protection Agency (U.S. EPA), 2022c. Superfund: CERCLA Overview, Available at: <https://www.epa.gov/superfund/superfund-cercla-overview>, accessed June 3, 2022.

#### **(4) Superfund Amendments and Reauthorization Act**

The Superfund Amendments and Reauthorization Act (SARA) of 1986 reflected the U.S. EPA's experience in administering the complex Superfund program during its first six years and made several important changes and additions to the program. SARA:

- stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites;
- required Superfund actions to consider the standards and requirements found in other State and Federal environmental laws and regulations;
- provided new enforcement authorities and settlement tools;
- increased State involvement in every phase of the Superfund program;
- increased the focus on human health problems posed by hazardous waste sites;
- encouraged greater citizen participation in making decisions on how sites should be cleaned up; and
- increased the size of the trust fund to \$8.5 billion.<sup>24</sup>

#### **(5) Hazardous Materials Transportation Act**

The Hazardous Materials Transportation Act (HMTA) of 1975 is the statutory basis for the extensive body of regulations aimed at ensuring the safe transport of hazardous materials on water, rail, highways, through air, or in pipelines. It includes provisions for material classification, packaging, marking, labeling, placarding, and shipping documentation.

#### **(6) Hazardous Materials Transportation Uniform Safety Act of 1990**

In 1990, Congress enacted the Hazardous Materials Transportation Uniform Safety Act (HMTUSA) to clarify the maze of conflicting state, local, and federal regulations. Like the HMTA, the HMTUSA requires the Secretary of Transportation to promulgate regulations for the safe transport of hazardous material in intrastate, interstate, and foreign commerce. The Secretary also retains authority to designate materials as hazardous when they pose unreasonable risks to health, safety, or property. The statute includes provisions to encourage uniformity among different state and local highway routing regulations, to develop criteria for the issuance of

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<sup>24</sup> U.S. Environmental Protection Agency (U.S. EPA), 2022d. The Superfund Amendments and Reauthorization Act (SARA), Available at: <https://www.epa.gov/superfund/superfund-amendments-and-reauthorization-act-sara>, accessed June 3, 2022.

federal permits to motor carriers of hazardous materials, and to regulate the transport of radioactive materials.<sup>25</sup>

### **(7) The Pipeline and Hazardous Materials Safety Administration**

The Pipeline and Hazardous Materials Safety Administration's (PHMSA's) regulatory functions include:

- Issuing rules and regulations governing the safe transportation of hazardous materials;
- Issuing, renewing, modifying, and terminating special permits;
- Issuing, modifying, and terminating approvals for specific activities; and
- Receiving, reviewing, and maintaining important records (e.g., incident reports).

PHMSA enforces the shipment of hazardous materials and the manufacture, fabrication, marking, maintenance, reconditioning, repair, or testing of multi-modal containers that are represented, marked, certified, or sold for use in the transportation of hazardous materials.<sup>26</sup>

### **(8) The Federal Motor Carrier Safety Administration**

The Federal Motor Carrier Safety Administration (FMCSA) issues regulations concerning highway routing of hazardous materials, the hazardous materials endorsement for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials. The FMCSA enforces the transportation or shipment of hazardous materials by highway, and the Federal Motor Carrier Safety Regulations issued under various motor carrier safety acts.<sup>27</sup>

### **(9) The Federal Railroad Administration**

The Federal Railroad Administration (FRA) Hazardous Materials Division administers a safety program that oversees the movement of hazardous materials across the U.S. rail transportation system, including shipments transported to and from international organizations. The FRA enforces the transportation or shipment of hazardous materials by railroad, and the safety regulations issued under the Federal Rail Safety Act.<sup>28</sup>

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<sup>25</sup> Occupational Safety and Health Administration (OSHA), 2022. Transporting Hazardous Materials, Available at: <https://www.osha.gov/trucking-industry/transporting-hazardous-materials>, accessed June 3, 2022.

<sup>26</sup> U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration, 2021. Federal HAZMAT Law, An Overview of Federal Laws for Hazardous Materials Transportation, September.

<sup>27</sup> U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration, 2021. Federal HAZMAT Law, An Overview of Federal Laws for Hazardous Materials Transportation, September.

<sup>28</sup> U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration, 2021. Federal HAZMAT Law, An Overview of Federal Laws for Hazardous Materials Transportation, September.

## **(10) Occupational Safety and Health Administration.**

Worker health and safety is regulated at the federal level by the Occupational Safety and Health Administration (OSHA). The federal Occupational Safety and Health Act of 1970 authorizes the states to establish their own safety and health programs with OSHA approval. Worker health and safety protections in California are regulated by the California Occupational Safety and Health Administration (Cal/OSHA), as described below. California standards for workers dealing with hazardous materials are contained in 8 CCR; they include practices for all industries (General Industrial Safety Orders), as well as specific practices for construction. Workers at hazardous waste sites (or workers who may be exposed to hazardous wastes that might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to OSHA Hazardous Waste Operations and Emergency Response regulations. Additional regulations have been developed for construction workers potentially exposed to lead and asbestos. Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

## **(11) Department of Transportation.**

The U.S. Department of Transportation (DOT) developed hazardous materials regulations, which govern the classification, packaging, communication, transportation, and handling of hazardous materials, as well as employee training and incident reporting. The transportation of hazardous materials is subject to both RCRA and DOT regulations. The California Highway Patrol, Caltrans, and the DTSC are responsible for enforcing federal and State regulations pertaining to the transportation of hazardous materials.

### **b. State Regulations**

The following section describes the existing State of California regulatory environment related to hazards and hazardous materials.

#### **(1) Department of Toxic Substances Control**

In California, the DTSC is authorized by the U.S. EPA to enforce and implement federal hazardous materials laws and regulations. California regulations pertaining to hazardous materials are equal to or exceed the federal regulation requirements. Most State hazardous materials regulations are contained in Title 22 of the California Code of Regulations (CCR). The DTSC generally acts as the lead agency for soil and groundwater cleanup projects that affect public health and establishes cleanup levels for subsurface contamination that are equal to or more restrictive than federal levels. The DTSC has also developed land disposal restrictions and treatment standards for hazardous waste disposal in California.

## **(2) California Health and Safety Code**

Health and Safety Code Division 20, Chapter 6.5 – Hazardous Waste Control is the primary hazardous waste statute in the State of California and implements RCRA as a “cradle-to-grave” waste management system in the State of California. It specifies that generators have the primary duty to determine whether their wastes are hazardous and to ensure their proper management. It also establishes criteria for the reuse and recycling of hazardous wastes used or reused as raw materials. It exceeds Federal requirements by mandating source reduction planning, and a much broader requirement for permitting facilities that treat hazardous waste. It also regulates types of wastes and waste management activities that are not covered by Federal law with RCRA.

## **(3) California Code of Regulations**

Most State and Federal regulations and requirements that apply to generators of hazardous waste are spelled out in the CCR, Title 22, Division 4.5. Title 22 contains the detailed compliance requirements for hazardous waste generators, transporters, and treatment, storage, and disposal facilities. Because California is a fully authorized State according to RCRA, most RCRA regulations (those contained in 40 Code of Federal Regulations [CFR] 260 et seq.) have been duplicated and integrated into Title 22. However, because DTSC regulates hazardous waste more stringently than the U.S. EPA, the integration of California and Federal hazardous waste regulations that make up Title 22 do not contain as many exemptions or exclusions as does 40 CFR 260. As with the California Health and Safety Code, Title 22 also regulates a wider range of waste types and waste management activities than does the RCRA regulations in 40 CFR 260. To aid the regulated community, California compiled the hazardous materials, waste and toxics-related regulations contained in CCR, Titles 3, 8, 13, 17, 19, 22, 23, 24, and 27 into one consolidated CCR Title 26 ‘Toxics.’ However, the California hazardous waste regulations are still commonly referred to as Title 22.

## **(4) State Water Resources Control Board**

Under the Porter-Cologne Water Quality Control Act (California Water Code, Division 7), the State Water Board has authority over State waters and water quality. “Waters of the state” are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code Section 13050[e]). The State Water Board enforces regulations on implementation of UST programs. It also allocates funding to eligible parties that request reimbursement of costs to clean up soil and groundwater pollution from UST leaks. The State Water Board also enforces the Porter-Cologne Water Quality Act through its nine Regional Water Quality Control Boards, including the Central Valley Regional Water Quality Control Board (CVRWQCB) which has jurisdiction over the majority of city, and the San Francisco Bay Regional

Water Quality Control Board (SFRWQCB) which has jurisdiction over two areas in the northwestern most portion of the city.

### **(5) California Department of Public Health**

The transportation and disposal of medical wastes are closely regulated under the California Department of Public Health, which regulates the generation, handling, storage, treatment, and disposal of medical waste by providing oversight for the implementation of the Medical Waste Management Act (California Health and Safety Code Sections 117600-118360). Local agencies can implement a medical waste management program pursuant to the Medical Waste Management Act.

### **(6) California Air Resources Board**

This agency is responsible for coordination and oversight of State and local air pollution control programs in California, including implementation of the California Clean Air Act of 1988. CARB has developed State air quality standards and is responsible for monitoring air quality in conjunction with the local air districts.

### **(7) California Occupational Safety and Health Administration**

Worker health and safety protections in California are regulated by Cal/OSHA. California standards for workers dealing with hazardous materials are contained in CCR Title 8; they include practices for all industries (General Industrial Safety Orders), as well as specific practices for construction. Workers at hazardous waste sites (or workers who may be exposed to hazardous wastes that might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to OSHA Hazardous Waste Operations and Emergency Response regulations. Additional regulations have been developed for construction workers potentially exposed to lead and asbestos. Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

## **c. Regional Regulations**

The following section describes the existing regional regulatory environment related to hazards and hazardous materials.

### **(1) Regional Water Quality Control Boards**

The CVRWQCB has jurisdiction over the majority of city, and the SFRWQCB has jurisdiction over two areas in the northwestern most portion of the city. These agencies can act as lead agency to

provide oversight of sites where the quality of groundwater or surface waters is threatened. They have the authority to require investigations and remedial actions. The SFRWQCB has developed Environmental Screening Levels to help expedite the preparation of environmental risk assessments at sites where contaminated soil and groundwater have been identified.

## **(2) Bay Area Air Quality Management District**

The Bay Area Air Quality Management District (BAAQMD) has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which are the responsibility of the CalEPA and CARB). BAAQMD is responsible for preparing attainment plans for non-attainment criteria pollutants, control of stationary air pollutant sources, and the issuance of permits for activities including asbestos demolition and renovation activities.

BAAQMD Regulation 11-2 requires that prior to commencement of any demolition or renovation, the owner or operator must thoroughly survey the affected structure or portion thereof for the presence of ACMs. The survey must be performed by a person who is certified by the Division of Occupational Safety and Health, and who has taken and passed an CalEPA-approved Building Inspector course and who conforms to the procedures outlined in the course. The survey must include sampling and the reporting of results of laboratory analysis of the asbestos content of all suspected ACMs. This survey must be made available, upon request by the Air Pollution Control Officer, prior to the commencement of any regulated ACMs removal or any demolition. If ACMs are identified, the disturbance/removal and management of ACMs must be performed in accordance with BAAQMD Regulations under Rule 11-2 to ensure that asbestos would not be released into the environment.

## **(3) Contra Costa County Health Services**

Contra Costa Environmental Health (CCEH), a division of Contra Costa County Health Services (CCHS), implements the Medical Waste Management Program in the city. As the local enforcement agency for medical waste CCEH issues permits to medical waste generators, implements the Medical Waste Management Act, responds to complaints of abandoned medical waste on public property, reviews and approves safe drug take back programs, and provides additional services.

CCHSHMP, a division of CCHS, is designated as the Certified Unified Program Agency (CUPA) for the City and coordinates the regulation of hazardous materials and hazardous wastes in the city through the Hazardous Waste Generator Program, UST Program, APSA Program, HMBP Program, and CalARP Program. The role of a CUPA is to consolidate, coordinate, and makes consistent the administrative requirements, permits, inspections, and enforcement activities associated with the regulation of hazardous materials and hazardous wastes. Businesses that store or use hazardous materials in the city are required to submit chemical and facility



information through the California Environments Reporting System (CERS), which is a statewide web-based system to support CUPAs in electronically collecting and reporting various hazardous materials-related data as mandated by the California Health and Safety Code and 2008 legislation (AB 2286).

The Hazardous Waste Generator Program ensures the safe and legal handling, storage, and disposal of hazardous waste by inspecting businesses in the city that generate hazardous waste and issuing permits and inspecting businesses in city that perform certain treatments of hazardous waste.<sup>29</sup>

The UST Program protects the public health from exposure to hazardous materials stored in USTs, including the protection of groundwater from contamination. Activities to obtain these objectives include annual inspections and the issuance of operating permits, which are also issued for UST system installation, removals, upgrades, and repairs. CCHSHMP personnel witness specified phases of the work being conducted on the UST system to ensure that the work is conforming to plans approved by the CCHSHMP.<sup>30</sup>

The APSA Program regulates non-transportation related facilities with aggregate aboveground petroleum storage capacities of 1,320 gallons or more stored in aboveground storage containers, tanks, oil-filled equipment, or tank in an underground area with petroleum storage capacities of 55 gallons or greater. Unless exempted, a facility in the APSA Program must prepare and implement a Spill Prevention, Control, and Countermeasures (SPCC) Plan and submit facility information in CERS.<sup>31</sup>

Chapter 6.95 of Division 20 of the California Health and Safety Code requires that a HMBP must be submitted to the local CUPA if on-site hazardous materials exceed in aggregate any of the following: 55 gallons for liquids; 500 pounds for solids; or 200 cubic feet of gases at standard temperature and pressure. HMBPs are required to be submitted electronically through CERS and must include business activities, business owner/operator identification, hazardous materials inventory, site map, emergency response/contingency plan, and an employee training plan. Each hazardous material and/or hazardous waste in a reportable quantity must be included in the

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<sup>29</sup> Contra Costa County Health Services (CCHS), 2022. Hazardous Material Programs. Available at: <https://cchealth.org/hazmat/#Programs>, accessed June 3, 2022.

<sup>30</sup> Contra Costa County Health Services (CCHS), 2022. Hazardous Material Programs. Available at: <https://cchealth.org/hazmat/#Programs>, accessed June 3, 2022.

<sup>31</sup> Contra Costa County Health Services (CCHS), 2022. Hazardous Material Programs. Available at: <https://cchealth.org/hazmat/#Programs>, accessed June 3, 2022.

hazardous materials inventory. The HMBP has to be re-certified for completeness and accuracy every year or updated and revised as necessary.<sup>32</sup>

Facilities that handle, manufacture, use, or store any of the toxic and flammable substances listed in Tables 1, 2, or 3 of Section 2770.5 of the CalARP regulation above the specified threshold quantity in a process are required to develop and implement an accidental release prevention program. CCHSHMP personnel perform the following for CalARP Program facilities:

- Review the Risk Management Plan (RMP) and Safety Plan, document the review, and determine when the plans are complete;
- Audit the facilities that are subject to the CalARP Program at least once every three years and document the results of each audit;
- Follow-up with recommended action items associated with RMP and Safety Plan reviews and audits to verify that potential problems are adequately addressed;
- Review Major Chemical Accidents or Releases Root Cause Analyses and incident investigation reports that are submitted to Contra Costa Health Services;
- Assist with incident investigations including a root cause analysis for Major Chemical Accidents or Releases;
- Perform incident investigations including root cause analysis for selected Major Chemical Accidents or Releases;
- Perform hazard scoring for development projects associated with land use applications; and
- Participate in unannounced inspections of industrial facilities.

#### **d. Local Regulations**

The City of Antioch's General Plan policies and Municipal Code chapters related to hazards and hazardous materials are described below.

##### **(1) General Plan**

The following policies from the City of Antioch General Plan<sup>33</sup> are related to hazards and hazardous materials and are applicable to the Project.

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<sup>32</sup> Contra Costa County Health Services (CCHS), 2022. Hazardous Material Programs. Available at: <https://cchealth.org/hazmat/#Programs>, accessed June 3, 2022.

<sup>33</sup> LSA, 2003b. City of Antioch General Plan, November 24.

*Policy 7.3.2: Vehicular Circulation Policies*

- a. Facilitate meeting the roadway performance standards set forth in the Growth Management Element and improving traffic flow on arterial roadways.
  - Work with the UP and BNSF railroads to construct grade separations along the tracks at Somersville Road, Hillcrest Avenue, "A" Street, the proposed Viera Road extension, and the proposed Phillips Lane extension.
  - Promote the design of roadways to optimize safe traffic flow within established roadway configurations by minimizing driveways and intersections, uncontrolled access to adjacent parcels, on-street parking, and frequent stops to the extent consistent with the character of adjacent land uses.
  - Provide adequate capacity at intersections to accommodate future traffic volumes by installing intersection traffic improvements and traffic control devices, as needed, as development occurs.
  - Facilitate the synchronization of traffic signals.
  - Where needed, provide acceleration and deceleration lanes for commercial access drives.
  - Provide for reciprocal access and parking agreements between adjacent land uses, thereby facilitating off-street vehicular movement between adjacent commercial and other nonresidential uses.
  - Encourage regional goods movement to remain on area freeways and other appropriate routes.
- b. Design and reconfigure collector and local roadways to improve circulation within and connections to residential and commercial areas.
  - Implement appropriate measures to mitigate speeding and other traffic impacts in residential areas.
  - Implement roadway patterns that limit through traffic on local residential streets.
- c. Require the design of new developments to focus through traffic onto arterial streets.
- d. Where feasible, design arterial roadways, including routes of regional significance, to provide better service than the minimum standards set forth in Measure C and the Growth Management Element. Thus, where feasible, the City will strive to maintain a "High D" level of service ( $v/c = 0.85-0.89$ ) within regional commercial areas and at intersections within 1,000 feet of a freeway interchange. The City will also strive where feasible to maintain Low-range "D" ( $v/c = 0.80-0.84$ ) in all other areas of the city, including freeway interchanges.
- e. Establish Assessment Districts in areas that will require major roadway infrastructure improvements that will benefit only that area of the city, and thereby facilitate the up-front construction of needed roadways.
- f. Design street intersections to ensure the safe passage of through traffic and accommodate anticipated turning movements. Implement intersection improvements consistent with the following lane geometrics, unless traffic analyses indicate the need for additional turn lanes.

Number of Through Lanes on Route	Intersection Turn Lanes	
	Left	Right
	Intersections with 4-Lane Arterials	
6 or 8	1	1
4	1	1
2 (Collector)	1	NA
2 (Local)	NA	NA
	Intersections with Collectors	
6 or 8	1	1
4	1	NA
2 (Collector)	1	NA
2 (Local)	NA	NA

- g. Where uses such as commercial centers that generate heavy traffic volumes are located along arterial roadways, provide acceleration and deceleration lanes as needed to maintain the carrying capacity of through traffic lanes.

- h. Require traffic impact studies for all new developments that propose to increase the approved density or intensity of development or are projected to generate 50 peak hour trips or more at any intersection of Circulation Element roadways. The purpose of these studies is to demonstrate that:
  - the existing roadway system, along with roads to be improved by the proposed project, can meet the performance standards set forth in Sections 3.4.1 and 3.4.2 of the Growth Management Element, and
  - required findings of consistency with the provisions of the Growth Management Element can be made.
- h. Require traffic impact studies for all new developments that propose to increase the approved density or intensity of development or are projected to generate 50 peak hour trips or more at any intersection of Circulation Element roadways. The purpose of these studies is to demonstrate that:
  - the existing roadway system, along with roads to be improved by the proposed project, can meet the performance standards set forth in Sections 3.4.1 and 3.4.2 of the Growth Management Element, and
  - required findings of consistency with the provisions of the Growth Management Element can be made.
- i. Require the preparation of a traffic management plan for special event uses to serve major events (e.g. fairs, festivals, sporting events), where traffic volumes that are generated less than 45 times per year would exceed the roadway performance standards set forth in the Growth Management Element. Such special event venues shall be required to provide sufficient manual traffic control as to maintain consistency with Growth Management Element roadway performance standards. Evaluate the traffic impacts of special event uses based on factors specifically related to the special event, rather than those of a typical development (e.g., traffic patterns, hourly flow, and presence of manual traffic controls).
- j. Require that existing driveways that are unnecessary or substandard be removed or upgraded, wherever feasible, in conjunction with any on-site development or any adjacent street construction.
- k. Where single family residences have no feasible alternative but to front on collector or arterial roadways, require, wherever possible, that circular driveways or on-site turnarounds be provided to eliminate the need for residents to back onto the street.
- l. Locate driveways on corner parcels as far away from the intersection as is possible.
- m. Avoid locating driveways within passenger waiting areas of bus stops or within bus bays. Locate driveways so that drivers will be able to see around bus stop improvements.
- n. Use raised medians as a method for achieving one or more of the following objectives: access control, separation of opposing traffic flows, left turn storage, aesthetic improvement, and/or pedestrian refuge.
- o. Where medians are constructed, provide openings at the maximum feasible intervals, typically no less than 1/8 mile.
- p. Where a series of traffic signals are provided along a route, facilitate the coordination of traffic signals to optimize traffic progression on a given route. Traffic signalization should emphasize facilitating access from neighborhood areas onto the City's primary roadway network, and should work to discourage through traffic from using local streets.
- q. Demand-actuated traffic signals should include push buttons to signal the need for pedestrians to cross, and include audible signals and countdown signs to assist the disabled in crossing streets. Demand-actuated traffic signals corresponding with bicycle routes should include bicycle sensitive loop detectors or push buttons adjacent to the curb.
- r. Avoid offset intersections along arterials and collectors. Intersections along local and minor residential collector streets may be offset within the subdivision as a means of discouraging through traffic.
- s. Expand intersections to include additional turning and through lanes at intersections where needed to relieve congestion and improve intersection operation, so long as the intersection can continue to accommodate pedestrians and bicyclists. Avoid traffic system improvements that facilitate vehicular turning and bus movements, but that also discourage pedestrian or bicycle movements. This can be accomplished on wide streets by providing safe stopping places for pedestrian crossing the street.
- t. Maintain the first priority for public streets of providing safe and efficient travel for the public with parking as a second priority.

- u. Generally, permit parking on collector streets, with restrictions as needed to accommodate transit stops, on-street bicycle lanes, added lanes at intersections, or other operational requirements.
- v. Private streets, where permitted, shall provide for adequate circulation and emergency vehicle access. Private streets that will accommodate more than 50 vehicles per hour in the peak hour or that are designed for on-street parking shall be designed to public street standards. The design of other private streets shall be subject to the review and approval of the City Engineer. Private streets shall be improved to public street standards prior to acceptance of dedications to the City.
- w. Provide arterial and collector roadways within hillside areas with added rights-of-way as needed for roadway slopes, and no on-street parking in order to provide extra safety.
- x. Require new development to construct all on-site roadways, including Circulation Element routes, and provide a fair share contribution for needed offsite improvements needed to maintain the roadway performance standards set forth in the Growth Management Element. Contributions for offsite improvements may be in the form of fees and/or physical improvements, as determined by the City Engineer. Costs associated with mitigating off-site traffic impacts should be allocated on the basis of trip generation, and should have provisions for lower rates for income-restricted lower income housing projects needed to meet the quantified objectives of the General Plan Housing Element.
- y. Where feasible, require permitted General Plan land uses that generate high volumes of traffic to be located along major transportation corridors and near transit facilities to minimize vehicular use, congestion, and traffic delays.
- z. Provide direct access between industrial areas and freeways, with truck routes avoiding residential areas to the extent possible.
- aa. Design street systems serving industrial areas, including the primary routes accessing these areas to accommodate the movement of trucks.
- bb. Pursue construction of public parking facilities within the downtown area to serve projected parking demand and facilitate mixed-use development without the need to meet off-street parking standards on each individual parcel.

*Policy 8.10.2: Fire Protection Policies*

- a. Work with the Contra Costa County Fire Protection District to provide high quality fire protection services to area residents and businesses. The City's role should include, but not be limited to:
  - Determining the appropriateness of station location sites;
  - Enforcement of building codes to reduce fire hazards;
  - Collection of mitigation fees established by the fire district to construct needed additional stations within the Antioch Planning Area.
  - Support the District in providing funding for personnel costs to staff stations within the City;
  - Support the District in establishing fees that are adequate to mitigate the impacts of new development and income to support operation of new stations whose construction is financed with development fees; and
  - Requiring reasonable reservation of appropriate sites for new fire stations as part of new development.
- b. In cooperation with the Contra Costa County Fire Protection District, conduct an annual assessment of the adequacy of facilities and services serving Antioch, personnel and staffing needs, and capital needs, based on anticipated growth and the level of service standard set forth in the Growth Management Element. This assessment should be undertaken as part of the annual review of proposed capital projects required by the California Government code (see Chapter 12, Implementation, Section 12.4b).
- c. Provide the Contra Costa County Fire Protection District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.

- d. Involve the Fire Protection District in the development review process by referring development requests to the Fire District for review and comment.

*Policy 11.5.2: Fire Hazards Policies*

- a. Where new development borders wildland areas, require appropriate fuel modification and use of fire retardant building materials per the requirements of the Contra Costa County Fire Protection District. Fuel modification may be permitted to extend beyond the boundaries of the site for which wildland fire protection is being provided only if the adjacent owner provides written permission, the proposed fuel modification is consistent with the management practices of the agency controlling such land (if it is in permanent open space), and the off-site fuel modification activity will not significantly impact sensitive habitat areas.
- b. Require that adequate fire protection be available at initial project occupancy, whenever feasible. Thus, stations should be constructed and manned at the outset of new development. If the Contra Costa Fire Protection District finds that a lag time between initial occupancy and operation of new stations cannot be avoided, the City may consider requiring sprinklers in new homes as an alternative.

*Policy 11.7.2: Hazardous Materials Policies*

- a. Promote the reduction, recycling, and safe disposal of household hazardous wastes through public education and awareness.
- b. Implement the provisions of the Contra Costa County Hazardous Waste Management Plan, including, but not limited to, provisions for pretreatment and disposal, storage, handling, and emergency response.
- c. Require businesses generating hazardous wastes to pay necessary costs for local implementation of programs specified in the Contra Costa County Hazardous Waste Management Plan, as well as costs associated with emergency response services for a hazardous materials release.

*Source Reduction*

- d. Require new and expanding hazardous materials users to reduce the amount of hazardous waste generated.
  - Require submittal of a waste minimization plan with any use permit application for a new large facility or expansion of an existing large facility creating additional hazardous wastes.<sup>1</sup>
  - Encourage existing large facilities to prepare waste minimization plans.
  - Require new large hazardous waste-producing facilities to provide on-site treatment of recycling of wastes generated to the maximum extent feasible. This will minimize the amount of hazardous waste being transferred off-site for treatment or disposal.
  - Require all hazardous waste generators to recycle wastes to the maximum extent feasible.
- e. Encourage reductions in the amount of hazardous wastes being generated within Antioch through incentives and other methods.
  - Provide educational and technical assistance to all hazardous materials users and waste generators to aid in their source reduction efforts (e.g., substitution of less hazardous products and modifications to operating procedures). These services will primarily be provided by through the County.
  - Provide public recognition to hazardous materials users and waste generators who meet or exceed source reduction goals.
  - Provide penalties for facilities failing to meet minimization objectives, and place funds from these penalties in a revolving account for use in educational and emergency services efforts.

*Facilities Siting*

- f. Locate hazardous materials facilities in areas reserved for compatible uses.
  - Permit large hazardous waste users and processors only in areas designated for “heavy industrial” use. Smaller generators and medical facilities (e.g., service stations) may be sited in other industrial and commercial areas, consistent with applicable General Plan policies and zoning regulations. The

- compatibility of small facilities will be determined by the types and amounts of hazardous materials involved and the nature of the surrounding area.
- Require use permits for all operations handling hazardous materials to ensure compatibility with the surrounding area.
- g. Maintain adequate siting criteria to determine appropriate locations for hazardous material facilities.
- Maintain a “Hazardous Materials” section in the Antioch zoning ordinance to define siting criteria to be used for various types of facilities, requirements for application submittal, and required findings for approval.
- h. Locate hazardous materials facilities at a sufficient distance from populated areas to reduce potential health and safety impacts.
- Require risk assessment studies to determine potential health impacts for all proposed hazardous waste processors and large generators as part of permit application submittals.
  - Require a 2,000-foot buffer zone around all new hazardous waste processors within which no residences, schools, hospitals, or other immobile populations, existing, proposed, or otherwise, would be located, unless evidence is presented in the risk assessment study that a larger buffer is needed.
- i. Permit hazardous waste processors based on their relative need in conjunction with the “fair share” approach to facilities siting contained in the Contra Costa County Hazardous Waste Management Plan.
- Require a needs assessment as part of use permit applications for a waste processor, demonstrating the proposed facility will serve a need that cannot be better met in any other manner (e.g., source reduction) or at any other location.
  - Discourage proposed hazardous waste facilities processing materials similar to those treated or stored at existing facilities within the County, unless the need for the new facility can be adequately demonstrated.
- j. Carefully review and require appropriate mitigation for pipelines and other channels for hazardous materials.

#### *Facilities Management*

- k. Ensure adequate provision is made for emergency response to all crises involving hazardous materials.
- Require emergency response plans for all hazardous waste processors and large generators to be submitted as part of use permit applications.
  - Require training of employees of all facilities in emergency procedures, and that they be acquainted with the properties and health effects of the hazardous materials involved in the facilities’ operations.
- l. Promote the safest possible transport of hazardous materials through Antioch.
- Maintain formally designated hazardous material carrier routes to direct hazardous materials away from populated and other sensitive areas.
  - Restrict all processors and new large generators to access only along established hazardous material carrier routes.
  - Locate hazardous waste processors as near to waste generators as possible, in order to minimize the need for transport.
  - Require transportation analyses for all new large generators and processors to determine the effect of each facility on Antioch’s transportation system, and assess and provide mitigation for potential safety impacts associated with hazardous materials transported to and from the site.
  - Prohibit the parking of vehicles transporting hazardous materials on City streets.
  - Require that new pipelines and other channels carrying hazardous materials avoid residential areas and other immobile populations to the greatest extent possible.
- m. Require that hazardous materials facilities within Antioch operate in a safe manner.
- As a condition of approval for new hazardous materials facilities, require access for vehicles carrying hazardous materials to be restricted to hazardous materials carrier routes.
  - Undertake inspections of hazardous materials facilities as needed (e.g., when an unauthorized discharge into city sewers is made), and assist Contra Costa Health Services in their inspections as requested.

## IV. SETTING, IMPACTS, AND MITIGATION MEASURES

## J. HAZARDS AND HAZARDOUS MATERIALS

- Require that water, sewer, and emergency services be available consistent with the level of service standards set forth in the Growth Management Element. Work with LAFCO to require that sites for proposed hazardous materials facilities annex into the city before necessary municipal services are provided.
- n. Require appropriate design features be incorporated into each facility's layout to increase safety and minimize potential adverse effects on public health.
  - Require the provision of spill containment facilities and monitoring devices in all facilities.
  - Ensure that pipelines and other hazardous waste channels are properly designed to minimize leakage and require aboveground pipelines to be surrounded by spill containment basins.
  - Give priority to underground storage of hazardous materials, unless this method is shown to be infeasible.
  - Require hazardous materials storage areas to be located as far from existing pipelines and electrical transmission lines as possible.
- o. Maintain a high priority on clean-up of the GBF landfill, Hickmott Cannery, and other contaminated sites.
  - Maintain communication with the Department of Toxic Substances Control, Contra Costa Health Services, and other responsible agencies to complete clean-up of the GBF landfill and Hickmott Cannery sites as rapidly and thoroughly as possible.
  - Participate in task forces with County and State agencies for remediation of the GBF landfill and Hickmott Cannery sites.

*Public Education/Outreach*

- p. Require that new large hazardous materials users and/or processors maintain communication lines within the community by establishing a Communication and Information Panel. Encourage existing large users and processors to form similar panels.
- q. Facilitate public awareness of hazardous materials by preparing and distributing in conjunction with Contra Costa Health Services public information regarding uniform symbols used to identify hazardous wastes, Antioch's household hazardous waste collection programs, and hazardous waste source reduction programs.

*Monitoring*

- r. Monitor the progress and success of hazardous materials efforts, and modify these efforts as needed.
- s. Maintain data regarding the use and generation of hazardous materials within Antioch and its Planning Area.

*Policy 11.8.2: Disaster Response Policies*

- a. Maintain and update the City's Emergency Response Plan, as required by State law.
- b. Disseminate disaster preparedness information to local residents and businesses, describing how emergency response will be coordinated, how evacuation, if needed, will proceed, and what residents and businesses can do to prepare for emergency situations. Provide information to the public about:
  - Environmental hazards existing in Antioch;
  - The costs of doing nothing to mitigate these hazards;
  - Why governmental agencies can not eliminate all hazards;
  - What the City does to assist;
  - What the City cannot do;
  - What the public can do to protect itself.
- c. Maintain an effective and properly equipped emergency operations center, along with trained personnel, for receiving emergency calls, providing initial response and key support to major incidents, meeting the demands of automatic and mutual aid programs, and maintaining emergency incident statistical data.
- d. Maintain ongoing emergency response coordination with surrounding jurisdictions.
- e. Encourage private businesses and industrial uses to be self-sufficient in an emergency by:



- Maintaining a fire control plan, including onsite fire fighting capability and volunteer response teams to respond to and extinguish small fires; and
  - Identifying personnel who are capable and certified in first aid and CPR.
- f. Regularly review and clarify emergency evacuation plans for dam failure, fire, and hazardous materials releases.

## **(2) Municipal Code**

The City's Municipal Code sections related to hazards and hazardous materials are discussed below.

Title 4, Chapter 2 of the Municipal Code is titled Disaster Council, and it defines the members of the City's Disaster Council and their powers and duties, which includes the development and recommendation for adoption of emergency and mutual aid plans and agreements and such ordinances, resolutions, rules, and regulations as are necessary to implement such plans and agreements. Section 4-2.08 of the Municipal Code indicates that the Disaster Council shall be responsible for the development of the Emergency Plan, which shall provide for the effective mobilization of all the resources of the City, both public and private, to meet any condition constituting a local emergency, state of emergency, or state of war emergency and shall provide for the organization, powers and duties, services, and staff of the Emergency Organization.

Section 6-9.09 of the Municipal Code describes Best Management Practices (BMPs) and standards for stormwater protection, including requiring all construction to conform to the requirements of the California Stormwater Quality Association (CASQA) Stormwater BMP Handbook for Construction.

Section 9-5.3826 of the Municipal Code is titled Hazardous Waste Facility and defines permit requirements for hazardous materials facilities; zoning designations where hazardous waste generators, hazardous waste processors/repositories, and household hazardous waste facilities can be located; the approval process required for hazardous waste processors. This section of the Municipal Code also defines the criteria and standards for hazardous materials facilities, which includes the following:

- All facilities must have engineered structural design features including spill containment and monitoring devices;
- Underground storage of hazardous materials is preferred, unless project review proves this unfeasible;
- Water, sewer, and emergency services must be available to all hazardous material facilities;
- Hazardous material storage areas should be located as far as possible from electric transmission lines in order to minimize the chances of interaction between the two;

- Facilities shall be located in areas with immediate access to a City-approved Hazardous Material Carrier Route;
- Processors shall be located close to waste generation sources to minimize the need for waste transportation;
- The reduction of hazardous wastes at the source shall be preferred, with the on-site processing of generated wastes encouraged over the transport and disposal of wastes off-site.

Large hazardous material generators and all hazardous waste processors other than approved household hazardous waste collection centers may not be located:

- Within 200 feet of a recognized earthquake fault;
- Within wetland areas, such as marshes, swamps, and bogs;
- On prime agricultural lands, unless an overriding public need is served and the facility cannot be better located on an alternate site;
- Within recreational, cultural, historic, aesthetic, or otherwise significant areas;
- Within the watershed of existing or proposed drinking water reservoirs or near temporary or permanent sources of drifting water;
- Within critical habitat areas;
- Within areas with unstable soils, unless engineered design features are incorporated which assure structural stability;
- Within non-attainment areas or Prevention of Significant Deterioration areas unless Risk Assessments show that emissions will not significantly contribute to the non-attainment of air quality standards, that such emissions can be mitigated, and that emissions are significantly less than those associated with the transportation of hazardous waste out of the area;
- Within high groundwater areas, within the 100-year flood plain or near any bodies of water unless the engineered design of the containment structure can withstand geologic or soil failure events; and
- Within 2,000 feet of any existing or future immobile population, such as residences, schools, or hospitals, unless a Risk Assessment study shows that a greater distance is necessary. This buffer zone shall be permanently maintained upon establishment of the facility.

In addition to the applicable siting criteria listed above the following criteria would also apply to residual repositories:

- Facilities shall in no case be located within areas subject to 100-year flood events;

- Areas known or suspected to be supplying principal recharge to a regional aquifer shall not be considered;
- Repositories must conform to all State Water Resource Control Board regulations concerning permeable strata and soils and ground-water areas; and
- Residual repositories may be located at greater distances from waste generation sources due to their need for larger land areas.

In addition to the findings required for use permit approval, the following findings must also be made for hazardous materials facilities:

- That the facility is in conformance with all applicable siting criteria listed in the City's Hazardous Material Ordinance and all applicable federal, state and local regulations;
- That sufficient evidence has been presented that the facility will be operated using the best feasible hazardous material management technologies;
- That alternative locations for the project have been adequately considered and the location selected is the most suitable; and
- That all significant environmental impacts associated with the project have been considered and will be adequately addressed.

For hazardous waste processors, the following findings must also be made:

- That the need for the proposed hazardous waste facility has been adequately demonstrated; and
- That any conditions recommended by the project's Local Assessment Committee were considered and those applicable were attached to the use permit approval for the facility.

New pipelines and other channels carrying hazardous materials shall avoid existing and approved residential areas and other immobile populations to the greatest extent possible. Where installed, they must be properly designed to control leakage and above-ground pipelines must be completely surrounded by spill containment basins.

This section of the Municipal Code also includes use permit application requirements for new large hazardous material generators, any hazardous material processor other than an approved household hazardous waste collection center, residual repositories or expansions of similar existing facilities which includes:

- An Emergency Response Plan for the facility;
- For large hazardous waste generators, written explanation of the facility's operation and the reasons for its use and/or production of hazardous materials;

- For large hazardous waste generators, a Minimization/Management Plan designed to reduce the facility's use/production of hazardous materials;
- For large hazardous waste generators, an assessment of the facility's ability to provide on-site treatment of hazardous wastes produced and/or to participate in a program to recycle its wastes;
- For hazardous waste processors, an analysis of the local/regional need for the proposed facility with at least two alternate sites considered;
- For large hazardous waste generators and all hazardous waste processors, an agreement that a Health Risk Assessment analyzing the health and safety concerns related to the proposal and associated mitigation measures may be necessary with consultant to be selected by the City and costs to be borne by the applicant;
- For large hazardous waste generators and all hazardous waste processors an agreement that a Communication and Information Panel will be established for the facility; and
- A Transportation Analysis may be required depending on the facility's proximity to an approved carrier route, its distance to a highway, and the materials to be transported. The analysis is to determine the effects that the transport of hazardous materials to/from the site will have on the local circulation network.

Any changes to the Hazardous Materials Management Plan must be submitted to the City for its review with any expansions of or substantial changes to an operation subject to a supplemental use permit. Small generators requiring a use permit shall present evidence that the hazardous wastes produced by the operation shall be recycled to the extent feasible. Medical facilities and all other uses generating infectious wastes shall provide evidence that such wastes will be collected and disposed of by a certified handler.

This section of the Municipal Code also includes requirements related to transportation of hazardous materials, including that vehicles transporting hazardous materials shall be required to use the most direct routes between the highway and hazardous material facilities. Hazardous Material Carrier Routes shall be designated by the City Engineer upon the recommendation of the City's Police, Public Works, and Planning Departments. Additional routes shall be considered by the City Engineer should their need emerge. Routes selected shall be the best alternatives available or proposed and shall, at a minimum, meet the following criteria:

- Little or no passage through residential areas or other immobile populations;
- Adequate road design to handle anticipated vehicle loads;
- Best possible access to the highway or to routes connecting to the highway;
- A minimum of daily traffic to preclude prolonged travel on the route; and
- Acceptable existing accident rates for the route.

The designated routes shall be indicated on an official map to be maintained by the City's Engineering Department. The parking of vehicles carrying hazardous materials on city streets shall be prohibited unless in a location designated for such parking. New facilities shall be required to set aside specified areas for the parking, washing, and general maintenance of trucks if applicable.

This section of the Municipal Code also indicates that the City shall assist in the inspection of any hazardous material facility upon receipt of a complaint or any evidence that the facility is being operated in an unsafe manner. Spot checks may also be carried out to determine compliance with any applicable conditions of approval for the facility's operation. The City shall impose penalties on facilities which are determined to be operating in an unsafe manner. Any fines collected shall be used to support emergency services, public information and education, and the inspection program. Non-compliance with a facility's conditions of approval may furthermore result in revocation of the facility's use permit, as set forth in this section. Pipelines no longer in use must be abandoned to the satisfaction of the City Engineer and shall comply with all applicable CalEPA requirements for such abandonments.

### **3. Impacts and Mitigation Measures**

This section analyzes environmental impacts related to hazards and hazardous materials that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project and identifies mitigation measures to address these impacts as needed.

Please note that this analysis relies on several existing and "as proposed" General Plan policies to ensure impacts are reduced to the greatest extent feasible. As a part of the Project, individual elements of the existing General Plan are being updated or added. In a corresponding effort, many of their associated objectives and policies are also being modified and added. As such, many of the objective and policy numbers have changed when compared to the existing General Plan. Where applicable, both the existing and proposed objective/policy numbers are given at first reference. After first reference, any referenced General Plan objective/policy number is provided as proposed.

#### **a. Significance Criteria**

Implementation of the Project would result in a significant air quality impact if it would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school.
4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (i.e., the "Cortese List") and, as a result, create a significant hazard to the public or the environment.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within 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.
6. Fundamentally impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

#### **b. Analysis Approach**

The following section provides an evaluation and analysis of the potential impacts of the Project for each of the criteria of significance listed above and potential cumulative impacts. There are no new or existing policies related to hazards and hazardous materials in the Housing Element component of the Project. The hazards and hazardous materials policies in the Environmental Hazards Element component of the Project would generally remain the same as the existing policies (General Plan Policies 11.5.2, 11.7.2, and 11.8.2), with the exception of the addition of new requirements to General Plan Policy 11.7.2 which would reduce potential impacts from hazardous materials on water quality due to potential flooding from future sea level rise, reduce potential impacts related to hazardous building materials, and reduce potential impacts related to development on properties with potential soil and groundwater contamination; therefore, no hazards and hazardous materials related impacts from updating the Environmental Hazards Element would occur.

#### **c. Findings**

##### **(1) Routine Transport, Use, or Disposal of Hazardous Materials (Criterion 1)**

Hazardous materials (e.g., fuel, oils, and paints) would be routinely transported, used, and disposed of during construction of developments under the Project. Developments under the

Project that would result in disturbance of an acre or more of land would be required to manage soil and hazardous materials during construction activities in accordance with the requirements of the Construction General Permit (described in detail under *Section IV.K, Hydrology and Water Quality*), which requires preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes hazardous materials storage requirements. For example, construction site operators must store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed). Section 6-9.09 of the Municipal Code requires all construction to conform to the requirements of the CASQA Stormwater BMP Handbook for Construction. The CASQA Stormwater BMP Handbook for Construction includes guidelines to prevent the release of hazardous materials during construction activities including hazardous materials/waste management, spill prevention and control, and contaminated soil management.<sup>34</sup>

The siting and construction of new hazardous materials facilities, operation of new and existing hazardous materials facilities, and transportation of hazardous materials would be subject to the requirements of the General Plan Policies contained within Section 11.7.2 of the General Plan (which would become General Plan Policies 11.9.2 of the General Plan) and Section 9-5.3826 of the Municipal Code as described above in *Section IV.J.2.c, Regional Regulations*. In addition, the updated Environmental Hazards Element includes the following revised policies related to the potential release of pollutants due to flooding of hazardous materials facilities (the new text is included below and shown as underlined):

*Policy 11.9.2 (previously Policy 11.7.2): Hazardous Materials Policies*

*Facilities Siting*

- g. Maintain adequate siting criteria to determine appropriate locations for hazardous material facilities.
  - Maintain a "Hazardous Materials" section in the Antioch zoning ordinance to define siting criteria to be used for various types of facilities, requirements for application submittal, and required findings for approval.
  - The siting criteria shall prohibit the siting of hazardous materials facilities in 100-year Flood Hazard Zones and areas susceptible to flooding from storm surge and/or sea level rise unless the proposed design accounts for potential flooding by appropriately elevating and/or floodproofing all areas, including exterior areas, where hazardous materials would be stored and handled.

*Facilities Management*

- k. Ensure adequate provision is made for emergency response to all crises involving hazardous materials.
  - Require emergency response plans for all hazardous waste processors and large generators to be submitted as part of use permit applications. The emergency response plans shall include procedures for minimizing the potential release of hazardous materials due to flooding such as shutting down operations, securing hazardous materials containers and other objects to prevent them from floating, closing valves/sealing openings on containers/pipelines/tanks, and moving hazardous materials away from flood prone areas ahead of predicted flooding events.

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<sup>34</sup> California Stormwater Quality Association (CASQA), 2009. Stormwater Best Management Practice Handbook Portal: Construction, November.

- Require training of employees of all facilities in emergency procedures, and that they be acquainted with the properties and health effects of the hazardous materials involved in the facilities' operations.

Compliance with the existing and updated General Plan policies and the Municipal Code would ensure that hazardous materials facilities are appropriately located, constructed, and operated in a manner that minimizes risks to the public and environment.

Operation of developments under the Project would also involve the routine transportation, use, and disposal of hazardous materials for manufacturing/industrial activities, service/maintenance industries, commercial facilities, pest/weed management, agriculture, medical facilities, schools, and households. The routine transportation, use, and disposal of hazardous materials during construction and operation may pose health and safety hazards to people handling the hazardous materials if the hazardous materials are improperly handled, or to the nearby public and the environment if the hazardous materials are accidentally released into the environment. Potential impacts associated with accidental releases of hazardous materials into the environment are discussed under Criterion 2 below.

Compliance with the existing regulation described above in *Section IV.J.2, Regulatory Setting*, including OSHA and Cal/OSHA regulations, the California Health and Safety Code Division 20, Chapter 6.5, CCR, DOT, RCRA, CCHSHMP's Hazards Materials Programs, CCEH's Medical Waste Management Program and the other federal, State, regional, and local regulations, would ensure that the Project would not create a significant hazard to the public or the environment associated with the routine transport, use, or disposal of hazardous materials by ensuring that these materials are properly handled during construction and operation of developments under the Project. Therefore, this impact would be less than significant.

## **(2) Accidental Release of Hazardous Materials (Criterion 2)**

The public and/or the environment could be affected by the release of hazardous materials into the environment if: 1) hazardous building materials (e.g., lead paint and asbestos) were disturbed and released into the environment during demolition or renovation activities under the Project; 2) leakage, spills, or improper disposal of hazardous materials would occur during construction or operation of developments under the Project; or 3) development under the Project would expose construction workers, the public, future occupants of developments, or the environment to potentially contaminated soil, groundwater, or landfill waste/gases during construction or operation of the project.

### **Hazardous Building Materials**

If lead paint is present in structures to be renovated or demolished under the Project, the stabilization and/or removal of lead paint would be required in accordance with applicable laws



and regulations, including but not limited to: California OSHA's Construction Lead Standard, Title 8 CCR Section 1532.1, and Department of Health Services (DHS) regulation 17 CCR Sections 35001 through 36100, as may be amended.

If ACMs are present in structures to be renovated or demolished under the Project, the disturbance/removal and management of ACMs must be performed in accordance with BAAQMD Regulations under Rule 11-2 prior to the City issuing demolition or renovation permits to ensure that asbestos would not be released into the environment.

While electrical and lighting equipment that may contain hazardous materials such as mercury and PCBs can be readily identified and therefore would be appropriately managed/disposed of in accordance with applicable regulations including TSCA, DTSC hazardous waste rules, and other federal and State regulations; PCBs-containing building materials such as caulks/sealants, rubber window seals/gaskets, specialized paints, mastics and other adhesives require testing to evaluate whether these materials contain PCBs; however, there are no existing regulations that require testing to identify PCBs in building materials prior to demolition in the city. If testing for PCBs in building material is not performed prior to demolition activities, the improper handling of potential PCBs-containing materials could result in the release of PCBs into the environment.

The updated Environmental Hazards Element includes the following new policy related hazardous building materials (the new text is included below and shown as underlined).

*Policy 11.9.2: Hazardous Materials Policies*

Hazardous Building Materials

t. Prior to the City issuing demolition permits for existing structures, a comprehensive Hazardous Building Materials Survey (HBMS) for the structure shall be prepared and signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials, lead containing paint, lead based paint, polychlorinated biphenyls (PCBs)-containing equipment and materials, and any other hazardous building materials. The HBMS shall include abatement specifications for the stabilization and/or removal of the identified hazardous building materials in accordance with all applicable laws and regulations. The demolition contractor shall implement the abatement specifications and submit to the City evidence of completion of abatement activities prior to demolition of the existing structures.

Compliance with this updated General Plan policy and the existing hazardous building materials regulations discussed above would ensure that hazardous building materials are appropriately managed prior to demolition activities and the risk of hazardous building materials being released into the environment during construction under the Project would be less-than-significant.

### **Spills, Leaks, or Improper Disposal of Hazardous Materials**

An accidental release of hazardous materials (e.g., oils, fuels, solvents, paints, or contaminated soil or groundwater) during construction under the Project could result in exposure of

construction workers, the public, and/or the environment to hazardous materials. As discussed above, construction projects that disturb an acre or more of land would be subject to the requirements of the Construction General Permit, which requires preparation and implementation of a SWPPP to reduce the risk of spills or leaks from reaching the environment, including procedures to address minor spills of hazardous materials; and Section 6-9.09 of the Municipal Code requires all construction to conform to the requirements of the CASQA Stormwater BMP Handbook for Construction. Measures to control spills, leakage, and dumping must be addressed through structural as well as nonstructural BMPs, as required by the Construction General Permit and CASQA Stormwater BMP Handbook for Construction. For example, equipment and materials for cleanup of spills must be available on site, and spills and leaks must be cleaned up immediately and disposed of properly. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

As discussed above, the transportation of hazardous materials is subject to both RCRA and DOT regulations. If a discharge or spill of hazardous materials occurs during transportation, the transporter is required to take appropriate immediate action to protect human health and the environment (e.g., notify local authorities and contain the spill), and is responsible for the discharge cleanup.

Compliance with the CCHSHMP's Hazards Materials Programs and CCEH's Medical Waste Management Program requires that hazardous materials are properly labeled, stored, and disposed of; and requires training and planning to ensure appropriate responses to spills and emergencies.

Compliance with existing regulations regarding the management, transportation, and disposal of hazardous materials, as discussed above in *Section IV.J.2, Regulatory Setting*, and in Criterion 1, would ensure that potential impacts related to spills, leaks, or improper disposal of hazardous materials that would be routinely handled during construction and operation of developments under the Project would be less than significant.

### **Soil and Groundwater Contamination**

As discussed above in *Section IV.J.1, Setting*, there are many documented hazardous materials release sites within the city, and there is the potential for previously unidentified hazardous materials contamination to be present in the city, particularly in areas of past or existing commercial or industrial land use; areas adjacent to or intersected by existing/former hazardous materials pipelines or railroad tracks/yards; areas adjacent to major roadways; areas of past agricultural land use; and areas with undocumented fill materials.

The disturbance of contaminated soil or groundwater during construction activities could result in impacts to construction workers, the public, and the environment as dust or vapors laden with hazardous materials can be released into the environment, movement of contaminated soil can spread contamination to new areas, and construction of areas of landscaping (and in particular stormwater treatment/infiltration features) over areas of contaminated soil or groundwater could increase the leaching of contaminants from soil into groundwater or the migration of contaminated groundwater.

The updated Environmental Hazards Element includes the following new policy related hazardous materials contamination (the new text is included below and shown as underlined):

*Policy 11.9.2: (previously General Plan Policy 11.7.2) Hazardous Materials Policies*

Hazardous Materials Contamination

- u. The following requirements related to potential hazardous materials contamination would not apply to properties where past land uses have included only residential or undeveloped open space (i.e., no previous agricultural, industrial, commercial, or transportation related use) and where placement of undocumented fill material has not occurred. Evidence of such past land use must be demonstrated to the city through historic aerial photos, maps, and/or building department records.
- Prior to the City issuing demolition, grading, or building permits for a proposed redevelopment or development project that would disturb soil (except for residential renovations/additions), the project applicant shall prepare a Phase I Environmental Site Assessment (ESA) for the project site and shall submit the Phase I ESA it to the City for review. If any Recognized Environmental Conditions (RECs) or other environmental concerns are identified in the Phase I ESA, the project applicant shall prepare a Phase II ESA to evaluate the RECs or other environmental concerns and shall submit the Phase II ESA to the City for review and approval. Phase I and II ESA reports shall be prepared by a qualified environmental assessment professional and include recommendations for further investigation or remedial action, as appropriate, for hazardous materials contamination. Remedial actions may include but not necessarily be limited to the preparation and implementation of a Soil and Groundwater Management Plan, removal of hazardous materials containers/features (e.g., underground or aboveground storage tanks, drums, piping, sumps/vaults, hydraulic lifts, oil/water separators, or impoundments), proper destruction of water supply wells, removal and off-site disposal of contaminated soil or groundwater, in-situ treatment of contaminated soil or groundwater, or engineering/institutional controls (e.g., capping of contaminated soil, installation of vapor intrusion mitigation systems, and establishing deed restrictions). The project applicant shall implement the recommendations for additional investigation and/or remedial actions and shall submit to the City evidence of approvals from the appropriate federal, State, or regional oversight agency(ies) for any proposed remedial action prior to the City issuing demolition, grading, or building permits, and following completion of the remedial action and prior to the City issuing a certificate of occupancy.
  - If the project applicant indicates that in their view regulatory agency oversight/approval is not required for the proposed project based on the findings of the Phase II ESA and/or the proposed remedial actions, then the Phase I and II ESAs and proposed remedial action plans shall be reviewed by a third party qualified environmental assessment professional selected by the City and funded by the project applicant. The third party qualified environmental assessment professional shall either approve of the proposed remedial actions or provide recommendations for further investigation, additional/alternative remediation actions, and/or regulatory agency oversight for the project site, and the recommendations of the third party qualified environmental assessment professional shall be implemented.

Compliance with this updated General Plan Policy would ensure that the risk of hazardous materials being released into the environment under the Project due to soil or groundwater contamination would be less-than-significant.

### **(3) Hazardous Emissions within ¼-Mile of Schools (Criterion 3)**

A review of the California Department of Education's School Directory database indicates that there are 40 schools located in the city.<sup>35</sup> Compliance with the existing regulation described above in *Section IV.J.2, Regulatory Setting*, including OSHA and Cal/OSHA regulations, the California Health and Safety Code Division 20, Chapter 6.5, CCR, DOT, RCRA, CCHSHMP's Hazards Materials Programs, CCEH's Medical Waste Management Program and other federal, State, regional, and local regulations; and compliance with the Municipal Code and the existing and updated General Plan policies would ensure that potential impacts of the Project related to hazardous emissions within a quarter-mile of schools would be less than significant.

### **(4) Government Code Section 65962.5 (Criterion 4)**

The provisions of Government Code Section 65962.5 require the DTSC, the State Water Board, the California Department of Health Services, and the California Department of Resources Recycling and Recovery (formerly the California Integrated Waste Management Board) to submit information pertaining to sites associated with solid waste disposal, hazardous waste disposal, LUST sites, and/or hazardous materials releases to the Secretary of California Environmental Protection Agency. The hazardous materials release sites identified within the city are discussed above in *Section IV.J.1, Setting*. All of the closed and open LUST sites and one Cleanup Program site (Kemwater North America, located at 2151 Wilbur Avenue) identified on GeoTracker, and two of the hazardous materials release sites identified on EnviroStor (the Fulton Shipyard located at 307 Fulton Shipyard Road and GBF/Pittsburg Dump located at Somerville Road and James Donlon Boulevard), are included on the list of hazardous materials release sites compiled pursuant to Government Code Section 65962.5.<sup>36</sup> Compliance with the updated General Plan Policy 11.9.2 (u) discussed above would ensure if development under the Project occurs on properties included on the list of hazardous materials release sites compiled pursuant to Government Code Section 65962.5, potential impacts related to past hazardous materials releases would be less-than-significant.

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<sup>35</sup> California Department of Education, 2022. California School Directory. Available at: <https://www.cde.ca.gov/schooldirectory/>, accessed June 6, 2022.

<sup>36</sup> California Environmental Protection Agency (CalEPA), 2022. Cortese List Data Resources. Available at: <https://calepa.ca.gov/sitecleanup/corteselist/>, accessed June 6, 2022.

## **(5) Aviation Hazards (Criterion 5)**

The city is located approximately 9.5 miles northwest of Byron Airport and 10.5 miles east of Buchanan Field Airport. The city is not located within the Airport Influence Area of Byron Airport or Buchanan Field Airport.<sup>37</sup> Therefore, no impacts related to aviation hazards would occur under the Project.

## **(6) Emergency Response and Evacuation (Criterion 6)**

Development under the Project could require temporary lane and roadway closure during construction activities. This could impede the implementation of emergency response and evacuation plans; however, any construction activities that would result in temporary road closures would be required to obtain traffic permits from the City and prepare a traffic control plan which would maintain emergency response and evacuation access through appropriate traffic control measures and detours.

Development under the Project would increase the population in the city and associated vehicle traffic, which can impact emergency response/evacuation access and timing. Implementation of General Plan Policy 7.3.2 will ensure that appropriate roadway improvements are implemented ahead of or in conjunction with future development to ensure that population growth under the Project would not impact emergency response/evacuation plans. In addition, implementation of General Plan Policy 11.11.2 (previously General Plan Policy 11.8.2), and Municipal Code Title 4, Chapter 2, would ensure that the City maintains up to date emergency response plans and emergency operations capacity that would account for development under the Project. Therefore, development under the Project would result in less-than-significant impacts related to emergency response/evacuation plans.

## **(7) Wildfire (Criterion 7)**

The city is not located within or near a very high fire hazard severity zone for either State or local responsibility areas.<sup>38</sup> There are moderate and high fire hazard severity zones located in the southern portion of the city and in areas adjacent to the south and southwest of the city.<sup>39</sup> The parcels identified in the Housing Sites Inventory are not located within or near the undeveloped wildland areas in the southern or southwestern portions of the city that may be susceptible to wildfires; however, other developments under the Project could be located in these areas. New

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<sup>37</sup> Shutt Moen Associates, 2000. Contra Costa County Airport Land Use Compatibility Plan, December 13.

<sup>38</sup> CAL FIRE, 2009. Very High Fire Hazard Severity Zones in LRA, Contra Costa County, January 7.

<sup>39</sup> TetraTech, 2018. Contra Costa County Hazard Mitigation Plan, Volume 2—Planning Partner Annexes, Draft Final, January.

development within or near these areas may expose additional people to wildfire hazards and could increase in the occurrence of wildfire due to increased population, as most wildfires are caused by humans.

To prevent fire, the CCCFPD strongly recommends that wildland access, or access to existing open areas, be planned into all new subdivisions. Wildland areas must be accessible by fire trail gates to ensure expedient response to grass fires in open areas and fires within the subdivisions themselves. The CCCFPD also trains industries located in the city to prevent and respond to fires.<sup>40</sup>

Compliance with General Plan Policies 8.10.2 and 11.6.2 (previously General Plan Policy 11.5.2), would ensure that development under the Project would result in less-than-significant impacts related to wildfires.

#### **d. Cumulative Hazards and Hazardous Materials Impacts**

The geographic area of concern for cumulative hazards and hazardous materials impacts is the city and adjacent areas. The intensification of land uses caused by future development under the Project together with other development projects in the area could result in the increased use of hazardous materials, and thereby create a cumulative increase in risk associated with accidental release of hazardous materials into the environment. These impacts could occur through transport of hazardous materials and waste, inadvertent release of hazardous materials during construction and operation of projects within the city and its vicinity, and potential accidents that require emergency response.

Occurrence of a cumulative effect related to hazardous materials would require that multiple locations release hazardous materials at the same time near each other. Compliance with existing regulations including the OSHA and Cal/OSHA regulations, the California Health and Safety Code Division 20, Chapter 6.5, CCR, DOT, RCRA, CCHSHMP's Hazards Materials Programs, CCEH's Medical Waste Management Program and other federal, State, regional, and local regulations; and compliance with the Municipal Code and the existing and updated General Plan policies would ensure that potential impacts associated with accidental releases of hazardous materials or disturbance of soil or groundwater that may be contaminated with hazardous materials would be less than significant. Each development under the Project would be required to comply with the existing hazardous materials regulations discussed above to reduce the risk of impacts associated with hazardous materials releases. Therefore, the potential for impacts associated with hazardous materials releases under the Project would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

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<sup>40</sup> LSA, 2003b. City of Antioch General Plan, November 24.

New development within or near wildland areas may expose additional people to wildfire hazards and could increase in the occurrence of wildfire due to increased population, as most wildfires are caused by humans, which is a cumulative effect related to wildfire hazards; however, compliance with General Plan Policies 8.10.2 and 11.6.2, would ensure that potential wildfire impacts of development under the Project would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

Cumulative impacts to emergency response/evacuation access and timing can occur when an increase in population and associated vehicle traffic occurs. Development under the Project would increase the population in the city and associated vehicle traffic, which can impact emergency response/evacuation access and timing. Implementation of General Plan Policy 7.3.2 will ensure that appropriate roadway improvements are implemented ahead of or in conjunction with future development to ensure that population growth under the Project would not impact emergency response/evacuation plans. In addition, implementation of General Plan Policy 11.11.2, and Municipal Code Title 4, Chapter 2, would ensure that the City maintains up to date emergency response plans and emergency operations capacity that would account for development under the Project. Therefore, development under the Project would result in impacts to emergency response/evacuation plans that would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

J. HAZARDS AND HAZARDOUS MATERIALS



## K. HYDROLOGY AND WATER QUALITY

This section describes the current hydrology and water quality conditions in the city and vicinity of Antioch and analyzes how implementation of the Project and its associated development may affect these conditions.

### 1. Setting

This section provides a brief description of the existing conditions related to hydrology and water quality in and near the city, including drainage and surface waters, flooding, coastal hazards, groundwater, and water quality.

#### a. Drainage and Surface Waters

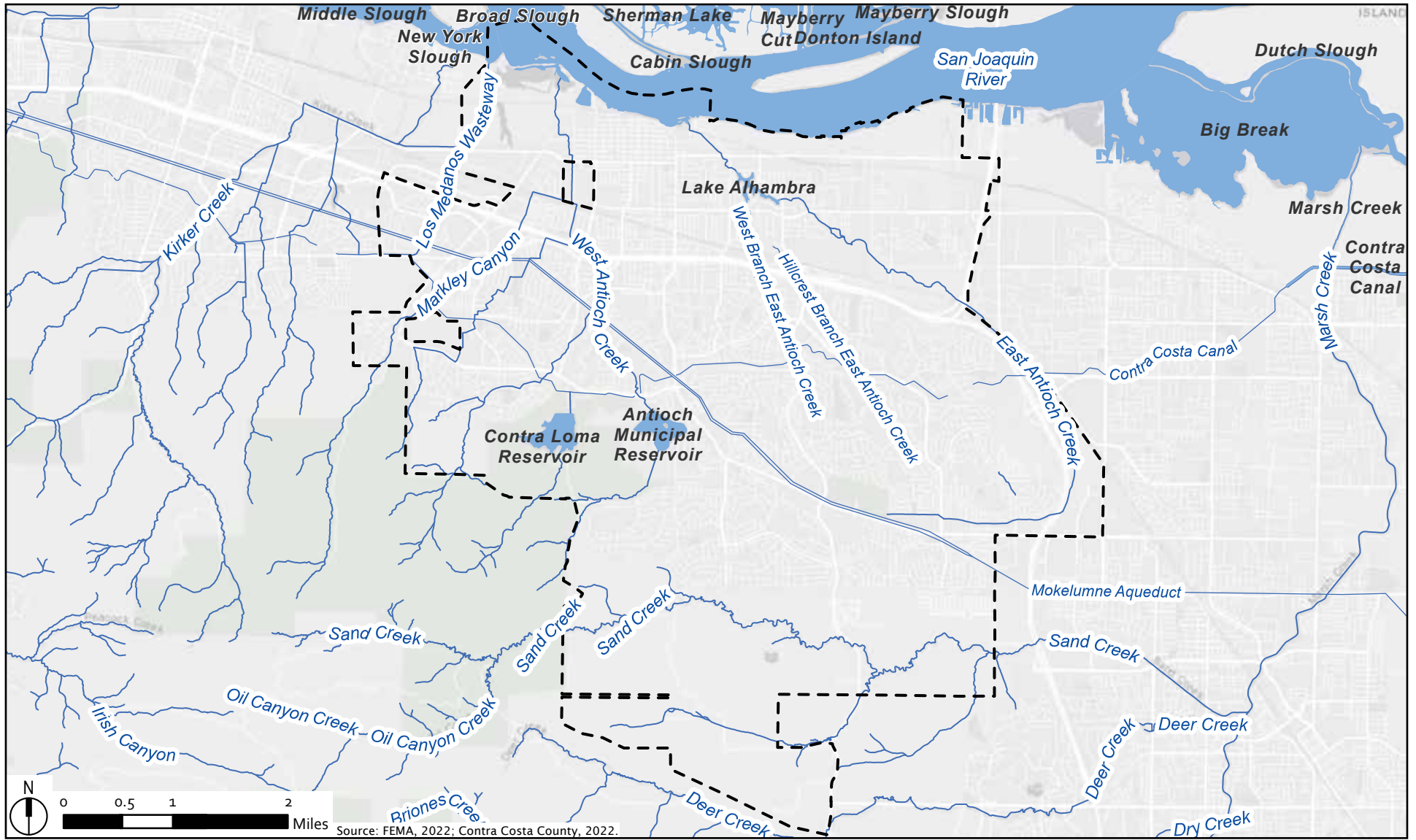
Creeks/drainages and surface waters in the city are shown on Figure IV.K-1. The city is located on the south side of the Sacramento San Joaquin Delta (the Delta) near the western terminus of the San Joaquin River. The northwestern most portion of the city is located in the Kirker Creek Watershed and includes areas that drain into the Los Medanos Wasteway (a creek) which discharges into New York Slough. The west-central portion of the city is located in the West Antioch Creek Watershed, and includes areas that drain into Markley Creek, Contra Loma Reservoir, Municipal Reservoir (also known as the Antioch Reservoir), and West Antioch Creek. There are tributaries to West Antioch Creek that are conveyed through underground culverts/pipes in the area to the northwest of the Contra Loma Reservoir. Markley Creek and West Antioch Creek are conveyed through underground culverts/pipes from just south of SR-4 and transition into earthen lined channels to the north of SR-4 where the creeks merge. West Antioch Creek transitions back to a natural creek before it discharges into the San Joaquin River. The east-central portion of the city is located in the East Antioch Creek Watershed and drains into East Antioch Creek, which is primarily a natural creek except for a segment located southeast of SR-4 which is conveyed through underground culverts/pipes. East Antioch Creek discharges into and drains from Lake Alhambra in the northern portion of the city prior to discharging into the San Joaquin River.<sup>1</sup> The Hillcrest Branch East Antioch Creek and West Branch East Antioch Creek are also located in the East Antioch Creek Watershed and discharge into Lake Alhambra.<sup>2</sup> The southern portion of the city is located in the Lower Marsh Creek Watershed and drains into Sand Creek, which is a tributary to Marsh Creek. The northeastern most portion of the city is located

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<sup>1</sup> Contra Costa County Community Development Agency, 2004. Contra Costa County Watershed Atlas, May.

<sup>2</sup> Federal Emergency Management Agency (FEMA), 2022a. FEMA's National Flood Hazard Layer (NFHL) Viewer. Available at: <https://www.fema.gov/flood-maps/national-flood-hazard-layer>, accessed May 3, 2022.

SCREENCHECK DRAFT



- City Boundary
- Water Bodies

Figure IV.K-1  
Creeks and Surface Waters

in an area identified as the East County Delta Drainages which does not contain any natural creeks.<sup>3</sup>

## **b. Flooding**

Most flooding within the city is caused by heavy rainfall, high tides, and subsequent runoff volumes that cannot be adequately conveyed by the existing storm drainage system and surface water.<sup>4</sup>

As shown in Figure IV.K-2, there are several areas within the city that are located within Federal Emergency Management Agency (FEMA)-designated 1 percent annual chance (100-year) Flood Hazard Zones. This includes areas adjacent to the San Joaquin River, and areas within and adjacent to creeks/drainages/surface waters of the city including the Los Medanos Wasteway, Markley Creek, West Antioch Creek, East Antioch Creek, the Hillcrest Branch East Antioch Creek, West Branch East Antioch Creek, Lake Alhambra, and Sand Creek. Segments of some creeks/drainages and adjacent areas are also designated by FEMA as Regulatory Floodways, including the Los Medanos Wasteway north of Buchanan Road, Markley Creek northeast of Somersville Road, West Antioch Creek south of the BNSF railroad tracks, segments of Hillcrest Branch East Antioch Creek and West Branch East Antioch Creek that are not culverted near SR-4 and Lake Alhambra, and East Antioch Creek west of SR-160.<sup>5</sup> A FEMA designated Regulatory Floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations.<sup>6</sup>

## **c. Dam Failure Inundation**

There are dams located in the central portion of the city at the Contra Loma Reservoir and Municipal Reservoir, and there is a dam located in the southeast portion of the city at the Upper Sand Creek Detention Basin. The Contra Loma Reservoir's dam is owned by the Contra Costa Water District (CCWD) and is under the jurisdiction of the United States Bureau of Reclamation (USBR). Annual dam inspections by USBR have confirmed that the dam is well maintained and

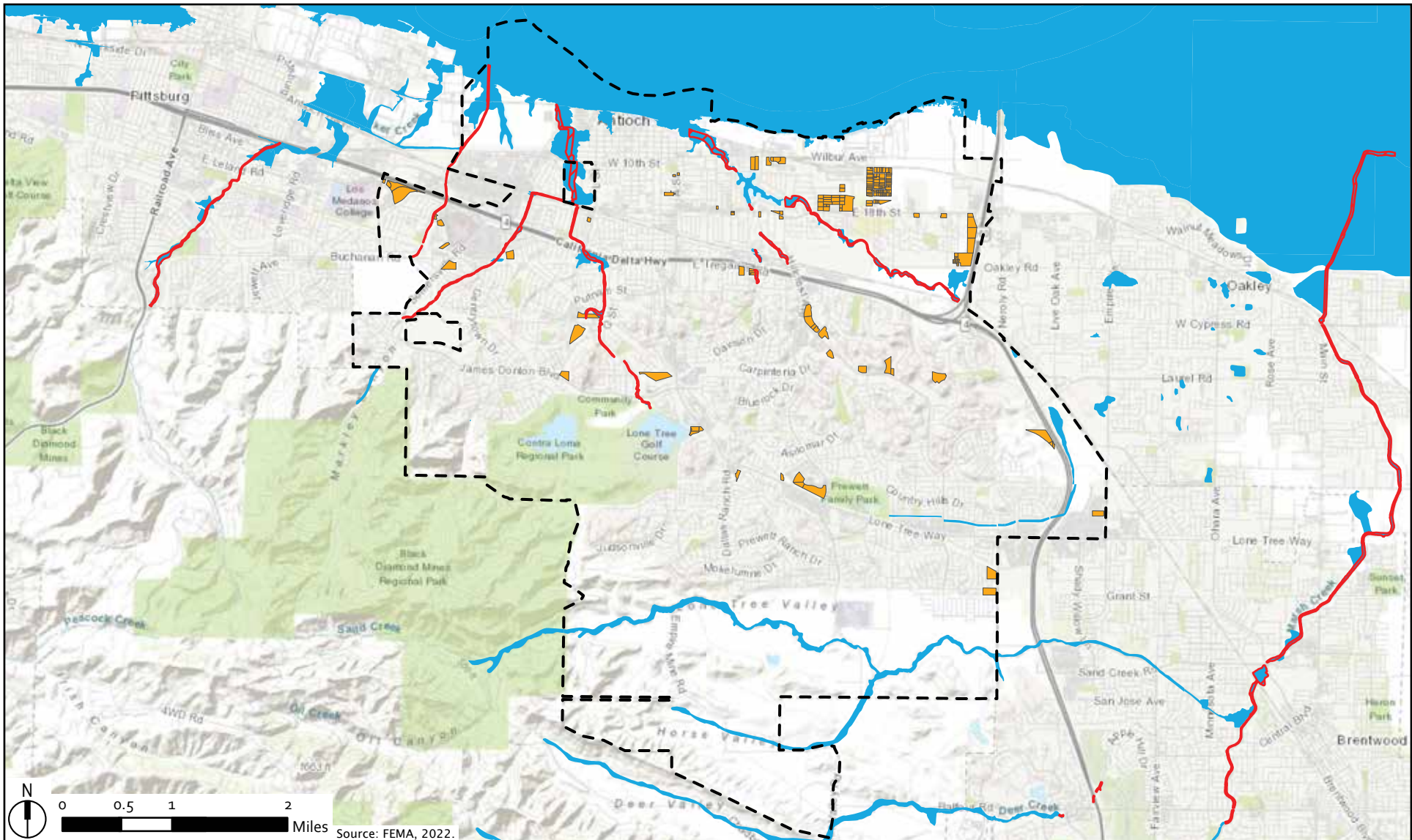
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<sup>3</sup> Contra Costa County Community Development Agency, 2004. Contra Costa County Watershed Atlas, May.

<sup>4</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>5</sup> Federal Emergency Management Agency (FEMA), 2022a. FEMA's National Flood Hazard Layer (NFHL) Viewer. Available at: <https://www.fema.gov/flood-maps/national-flood-hazard-layer>, accessed May 3, 2022.

<sup>6</sup> Federal Emergency Management Agency (FEMA), 2022b. FEMA Glossary, Floodway, Available at: <https://www.fema.gov/glossary/floodway>, accessed May 3, 2022.





-  City Boundary
-  Housing Sites
-  Floodway
-  100-Year Flood Zone

Figure IV.K-2  
FEMA Flood Hazard Zones

Antioch Housing, Environmental Hazards, and EJ Elements EIR

safe for continued use.<sup>7</sup> The Municipal Reservoir's dam is owned by the City, is under the jurisdiction of the Department of Water Resources (DWR), Division of Safety of Dams (DSOD), and is rated as being in satisfactory condition and having an extremely high downstream hazard in terms of the downstream population and property at risk from potential dam failure inundation. The Upper Sand Creek Detention Basin's dam is owned by the Contra Costa County Flood Control and Water Conservation District, is under the jurisdiction of the DSOD, and is also rated as being in satisfactory condition and having an extremely high downstream hazard. Satisfactory condition is defined by DSOD as having no recognized existing or potential dam safety deficiencies. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the minimum applicable state or federal regulatory criteria or tolerable risk guidelines. An extremely high downstream hazard is defined by DSOD as being expected to cause considerable loss of human life or would result in an inundation area with a population of 1,000 or more.<sup>8</sup>

Potential dam failure inundation areas in the city are shown on Figure IV.K-3. Potential failure of the Contra Loma Dam would result in flooding that would inundate the area directly north of the reservoir and then essentially follow the West Antioch Creek drainage to the San Joaquin River. The flooding inundation area would extend up to 0.5-mile-wide in areas south of West 10<sup>th</sup> Street, and more than 0.5-mile-wide in areas north of West 10<sup>th</sup> Street. The anticipated maximum depths of inundation would be 19 feet near the dam, 7 feet at West 10<sup>th</sup> Street, and 11 feet at the San Joaquin River. Potential failure of the Contra Loma Dike would result in similar but less extensive flooding which would inundate an area located northeast of the reservoir prior to following the West Antioch Creek drainage to the San Joaquin River. The USBR Division of Dam Safety conducted a safety analysis of the Contra Loma Reservoir in 1983 and determined that safe performance of the dam can be expected under all anticipated loading conditions, including the maximum credible earthquake and probable maximum flood events. The overall safety classification of the dam is registered as satisfactory.<sup>9</sup>

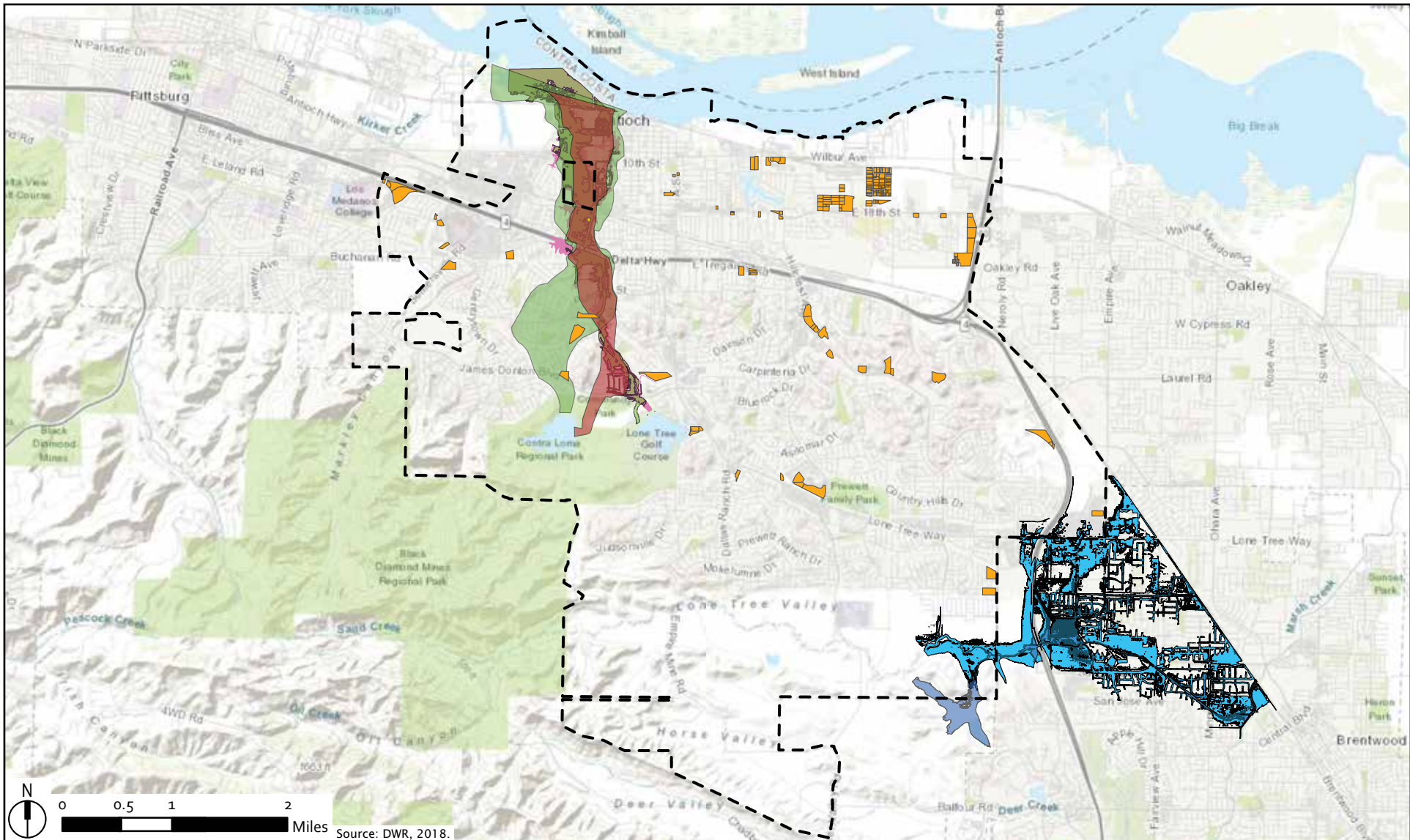
Potential failure of the Municipal Reservoir's dam (also referred to as the Antioch Main Dam) would inundate an area that essentially follows the West Antioch Creek drainage to the San Joaquin River. The flooding inundation area would extend up to a 0.5-mile-wide in the area immediately northwest of the reservoir, and up to approximately 0.75-mile-wide in areas immediately south of SR-4 and south of the San Joaquin River. The anticipated depths of

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<sup>7</sup> Contra Costa Water District, 2022. Dam Safety Program Website, Available at: <https://www.ccwater.com/1051/Dam-Safety-Program>, accessed May 4, 2022.

<sup>8</sup> California Department of Water Resources, 2021. Dams within Jurisdiction of the State of California, Listed Alphabetically by County, September.

<sup>9</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.



- City Boundary
- Housing Sites
- Contra Loma Dike
- Contra Loma Dam
- Sand Creek Saddle Dam
- Sand Creek Main Dam
- Antioch Spillway
- Antioch Main Dam

Figure IV.K-3  
Dam Failure Inundation Areas

inundation would be over 8 feet throughout much of the channel of West Antioch Creek and immediately south of SR-4 and would be up to 8 feet in surrounding areas.<sup>10</sup> Potential failure of the Municipal Reservoir's emergency spillway (also referred to as the Antioch Spillway) would result in similar but less extensive flooding.<sup>11</sup>

Potential failure of the Upper Sand Creek Detention Basin's dam would inundate an area that essentially follows the Sand Creek drainage east to SR-4 then would spread laterally to be over 1-mile-wide as it moves east across the city of Brentwood. The anticipated depths of inundation would be over 3 feet throughout the channel of Sand Creek and immediately west of SR-4, and would be up to 3 feet in surrounding areas.<sup>12</sup> Potential failure of the Upper Sand Creek Detention Basin's saddle dam would result in inundation of an undeveloped area southeast of the detention basin prior to following the Sand Creek drainage towards the east, and would result in relatively minor flooding in the city of Brentwood (most of the flooding would remain within the Sand Creek channel).<sup>13</sup>

#### **d. Coastal Hazards**

Coastal hazards including sea level rise, storm surge, seiches, and tsunamis are described below.

##### **(1) Sea Level Rise and Storm Surge**

The global sea level (including in the Bay) is rising and is expected to continue to rise even with existing efforts to mitigate global warming through reduction of greenhouse gas emissions.<sup>14</sup> Rates of sea level rise may vary by location, as local subsidence or uplift affects the relative change in sea level between land masses and the ocean. In the San Francisco Bay area, the background rate of sea level rise has been estimated to be approximately 0.076 inches per year from 1900 to 2008.<sup>15</sup> In 2018, the California Ocean Protection Council (OPC) released an update to the State of California Sea-Level Rise Guidance.<sup>16</sup> The Sea-Level Rise Guidance presents the

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<sup>10</sup> Mcmillan Jacobs, 2018a. Antioch Municipal Reservoir Sunny Day Dam Breach Inundation Mapping, Antioch, California, January 24.

<sup>11</sup> Mcmillan Jacobs, 2018b. Antioch Municipal Reservoir Rainy Day Emergency Spillway Breach Inundation Mapping, Antioch, California, January 24.

<sup>12</sup> Balance Hydrologics, Inc., 2018a. Plate 3.o. Upper Sand Creek Basin - Primary Dam Overview Inundation Map - Sunny Day Failure, Contra Costa County, California, April.

<sup>13</sup> Balance Hydrologics, Inc., 2018b. Plate 4.o. Upper Sand Creek Basin - Saddle Dam Overview Inundation Map - Sunny Day Failure, Contra Costa County, California, April.

<sup>14</sup> San Francisco Bay Conservation and Development Commission, 2011. Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline, approved October 6.

<sup>15</sup> National Research Council of the National Academies, 2012. Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future, Chapter 4.

<sup>16</sup> California Ocean Protection Council, 2018. State of California Sea-Level Rise Guidance, 2018 Update.

following likely ranges (66 percent probability) of sea-level rise for San Francisco relative to a baseline of the year 2000:

- 0.3 to 0.5 feet by 2030;
- 0.6 to 1.1 feet by 2050;
- 1.0 to 2.4 feet by 2100 (with low future emissions); and,
- 1.6 to 3.4 feet by 2100 (with high future emissions).

The Sea-Level Rise Guidance also presents lower probability sea-level rise projections that could be considered for situations with medium to high risk aversion or extreme risk aversion. For San Francisco, the medium to high risk aversion projection (0.5 percent probability) is 5.7 feet (low future emissions) to 6.9 feet (high future emissions) by 2100, and the extreme risk aversion projection is 10.2 feet by 2100.

The San Francisco Bay Conservation and Development Commission (BCDC) has completed sea level rise and storm surge mapping for the East Contra Costa area which illustrates areas and levels of flooding anticipated based on various sea level rise amounts, topographic features, and 100-year storm surge events.<sup>17</sup> The still water (i.e., no storm surge) mapping indicates that 1-foot of sea level rise above the Mean Higher-High Water (MHHW)<sup>18</sup> level would result in minimal flooding of limited areas adjacent to the San Joaquin River; 2 or 3 feet of sea level rise above the MHHW would result in flooding of areas surrounding East Antioch Creek near the San Joaquin River, the Corteva Wetlands Preserve, and the parking lots of the Antioch Marina and city boat ramp; and 83 inches (6.9 feet) of sea level rise above the MHHW would result in more extensive flooding including areas south of the Corteva Wetlands Preserve and city boat ramp, areas surrounding Lake Alhambra, and areas south of the San Joaquin River in the northeast portion of the city. A 100-year storm surge event without sea level rise results in flooding of similar areas as 3 feet of sea level rise without storm surge. Combining a 100-year storm surge event with 3 feet of sea level rise results in flooding of similar areas as 83 inches (6.9 feet) of sea level rise without storm surge.<sup>19</sup>

The industrial and manufacturing sites on the shoreline of the city rely on utility networks (e.g., water, wastewater, power, and drainage) that are vulnerable to sea level rise and storm events.

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<sup>17</sup> Storm surge events are storm-driven wind events producing wave surges, which travel across the bay toward the shore and are driven by wind and atmospheric pressure conditions. This is different from the 100-year storm event flooding mapped by FEMA, which estimates flooding due to peak runoff from the surrounding watershed traveling downstream toward the San Francisco Bay. The BCDC sea level rise inundation estimates account for storm surge events, but do not account for runoff that could be generated by precipitation events.

<sup>18</sup> MHHW is the average of the higher of the two daily high water elevations.

<sup>19</sup> San Francisco Bay Conservation and Development Commission, 2022. Adapting to Rising Tides East Contra Costa Shoreline Flood Explorer, Available at: <https://eccexplorer.adaptingtorisingtides.org/explorer>, accessed May 3, 2022.



Flooding of these industrial sites could also mobilize hazardous materials, impacting the health of the environment, communities, and water supply. Storage facilities could either develop emergency plans to remove hazardous materials prior to flooding or incorporate structural engineering solutions. But if these measures failed, the consequences could be serious. Tanks could overflow, containers could float or spill if not properly secured, floating debris or increased hydrostatic pressure could cause structural damage to above-ground or partially above-ground tanks, and saltwater could corrode tanks and containers.<sup>20</sup>

## (2) Seiches and Tsunamis

Seiches are waves that are created in an enclosed body of water such as a bay, lake, or harbor and go up and down or oscillate and do not progress forward like standard ocean waves. Seiches are also referred to as standing waves and are triggered by strong winds, changes in atmospheric pressure, earthquakes, tsunamis, or tidal influence. The height and frequency of seiches are determined by the strength of the triggering factor(s) and the size of the basin. Triggering forces that set off a seiche are most effective if they operate at specific frequencies relative to the size of an enclosed basin. There are no enclosed water bodies in the city that would be affected by seiches.<sup>21</sup>

Tsunamis are long-period water waves caused by underwater seismic events, volcanic eruptions, or undersea landslides. Tsunamis affecting the Bay would originate in the Pacific Ocean. Areas that are highly susceptible to tsunami inundation tend to be low-lying coastal areas, such as tidal flats, marshlands, and former Bay margins that have been artificially filled. Inundation or damage caused by a tsunami may disrupt highway traffic in those low-lying areas. Tsunamis entering the San Francisco Bay through the relatively narrow Golden Gate would tend to dissipate as the energy of the wave spreads out as the Bay becomes wider and shallower.<sup>22</sup> Tsunamis would not be expected to affect the city based on its distance from the Pacific Ocean and the San Francisco Bay, and because the shoreline of the city is separated from the San Francisco Bay by multiple straights, bays, and sloughs, which would dissipate the energy of a tsunami. The Contra Costa County Hazard Mitigation Plan also indicates that tsunamis are not a concern for the city.<sup>23</sup>

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<sup>20</sup> San Francisco Bay Conservation and Development Commission, 2020. Adapting to Rising Tides: East Contra Costa County Vulnerability Assessment and Adaptation Project, April.

<sup>21</sup> LSA, 2003a. Draft General Plan Update, Environmental Impact Report, City of Antioch, Contra Costa County, California, July.

<sup>22</sup> J. Borrero, L. Dengler, B. Uslu, C. Synolakis, 2006. Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay, June 8. Report prepared for: Marine Facilities Division of the California State Lands Commission.

<sup>23</sup> Contra Costa County, 2018. Hazard Mitigation Plan, Volume 2 – Planning Partners Annexes, January.

### **e. Groundwater**

The majority of the city is within the westernmost portion of the East Contra Costa Subbasin of the San Joaquin Valley Groundwater Basin (ECC Subbasin). Two primary aquifer zones are identified in the ECC Subbasin: an unconfined to semi-confined Shallow Zone and a semi-confined to confined Deep Zone, with clay layers separating the two. These aquifers are composed of alluvial deposits. The Shallow Zone extends from ground surface to a less permeable material (i.e., clay and silt) with a depth that is generally less than 150 feet. The Deep Zone directly underlies the Shallow Zone, is the primary production zone for public supply wells (generally 200 to 400 feet in depth), and extends to a maximum depth of 1,200 feet. The depth to shallow groundwater has been observed at a depth of approximately 10 feet in one well located in the Lowland Area of the city. The regional shallow groundwater flow direction generally follows the topography and flows from the Upland Area in the southern portion of the city towards the Delta to the north. The city does not use groundwater for water supply, nor does it expect to use groundwater by the year 2040.<sup>24</sup>

### **f. Water Quality**

The quality of surface water and groundwater in the city is affected by past and current land uses within the city and surrounding areas, and by the composition of geologic materials in the area. The State Water Resources Control Board (State Water Board) and nine regional water quality control boards regulate the quality of surface water and groundwater bodies throughout California. The northwestern most portion of the city that is located in the Kirker Creek Watershed is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFRWQCB), which is responsible for implementing the San Francisco Bay Basin (Region 2) Water Quality Control Plan (SF Basin Plan).<sup>25</sup> The remainder and majority of the city is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB), which is responsible for implementing the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (CV Basin Plan).<sup>26</sup> These water quality control plans establishes beneficial water uses for waterways, water bodies, and groundwater within the region and are master policy documents for managing water quality in the regions.

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<sup>24</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

<sup>25</sup> San Francisco Bay Regional Water Quality Control Board, 2017. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments as of May 4.

<sup>26</sup> Central Valley Regional Water Quality Control Board, 2018. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fifth Edition, the Sacramento River Basin and the San Joaquin River Basin, Revised May (with Approved Amendments).

The State Water Board has also prepared a Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan).<sup>27</sup> The Bay-Delta Plan establishes water quality objectives for the protection of beneficial uses in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Delta) and a program of implementation to achieve the objectives. Diversions of water within and upstream of the Delta are a driver of water quality in the Delta. As a result, much of the implementation for the Bay-Delta Plan relies upon the combined water rights and water quality authorities of the State Water Board. The Bay-Delta Plan supplements the other water quality control plans that cover the Delta watershed. The Bay-Delta Plan supersedes any regional water quality control plans for the same waters to the extent of any conflict. The Bay-Delta Plan provides reasonable protection for the Delta's beneficial uses that require control of salinity (caused by saltwater intrusion, municipal discharges, and agricultural drainage) and water project operations (flows and diversions). The other water quality control plans establish water quality objectives and requirements for parameters such as toxic chemicals, bacterial contamination, and other parameters which have the potential to impair beneficial uses or cause nuisance.<sup>28</sup>

The watershed of the Delta provides drinking water to two-thirds of the State's population and water for a multitude of other urban uses, and it supplies some of the State's most productive agricultural areas, both inside and outside of the Delta. The Delta itself is one of the largest ecosystems for fish and wildlife habitat and production in the United States. Historical and current human activities (e.g., water development, land use, wastewater discharges, introduced species, and harvesting), amplified by variations in natural conditions, have degraded the beneficial uses of the Delta.<sup>29</sup>

The northwestern most portion of the city drains into New York Slough, which is listed in the SF Basin Plan as providing the beneficial uses of commercial and sport fishing, estuarine habitat, fish migration, preservation of rare and endangered species, wildlife habitat, water contact and noncontact recreation, and navigation.<sup>30</sup> The Delta is listed in the CV Basin Pan as providing the beneficial uses of municipal and domestic water supply, irrigation, stock watering, industrial process and service water supply, water contact and noncontact recreation, warm and cold water freshwater habitats and fish migration, warm water spawning, wildlife habitat, navigation, and commercial and sport fishing. Beneficial uses vary throughout the Delta and are evaluated on a

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<sup>27</sup> State Water Resources Control Board, 2018. Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, December 12.

<sup>28</sup> State Water Resources Control Board, 2018. Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, December 12.

<sup>29</sup> State Water Resources Control Board, 2018. Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, December 12.

<sup>30</sup> San Francisco Bay Regional Water Quality Control Board, 2017. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments as of May 4.

case-by-case basis. Marsh Creek (which receives runoff from the southern portion of the city through Sand Creek) is listed in the CV Basin Plan as providing beneficial uses of water contact and noncontact recreation (potential uses), warm freshwater habitat, wildlife habitat, preservation of rare and endangered species, and commercial and sport fishing.<sup>31</sup>

Under Section 303 (d) of the Clean Water Act (described in the Regulatory Setting below), states must present the U.S. Environmental Protection Agency (USEPA) with a list of “impaired water bodies,” defined as those water bodies that do not meet water quality standards, which in some cases results in the development of a total maximum daily load (TMDL). On a broad level, the TMDL process leads to a “pollution budget” designed to restore the health of a polluted body of water. The TMDL process provides a quantitative assessment of the sources of pollution contributing to a violation of the water quality standards and identifies the pollutant load reductions or control actions needed to restore and protect the beneficial uses of the impaired waterbody. The Delta Waterways (western portion), which includes the San Joaquin River adjacent to the city, is listed as an impaired water body for several pollutants including pesticides (group A pesticides, chlorpyrifos, dichlorodiphenyltrichloroethane [DDT], diazinon, chlordane, and dieldrin), invasive species, mercury, arsenic, polychlorinated biphenyls (PCBs), toxicity, polycyclic aromatic hydrocarbons (PAHs) and electrical conductivity. TDMLs have been established for chlorpyrifos, mercury and diazinon and will ultimately be prepared for other pollutants affecting the Delta Waterways. The Delta, which includes New York Slough and Broad Slough adjacent to the city, is listed as an impaired water body for several pollutants including pesticides (DDT, chlordane, and dieldrin), dioxin and furan compounds, invasive species, mercury, selenium, and PCBs. TDMLs have been established for mercury, PCBs, and selenium, and will ultimately be prepared for other pollutants affecting the Delta. Sand Creek is listed as an impaired water body for several pollutants including salinity, toxicity, bacteria, specific conductivity, and pesticides (chlorpyrifos, DDT, dichlorodiphenyldichloroethylene [DDE], diazinon, and dieldrin). TDMLs have not been established for any of these contaminants in Sand Creek; however, chlorpyrifos and diazinon are addressed by a non-TMDL.<sup>32</sup> Chlorpyrifos and diazinon in Sand Creek are specifically addressed in the CV Basin Plan which includes implementation and monitoring provisions for chlorpyrifos and diazinon in the Sacramento-San

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<sup>31</sup> Central Valley Regional Water Quality Control Board, 2018. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fifth Edition, the Sacramento River Basin and the San Joaquin River Basin, Revised May (with Approved Amendments).

<sup>32</sup> State Water Resources Control Board (State Water Board), 2018. Final 2018 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report). Available at: [https://www.waterboards.ca.gov/water\\_issues/programs/water\\_quality\\_assessment/2018\\_integrated\\_report.html](https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html), accessed May 5, 2022.

Joaquin Delta Waterways including Sand Creek.<sup>33</sup> Marsh Creek is listed as an impaired water body for pollutants including mercury, toxicity, and bacteria, with a TMDL established for mercury.<sup>34</sup>

The CV Basin Plan indicates that unless otherwise designated by the CVRWQCB, all ground waters in the region are considered as suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply. In making any exceptions to the beneficial use designations the CVRWQCB applies the criteria in State Water Board Resolution No. 88-63, 'Sources of Drinking Water Policy.' The criteria for exceptions include:<sup>35</sup>

- Total dissolved solids (TDS) exceeding 3,000 milligrams per liter (mg/L) or electrical conductivity exceeding 5,000 micromhos per centimeter (µmhos/cm),
- The presence of contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices (BMPs) or best economically achievable treatment practices,
- The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day, or
- The aquifer is regulated as a geothermal energy producing source or has been exempted administratively for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy.

As discussed in *Section IV.J, Hazards and Hazardous Materials*, there are many hazardous materials release sites in the city which have impacted groundwater quality, and there is the potential for unidentified hazardous materials releases to have occurred in the city which may have impacted groundwater quality.

## 2. Regulatory Setting

This section describes the existing federal, State, regional, and local regulatory frameworks related to hydrology and water quality.

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<sup>33</sup> Central Valley Regional Water Quality Control Board, 2018. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fifth Edition, the Sacramento River Basin and the San Joaquin River Basin, Revised May (with Approved Amendments).

<sup>34</sup> State Water Resources Control Board (State Water Board), 2018. Final 2018 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report), Available at: [https://www.waterboards.ca.gov/water\\_issues/programs/water\\_quality\\_assessment/2018\\_integrated\\_report.html](https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html), accessed May 5, 2022.

<sup>35</sup> Central Valley Regional Water Quality Control Board, 2018. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fifth Edition, the Sacramento River Basin and the San Joaquin River Basin, Revised May (with Approved Amendments).

## **a. Federal Regulations**

The following section describes the existing federal regulatory environment related to hydrology and water quality.

### **(1) Federal Clean Water Act of 1972**

The Federal Clean Water Act of 1972 is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It is administered by the USEPA. The Clean Water Act operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit. The USEPA has delegated its authority to implement and enforce most of the applicable water quality provisions of this law to the individual states. In California, the provisions are enforced by nine regional water boards under the auspices of the State Water Board.

### **(2) National Pollutant Discharge Elimination System (NPDES) Permit Program**

Under Section 402 of the Clean Water Act, the discharge of pollutants through a point source into waters of the United States is prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES program regulates the discharge of pollutants from municipal and industrial wastewater treatment plants and sewer collection systems, as well as stormwater discharges from industrial facilities, municipalities, and construction sites. In California, implementation and enforcement of the NPDES program is conducted through the State Water Board and the nine regional water boards. The regional water boards set standard conditions for each permittee in their region, which includes effluent limitations and monitoring programs.

### **(3) Federal Flood Insurance Program**

In 1968, Congress created the National Flood Insurance Program in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The National Flood Insurance Program makes federally backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. FEMA manages the National Flood Insurance Program and creates Flood Insurance Rate Maps that designate 100-year flood hazard zones and delineate other flood hazard areas.

## **b. State Regulations**

The following section describes the existing State of California regulatory environment related to hydrology and water quality.

### **(1) Porter-Cologne Act and State Implementation of Clean Water Act Requirements**

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Water Quality) was promulgated in 1969. It established the State Water Board and divided the State into nine hydrologic regions, each overseen by a regional water board. The State Water Board is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine regional water boards. The Porter-Cologne Act also provides for the development and tri-annual review of Water Quality Control Plans that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. The city lies primarily within the jurisdiction of the CVRWQCB, and the northwestern most portion of the city is located within the jurisdiction of the SFRWQCB. The CVRWQCB and SFRWQCB enforce compliance with water quality objectives for beneficial uses of surface waters.

### **(2) NPDES Construction General Permit**

Construction projects disturbing more than 1 acre of land during construction are required to comply with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit).

To obtain coverage under the Construction General Permit, the project applicant must provide via electronic submittal, a Notice of Intent, a Storm Water Pollution Prevention Plan (SWPPP), and other documents required by Attachment B of the Construction General Permit. Activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as grubbing or excavation. The permit also covers linear underground and overhead projects, such as pipeline installations. Construction General Permit activities are regulated at a local level by the Regional Water Board.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (i.e., Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and timing (i.e., wet season versus dry season activities). The receiving water risk depends on whether the project would discharge to a sediment-sensitive

receiving water. The determination of the project risk level would be made by the project applicant when the Notice of Intent is filed (and more details of the timing of the construction activity are known).

The performance standard in the Construction General Permit is that dischargers shall minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and best management practices (BMPs) that achieve Best Available Technology for treatment of toxic and non-conventional pollutants and Best Conventional Technology for treatment of conventional pollutants. A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is (1) to identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. Operation of BMPs must be overseen by a Qualified SWPPP Practitioner that meets the requirements outlined in the permit.

The SWPPP must also include a construction site monitoring program. Depending on the project risk level, the monitoring program may include visual observations of site discharges, water quality monitoring of site discharges (pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (pH, turbidity, suspended sediment concentration, and bioassessment).

The Construction General Permit allows non-stormwater discharge of groundwater dewatering effluent if the water is properly filtered and treated to remove sediment and pollutants using appropriate technologies such filtration, settling, coagulant application with no residual coagulant discharge, minor odor or color removal with activated carbon, small scale peroxide addition, or other minor treatment. Testing of receiving waters would also be required prior to and during the discharge. The discharge of dewatering effluent is authorized under the Construction General Permit if the following conditions are met:

- The discharge does not cause or contribute to a violation of any water quality standard.
- The discharge does not violate any other provision of the Construction General Permit.
- The discharge is not prohibited by the applicable Basin Plan.
- The discharger has included and implemented specific BMPs required by the Construction General Permit to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment.
- The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants.



- The discharge is monitored and meets the applicable numeric action levels.
- The discharger reports the sampling information in the annual report.

If any of the above conditions are not satisfied, the discharge of dewatering effluent is not authorized by the Construction General Permit. If the dewatering activity is deemed by the Regional Water Board not to be covered by the Construction General Permit or other NPDES permit, and discharge of groundwater to the storm drain system is planned, then the discharger would be required to prepare a Report of Waste Discharge, and if approved by the Regional Water Board, be issued site-specific Waste Discharge Requirements (WDRs) under NPDES regulations.

### **(3) Sustainable Groundwater Management Act**

The Sustainable Groundwater Management Act (SGMA) requires local agencies to form groundwater sustainability agencies for high and medium priority basins and develop and implement groundwater sustainability plans (GSPs) to avoid undesirable results, mitigate overdraft, and reach sustainability within 20 years of implementing their sustainability plans. The California DWR is charged with classifying groundwater basins in California as either high, medium, low, or very low priority. The ECC Subbasin is classified as a medium priority basin by DWR.<sup>36</sup> Seven groundwater sustainability agencies (GSAs), including the City of Antioch GSA, were formed within the ECC Subbasin. The GSAs worked collaboratively to prepare a single GSP for the ECC Subbasin in October 2021.<sup>37</sup>

### **(4) Division of Safety of Dams (DSOD)**

The California Water Code entrusts dam safety regulatory authority to DSOD, which provides oversight of the design, construction, and maintenance of approximately 1,250 non-federally owned dams within its jurisdiction. DSOD inspects jurisdictional dams to assess if the dams and their related structures (e.g., gated spillways, saddle dams, etc.) are safe for continued use and performing as intended. After inspection and review, DSOD may direct dam owners to make necessary repairs. DSOD conducts independent engineering analyses to validate proposed designs of dam repairs, alterations, enlargements, new dam construction, and removals that are submitted by dam owners or their consultants. DSOD reevaluates existing dams as changes in the state-of-practice occur that could impact dam safety. When necessary, DSOD may immediately direct a dam owner to implement remedial means necessary to protect life and

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<sup>36</sup> California Department of Water Resources, 2020. Sustainable Groundwater Management Act, 2019 Basin Prioritization, May.

<sup>37</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

property; or DSOD may impose a reservoir restriction that limits the reservoir's water surface level until repairs or remediation work is completed.

### **(5) CEQA Court Rulings on “Reverse CEQA” and Sea Level Rise**

The California Second District Court of Appeals has held that, although an EIR must analyze the environmental effects that may result from a project, an EIR is not required to examine the effects of the environment, such as sea level rise, on a project (see *Ballona Wetlands Land Trust v. City of Los Angeles*, 201 Cal. App. 4th 455).

The California Supreme Court concluded in the *California Building Industry Association vs. Bay Area Air Quality Management District* (CBIA v. BAAQMD) decision, that “CEQA generally does not require an analysis of how existing environmental conditions will impact a project’s future users or residents.” The CBIA v. BAAQMD ruling provided for several exceptions to the general rule where an analysis of the effects of the environment on the project is warranted: 1) if the project would exacerbate existing environmental hazards (such as exposing hazardous waste that is currently buried); 2) if the project qualifies for certain specific exemptions (certain housing projects and transportation priority projects per PRC 21159.21 (f),(h); 21159.22 (a),(b)(3); 21159.23 (a)(2)(A); 21159.24 (a)(1),(3); or 21155.1 (a)(4),(6)); 3) if the project is exposed to potential noise and safety impacts on the project occupants due to proximity to an airport (per PRC 21096); and 4) school projects requiring specific assessment of certain environmental hazards (per PRC 21151.8).

### **c. Regional Regulations**

The following section describes the existing regional regulatory environment related to hydrology and water quality.

#### **(1) NPDES Municipal Regional Permit**

Pursuant to Section 402 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, municipal stormwater discharges in the city are regulated under the CVRWQCB’s East Contra Costa County Municipal NPDES Permit, Waste Discharge Requirements Order R5-2010-0102, NPDES Permit No. CASo83313, effective September 23, 2010 (Municipal Regional Permit).<sup>38</sup> The Municipal Regional Permit is overseen by the CVRWQCB. The City is part of the Contra Costa Clean Water Program (CCCWP) which assists its members with compliance with the Municipal Regional Permit and performs certain functions on behalf of its members.

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<sup>38</sup> Central Valley Regional Water Quality Control Board, 2010. East Contra Costa County Municipal NPDES Permit, Waste Discharge Requirements Order R5-2010-0102, NPDES Permit No. CASo83313, effective September 23.

The Municipal Regional Permit describes discharge prohibitions under Provisions A.1 and A.2; receiving water limitations which are site-specific interpretations of water quality standards from applicable water quality control plans under Provisions B.1 and B.2; compliance with discharge prohibitions and receiving water limitations under Provision C.1; and municipal operations BMPs to control and reduce non-stormwater discharges and polluted stormwater to storm drains and watercourses during operation, compliance requirements inspection, and routine repair and maintenance activities of municipal facilities and infrastructure under Provision C.2. Additional provisions of the Municipal Regional Permit that are pertinent to the Project are discussed below.

Provision C.3 of the Municipal Regional Permit addresses post-construction stormwater management requirements for regulated projects, which are new development and redevelopment projects that create or replace 10,000 square feet or more of impervious surface, and special land use categories that create or replace 5,000 square feet or more of impervious surface. Where a redevelopment project results in an alteration of more than 50 percent of the impervious surface of a previously existing development that was not subject to Provision C.3, the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire redevelopment project). Provision C.3 requires regulated projects to implement Low Impact Development (LID) source control, site design, and stormwater treatment. LID employs principles such as preserving and recreating natural landscape features and minimizing impervious surfaces to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. Practices used to adhere to these LID principles include measures such as rain barrels and cisterns, green roofs, permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention areas, bioswales, and planter/tree boxes.

Provision C.3.g of the Municipal Regional Permit pertains to hydromodification management, which requires regulated projects that create or replace one-acre or more of impervious surface and increase impervious surface compared to the pre-project conditions to ensure that stormwater discharges from the project do not cause an increase in the erosion potential of the receiving stream over the existing condition.

Provision C.3.i of the Municipal Regional Permit pertains to small projects and detached single family home projects, and requires all development projects which create and/or replace between 2,500 and 10,000 square feet of impervious surface, and detached single-family home projects which create and/or replace 2,500 square feet or more of impervious surface to install site design measures that reduce runoff and pollutants in runoff, such as directing runoff into cisterns, rain barrels, and vegetated areas; and installing permeable pavements surfaces.

Provision C.6 of the Municipal Regional Permit pertains to Construction Site Control and requires permittees to implement a construction site inspection and control program at all construction

sites. Inspections must be performed to confirm implementation of appropriate and effective erosion and other construction pollutant controls by construction site operators/developers.

Provision C.9 of the Municipal Regional Permit pertains to pesticide toxicity control and requires permittees to implement a pesticide toxicity control program that addresses their own and others' use of pesticides within their jurisdictions that pose a threat to water quality and that have the potential to enter the municipal conveyance system. This provision implements requirements of the TMDL for chlorpyrifos and diazinon to be met in urban runoff into the Sacramento-San Joaquin Delta Waterways.

Provision C.10 of the Municipal Regional Permit pertains to trash load reduction and requires permittees to reduce trash loads from municipal separate storm sewer systems by 100 percent (i.e., complete trash capture) by July 1, 2023.

#### **d. Local Regulations**

##### **(1) City of Antioch**

The City's General Plan policies and Municipal Code chapters related to hydrology and water quality are described below.

#### **General Plan**

The following policies from the City of Antioch General Plan<sup>39</sup> are related to hydrology and water quality and are applicable to the Project.

*Policy 8.7.2: Storm Drainage and Flood Control Policies*

- a. Continue working with the Contra Costa County Flood Control District to ensure that runoff from new development is adequately handled.
- b. Require adequate infrastructure to be in place and operational prior to occupancy of new development, such that:
  - new development will not negatively impact the performance of storm drain facilities serving existing developed areas and
  - the performance standards set forth in the Growth Management Element will continue to be met.
- c. Design flood control within existing creek areas to maximize protection of existing natural settings and habitat.
- d. Provide retention basins in recreation areas where feasible to reduce increases in the amount of runoff resulting from new development.
- e. Require new developments to provide erosion and sedimentation control measures to maintain the capacity of area storm drains and protect water quality.

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<sup>39</sup> LSA, 2003b. City of Antioch General Plan, November 24.

- f. Require implementation of Best Management Practices in the design of drainage systems to reduce discharge of non-point source pollutants originating in streets, parking lots, paved industrial work areas, and open spaces involved with pesticide applications.

*Policy 10.7.2: Water Resources Policies*

*Water Supply*

- a. As part of the implementing the City's residential growth management program and its development review process for non-residential development, ensure that adequate long-term water supplies are available to serve the development being granted new allocations, including consideration of peak drought and peak fire fighting needs.
- b. Require new development to be equipped with drought tolerant landscaping and water conservation devices.
- c. Work with Delta Diablo Sanitation District to make reclaimed wastewater available for irrigation use. Where reclaimed wastewater can be made available at a reasonable cost, require the installation of dual water systems in development projects and public facilities, using reclaimed wastewater for irrigation.
- d. Protect, where possible, groundwater recharge areas, including protection of stream sides from urban encroachment.
- e. Oppose proposals with the potential to increase the salinity of the Delta and/or endanger the City's rights to divert water from the San Joaquin River.

*Water Quality*

- f. Participate in the Contra Costa Clean Water program to reduce storm water pollution and protect the water quality of the City's waterways.
- g. Require public and private development projects to be in compliance with applicable National Pollution Discharge Elimination System (NPDES) permit requirements, and require the implementation of best management practices to minimize erosion and sedimentation resulting from new development.
- h. Participate in regional watershed planning efforts to enhance area water quality.
- i. Design drainage within urban areas to avoid runoff from landscaped areas and impervious surfaces from carrying pesticides, fertilizers, and urban and other contaminants into natural streams.

*Policy 11.4.2: Flood Protection Policies*

- a. Prohibit all development within the 100- year floodplain, unless mitigation measures consistent with the National Flood Insurance Program are provided.
- b. Minimize encroachment of development adjacent to the floodway in order to convey flood flows without property damage and risk to public safety. Require such development to be capable of withstanding flooding and to minimize the use of fill.
- c. Prohibit alteration of floodways and channelization of natural creeks if alternative methods of flood control are technically and financially feasible. The intent of this policy is to balance the need for protection devices with land use solutions, recreation needs, and habitat preservation.
- d. Require new development to prepare drainage studies to assess storm runoff impacts on the local and regional storm drain and flood control system, along with implementation of appropriate detention and drainage facilities to ensure that the community's storm drainage system capacity will be maintained, and peak flow limitations will not be exceeded.
- e. Where construction of a retention basin is needed to support new development, require the development to provide for the perpetual funding and ongoing maintenance of the basin.
- f. Eliminate hazards caused by local flooding through improvements to the area's storm drain system or creek corridors as resources allow.

*Policy 11.8.2: Disaster Response Policies*

- a. Maintain and update the City's Emergency Response Plan, as required by State law.
- b. Disseminate disaster preparedness information to local residents and businesses, describing how emergency response will be coordinated, how evacuation, if needed, will proceed, and what residents and businesses can do to prepare for emergency situations. Provide information to the public about:
  - Environmental hazards existing in Antioch;
  - The costs of doing nothing to mitigate these hazards;
  - Why governmental agencies can not eliminate all hazards;
  - What the City does to assist;
  - What the City cannot do;
  - What the public can do to protect itself.
- c. Maintain an effective and properly equipped emergency operations center, along with trained personnel, for receiving emergency calls, providing initial response and key support to major incidents, meeting the demands of automatic and mutual aid programs, and maintaining emergency incident statistical data.
- d. Maintain ongoing emergency response coordination with surrounding jurisdictions.
- e. Regularly review and clarify emergency evacuation plans for dam failure, fire, and hazardous materials releases.
  - Maintaining a fire control plan, including onsite fire fighting capability and volunteer response teams to respond to and extinguish small fires; and
  - Identifying personnel who are capable and certified in first aid and CPR.
- f. Regularly review and clarify emergency evacuation plans for dam failure, fire, and hazardous materials releases.

## **Municipal Code**

The City's Municipal Code sections related to hydrology and water quality are discussed below. Title 6, Chapter 9 of the Municipal Code is titled Storm Water Management and Discharge Control, and includes the following sections that are applicable to the Project:

- Section 6-9.05 indicates that every application for a development project, including but not limited to a rezoning, tentative map, parcel map, conditional use permit, variance, site development permit, design review, or building permit that is subject to the development runoff requirements in the City's NPDES permit shall be accompanied by a stormwater control plan that meets the criteria in the most recent version of the CCCWP Stormwater C.3. Guidebook. Implementation of an approved stormwater control plan and submittal of an approved stormwater control operation and maintenance plan by the applicant is a condition precedent to the issuance of a certificate of occupancy for a project subject to this section. All stormwater management facilities must be designed in a manner to minimize the need for maintenance and reduce the chances of failure. All stormwater management facilities must be maintained according to the guidebook and the approved stormwater control operation and maintenance plan. For access to stormwater management facilities for inspections and maintenance, recorded covenants or easements must be provided by the property owner for access by the City, the Contra Costa Mosquito and Vector Control District, and the Regional Water Quality Control Board.

- Section 6-9.09 describes BMPs and standards, including the prohibition of littering; requiring the disposal of debris from sweeping of sidewalks in receptacles rather than the gutter; requiring owners of paved private streets or roads and related stormwater systems to perform cleaning of such facilities to prevent discharge of pollutants; requiring all construction to conform to the requirements of the California Stormwater Quality Association (CASQA) Stormwater Best Management Practices Handbooks for Construction Activities and New Development and Redevelopment, the Association of Bay Area Governments (ABAG) Manual of Standards for Erosion & Sediment Control Measures, the City's grading and erosion control ordinance and other generally accepted engineering practices for erosion control as required by the Director when undertaking construction activities. The Director may establish controls on the rate of stormwater runoff from new development and redevelopment as may be appropriate to minimize the discharge and transport of pollutants; and providing the Director with the notice of intent to comply with any general stormwater NPDES permit.
- Section 6-9.10 indicates that every person who owns, leases or operates any premises containing a stormwater management facility or facilities is required to obtain annually a valid operation and maintenance certificate of compliance certifying to the inspection of and the proper operation and maintenance of the treatment measures and other appropriate source control and site design measures.
- Section 6-9.11 provides the City with authority to inspect and sample stormwater runoff at properties to evaluate potential stormwater contamination, requires notification to the City in case of spills of pollutants, and provides the provides the City with authority to require testing or monitoring of stormwater to be performed by any person engaged in any activity or owning or operating any premises that may cause or contribute to non-stormwater discharges.

Title 9, Chapter 4, Article 20 of the Municipal Code is titled Floodplain Management, and includes the following sections that are applicable to the Project:

- Section 9-4.2005 includes requirements related to applications for development permits within FEMA designated special flood hazard areas. The applications must include plans showing the nature, location, dimensions, and elevation of the area in question; and existing or proposed structures, fill, storage of materials, and drainage facilities and their locations/elevations. The City Engineer is designated as the Floodplain Administrator who is responsible for reviewing development applications for special flood hazard areas and granting or denying permits in accordance with the requirements of the Municipal Code. The Floodplain Administrator must ensure that the proposed development does not adversely

affect<sup>40</sup> the carrying capacity of areas where base flood elevations have been determined however a Regulatory Floodway has not been designated. All Letters of Map Revision (LOMR's) for flood control projects must be approved prior to the issuance of building permits. Building permits must not be issued based on Conditional Letters of Map Revision (CLOMR's). When base flood elevation data has not been provided, the Floodplain Administrator must obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source in order to administer Sections 9-4.2007 through 9-4.2011 of the Municipal Code. Any such information shall be submitted to the Council for adoption. This section also includes requirements related to alteration or relocation of a watercourse, including notifying adjacent communities, DWR, and FEMA; and assuring that the flood-carrying capacity within the altered or relocated portion of such watercourse is maintained.

- Section 9-4.2006 describes permitted uses and standards for FEMA designated Regulated Floodways and indicates that no new structure or facility may cause an increase in flood elevation, which must be certified by a registered professional engineer or surveyor, and such certification must be provided to the Floodplain Administrator. No new structure may be permitted in Regulated Floodways except water wells and irrigation and drainage pumps and appurtenances; fences, walls, signs, and other appurtenances provided they do not block potential floodwaters or create a debris catching obstacle to the passage of floodwaters, subject to the approval of the City Engineer; marinas, including ramps, gas pumps, docks, and other structures, which must be located on, above, or immediately adjacent to a watercourse, provided there is no alternative to location and all feasible flood management measures are included as conditions of the site development plans; public and private docks, wharves, piers, and boat launching ramps provided all reasonable measures to mitigate potential hazards are taken; pilings and other support structures for marinas or approved uses accessory to marinas; railroads, pipelines, utility lines, and public improvements, such as roads and streets, provided the passage of the 100-year flood is not impaired; and bridges provided they have at least one foot clearance above the 100-year flood elevation. In the extraction of sand, gravel, and other materials, there may be no stockpiling of materials, products, or overburden which may create an obstruction to the passage of flood flows or increase the velocity or elevation of water within the floodway. Drainage and flood control development may be permitted such that it does not increase the area, velocity, or elevation of floodwaters within the floodway, unless such effect is a part of a flood control plan. Accessory recreation structures, such as rest rooms, may be placed within the floodway where the design may not affect the passage of the 100-year flood.

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<sup>40</sup> The municipal codes defines "adversely affects" as meaning that the cumulative effect of the proposed development when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood more than one foot at any point within the City.



- Section 9-4.2007 describes permitted uses and standards for FEMA designated 100-year Flood Hazard Zones outside of Regulatory Floodways, including requirements for anchoring, use of construction materials and methods and utility equipment that are resistant to flood damage, providing adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures, placing lowest floor elevations at or above base flood elevations, floodproofing of non-residential structures, and requirements for recreational vehicles.
- Section 9-4.2008 describes additional requirements for areas within the FEMA designated 100-year Flood Hazard Zones that are outside of Regulatory Floodways and within tidal inundation areas, including that all buildings or structures must be located landward above the mean higher high tide, buildings or structures must be elevated so that the lowest supporting member is located no lower than the base flood elevation level, with all space below the lowest supporting member open so as not to impede the flow of water, except for breakaway walls.
- Section 9-4.2009 describes standards for utilities and indicates that all new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate the infiltration of floodwaters into the system and the discharge from systems into floodwaters, and on-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
- Section 9-4.2010 describes standards for subdivisions and indicates that all preliminary subdivision proposals must identify the flood hazard area and the elevation of the base flood. All final subdivision plans must provide the elevations of proposed structures and pads. If the site is filled above the base flood, the final pad elevation must be certified by a registered professional engineer or surveyor and provided to the Floodplain Administrator. All subdivision proposals must be consistent with the need to minimize flood damages. All subdivision proposals must have public utilities and facilities, such as sewer, gas, electrical, and water systems, located and constructed to minimize flood damages. All subdivisions must provide adequate drainage to reduce exposure to flood hazards.
- Section 9-4.2011 describes standards for manufactured homes and indicates that all new and replacement manufactured homes and additions to manufactured homes must be elevated so that the lowest floor is at or above the base flood elevation; securely anchored to a permanent foundation system to resist flotation, collapse, or lateral movement; not be placed in the tidal flood zone; and only remain in non-tidal flood zones for a specified temporary period of time for construction or caretaker purposes where no feasible alternative exist, and removed between the months of December and May.

### **3. Impacts and Mitigation Measures**

This section analyzes environmental impacts related to hydrology and water quality that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project and identifies mitigation measures to address these impacts as needed.

Please note that this analysis relies on several existing and “as proposed” General Plan policies to ensure impacts are reduced to the greatest extent feasible. As a part of the Project, individual elements of the existing General Plan are being updated or added. In a corresponding effort, many of their associated objectives and policies are also being modified and added. As such, many of the objective and policy numbers have changed when compared to the existing General Plan. Where applicable, both the existing and proposed objective/policy numbers are given at first reference. After first reference, any referenced General Plan objective/policy number is provided as proposed.

#### **a. Significance Criteria**

Implementation of the Project would have a significant impact related to hydrology and water quality if it would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (1) result in substantial erosion or siltation on- or off-site; (2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (4) impede or redirect flood flow.
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

## **b. Analysis Approach**

The following section provides an evaluation and analysis of the potential impacts of the Project for each of the criteria of significance listed above and potential cumulative impacts. There are no new or existing policies related to hydrology and water quality in the Housing Element or Environmental Justice (EJ) Element components of the Project. The hydrology and water quality policies in the Environmental Hazards Element component of the Project would remain the same as the existing policies (General Plan Policies 11.4.2 and 11.8.2), and future development under the Project would also be supported by existing hydrology and water quality policies in other chapters of the General Plan (General Plan Policies 8.7.2 and 10.7.2) which are listed above. The updated Environmental Hazards Element includes updated policies related to hazardous materials that would reduce potential impacts on water quality as described below under *Section IV.K.3.c.5, Release of Pollutants Due to Project Inundation (Criterion 4)*; therefore, no hydrology and water quality related impacts from updating the Environmental Hazards Element would occur.

Based on the court rulings described above under *Section IV.K.2.b.5*, an analysis of the effects of flooding associated with sea level rise on the Project is not required under CEQA with the exception of sea level rise inundation that could cause the release of pollutants. As such, this EIR presents consideration of impacts on the Project due to coastal flooding associated with sea level rise for informational purposes and a significance determination is made only for Criterion 4 regarding the release of pollutants due to inundation.

## **c. Findings**

### **(1) Water Quality (Criterion 1)**

#### **Construction Period**

Development under the Project would involve construction activities including excavation and grading which can increase the potential for erosion and sedimentation from stormwater runoff and for the leaching/transport of potential contaminants from disturbed soil. Construction activities would also involve the use of construction materials, equipment, and hazardous materials that can be sources of stormwater pollution. If stormwater contacts disturbed soil and/or improperly stored hazardous materials, sediments and contaminants could be entrained in stormwater runoff that could reach waterways and degrade water quality, potentially resulting in a violation of water quality standards. All future development would be subject to existing water quality regulations and policies, as described above in *Section IV.K.2, Regulatory Setting*. Specifically, construction activities for future developments under the Project that disturb more than 1 acre of land would be required to comply with the requirements of the Construction

General Permit. In accordance with the Construction General Permit requirements, a SWPPP would be developed and implemented to identify all potential pollutants and their sources, including a list of BMPs to reduce discharges of construction-related stormwater pollutants. The SWPPP would include a detailed description of controls to reduce pollutants and outline maintenance and inspection procedures. The SWPPP would be required to be kept on-site and be made available to Regional Water Board inspectors. Typical sediment and erosion BMPs include protecting storm drain inlets, establishing, and maintaining construction exits, and perimeter controls. The SWPPP would also define proper building material staging areas, paint and concrete washout areas, proper equipment/vehicle fueling and maintenance practices, controls for equipment/vehicle washing, and allowable non-stormwater discharges, and would include a spill prevention and response plan.

For developments under the Project that disturb less than 1 acre of land, compliance with Section 6-9.09 of the City's Municipal Code requires construction to conform to the requirements of the CASQA Stormwater Best Management Practices Handbooks for Construction Activities and New Development and Redevelopment, the ABAG Manual of Standards for Erosion & Sediment Control Measures, the City's grading and erosion control ordinance and other generally accepted engineering practices for erosion control when undertaking construction activities.

In accordance with Provision C.6 of the Municipal Regional Permit, the City is required to implement a construction site inspection and control program at all construction sites to confirm implementation of appropriate and effective erosion and other construction pollutant controls by construction site operators/developers. Section 6-9.11 of the City's Municipal Code provides the City with authority to inspect and sample stormwater runoff at properties to evaluate potential stormwater contamination, requires notification to the City in case of spills of pollutants, and provides the City with authority to require testing or monitoring of stormwater to be performed by any person engaged in any activity or owning or operating any premises that may cause or contribute to non-stormwater discharges.

Implementation of General Plan policies would also reduce potential impacts related to water quality from construction of developments under the Project, including General Plan Policies 8.7.2 (e) and 10.7.2.(g) which address potential impacts to water quality related to potential erosion and sedimentation from new development.

Dewatering, which may need to occur to support foundation construction and other activities related to future development under the Project, would generate effluent that would require special management. Dewatering effluent could have high turbidity (suspended sediment) and could contain other contaminants. Turbid or contaminated groundwater could cause degradation of the receiving water quality if discharged directly to storm drains without treatment. Any groundwater dewatering would be limited in duration and the discharge of dewatering effluent would be subject to permits from the Delta Diablo Sanitation District (Delta Diablo) or the

Regional Water Board, depending on whether the discharge would be to the sanitary or storm sewer system, respectively.

Under existing State law, it is illegal to allow unpermitted non-stormwater discharges to receiving water. As stated in the Construction General Permit, non-storm water discharges directly to receiving waters or the storm drain system have the potential to negatively impact water quality. The discharger must implement measures to control all non-stormwater discharges during construction, and from dewatering activities associated with construction. Discharging any pollutant-laden water from a dewatering site or sediment basin into any receiving water or storm drain that would cause or contribute to an exceedance of water quality objectives is prohibited (i.e., illegal).<sup>41</sup>

The Construction General Permit allows the discharge of non-contaminated dewatering effluent if the water is properly filtered or treated, using appropriate technology. These technologies include, but are not limited to, retention in settling ponds (where sediments settle out prior to discharge of water) and filtration using gravel and sand filters (to mechanically remove the sediment). If the dewatering activity is deemed by the Regional Water Board not to be covered by the Construction General Permit, then the discharger could potentially prepare a Report of Waste Discharge, and if approved by the Regional Water Board, be issued site-specific WDRs under the NPDES regulations. Site-specific WDRs contain rigorous monitoring requirements and performance standards that, when implemented, ensure that receiving water quality is not substantially degraded.

If the water is not suitable for discharge to the storm drain (receiving water), as discussed above, dewatering effluent may be discharged to the sanitary sewer system if Delta Diablo's special discharge criteria are met. These include, but are not limited to, application of pretreatment technologies which would result in achieving compliance with the wastewater discharge limits. Discharges to Delta Diablo's facilities must occur under a Special Discharge Permit. Delta Diablo manages the water it accepts into its facilities so that it can ensure proper treatment of wastewater at the treatment facility prior to discharge.

If it is infeasible to meet the requirements of the Construction General Permit, acquire site-specific WDRs, or meet the Delta Diablo Special Discharge Permit requirements, the construction contractor would be required to transport the dewatering effluent off-site for treatment.

Compliance with State, regional, and local regulations and implementation of General Plan policies listed above regarding stormwater and dewatering during construction would protect

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<sup>41</sup> State Water Resources Control Board (SWRCB) Division of Water Quality, 2009. Construction General Permit Fact Sheet. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ.

receiving water quality. Therefore, impacts related to water quality during construction associated with development under the Project would be less than significant.

### **Operational Period**

Development under the Project would increase the amount and density of residential land uses in the city which can increase impervious surfaces and create additional sources of potentially polluted runoff. Increases in impervious surfaces can increase the rate and volume of stormwater discharges which can result in erosion and sedimentation in receiving waters. Debris and particulates that gather on impervious surfaces such as paved areas and roofs of buildings can also add heavy metals and sediment to the pollutant load in runoff. Additional potential sources of polluted runoff associated with development under the Project would include motor vehicle traffic, the use of fertilizers/pesticides for landscaped areas, and increase trash generation. Pollutants that may be transported in runoff from parking areas, roadways, and residential developments that would be constructed under the Project include sediment, metals, organic compounds (e.g., diesel, gasoline, and oil), trash, debris, fertilizers, and pesticides.

All future development would be subject to existing water quality regulations and policies, as described above in *Section IV.K.2, Regulatory Setting*. Future development projects under the Project that would create or replace 10,000 square feet or more of impervious surface and special land use categories<sup>42</sup> that create or replace 5,000 square feet or more of impervious surface would be required to comply with the Municipal Regional Permit Provision C.3 requirements for LID source control, site design, and stormwater treatment. Compliance with the Municipal Regional Permit also requires future developments under the Project that would create and/or replace between 2,500 and 10,000 square feet of impervious surface to install site design measures that reduce runoff and pollutants in runoff, such as directing runoff into cisterns, rain barrels, vegetated areas, and installing permeable pavements surfaces.

Future developments under the Project that create or replace one-acre or more of impervious surface and increase impervious surface compared to the pre-project conditions would also be required to comply with hydromodification management requirements of Provision C.3.g of the Municipal Regional Permit, which requires that stormwater discharges associated with new development or redevelopment do not cause an increase in the erosion potential of the receiving stream over the existing condition, which would reduce potential impacts to water quality related to erosion and siltation of creeks.

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<sup>42</sup> Special land use categories include auto service facilities, retail gasoline outlets, restaurants, or stand-alone uncovered parking lots.

Implementation of General Plan policies would also reduce potential impacts related to water quality from future development under the Project, including General Plan Policies 8.7.2 (a) through (f); 10.7.2 (e) through (i); and 11.5.2 (previously General Plan Policy 11.4.2) (d) and (e), which address potential impacts to water quality related to potential increases in runoff and potential pollutants in runoff from new development.

In accordance with Provision C.9 of the Municipal Regional Permit, the City is required to implement a pesticide toxicity control program that addresses their own and others' use of pesticides within their jurisdiction that pose a threat to water quality and that have the potential to enter the municipal conveyance system. The City's complies with Provision C.9 of the Municipal Regional Permit by evaluating the City's contractor's use of pesticides, implementing integrated pest management techniques (e.g., mowing, disking, and hand abating pests) which reduce the need for pesticides, and training municipal employees. The CCCWP also assists the city by providing countywide public outreach at the point of purchase for pesticides and to pest control contractors.<sup>43</sup>

In accordance with Provision C.10 of the Municipal Regional Permit, the City is required to reduce trash loads in stormwater runoff. The city has achieved a 62 percent reduction of trash in stormwater runoff through the installation and maintenance of full-trash capture devices, trash reduction programs, and cleanup activities;<sup>44</sup> and is required by the Municipal Regional Permit to achieve 100 percent (i.e., complete trash capture) by July 1, 2023.

Compliance with Sections 6-9.09 through Section 6-9.11 of the City's Municipal Code, which includes required BMPs for maintaining stormwater quality, inspection and proper operation and maintenance of stormwater control and treatment measures, potential inspection and sampling/monitoring of stormwater runoff at properties, and notification of the city in case of spills of pollutants, would also reduce potential impacts to water quality.

Compliance with State, regional, and local regulations and implementation of General Plan policies listed above regarding stormwater during operation of developments under the Project would protect receiving water quality. Therefore, impacts related to water quality during operation of developments under the Project would be less than significant.

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<sup>43</sup> City of Antioch, 2021. Annual Report for Fiscal Year 2020-21, September 30.

<sup>44</sup> City of Antioch, 2021. Annual Report for Fiscal Year 2020-21, September 30.

## (2) Depletion of Groundwater Resources (Criterion 2)

The city does not use groundwater for municipal water supply,<sup>45</sup> therefore increases in the city's water use that could occur due to future development under the Project would not affect groundwater supplies. As discussed above, dewatering may be performed during construction of future developments under the Project; however, construction-related dewatering would be temporary, limited to shallow groundwater, and localized in the areas of future developments; therefore, construction dewatering would not result in significant impacts related to depletion of groundwater supplies.

Groundwater recharge can occur from infiltration of precipitation and applied water (e.g., irrigation), surface water infiltration, subsurface inflows, and unintentional recharge (e.g., leaky pipes). The recharge potential for areas within the city that overly the ECC Subbasin were mapped in the GSP for the ECC Subbasin. According to the GSP, much of the northwest portion of the city has poor or very poor recharge potential; much of the northeast portion of the city has moderately poor or very poor recharge potential; and there are areas of moderately good recharge potential located along a short segment of Markley Creek and much of West Antioch Creek.<sup>46</sup> Development under the Project would increase impervious surface in the city, which can reduce groundwater recharge. However, much of the city has poor groundwater recharge potential; therefore, significant impacts to groundwater recharge would not be expected due to increases in impervious surfaces. Implementation of General Plan Policy 10.7.2.(d) would also reduce potential impacts to groundwater recharge from development under the Project, as it requires the City to protect, where possible, groundwater recharge areas, including protection of stream sides from urban encroachment. In addition, the required implementation of LID source control, site design, and stormwater treatment for regulated projects in accordance with Provision C.3 of the Municipal Regional Permit would ensure that developments under the Project that create or replace significant amounts of impervious surface (over 10,000 square feet) would include stormwater control measures that would promote infiltration of stormwater runoff such as permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention areas, bioswales, and planter/tree boxes. Smaller developments that create and/or replace between 2,500 and 10,000 square feet of impervious surface would also be required to install site design measures that promote infiltration such as directing runoff into vegetated areas and installing permeable pavements surfaces.

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<sup>45</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

<sup>46</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.



Required compliance with Provision C.3 of the Municipal Regional Permit and implementation of General Plan Policy 10.7.2.(d) as discussed above would ensure that development under the Project would result in less-than-significant impacts related to groundwater recharge.

### **(3) Erosion, Siltation and Polluted Runoff (Criterion 3)**

Construction activities would involve excavation and grading, which would temporarily alter drainage patterns and expose soil to potential erosion. As described under Criterion 1 above, required compliance with the Construction General Permit and the City's General Plan policies and Municipal Code would ensure that potential impacts related to erosion of exposed soil, sedimentation of receiving waters or the storm drain system, and polluted runoff during construction of the developments under the Project would be less than significant.

During operation of the developments under the Project, the development sites would be covered by structures, pavement, and landscaped areas, with no ongoing soil exposure or disturbance that could result in erosion and siltation. Development under the Project would increase the impervious surfaces in the city and could therefore increase stormwater discharges to creeks which could result in erosion of creek banks and sedimentation. As described under Criterion 1 above, stormwater runoff from developments under the Project that would create 2,500 square feet or more of impervious surface would be managed in accordance with Provision C.3 of the Municipal Regional Permit, which would minimize the amount of silt and pollutants in stormwater runoff and allow for infiltration of much of the stormwater runoff from impervious surfaces through LID stormwater control and treatment systems. Future developments under the Project that create or replace one-acre or more of impervious surface and increase impervious surface compared to the pre-project conditions would also be required to comply with hydromodification management requirements of Provision C.3.g of the Municipal Regional Permit, which would reduce potential impacts related to erosion and siltation of creeks. Section 6-9.09 of the City's Municipal Code indicates that the City may establish controls on the rate of stormwater runoff from new development and redevelopment as may be appropriate to minimize the discharge and transport of pollutants. Implementation of General Plan policies would also reduce potential impacts related to erosion, siltation, and polluted runoff from future development under the Project, including General Plan Policies 8.7.2 (a) through (f); 10.7.2 (e) through (i); and 11.5.2 (d) and (e), which address potential impacts related to increases in stormwater runoff (including erosion and siltation) and potential pollutants in runoff from new development. Operation of developments under the Project would therefore have less-than-significant impacts related to erosion, siltation, and polluted runoff associated with changing drainage patterns.

#### **(4) Flooding and Local Stormwater System Drainage Capacity (Criterion 3)**

As described above under *Section IV.K.1.b, Flooding*, above, there are areas of the city that are susceptible to storm related flooding and are designated by FEMA as 100-year Flood Hazard Zones and Regulatory Floodways. The FEMA designated 100-year Flood Hazard Zones and Regulatory Floodways in the city are shown on Figure IV.K-2, along with the parcels identified in the Housing Inventory Sites (Sites Inventory). As shown on Figure IV.K-2, there are multiple parcels identified in the Sites Inventory that are intersected by both 100-year Flood Hazard Zones and Regulatory Floodways, including the parcel located at 3195 Contra Loma Boulevard (Map Number 154 on Figure III-7 in *Chapter III, Project Description*), and the three adjacent parcels located at 2721 Windsor Drive, Windsor Drive and Iglesia Court, and 2709 Windsor Drive (Map Numbers 134, 136, and 137, respectively, on Figure III-6 in *Chapter III, Project Description*). Development of parcels intersected by 100-year Flood Hazard Zones and Regulatory Floodways must be performed in accordance with the requirements in Title 9, Chapter 4, Article 20 of the City's Municipal Code, which would ensure that development under the Project would not impede or redirect storm flooding flows in a manner that would result in any increase in the water surface elevation in a Regulatory Floodway, or an increase in the base flood elevation in areas outside of Regulatory Floodways by more than one foot at any point within the city when the cumulative effect of the proposed development is combined with all other existing and anticipated development. Implementation of General Plan policies would also reduce potential impacts related to development under the Project impeding or redirecting storm flooding flows, including General Plan Policies 11.5.2 (a) through (c), which address development in 100-year Flood Hazard Zones and Regulatory Floodways, and alteration of floodways and channelization of natural creeks. Compliance with the City's Municipal Code and implementation of General Plan policies would ensure that development under the Project would result in less-than-significant impacts related to impeding or redirecting storm flood flows.<sup>47</sup>

As described above under *Section IV.K.1.c, Dam Failure Inundation*, there are areas of the city that could be susceptible to flooding from dam failure inundation. Potential dam failure inundation areas in the city are shown on Figure IV.K-3, along with the parcels identified in the Sites Inventory. As shown on Figure IV.K-3, there are four parcels identified in the Sites Inventory that are located in the dam failure inundation area for the Contra Loma Dam, including the parcels located at James Donlon Boulevard and Contra Loma Boulevard, 3351 Contra Loma Boulevard, 3195 Contra Loma Boulevard, and 2100 L Street (Map Numbers 151, 138, 154, and 150 on Figure

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<sup>47</sup> According to the City's Municipal, if the cumulative effect of a proposed development when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood more than one foot at any point within the City, then the potential change in flooding conditions from the proposed project would not be considered an "adverse affect". An adverse effect may be considered synonymous with a significant impact; therefore, changes in flooding that is not an adverse effect would be considered less than significant.

III-5 in *Chapter III, Project Description*). The parcels located at 3195 Contra Loma Boulevard and 2100 L Street are also intersected by and within, respectively, the dam failure inundation areas of the Contra Loma Dike, Antioch Main Dam, and Antioch Spillway. While development of these parcels under the Project could impede or redirect flooding from dam failure inundation, the likelihood of dam failure at the Contra Loma Reservoir and Antioch Reservoir is extremely low as these dams are regularly inspected by the USBR and DSOD, respectively, and these agencies have not identified existing or potential dam safety deficiencies, as described above under *Section IV.K.1.c*. Implementation of General Plan policies would also reduce potential impacts related to dam failure inundation, including General Plan Policies 11.10.2 (previously General Plan Policy 11.8.2) (e) through (f) which require the City to maintain and update the City's Emergency Response Plan, disseminate disaster preparedness information to local residents and businesses, maintain an effective and properly equipped emergency operations center, maintain emergency response coordination with surrounding jurisdictions, and regularly review and clarify emergency evacuation plans for dam failure. Therefore, development under the Project would have less-than-significant impacts related to impeding or redirecting flood flows from dam failure inundation.

Development under the Project would increase the impervious surfaces in the city and could therefore increase stormwater discharges that could contribute to exceeding the capacity of existing or planned stormwater drainage systems and creeks, which could result in flooding on- or off-site. If the stormwater control and treatment systems of future developments under the Project are not properly maintained, the systems could become clogged which could result in localized flooding.

As described under Criterion 1 above, stormwater runoff from developments under the Project that would create 2,500 square feet or more of impervious surface would be managed in accordance with Provision C.3 of the Municipal Regional Permit, which would allow for infiltration of much of the stormwater runoff from impervious surfaces through LID stormwater control and treatment systems. This could potentially result in a reduction in stormwater runoff from existing developed sites that do not have LID stormwater control and treatment systems and would be redeveloped under the Project. Future developments under the Project that create or replace one-acre or more of impervious surface and increase impervious surface compared to the pre-project conditions would also be required to comply with hydromodification management requirements of Provision C.3.g of the Municipal Regional Permit. Hydromodification management typically requires development to incorporate stormwater control systems that would ensure that post-development stormwater runoff conditions match the pre-development conditions through the use of features such as retention basins/cisterns and infiltration. Section 6-9.09 of the City's Municipal Code indicates that the City may establish controls on the rate of stormwater runoff from new development and redevelopment as may be appropriate to minimize the discharge, and Section 6-9.10 of the City's Municipal Code requires the inspection

and proper operation and maintenance of the stormwater treatment and other site design measures. Implementation of General Plan policies would also reduce potential impacts related to potential increases in runoff from development under the Project, including General Plan Policies 8.7.2 (a) through (e) and 11.5.2 (d) through (f), which require the City to ensure that runoff is properly handled by making sure new developments have adequate stormwater drainage infrastructure in place and operational prior to occupancy; provide erosion and sedimentation control measures to maintain the capacity of area storm drains; prepare drainage studies to assess storm runoff impacts on the local and regional storm drain and flood control system; and implement appropriate detention and drainage facilities to ensure that the community's storm drainage system capacity will be maintained and peak flow limitations will not be exceeded. Compliance with the Municipal Regional Permit and the City's Municipal Code and implementation of General Plan policies would ensure that development under the Project would result in less-than-significant impacts related to exceeding the capacity of existing or planned stormwater drainage systems and creeks or contributing to flooding on- or off-site.

#### **(5) Release of Pollutants Due to Project Inundation (Criterion 4)**

As described above under *Section IV.K.1, Setting*, the city is not susceptible to flooding from seiches or tsunamis, but there are areas of the city that are susceptible to flooding hazards including storm related flooding (e.g., FEMA designated 100-year Flood Hazard Zones and Regulatory Floodways), dam failure inundation, and inundation from future sea level rise and storm surge events. There are locations in the city where hazardous materials are stored in areas that are susceptible to flooding (e.g., industrial and manufacturing sites on the shoreline of the city). Flooding of these industrial sites and other properties where hazardous materials are stored could mobilize hazardous materials, impacting the health of the environment, communities, and water supply. While dam failure in the city could result in flooding and the release of pollutants in the city (and potentially in the city of Brentwood in the case of dam failure at the Upper Sand Creek Detention Basin), the Project would not increase the likelihood of dam failure. Additionally, the dams in the city are regularly inspected by the USBR and DSOD and these agencies have not identified existing or potential dam safety deficiencies, as described above under *Section IV.K.1.c, Dam Failure Inundation*. Therefore, the potential for Project impacts related to the release of pollutants due to dam failure inundation is considered less than significant.

While flooding of existing properties in the city would be considered an effect of the environment on the Project (i.e., "reverse CEQA"), the release of hazardous materials due to flooding of developments under the Project would be considered a potential impact of the Project on the environment. The Project includes updating the Environmental Hazards Element of the General Plan which includes policies that address development of areas susceptible to flooding and development/management of hazardous materials facilities. The potential for the release of pollutants from flooding of residential properties is low as residential properties typically do not

store significant quantities of hazardous materials; therefore, development of parcels identified in the Sites Inventory would have a less-than-significant impact related to the release of pollutants due to flooding.

The updated Environmental Hazards Element includes the following policies related to the potential release of pollutants due to flooding of hazardous materials facilities:

*Policy 11.9.2 (previously would have been in General Plan Chapter 11.7.2): Hazardous Materials Policies*

- a. Promote the reduction, recycling, and safe disposal of household hazardous wastes through public education and awareness.
- b. Implement the provisions of the Contra Costa County Hazardous Waste Management Plan, including, but not limited to, provisions for pretreatment and disposal, storage, handling, and emergency response.
- c. Require businesses generating hazardous wastes to pay necessary costs for local implementation of programs specified in the Contra Costa County Hazardous Waste Management Plan, as well as costs associated with emergency response services for a hazardous materials release.

*Source Reduction*

- d. Require new and expanding hazardous materials users to reduce the amount of hazardous waste generated.
  - Require submittal of a waste minimization plan with any use permit application for a new large facility or expansion of an existing large facility creating additional hazardous wastes.
  - Encourage existing large facilities to prepare waste minimization plans.
  - Require new large hazardous waste-producing facilities to provide onsite treatment of recycling of wastes generated to the maximum extent feasible. This will minimize the amount of hazardous waste being transferred offsite for treatment or disposal.
  - Require all hazardous waste generators to recycle wastes to the maximum extent feasible.
- e. Encourage reductions in the amount of hazardous wastes being generated within Antioch through incentives and other methods.
  - Provide educational and technical assistance to all hazardous materials users and waste generators to aid in their source reduction efforts (e.g., substitution of less hazardous products and modifications to operating procedures). These services will primarily be provided by through the County.
  - Provide public recognition to hazardous materials users and waste generators who meet or exceed source reduction goals.
  - Provide penalties for facilities failing to meet minimization objectives, and place funds from these penalties in a revolving account for use in educational and emergency services efforts.

*Facilities Siting*

- f. Locate hazardous materials facilities in areas reserved for compatible uses.
  - Permit large hazardous waste users and processors only in areas designated for "heavy industrial" use. Smaller generators and medical facilities (e.g., service stations) may be sited in other industrial and commercial areas, consistent with applicable General Plan policies and zoning regulations. The compatibility of small facilities will be determined by the types and amounts of hazardous materials involved and the nature of the surrounding area.
  - Require use permits for all operations handling hazardous materials to ensure compatibility with the surrounding area.
- g. Maintain adequate siting criteria to determine appropriate locations for hazardous material facilities.
  - Maintain a "Hazardous Materials" section in the Antioch zoning ordinance to define siting criteria to be used for various types of facilities, requirements for application submittal, and required findings for approval.
  - The siting criteria shall prohibit the siting of hazardous materials facilities in 100-year Flood Hazard Zones and areas susceptible to flooding from storm surge and/or sea level rise unless the proposed design

accounts for potential flooding by appropriately elevating and/or floodproofing all areas, including exterior areas, where hazardous materials would be stored and handled.

- h. Locate hazardous materials facilities at a sufficient distance from populated areas to reduce potential health and safety impacts.
  - Require risk assessment studies to determine potential health impacts for all proposed hazardous waste processors and large generators as part of permit application submittals.
  - Require a 2,000-foot buffer zone around all new hazardous waste processors within which no residences, schools, hospitals, or other immobile populations, existing proposed, or otherwise, would be located, unless evidence is presented in the risk assessment study that a larger buffer is needed.
- i. Permit hazardous waste processors based on their relative need in conjunction with the "fair share" approach to facilities siting contained in the Contra Costa County Hazardous Waste Management Plan.
  - Require a needs assessment as part of use permit applications for a waste processor, demonstrating the proposed facility will serve a need that cannot be better met in any other manner (e.g., source reduction) or at any other location.
  - Discourage proposed hazardous waste facilities processing materials similar to those treated or stored at existing facilities within the County, unless the need for the new facility can be adequately demonstrated.
- j. Carefully review and require appropriate mitigation for pipelines and other channels for hazardous materials.

#### *Facilities Management*

- k. Ensure adequate provision is made for emergency response to all crises involving hazardous materials.
  - Require emergency response plans for all hazardous waste processors and large generators to be submitted as part of use permit applications. The emergency response plans shall include procedures for minimizing the potential release of hazardous materials due to flooding such as shutting down operations, securing hazardous materials containers and other objects to prevent them from floating, closing valves/sealing openings on containers/pipelines/tanks, and moving hazardous materials away from flood prone areas ahead of predicted flooding events.
  - Require training of employees of all facilities in emergency procedures, and that they be acquainted with the properties and health effects of the hazardous materials involved in the facilities' operations.
- l. Promote the safest possible transport of hazardous materials through Antioch.
  - Maintain formally designated hazardous material carrier routes to direct hazardous materials away from populated and other sensitive areas.
  - Restrict all processors and new large generators to access only along established hazardous material carrier routes.
  - Locate hazardous waste processors as near to waste generators as possible, in order to minimize the need for transport.
  - Require transportation analyses for all new large generators and processors to determine the effect of each facility on Antioch's transportation system, and assess and provide mitigation for potential safety impacts associated with hazardous materials transported to and from the site.
  - Prohibit the parking of vehicles transporting hazardous materials on City streets.
  - Require that new pipelines and other channels carrying hazardous materials avoid residential areas and other immobile populations to the greatest extent possible.
- m. Require that hazardous materials facilities within Antioch operate in a safe manner.
  - As a condition of approval for new hazardous materials facilities, require access for vehicles carrying hazardous materials to be restricted to hazardous materials carrier routes.
  - Undertake inspections of hazardous materials facilities as needed (e.g., when an unauthorized discharge into City sewers is made), and assist Contra Costa Health Services in their inspections as requested.
  - Require that water, sewer, and emergency services be available consistent with the level of service standards set forth in the Growth Management Element. Work with LAFCO to require that that sites for

- proposed hazardous materials facilities annex into the City before necessary municipal services are provided.
- n. Require appropriate design features be incorporated into each facility's layout to increase safety and minimize potential adverse effects on public health.
    - Require the provision of spill containment facilities and monitoring devices in all facilities.
    - Ensure that pipelines and other hazardous waste channels are properly designed to minimize leakage and require above ground pipelines to be surrounded by spill containment basins.
    - Give priority to underground storage of hazardous materials, unless this method is shown to be infeasible.
    - Require hazardous materials storage areas to be located as far from existing pipelines and electrical transmission lines as possible.
  - o. Maintain a high priority on clean-up of the GBF landfill, Hickmott Cannery, and other contaminated sites.
    - Maintain communication with the Department of Toxic Substances Control, Contra Costa Health Services, and other responsible agencies to complete clean-up of the GBF landfill and Hickmott Cannery sites as rapidly and thoroughly as possible.
    - Participate in task forces with County and State agencies for remediation of the GBF landfill and Hickmott Cannery sites.

*Public Education/Outreach*

- p. Require that new large hazardous materials users and/or processors maintain communication lines within the community by establishing a Communication and Information Panel. Encourage existing large users and processors to form similar panels.
- q. Facilitate public awareness of hazardous materials by preparing and distributing in conjunction with Contra Costa Health Services public information regarding uniform symbols used to identify hazardous wastes, Antioch's household hazardous waste collection programs, and hazardous waste source reduction programs.

*Monitoring*

- r. Monitor the progress and success of hazardous materials efforts, and modify these efforts as needed.
- s. Maintain data regarding the use and generation of hazardous materials within Antioch and its Planning Area.

*Hazardous Building Materials*

- t. Prior to the City issuing demolition permits for existing structures, a comprehensive Hazardous Building Materials Survey (HBMS) for the structure shall be prepared and signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials, lead containing paint, lead based paint, polychlorinated biphenyls (PCBs)-containing equipment and materials, and any other hazardous building materials. The HBMS shall include abatement specifications for the stabilization and/or removal of the identified hazardous building materials in accordance with all applicable laws and regulations. The demolition contractor shall implement the abatement specifications and submit to the City evidence of completion of abatement activities prior to demolition of the existing structures.
- u. The following requirements related to potential hazardous materials contamination would not apply to properties where past land uses have included only residential or undeveloped open space (i.e., no previous agricultural, industrial, commercial, or transportation related use) and where placement of undocumented fill material has not occurred. Evidence of such past land use must be demonstrated to the City through historic aerial photos, maps, and/or building department records.
  - Prior to the City issuing demolition, grading, or building permits for a proposed redevelopment or development project that would disturb soil (except for residential renovations/additions), the project applicant shall prepare a Phase I Environmental Site Assessment (ESA) for the project site and shall submit the Phase I ESA it to the City for review. If any Recognized Environmental Conditions (RECs) or other environmental concerns are identified in the Phase I ESA, the project applicant shall prepare a Phase II ESA to evaluate the RECs or other environmental concerns and shall submit the Phase II ESA to the City for review and approval. Phase I and II ESA reports shall be prepared by a qualified environmental assessment professional and include recommendations for further investigation or remedial action, as appropriate, for

hazardous materials contamination. Remedial actions may include but not necessarily be limited to the preparation and implementation of a Soil and Groundwater Management Plan, removal of hazardous materials containers/features (e.g., underground or aboveground storage tanks, drums, piping, sumps/vaults, hydraulic lifts, oil/water separators, or impoundments), proper destruction of water supply wells, removal and off-site disposal of contaminated soil or groundwater, in-situ treatment of contaminated soil or groundwater, or engineering/institutional controls (e.g., capping of contaminated soil, installation of vapor intrusion mitigation systems, and establishing deed restrictions). The project applicant shall implement the recommendations for additional investigation and/or remedial actions and shall submit to the City evidence of approvals from the appropriate federal, State, or regional oversight agency(ies) for any proposed remedial action prior to the City issuing demolition, grading, or building permits, and following completion of the remedial action and prior to the City issuing a certificate of occupancy.

- If the project applicant indicates that in their view regulatory agency oversight/approval is not required for the proposed project based on the findings of the Phase II ESA and/or the proposed remedial actions, then the Phase I and II ESAs and proposed remedial action plans shall be reviewed by a third party qualified environmental assessment professional selected by the City and funded by the project applicant. The third party qualified environmental assessment professional shall either approve of the proposed remedial actions or provide recommendations for further investigation, additional/alternative remediation actions, and/or regulatory agency oversight for the project site, and the recommendations of the third party qualified environmental assessment professional shall be implemented.

Compliance with the City's Municipal Code, which restricts development in 100-year Flood Hazard Zones and Regulatory Floodways as described above under *Section IV.K.2.c.1, NPDES Municipal Regional Permit*, and implementation of General Plan policies including the updated General Plan Policies 11.9.2 (g) and (k), would ensure that the development under the Project would result in less-than-significant impacts related to the release of hazardous materials due to flooding.

## **(6) Conflict with Water Quality Control Plan or Sustainable Groundwater Management Plan (Criterion 5)**

Development under the Project would be required to comply with NPDES permit requirements to protect water quality (e.g., the Construction General Permit and Municipal Regional Permit), and the City's General Plan policies and Municipal Code Sections described under Criterion 1 above, which would further protect water quality, and therefore development under the Project would not conflict with the water quality objectives of the CV Basin Plan, SF Basin Plan, or Bay-Delta Plan.

The ECC Subbasin is not experiencing undesirable results as defined under SGMA.<sup>48</sup> The sustainability goal for the ECC Subbasin GSP is to manage the groundwater Subbasin to:

- Protect and maintain safe and reliable sources of groundwater for all beneficial uses and users.

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<sup>48</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.



- Ensure current and future groundwater demands account for changing groundwater conditions due to climate change.
- Establish and protect sustainable yield for the Subbasin by achieving measurable objectives set forth in this GSP in accordance with implementation and planning periods.
- Avoid undesirable results defined under SGMA.

The sustainability indicators for the ECC Subbasin GSP are:

- Chronic lowering of groundwater levels.
- Reduction of storage.
- Seawater intrusion (significant and unreasonable intrusion of Delta and Bay waters).
- Degraded water quality.
- Land subsidence.
- Depletion of interconnected surface water.

The city does not use groundwater for municipal water supply;<sup>49</sup> therefore, increases in the city's water demand that could occur due to development under the Project would not affect groundwater supplies. As discussed above, dewatering may be performed during construction of developments under the Project. However, construction-related dewatering would be temporary, limited to shallow groundwater, and localized in the areas of future developments; therefore, construction dewatering would not result in the depletion of groundwater supplies or contribute to subsidence. Additionally, there is no historical evidence of inelastic land subsidence due to groundwater withdrawal in the ECC Subbasin.<sup>50</sup>

Development under the Project would increase impervious surface in the city, which can reduce groundwater recharge; however, much of the city has poor groundwater recharge potential; therefore, significant impacts to groundwater recharge would not be expected due to increases in impervious surfaces. Implementation of General Plan Policy 10.7.2.(d) would also reduce potential impacts to groundwater recharge from development under the Project, as it requires the City to protect, where possible, groundwater recharge areas, including protection of stream sides from urban encroachment. In addition, the required implementation of LID source control, site design, and stormwater treatment in accordance with Provision C.3 of the Municipal Regional Permit would ensure that developments under the Project that create or replace significant amounts of impervious surface (over 10,000 square feet) would include stormwater control measures that would promote infiltration of stormwater runoff such as permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention areas, bioswales, and planter/tree boxes. Smaller developments that create and/or replace between

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<sup>49</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

<sup>50</sup> Luhdorff & Scalmanini, 2021. East Contra Costa Subbasin Groundwater Sustainability Plan, October.

2,500 and 10,000 square feet of impervious surface would also be required to install site design measures that promote infiltration such as directing runoff into vegetated areas and installing permeable pavements surfaces. Provision C.3 of the Municipal Regional Permit recognizes the need to protect groundwater quality from infiltration of stormwater runoff (which can contain pollutants) and indicates that it may be infeasible to implement infiltration due to conditions such as having seasonal high groundwater within 10 feet of the base of the LID treatment measure, at locations within 100 feet of a groundwater well used for drinking water, or at development sites where pollutant mobilization in the soil or groundwater is a documented concern. Required compliance with NPDES permit requirements including the Construction General Permit and Municipal Regional Permit and implementation of General Plan Policy 10.7.2.(d) as discussed above would ensure that development under the Project would result in less-than-significant impacts related to groundwater quality and recharge, and therefore development under the Project would not conflict with the ECC Subbasin GSP.

#### **d. Cumulative Hydrology and Water Quality Impacts**

The geographic areas of concern for cumulative hydrology and water quality impacts are the creeks/drainages and surface waters in the city and that receive runoff from the city, the storm drain systems in the city, areas of storm flooding hazards in the city, and the ECC Subbasin.

Stormwater discharged from past and existing land uses within the city and its vicinity have contained pollutants that have cumulatively contributed to the impairment of the water quality in the following receiving waters: the Delta Waterways (western portion), which includes the San Joaquin River adjacent to the city; the Delta, which includes New York Slough and Broad Slough adjacent to the city; Sand Creek, and Marsh Creek. Stormwater regulations have become progressively more stringent since the passing of the federal Clean Water Act, and current regulations now require new developments to manage and treat all significant sources of stormwater pollutants. Stormwater runoff from development under the Project would be managed, treated, and monitored in accordance with the Construction General Permit, Municipal Regional Permit, and the City's General Plan policies and Municipal Code. As a result, the Project's contribution to the degradation of the water quality from stormwater runoff would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

Development under the Project and other projects in the city would be required to comply with NPDES permit requirements to protect water quality (e.g., the Construction General Permit and Municipal Regional Permit), and the City's General Plan policies and Municipal Code which also include measures to protect water quality. As a result, construction and operation of developments under the Project and other projects in the city would not create a cumulatively considerable conflict with the water quality objectives of the CV Basin Plan, SF Basin Plan, or Bay-Delta Plan; therefore, the cumulative impact would be less than significant.

Dewatering may be required during construction of developments under the Project and other development projects. In general, most construction period dewatering would typically not involve sufficient dewatering volumes or be at sufficient depths to substantially deplete local groundwater resources. As a result, impacts on groundwater supplies from groundwater dewatering during construction of developments under the Project and other development projects would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

Development under the Project and other development projects would increase impervious surfaces in the city, which can reduce groundwater recharge; however, much of the city has poor groundwater recharge potential; therefore, significant reduction in groundwater recharge would not be expected due to increases in impervious surfaces. Required compliance with Provision C.3 of the Municipal Regional Permit (which would promote infiltration of runoff from new impervious surfaces) and implementation of General Plan Policy 10.7.2.(d) would ensure that impacts related to groundwater recharge from development under the Project and other development projects would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

Development under the Project and other development projects in the city would occur within 100-year Flood Hazard Zones and Regulatory Floodways; however, compliance with the City's Municipal Code and implementation of General Plan policies would ensure that adverse effects related to impeding or redirecting storm flood flows from development under the Project and other development projects would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

Development under the Project and cumulative projects in the city would alter existing drainage patterns (e.g., by creating new impervious surfaces) which could increase stormwater runoff and contribute to exceeding the capacity of storm drain systems which can result in flooding; however, compliance with the Municipal Regional Permit and the City's Municipal Code and implementation of General Plan policies would ensure that impacts related to exceeding the capacity of storm drain systems and contributing to flooding from development under the Project and other city projects would not be cumulatively considerable; therefore, the cumulative impact would be less than significant.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

K. HYDROLOGY AND WATER QUALITY

## L. NOISE

This section assesses the potentially significant impacts to the ambient noise environment that could result from implementation of the Project and its associated development. This section also discusses the basics of environmental acoustics, noise regulations by various agencies, and the existing noise environment in the city of Antioch.

### 1. Setting

The following section provides background information on noise and vibration and summarizes the existing noise environment.

#### a. General Information on Noise

Noise is defined as unwanted sound that annoys or disturbs people and can have an adverse psychological or physiological effect on human health. Sound is measured in units of decibels (dB) on a logarithmic scale. Decibels describe the purely physical intensity of sound based on changes in air pressure but cannot accurately describe sound as perceived by the human ear, which is only capable of hearing sound within a limited frequency range. To better characterize noise levels perceived by a human ear, a decibel scale called A-weighting (dBA) is typically used. On this scale, the low and high frequencies are given less weight than the middle frequencies. Decibels and other acoustical terms are defined in Table IV.L-1. Typical A-weighted noise levels at specific distances are shown for different noise sources in Table IV.L-2.

In an unconfined space, such as outdoors, noise attenuates with distance. Noise levels at a known distance from point sources are reduced by 6 dBA for every doubling of that distance for hard surfaces (e.g., cement or asphalt) and by 7.5 dBA for every doubling of distance for soft surfaces (e.g., undeveloped or vegetative). Noise levels at a known distance from line sources (e.g., roads, highways, and railroads) are reduced by 3 dBA for every doubling of the distance for hard surfaces and 4.5 dBA for every doubling of distance for soft surfaces. Greater decreases in noise levels can result from the presence of intervening structures or buffers.

A typical method for determining a person's subjective reaction to a new noise is by comparing it to existing conditions. The following describes the general effects of noise on people:<sup>1</sup>

- A change of 1 dBA cannot typically be perceived except in carefully controlled laboratory experiments.

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<sup>1</sup> Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.

**TABLE IV.L-1 DEFINITION OF ACOUSTICAL TERMS**

<b>Term</b>	<b>Definition</b>
Decibel (dB)	A unit describing the amplitude of sound on a logarithmic scale. Sound described in decibels is usually referred to as sound or noise "level." This unit is not used in this analysis because it includes frequencies that the human ear cannot detect.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
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. All sound levels in this report are A-weighted.
Equivalent Noise Level ( $L_{eq}$ )	The average A-weighted noise level during the measurement period. For this CEQA evaluation, $L_{eq}$ refers to a 1-hour period unless otherwise stated.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to sound levels during the evening from 7:00 to 10:00 p.m. and after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level ( $L_{dn}$ )	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The existing level of environmental noise at a given location from all sources near and far.
Vibration Decibel (VdB)	A unit describing the amplitude of vibration on a logarithmic scale.
Peak Particle Velocity (PPV)	The maximum instantaneous peak of a vibration signal.
Root Mean Square (RMS) Velocity	The average of the squared amplitude of a vibration signal.

Source: Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers. Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

**TABLE IV.L-2 TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY**

<b>Noise Source (Distance in Feet)</b>	<b>A-Weighted Sound Level in Decibels (dBA)</b>
Jet Aircraft (200)	112
Subway Train (30)	100
Truck/Bus (50)	85
Vacuum Cleaner (10)	70
Automobile (50)	65
Normal Conversation (3)	65
Whisper (3)	42

Source: Charles M. Salter Associates Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.

- A 3-dBA change is considered a just-perceivable difference.
- A minimum of 5-dBA change is required before any noticeable change in community response is expected.
- A 10-dBA change is subjectively perceived as approximately a doubling or halving in loudness.

Because sound pressure levels are based on a logarithmic scale, they cannot be added or subtracted using linear methods. For instance, if one noise source emits a sound level of 90 dBA, and a second source is placed beside the first and also emits a sound level of 90 dBA, the combined sound level is 93 dBA, not 180 dBA. In other words, a doubling of sound source is equivalent to an increase of 3 dBA. When the second noise source is lower than the first noise source by at least 10 dBA, the contribution from the second noise source to the overall sound level is negligible (i.e., close to zero). In such cases, no adjustment factor is needed because the contribution from the lower noise source makes no perceptible difference in what people can hear or measure. For example, if one noise source generates a noise level of 95 dBA and another noise source is added that generates a noise level of 80 dBA, the higher noise source dominates, and the combined noise level will be 95 dBA.

Traffic noise levels are often expressed in terms of the hourly dBA. The noise levels generated by vehicular sources mainly depend on traffic volume, the speed, and the percent of trucks within the fleet. Increases in these three factors will lead to higher noise levels. As mentioned above, doubling the number of sources, such as traffic volume, increases the noise level by approximately 3 dBA<sup>2</sup> due to the logarithmic nature of noise levels.

#### **b. General Information on Vibration**

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment. Vibration amplitudes are usually expressed as either Peak Particle Velocity (PPV) or as Root Mean Square (RMS) velocity. PPV is appropriate for evaluating potential damage to buildings, but it is not suitable for evaluating human response to vibration because it takes the human body time to respond to vibration signals. The response of the human body to vibration is dependent on the average amplitude of a vibration event. Thus,

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<sup>2</sup> Federal Highway Administration (FHWA), 2018. Techniques for Reviewing Noise Analyses and Associated Noise Reports.

RMS is more appropriate for evaluating human response to vibration. PPV and RMS are described in units of inches per second (in/sec), and RMS is also often described in vibration decibel (VdB).

### **c. General Information on Groundborne Noise**

Groundborne vibration can transmit energy into buildings and structures. This vibration can cause a rumbling sound and audible noise within the buildings, which is referred to as groundborne noise. Like noise that travels through the air, groundborne noise is usually measured in decibels (dB or dBA). Groundborne noise is typically dominated by low-frequency components, and the non-linearity of human hearing causes sounds dominated by low-frequency components to seem louder than higher-frequency sounds with the same sound level. As a result, groundborne noise has the potential to disturb people at lower sound levels than broadband noise.

The relationship between groundborne vibration and groundborne noise depends on the frequency content of the vibration. For example, the groundborne noise measured in dBA will be approximately 40 dBA less than the groundborne vibration measured in VdB if the spectrum peak is around 30 Hz, and 25 dBA lower if the spectrum peak is around 60 Hz. Environmental vibration is rarely of sufficient magnitude to be perceptible or cause audible groundborne noise unless there is a specific vibration source close by, such as a railroad line.

### **d. Noise-sensitive receptors**

Noise-sensitive receptors are defined as land uses where noise-sensitive people may be present or where noise-sensitive activities may occur. Noise-sensitive receptors include residences, schools, churches, hospitals, elderly-care facilities, hotels, libraries, auditoriums, parks, and outdoor recreation areas are generally more sensitive to noise than are commercial and industrial land uses.

### **e. Existing Noise Sources and Levels**

According to the City of Antioch General Plan,<sup>3</sup> the primary source of noise within the city are transportation noise sources including State Route (SR-) 4 and SR-160 freeways, major arterial roadways, and Union Pacific and BNSF rail lines. Other significant stationary sources of noise include heavier industrial development in the northern portion of the city, commercial development adjacent to residential neighborhoods, and construction activities.

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<sup>3</sup> LSA, 2003. City of Antioch General Plan, November 24.



The 2003 General Plan EIR<sup>4</sup> estimated existing traffic noise levels in the city associated with transportation noise sources using the FHWA Highway Traffic Noise Prediction Model. Traffic noise levels mainly depend on the traffic volume, average traffic speed, and percentage of truck traffic on roadways. It was found that most land uses at 50 feet from the studied roadway segments were exposed to traffic noise exceeding 60 dBA CNEL. In addition, land uses along portions of Hillcrest Avenue, Somersville Road between Delta Fair and SR-4, and Long Tree Way south of Putnam Street generate noise levels exceeding 70 dBA CNEL.

## **2. Regulatory Setting**

This section describes the existing State and local regulatory frameworks related to noise. In California, noise is primarily regulated at the local level, through the implementation of General Plan policies and local noise ordinances.

### **a. State Regulations**

The California Noise Control Act and the applicable sections of the California Building Code are summarized below.

#### **(1) California Noise Control Act**

Sections 46000 to 46080 of the California Health and Safety Code codify the California Noise Control Act of 1973. The Act established the Office of Noise Control under the California Department of Health Services. It requires that the Office of Noise Control adopt, in coordination with the Office of Planning and Research, guidelines for the preparation and content of noise elements for general plans. The most recent guidelines are contained in the California Office of Planning and Research's General Plan Guidelines.<sup>5</sup> The document provides land use compatibility guidelines for cities and counties to use in general plans to reduce conflicts between land use and noise. The City has adopted a modified version of the State's land use compatibility guidelines, as discussed below.

#### **(2) California Building Standards Code**

The 2019 California Building Standards Code specifies interior noise levels attributable to exterior noise sources for both residential and nonresidential uses during operation. Specifically, it specifies that interior noise levels attributable to exterior sources shall not exceed 45 dBA in any

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<sup>4</sup> LSA, 2003. City of Antioch General Plan Update Environmental Impact Report, July.

<sup>5</sup> California Office of Planning and Research (OPR), 2017. State of California General Plan Guidelines.

habitable room (e.g., residential homes for living, sleeping, eating, or cooking).<sup>6</sup> The noise metric used (either  $L_{dn}$  or CNEL) shall be consistent with the noise element of the local general plan.<sup>7</sup> The 2019 California Building Standards Code also specifies that buildings containing non-residential uses (e.g., retail spaces and offices) that are exposed to exterior noise levels at or above 65 dBA  $L_{eq}$  or CNEL shall maintain interior noise levels below 50 dBA  $L_{eq}$  in occupied areas during any hour of operation.<sup>8</sup> The buildings are required to comply with this interior sound level by either a prescriptive or performance method. A prescriptive method requires the use of building assemblies and components with appropriate Sound Transmission Class (STC) values and Outdoor-Indoor Sound Transmissions Class (OITC) values. A performance method requires an acoustical analysis documenting compliance with this interior sound level, to be prepared by personnel approved by the architect or engineer of record before the building is built.

## **b. Local Regulations**

The following section describes the existing local regulatory environment related to noise and vibration.

### **(1) Antioch General Plan**

The following policies and actions from the City's existing General Plan<sup>9</sup> are related to noise and are applicable to the Project.

*Policy 11.6.1: Noise Objective*

Achieve and maintain exterior noise levels appropriate to planned land uses throughout Antioch, as described below.

- Residential
  - Single Family: 60 dBA CNEL within rear yards
  - Multi-Family: 60 dBA CNEL within interior open space
- Schools
  - Classrooms: 65 dBA CNEL
  - Play and sports areas: 70 dBA CNEL
- Hospitals, Libraries: 60 dBA CNEL
- Commercial/Industrial: 70 dBA CNEL at the front setback.

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<sup>6</sup> Habitable space is a space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.

<sup>7</sup> California Code of Regulations (CCR), Title 24, Part 2, Vol. 1, Section 1206.4.

<sup>8</sup> California Code of Regulations (CCR), Title 24, Part 11, Section 5.507.

<sup>9</sup> LSA, 2003. City of Antioch General Plan, November 24.

*Policy 11.6.2: Noise Policies**Noise Compatible Land Use and Circulation Patterns*

- a. Implementation of the noise objective contained in Section 11.6.1 and the policies contained in Section 11.6.2 of the Environmental Hazards Element shall be based on noise data contained in Section 4.9 of the General Plan EIR, unless a noise analysis conducted pursuant to the City's development and environmental review process provides more up-to-date and accurate noise projections, as determined by the City.
- b. Maintain a pattern of land uses that separates noise-sensitive land uses from major noise sources to the extent possible, and guide noise-tolerant land uses into the noisier portions of the Planning Area.
- c. Minimize motor vehicle noise in residential areas through proper route location and sensitive roadway design.
  - Provide planned industrial areas with truck access routes separated from residential areas to the maximum feasible extent.
  - Where needed, provide traffic calming devices to slow traffic speed within residential neighborhoods.

*Noise Analysis and Mitigation*

- d. Where new development (including construction and improvement of roadways) is proposed in areas exceeding the noise levels identified in the General Plan Noise Objective, or where the development of proposed uses could result in a significant increase in noise, require a detailed noise attenuation study to be prepared by a qualified acoustical engineer to determine appropriate mitigation and ways to incorporate such mitigation into project design and implementation.
- e. When new development incorporating a potentially significant noise generator is proposed, require noise analyses to be prepared by a qualified acoustical engineer. Require the implementation of appropriate noise mitigation when the proposed project will cause new exceedances of General Plan noise objectives, or an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development.
- f. In reviewing noise impacts, utilize site design and architectural design features to the extent feasible to mitigate impacts on residential neighborhoods and other uses that are sensitive to noise. In addition to sound barriers, design techniques to mitigate noise impacts may include, but are not limited to:
  - Increased building setbacks to increase the distance between the noise source and sensitive receptor.
  - Orient buildings which are compatible with higher noise levels adjacent to noise generators or in clusters to shield more noise sensitive areas and uses.
  - Orient delivery, loading docks, and outdoor work areas away from noise-sensitive uses.
  - Place noise tolerant use, such as parking areas, and noise tolerant structures, such as garages, between the noise source and sensitive receptor.
  - Cluster office, commercial, or multifamily residential structures to reduce noise levels within interior open space areas.
  - Provide double glazed and double paned windows on the side of the structure facing a major noise source, and place entries away from the noise source to the extent possible.
- g. Where feasible, require the use of noise barriers (walls, berms, or a combination thereof) to reduce significant noise impacts.
  - Noise barriers must have sufficient mass to reduce noise transmission and high enough to shield the receptor from the noise source.
  - To be effective, the barrier needs to be constructed without cracks or openings.
  - The barrier must interrupt the line of sight between the noise source and noise receptor.
  - The effects of noise "flanking" the noise barrier should be minimized by bending the end of the barrier back from the noise source.
  - Require appropriate landscaping treatment to be provided in conjunction with noise barriers to mitigate their potential aesthetic impacts.

- h. Continue enforcement of California Noise Insulation Standards (Title 25, Section 1092, California Administrative Code).

*Temporary Construction*

- i. Ensure that construction activities are regulated as to hours of operation in order to avoid or mitigate noise impacts on adjacent noise-sensitive land uses.
- j. Require proposed development adjacent to occupied noise sensitive land uses to implement a construction-related noise mitigation plan. This plan would depict the location of construction equipment storage and maintenance areas, and document methods to be employed to minimize noise impacts on adjacent noise sensitive land uses.
- k. Require that all construction equipment utilize noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- m. Prior to the issuance of any grading plans, the City shall condition approval of subdivisions and non-residential development adjacent to any developed/occupied noise-sensitive land uses by requiring applicants to submit a construction-related noise mitigation plan to the City for review and approval. The plan should depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project through the use of such methods as:
- The construction contractor shall use temporary noise-attenuation fences, where feasible, to reduce construction noise impacts on adjacent noise sensitive land uses.
  - During all project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
  - The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.
  - The construction contractor shall limit all construction-related activities that would result in high noise levels to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. No construction shall be allowed on Sundays and public holidays.
- n. The construction-related noise mitigation plan required shall also specify that haul truck deliveries be subject to the same hours specified for construction equipment. Additionally, the plan shall denote any construction traffic haul routes where heavy trucks would exceed 100 daily trips (counting those both to and from the construction site). To the extent feasible, the plan shall denote haul routes that do not pass sensitive land uses or residential dwellings. Lastly, the construction-related noise mitigation plan shall incorporate any other restrictions imposed by the City.

## (2) City of Antioch Code of Ordinance

The following standards from the City of Antioch Code of Ordinance are related to noise and are applicable to the Project.

*Chapter 17: Disturbing the Peace*

*5-17.04 Heavy Construction Equipment Noise*

- (A) For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

**Heavy Construction Equipment.** Equipment used in grading and earth moving, including diesel engine equipped machines used for that purpose, except pickup trucks of one ton or less.

**Operate.** Includes the starting, warming-up, and idling of heavy construction equipment engines or motors

- (B) It shall be unlawful for any person to operate heavy construction equipment during the hours specified below:
- 1) On weekdays prior to 7:00 a.m. and after 6:00 p.m.
  - 2) On weekdays within 300 feet of occupied dwelling space, prior to 8:00 a.m. and after 5:00 p.m.
  - 3) On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwelling.

*5-17.05: Construction Activity Noise*

- (A) As used in this section, "construction activity" means the process or manner of constructing, building, refurbishing, remodeling or demolishing a structure, delivering supplies thereto and includes, but is not limited to, hammering, sawing, drilling, and other construction activities when the noise or sound there from can be heard beyond the perimeter of the parcel where such work is being performed. The term "construction activity" also includes the testing of any audible device such as a burglar or fire alarm or loudspeaker. "Construction activity" does not include floor covering installation or painting when done with non-powered equipment.
- (B) It shall be unlawful for any person to be involved in construction activity during the hours specified below:
- 1) On weekdays prior to 7:00 a.m. and after 6:00 p.m.
  - 2) On weekdays within 300 feet of occupied dwellings, prior to 8:00 a.m. and after 5:00 p.m.
  - 3) On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwellings.
- (C) In addition to the penalties provided by this code, authorized employees may issue "Stop Work Orders" when a violation of this section or Section 5-17.04 has occurred. If such a Stop Work Order is issued, it shall not be released until the holder of the building permit provides assurance that future violations will not occur.

### **3. Impacts and Mitigation Measures**

This section analyzes environmental impacts related to noise and vibration that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project.

Please note that this analysis relies on several existing and "as proposed" General Plan policies to ensure impacts are reduced to the greatest extent feasible. As a part of the Project, individual elements of the existing General Plan are being updated or added. In a corresponding effort, many of their associated objectives and policies are also being modified and added. As such, many of the objective and policy numbers have changed when compared to the existing General Plan. Where applicable, both the existing and proposed objective/policy numbers are given at first reference. After first reference, any referenced General Plan objective/policy number is provided as proposed.

#### **a. Significance Criteria**

In accordance with Appendix G of the CEQA Guidelines, implementation of the Project would result in a significant impact related to noise and vibration if it would result in the following:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Generation of excessive groundborne vibration or groundborne noise levels.
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 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.

#### **b. Analysis Approach**

The following sections provide an evaluation and analysis of the potential impacts of the Project for each of the criteria of significance listed above and potential cumulative impacts. There are no new or existing policies related to noise in the Housing Element or EJ Element components of the Project. There are existing noise policies in the updated Environmental Hazards Element of the Project that would reduce potential noise impacts related to future development under the Project; however, there are no new noise policies proposed. There are no new or existing policies related to vibration in the Housing Element, Environmental Hazards Element, or EJ Element components of the Project; however, the updated Environmental Hazards Element includes a new vibration policy that would reduce potential vibration impacts related to future development under the Project, as described in the sections below. Therefore, no noise or vibration related impacts from updating the Housing Element, Environmental Hazards Element, and EJ Element would occur.

Individual housing developments proposed under the Project would result in a potentially significant impact if they cause a new exceedance of the General Plan noise objectives, or an audible (3.0 dBA) increase in noise in areas where the General Plan noise objectives are already exceeded as the result of existing development, as discussed previously in *Section IV.L.2.b.1, Antioch General Plan*.

The City of Antioch has not adopted criteria for construction groundborne vibration impacts. In this EIR, the Federal Transit Administration (FTA)'s vibration impact criteria are used to evaluate potential vibration impacts associated with the implementation of the Project. Table IV.L-3 and Table IV.L-4 summarize the vibration criteria established by the FTA to prevent disturbances to building occupants and to prevent damage to structures, respectively. Vibration impacts from future residential developments under the Project would be considered potentially significant if they would exceed the FTA's recommended vibration thresholds to prevent disturbance of building occupants or damage to buildings.

**TABLE IV.L-3 VIBRATION CRITERIA TO PREVENT DISTURBANCE – RMS (VDB)**

Land Use Category	Frequent Events <sup>a</sup>	Occasional Events <sup>b</sup>	Infrequent Events <sup>c</sup>
Buildings where vibration would interfere with interior operations	65	65	65
Residences and buildings where people normally sleep	72	75	80
Institutional land uses with primarily daytime use	75	78	83

<sup>a</sup> More than 70 vibration events of the same kind per day or vibration generated by a long freight train.

<sup>b</sup> Between 30 and 70 vibration events of the same kind per day.

<sup>c</sup> Fewer than 30 vibration events of the same kind per day.

Source: Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

**TABLE IV.L-4 VIBRATION CRITERIA TO PREVENT DAMAGE TO STRUCTURES – PPV (IN/SEC)**

Building Category	Peak Particle Velocity
Reinforced-concrete, steel or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Non-engineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12

Source: Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

**c. Findings**

**(1) Substantial Temporary or Permanent Increase in Ambient Noise Levels (Criterion 1)**

**Construction Phase (Temporary)**

The primary noise impacts from construction of future residential developments under the Project would be related to the noise generated by the operation of heavy construction equipment. Secondary sources of noise during construction include increased traffic flow from the transport of workers, equipment, and materials to the construction site.

Construction noise levels would vary from day to day depending on the quantity, type, and condition of the equipment being used; the types and duration of activity being performed; the distance between the noise source and the receptor; and the presence or absence of barriers, if any, between the noise source and receptor. Demolition, excavation/grading, and foundation work are typically the noisiest phases of construction and would occur during the initial construction phases. The later phases of construction include activities that are typically quieter

and that occur within the buildings under construction, thereby providing a barrier for noise between the construction activity and any nearby receptors. Pile driving may also be required for some projects, which can generate extreme levels of noise. Typical noise levels at 50 feet from construction equipment are shown in Table IV.L-5. As indicated in Table IV.L-5, construction activities could generate exterior noise levels that exceed the City’s noise objectives established under proposed General Plan Policy 11.8.2 (previously General Plan Policy 11.6.1).

**TABLE IV.L-5 TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT**

<b>Type of Equipment</b>	<b>Maximum Sound Levels (dBA at 50 feet)</b>
Pile Drivers (Impact)	101
Pile Drive (Sonic)	95
Rock Drill	95
Crane	88
Grader	85
Jackhammer	88
Paver	85
Dozer	85
Backhoe	80

Source: Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual. FTA Report No. 0123. September.

As discussed above in *Section IV.L.2.b.2, City of Antioch Code of Ordinance*, the City of Antioch’s Code of Ordinance limits the days and hours of construction equipment operation to avoid generating noise when it would be most objectionable to neighboring receptors. This requirement would prevent the disturbance of nighttime sleep for nearby residences. As discussed above in *Section IV.L.2.b.1, Antioch General Plan*, General Plan Policy 11.8.2 requires development adjacent to occupied noise sensitive land uses to implement a construction-related noise mitigation plan and requires that all construction equipment utilize noise reduction features. The construction-related noise mitigation plan should depict the location of construction equipment and how the noise from this equipment will be mitigated during construction through the use of noise reduction methods listed in General Plan Policy 11.8.2 (o).

During construction of future developments under the Project, the increased traffic volume from the transport of workers, equipment, and materials to and from the construction site can incrementally increase noise levels on local roads. General Plan Policy 11.8.2 (p) requires the construction-related noise mitigation plan to limit haul truck deliveries to the same hours specified for construction equipment, devote haul routes that do not pass sensitive land uses or



residential dwellings to the extent possible, and incorporate any other restrictions imposed by the City.

Implementation of the City of Antioch Code of Ordinance and General Plan policies discussed above would ensure that the construction of individual residential developments under the Project would not result in a substantial temporary or permanent increase in ambient noise levels, and this impact would be less than significant.

### **Operational Phase (Long-Term)**

The primary operation period noise generation sources from future housing developments under the Project would include the introduction of new stationary sources such as heating, ventilation, and air conditioning (HVAC) systems and emergency backup generators and increased vehicular traffic on roadways.

Noise generated from stationary sources would be subject to the City of Antioch Code of Ordinance 9-5.1901 (A), which requires uses adjacent to outdoor living areas (e.g., backyards for single-family homes and patios for multi-family units) and parks to not cause an increase in background ambient noise which will exceed 60 CNEL. For developments in areas exceeding the noise levels identified in the General Plan noise objectives, or where the development of proposed uses could result in a significant increase in noise, General Plan Policy 11.8.2 (f) requires a detailed noise attenuation study to be prepared by a qualified acoustical engineer to determine appropriate mitigation and ways to incorporate such mitigation into project design and implementation. Therefore, compliance with Code of Ordinance 9-5.1901 (A) and General Plan Policy 11.8.2 (f) would ensure that future development under the Project would not result in a substantial temporary or permanent increase in ambient noise levels from stationary sources, and this impact would be less than significant.

With regards to increased vehicular traffic on roads, General Plan Policy 11.8.2 (i) requires the implementation of appropriate noise mitigation for new development that cause a new exceedance of the General Plan noise objectives, or an audible (3.0 dBA) increase in noise in areas where the General Plan noise objectives are already exceeded as the result of existing development. As discussed under *Section IV.L.1.a, General Information on Noise*, a project would need to double the existing traffic volume on a roadway to increase the ambient noise level by approximately 3 dBA. According to the City's existing estimates of ambient noise levels from traffic,<sup>10</sup> an average daily traffic volume of about 3,000 vehicles generates 60 CNEL at 50 feet; therefore, a doubling the traffic volume to about 6,000 vehicles per day would results in a 3 dBA increase in the ambient noise above the General Plan noise objectives. The maximum daily

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<sup>10</sup> LSA, 2003. City of Antioch General Plan Update Environmental Impact Report, July.

vehicle trips that would be generated by a proposed residential development under the Project is about 2,467; therefore, future developments are not expected to generate traffic that would an audible (3.0 dBA) increase in noise in areas exposed to traffic noise exceeding 60 dBA CNEL. In addition, General Plan Policy 11.8.2 (i) requires the use of noise barriers to reduce significant noise impacts where feasible. Therefore, compliance with General Plan Policies 11.8.2 (f) and 11.6.2 (i) would ensure that future development under the Project would not result in a substantial temporary or permanent increase in ambient noise levels from traffic, and this impact would be less than significant.

## (2) Groundborne Vibration (Criterion 2)

### Construction Phase

Construction activities can result in varying degrees of ground vibration, depending on the equipment, activity, and relative proximity to sensitive receptors. Typical vibration levels for construction equipment at a distance of 25 feet are shown in Table IV.L-6 below.

**TABLE IV.L-6 VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT**

Equipment	PPV at 25 Feet (in/sec)	RMS at 25 Feet (VdB)
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.17	93
Vibratory Roller	0.21	94
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: Federal Transit Authority (FTA), 2018.

As indicated in Table IV.L-6, construction activities could generate groundborne vibration that exceeds the criteria established by the FTA (see Table IV.L-4 and Table IV.L-5 above) at vibration-sensitive receptors. The updated Environmental Hazards Element includes the following policy to address vibration impacts from future housing developments:

Policy 11.8.2 (k) (previously would have been in General Plan Chapter 11.6.2): Damage Due to Construction Vibration. Where new development is proposed in areas adjacent to any vibration-sensitive land uses or adjacent to vibration-sensitive activities, require a screening level vibration analysis. If a screening level analysis shows that the project has the potential to result in damage to structures or where vibration could substantially interfere with

normal operations, require a detailed vibration impact assessment prepared by a structural engineer or other appropriate professional to determine appropriate design means and methods of construction to avoid the potential damage, if feasible.

According to Table IV.L-6, a typical impact pile driver would generate the highest levels of vibration. Under a worst-case scenario for typical conditions, an impact pile driver would require a buffer distance of about 500 feet<sup>11</sup> to prevent interference of vibration-sensitive activities (below the 65 VdB criterion in Table IV.L-3) and a buffer distance of about 115 feet<sup>12</sup> to protect vibration-sensitive structures (below the 0.12 in/sec criterion in Table IV.L-4). Therefore, if sensitive receptors are located within these buffer distances, future developments under the Project should prepare a screening level vibration analysis for City review in accordance with General Plan Policy 11.8.2 (k). If the screening level analysis shows that construction has the potential to result in damage to structures or substantially interfere with normal operations, a detailed vibration impact assessment must be prepared by a structural engineer or other appropriate professional to determine appropriate design means and methods of construction to avoid the potential damage, if feasible.

Implementation of the updated Environmental Hazards Element Policy 11.8.2 (k) would ensure that construction of future residential developments under the Project would not generate excessive groundborne vibration or groundborne noise levels, and this impact would be less than significant.

## Operation Phase

Future development under the Project will be residential. This land use does not involve equipment or activities that generate excessive groundborne vibration or groundborne noise levels. Therefore, operation of future developments under the Project would not generate excessive groundborne vibration or groundborne noise levels, and this impact would be less than significant.

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<sup>11</sup> The buffer distance was calculated based on the following equation:

$$RMS_2 = RMS_1 - 30 \log_{10} (D_2/D_1)$$

Where:

RMS<sub>1</sub> is the reference vibration level at a specified distance, and RMS<sub>2</sub> is the calculated vibration level.

D<sub>1</sub> is the reference distance (in this case 25 feet), and D<sub>2</sub> is the distance from the equipment to the receiver.

<sup>12</sup> The buffer distance was calculated based on the following equation:

$$PPV_2 = PPV_1 \times (D_1/D_2)^{1.1}$$

Where:

PPV<sub>1</sub> is the reference vibration level at a specified distance, and PPV<sub>2</sub> is the calculated vibration level.

D<sub>1</sub> is the reference distance (in this case 25 feet), and D<sub>2</sub> is the distance from the equipment to the receiver.

### **(3) Aircraft Noise (Criterion 3)**

Buchanan Field Airport (11 miles southwest) and Byron Municipal Airport (11 miles southeast) are the two closest airports to the parcels identified in the Housing Inventory Sites (Sites Inventory). Because the Project is not located within a public airport land use plan or within 2 miles of any other public use airport, the Project would have no impact related to the exposure of people to excess noise levels from public use airports.

The parcels identified in the Sites Inventory are not located within the vicinity of a private airstrip. Therefore, the Project would have no impact related to the exposure of people to excess noise levels from private airstrips.

#### **d. Cumulative Noise Impacts**

Noise and vibration dissipate with increased distance from the source and therefore cumulative noise and vibration impacts would not be expected unless new sources of noise are located in close proximity to each other. The impacts from construction noise and vibration for development under the Project would be reduced to less-than-significant levels with implementation of the General Plan policies for construction noise and vibration, as discussed above. If multiple construction projects occur in proximity to each other, all projects would be subject to the same construction noise and vibration policies, thereby reducing potential cumulative construction noise and vibration impacts to a less-than-significant level.

The noise impacts from operation of the developments under the Project would be reduced to a less-than-significant level with the implementation of the City's existing and updated Environmental Hazards Element policies and the City's Code of Ordinance related to noise. Therefore, the Project's contribution to potential significant cumulative noise increases from traffic and stationary sources is less than cumulatively considerable.

## M. POPULATION AND HOUSING

This section describes the current population, housing, and employment characteristics in the city of Antioch and analyzes how implementation of the Project may affect these conditions. Because the Association of Bay Area Governments (ABAG) no longer develops growth projections for population, housing, and employment at the local level, their sub-regional forecasts projections are used in conjunction with California Department of Finance (DOF) data in order to provide future estimates for the city of Antioch.

### 1. Setting

The planning area for the Housing Element encompasses the entirety of the planning area for the city of Antioch, which includes the unincorporated Ginocchio Focus Area at the city’s southern border as well as the rest of the incorporated city. The city has a land area of approximately 30 square miles, the majority of which is developed with urban uses, including residential, commercial, office, and industrial uses.

#### a. Population

The DOF estimates that the city of Antioch had a population of 115,327 persons as of April 1, 2020, making it the third largest of the 19 incorporated cities in Contra Costa County.<sup>1</sup> Based on 2020 U.S. Census data, Antioch’s population breaks down as follows:<sup>2</sup>

Hispanic	34.5%
White	27.1%
Black/African American	20.2%
Asian	11.3%
Two of More Races	6.0%
Native Hawaiian or Pacific Islander	0.4%
Other	0.3%
American Indian or Alaska Native	0.2%
<b>Total</b>	<b>100%</b>

<sup>1</sup> California Department of Finance (DOF), 2021. E-5 City/County Population and Housing Estimates, April 1.

<sup>2</sup> U.S. Census Bureau, American Community Survey, [undated]. DP05: ACS Demographic and Housing Estimates, 2020 5-Year Estimates Data Profiles, Antioch City, California.

According to U.S. Census data (as compiled by the DOF), Antioch’s population grew from 102,372 people in 2010 to 115,327 people in 2020, an increase of approximately 12.6 percent.<sup>3,4</sup> This continues a 21<sup>st</sup>-century trend of slowing growth in the city. Following the city’s incorporation in 1872, its population did not begin expanding significantly until the 20<sup>th</sup> century, when growth each decade was close to or over 50 percent, peaking at a 116-percent increase between 1940 and 1950, as shown in Table IV.M-1. Growth slowed to about 13 percent from 2000 to 2010 and was just slightly lower in the next decade. Despite the reduced growth since 2000, the city’s share of Contra Costa County’s population in incorporated cities and towns has increased. While it ranged from about 3.55 percent to 7.74 percent of the total throughout the 20<sup>th</sup> century, the city’s portion of the County total has ranged from about 9.54 percent to 9.89 percent since 2000.<sup>5</sup>

**TABLE IV.M-1 CITY OF ANTIOCH HISTORICAL POPULATION, 1880-2020**

Year	Population	Percent Increase from Previous Decade	County Population	Share of County Population
1880	626	---	12,525	5.0%
1890	635	1.4%	13,515	4.7%
1900	674	6.1%	18,046	3.7%
1910	1,124	66.8%	31,674	3.6%
1920	1,936	72.2%	53,889	3.6%
1930	3,563	84.0%	78,608	4.5%
1940	5,106	43.3%	100,450	5.1%
1950	11,051	116.4%	298,894	3.7%
1960	17,305	56.6%	409,030	4.2%
1970	28,060	62.2%	556,116	5.1%
1980	42,683	52.1%	656,331	5.0%
1990	62,195	45.7%	803,732	7.7%
2000	90,532	45.6%	948,816	9.5%
2010	102,372	13.1%	1,049,025	9.8%
2020	115,327	12.6%	1,165,927	9.9%

Source: California Department of Finance, 2020 and 2021.

<sup>3</sup> California Department of Finance (DOF), 2021. E-5 City/County Population and Housing Estimates, April 1.

<sup>4</sup> California Department of Finance (DOF), 2021. 1850-2020 Historical US Census Populations of Counties and Incorporated Cities/Towns in California, (compiled from U.S. Census data and other sources), August 13.

<sup>5</sup> California Department of Finance (DOF), 2021. 1850-2020 Historical US Census Populations of Counties and Incorporated Cities/Towns in California, (compiled from U.S. Census data and other sources), August 13.

**b. Housing**

The DOF estimates that in 2020, the city had 36,749 housing units, with an average household size of 3.22 persons.<sup>6</sup> The housing stock included about 77.8 percent (28,583) single-family homes, 4.7 percent (1,732) townhomes, 16.4 percent (6,026) multi-family apartment units, and 1.1 percent (408) mobile homes. The 2020 vacancy rate in the city was approximately 3.3 percent, which is comparable to most of the other cities in Contra Costa County.<sup>7</sup> The city's housing stock has grown by just 5.3 percent (1,900 units) since 2010 but has grown by close to 22 percent (6,633 units) since 2000.<sup>8</sup> Household size has increased slightly since 2000, when it was 3.072 persons per household (or an increase in 0.148 persons).

According to the American Community Survey (ACS), Antioch had 34,996 housing units in 2020.<sup>9</sup> This included 78.8 percent (29,961) single-family homes, 4.4 percent (1,655) townhomes, 15.7 percent (5,660) multi-family apartment units, and 1.1 percent (400) mobile homes.<sup>10,11</sup> The proportion of the city's housing stock as detached single-family homes—78.8 percent—is higher than it is in the majority of Bay Area cities. The rate of home ownership in Antioch is relatively high, with 60.3 percent of residents owning their homes, while 39.7 percent of residents are renters.

An estimated 1,193 housing units were vacant in 2020, representing a 3.4-percent vacancy rate. U.S. Census estimates indicate that the city's housing stock has decreased since 2015, when there were an estimated 36,009 total housing units; at that time there was a 6.4-percent vacancy rate.<sup>12</sup> The average household size in Antioch has remained stable in the last few decades, increasing just slightly. It was 3.07 persons per household in 2000, 3.15 persons per household in 2010, and 3.22 persons per household in 2020.<sup>13,14,15</sup>

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<sup>6</sup> California Department of Finance (DOF), 2020. E-5 City/County Population and Housing Estimates, April 1.

<sup>7</sup> California Department of Finance (DOF), 2020. E-5 City/County Population and Housing Estimates, April 1.

<sup>8</sup> California Department of Finance (DOF), 2012. E-8 City/County Population and Housing Estimates, 4/1/2000 to 4/1/2010, November.

<sup>12</sup> U.S. Census Bureau, American Community Survey, [undated]. Table CP04: ACS 5-Year Estimates Comparison Profiles, Comparative Housing Characteristics.

<sup>13</sup> California Department of Finance (DOF), Demographic Research Unit, 2020. Report E-8: Historical Population and Housing Estimates for Cities, Counties, and the State 2000 to 2010, November 2012; and Table E-5: City/County Population and Housing Estimates, January 1.

<sup>14</sup> U.S. Census Bureau, American Community Survey, [undated]. DP02: Selected Social Characteristics in the United States, 2020 5-Year Estimates Data Profiles, Antioch City, California.

<sup>15</sup> California Department of Finance (DOF), 2020. E-5 City/County Population and Housing Estimates, April 1.

Housing growth in Antioch has slowed in recent decades. Since 2000, just 3 percent of the residential units comprising the city's existing housing stock has been constructed. The rate of growth has also been slowed, with the number of new homes growing just 3.7 percent from 2010 to 2020, which is below the growth rate for both Contra Costa County and the Bay Area during this time period.<sup>16</sup>

Of the six core Bay Area counties, Contra Costa County has the lowest relative home value, as measured by the ACS.<sup>17</sup> The relative housing price influences overall population growth because higher relative prices will tend to make the area less attractive to new workers. Nonetheless, the cost of Antioch housing has increased significantly in recent years, with the median price of a single-family home increasing from \$419,700 in 2017 to \$455,100 in 2019, and to \$524,890 in 2020.<sup>18</sup> This compares to a 2020 median home value in Contra Costa County of \$772,410 and to a region-wide value of \$1,077,230. During the decade from 2010 to 2020, home prices in Antioch increased by 122.4 percent.

Apartment rental costs also climbed significantly, increasing by 50.8 percent from 2009 to 2019. The average apartment rent in 2019 was \$1,610.<sup>19</sup> In Antioch, 20.3 percent of households spend 30 to 50 percent of their income on housing, while another 20.8 percent of households spend more than 50 percent. The U.S. Department of Housing and Urban Development (HUD) considers housing to be affordable for a household if the household spends less than 30 percent of its income on housing costs. A household is considered "cost-burdened" if it spends more than 30 percent of its monthly income on housing costs, while those who spend more than 50 percent of their income on housing costs are considered "severely cost-burdened." Thus, more than 41 percent of households in Antioch are either cost-burdened or severely cost-burdened.

Although housing and population growth projections at the city level are not provided by the Census Bureau, DOF, or ABAG, Plan Bay Area 2050 does project household growth at the county and sub-county level. In order to develop the future housing growth projections in Plan Bay Area 2050, current zoning and general plan data was obtained for all parcels in the region as a representation of the land use controls in place during the base year. This zoning and related information dictates the uses, residential densities, and building intensities allowed on each parcel within each jurisdiction. Adjustments to zoning were made in some locations to put protected land, government land, and transportation corridors off limits to development.

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<sup>16</sup> City of Antioch, 2022. Draft Antioch Housing Element 2023-2031, April.

<sup>17</sup> Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050 Forecasting and Modeling Report, Table 4: Relative Housing Price Comparisons – REMI, ACS, and Zillow, October.

<sup>18</sup> City of Antioch, 2022. Draft Antioch Housing Element 2023-2031, April.

<sup>19</sup> City of Antioch, 2022. Draft Antioch Housing Element 2023-2031, April.



Additionally, parcels containing structures built before 1930 were also deemed non-developable, as a rough representation of historical protection ordinances until better data can be obtained.

ABAG projects Contra Costa County to provide 12 percent of the region's growth in households by 2050, growing from 383,000 households in 2015 to 551,000 households in 2050, an increase of 169,000 households.<sup>20</sup> (Households are a subset of housing units, representing occupied housing units.)

Antioch is located in the East Contra Costa County superdistrict (Superdistrict No. 24) used by ABAG for sub-regional growth projections, as presented in Plan Bay Area 2050. The number of households in this superdistrict is projected to grow by 45 percent between 2015 and 2050, from 94,000 households to 136,000 households, representing 3 percent of growth in the San Francisco Bay region.<sup>21</sup> Applying this growth rate to the city of Antioch, the city's household population may grow from 33,214 households in 2015 to 48,160 households in 2050.<sup>22</sup>

### c. Employment

The following discussion on Antioch's employment sector is provided as context for the subsequent discussion on the jobs-housing balance in the city. The jobs-housing balance is an important metric for achieving and tracking progress on the transportation and environmental goals of Plan Bay Area 2050 that are intended to accommodate the population growth anticipated for the region over the next 30 years.

The U.S. Census Bureau's American Communities Survey reports that Antioch had 52,026 employed civilians aged 16 and over in 2020.<sup>23</sup> A breakdown of the employees by type of occupation is shown in Table IV.M-2. As shown in Table IV.M-3, a relatively small number (6.2%) of the jobs in Antioch are based in manufacturing, while service, professional, and public administration comprise 46.8 percent of the jobs and retail trade makes up another 13.0 percent of employment. In 2021 the median household income in Antioch was \$80,234.<sup>24</sup>

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<sup>20</sup> Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050, Final Blueprint Growth Pattern, updated January 21.

<sup>21</sup> Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), Plan Bay Area 2050 Forecasting and Modeling Report, Appendix 1: Projected Household and Employment Growth, By Superdistrict, October 2021.

<sup>22</sup> U.S. Census Bureau, American Community Survey, Table DP02: 2015 ACS 1-Year Estimates Data Profiles, Selected Social Characteristics in the United States [undated].

<sup>23</sup> U.S. Census Bureau, American Community Survey, Table DP03: ACS 5-Year Estimates Data Profiles, Selected Economic Characteristics [undated].

<sup>24</sup> U.S. Census Bureau, American Community Survey, Table S1903: ACS 5-Year Estimates Data Profiles, Median Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars) [undated].

Employment data for Antioch produced by the California Employment Development Department, which differs from the ACS data, shows that the Great Recession of 2007 through 2009 produced a peak in the city's unemployment rate that persisted for about 5 years. The unemployment rate was above 10 percent each year from 2009 to 2013, reaching a peak of 15.2 percent in 2010. As shown in Table IV.M-4, unemployment began trending downward in 2014 and had achieved a low rate of 4.2 percent by 2018, dropping slightly lower the following year. As occurred throughout the entire country, the COVID-19 Pandemic drove unemployment back up to 12.3 percent in 2020, but as of March 2022, it had returned to a reasonable rate of 5 percent.

Plan Bay Area 2050 projects the overall regional count of employment to grow from around 4.0 million jobs in 2015 to almost 5.4 million jobs by 2050, an increase of about 35 percent.<sup>25</sup> Plan Bay Area 2050 also projects that implementation of the full bundle of strategies adopted in the Plan will produce about 1.5 million new housing units by 2050, well above the 441,000-unit need identified for the 2023-2031 RHNA cycle. This would achieve a regional jobs-housing ratio of approximately 1.34.<sup>26</sup> While Plan Bay Area 2050 identifies growth geographies and strategies for the next 30 years, the Regional Housing Needs Allocation is a short- to medium-term housing allocation process. However, the two efforts are coordinated, with RHNA's near-term focus setting the stage for early implementation of Plan Bay Area 2050's envisioned growth pattern, and the proposed Antioch Housing Element 2023-2031 is a key component of that planning process.

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<sup>25</sup> Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. *Plan Bay Area 2050 Forecasting and Modeling Report*, Table 8: Plan Bay Area 2050 Baseline Forecast and Final Regional Growth Forecast, October.

<sup>26</sup> Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. *Plan Bay Area 2050 Forecasting and Modeling Report*, Table 25: Jobs-Housing Balance Across Alternatives, October.

**TABLE IV.M-2 2020 EMPLOYED POPULATION IN THE CITY OF ANTIOCH, BY OCCUPATION TYPE**

<b>Occupation Category</b>	<b>Estimated No. of Employees</b>	<b>Percentage of Total</b>
Management, business, science, and arts occupations	15,763	30.3%
Service occupations	11,808	22.7%
Sales and office occupations	12,230	23.5%
Natural resources, construction, and maintenance occupations	5,060	9.7%
Production, transportation, and material moving occupations	7,165	13.8%
<b>Total</b>	<b>52,026</b>	<b>100%</b>

Source: U.S. Census Bureau, American Communities Survey, 2020.

**TABLE IV.M-3 2020 EMPLOYED POPULATION IN THE CITY OF ANTIOCH, BY INDUSTRY**

<b>Industry</b>	<b>Estimated No. of Employees</b>	<b>Percentage of Total</b>
Agriculture, forestry, fishing and hunting, and mining	301	0.6%
Construction	4,128	7.9%
Manufacturing	3,234	6.2%
Wholesale trade	1,104	2.1%
Retail trade	6,755	13.0%
Transportation and warehousing, and utilities	3,502	6.7%
Information	718	1.4%
Finance and insurance, and real estate and rental and leasing	3,650	7.0%
Professional, scientific, and management, administrative, and waste management services	6,227	12.0%
Educational services, and health care and social assistance	12,884	24.8%
Arts, entertainment, recreation, and accommodation and food services	4,341	8.3%
Other services, except public administration	2,633	5.1%
Public administration	2,549	4.9%
<b>Total</b>	<b>52,026</b>	<b>100%</b>

Source: U.S. Census Bureau, American Communities Survey, 2020.

**TABLE IV.M-4 CITY OF ANTIOCH EMPLOYMENT, 2009-2022**

Year	Labor Force	Employment	Unemployment	Unemployment Rate
2009	49,300	43,600	5,700	10.2%
2010	49,600	42,100	7,500	15.2%
2011	49,700	42,600	7,100	14.2%
2012	50,100	43,900	6,200	12.4%
2013	50,000	44,800	5,200	10.4%
2014	50,100	45,700	4,300	8.6%
2015	50,400	46,900	3,500	7.0%
2016	50,600	47,700	2,900	5.6%
2017	50,700	48,300	2,500	4.8%
2018	50,700	48,600	2,100	4.2%
2019	50,600	48,500	2,100	4.1%
2020	50,600	44,400	6,200	12.3%
2021	50,100	45,500	4,600	9.2%
2022 <sup>a</sup>	50,700	48,100	2,600	5.0%

<sup>a</sup> Data as of March 2022

Source: California Employment Development Department.

#### **d. Jobs-Housing Balance**

A key objective of Plan Bay Area 2050 is to improve the jobs-housing balance throughout the region, as this achieves important environmental goals of reducing vehicle traffic and associated emissions of air pollutants and greenhouse gases. A jobs-housing ratio of 0.75 to 1.5 is considered beneficial for reducing traffic congestion and vehicle miles traveled (VMT).<sup>27</sup> Lower ratios also allow more workers to walk or bicycle to work. The housing elements of cities and counties are critical implementation tools for Plan Bay Area 2050, and they are expected to achieve improvements in their jobs-housing ratios. Antioch and Contra Costa County both have jobs-housing ratios below 1.2, as of 2015. Plan Bay Area 2050 reports that the County's jobs-housing ratio in 2015 was 1.06, and implementation of the Plan is projected to drop this ratio to 0.97 by 2050. This compares favorably to the region-wide average of 1.5, and particularly to the other

<sup>27</sup> U.S. Environmental Protection Agency (USEPA), 2014. EnviroAtlas Fact Sheet: Employment to Housing Ratio, November.

core Bay Area counties, which have jobs-housing ratios ranging from 1.25 to 1.86, indicating they are jobs-rich counties with insufficient housing to accommodate all workers.<sup>28</sup>

While the city's overall jobs-housing balance is relatively favorable as depicted in Plan Bay Area 2050, when examined at the census block level, there is considerable variation, and significant areas of Antioch have a jobs-household ratio of over 1.87, indicating a considerable imbalance. (The jobs-household ratio differs somewhat from the standard jobs-housing ratio in that the latter metric is based on housing units, while the former metric represents occupied housing units, a smaller subset of total housing units. The jobs-household ratio is used as a proxy for the standard jobs-housing ratio in this discussion because city-level data on the jobs-housing ratio was unavailable.)

The U.S. Environmental Protection Agency (USEPA) has a Smart Growth Program that developed a nationwide Smart Location Database (SLD) intended to provide data products and tools that consistently compare the location efficiency of various places. The SLD is an interactive Geographic Information System (GIS)-based mapping tool that provides geographic displays of a variety of demographic and infrastructure data. As shown on Figure IV.M-1, the SLD maps the city of Antioch's jobs-household ratio by census block. The data underlying Figure IV.M-1 is based on 2018 U.S. Census data on households (occupied housing units) and 2017 U.S. Census data on the number of jobs (both drawn from ACS 5-year estimates). Figure IV.M-1 reveals that the majority of the Housing Sites Inventory (Sites Inventory) identified in the proposed Housing Element are in a census block with a jobs-household ratio over 1.87 or in a block with a ratio of 0.91 to 1.87. Thus, these sites are in ideal locations to help the City achieve an improved jobs-housing balance.

## 2. Regulatory Setting

This section describes the existing State, regional, and local regulatory frameworks related to population and housing.

### a. State Regulations

The following section describes the existing State of California regulatory environment related to population and housing.

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<sup>28</sup> Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), 2021. Plan Bay Area 2050 Forecasting and Modeling Report, Table 25: Jobs-Housing Balance Across Alternatives, October.

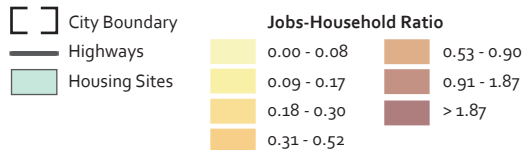
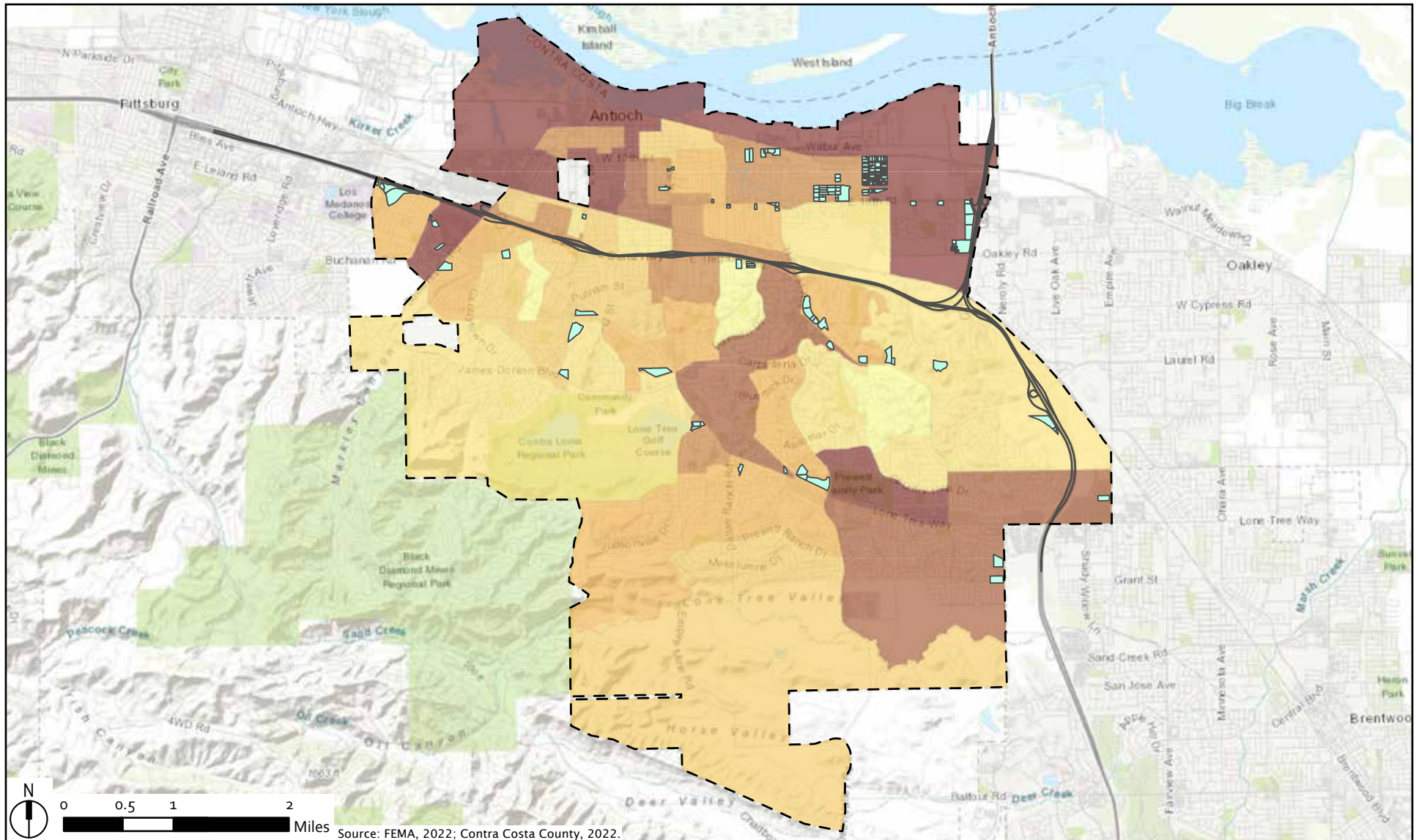


Figure IV.M-1  
Antioch Jobs-Household Ratio

## **(1) State Housing Element Law**

California Government Code (Sections 65580-65589.11) requires each city and county in California to prepare and implement a general plan housing element that identifies and analyzes the jurisdiction's existing and projected housing needs, based on population and employment projections, and identifies sites where new housing can be developed to meet the projected demand. The Housing Element Law requires cities and counties to update the Housing Element of their General Plans every 5 or 8 years (depending on location/jurisdiction) in order to ensure that they meet their responsibilities in helping the State of California meet its housing goal and in addressing regional housing needs. Additional information about this law is presented in *Section IV.A, Land Use and Planning*.

## **(2) Housing Accountability Act**

The Housing Accountability Act (HAA) is intended to significantly increase the approval and construction of new housing for all economic segments of California's communities. This law is described in detail in *Section IV.A, Land Use and Planning*, as is the Density Bonus Law, which provides residential developers with incentives to develop affordable and senior housing by allowing them to substantially increase the density of their projects when they meet stipulated affordability thresholds.

### **b. Regional Regulations**

The following section describes the existing regional regulatory environment related to population and housing.

#### **(1) Regional Housing Needs Allocation (RHNA)**

The California Housing Element Law referenced above includes a requirement, promulgated at Government Code Section 65584, for the California Department of Housing and Community Development (HCD) to determine the existing and projected need for housing in each region of the State. The HCD must prepare and adopt a RHNA Plan that allocates a share of the regional housing need to each city and county. The RHNA Plan specifies the number of units, by affordability level, that need to be accommodated within the region during the Housing Element planning period. The regional councils of government (COGs) then distribute a share of the region's housing need to each city, town, and county in the region. Each local government must then update the Housing Element of its General Plan to inventory housing sites—zoned for residential use—sufficient to meet their RHNA obligation.

The COG assigning RHNA goals to each local jurisdiction in the nine-county San Francisco Bay Area is ABAG. The City of Antioch's allocation is for 3,016 housing units during the 2023-2031 6<sup>th</sup>

Cycle Housing Element Update. At least 41 percent (1,248) of the units must be affordable to low- or very low-income households. The breakdown of Antioch’s RHNA obligations is presented in Table IV.M-5. More information on the RHNA is provided in *Section IV.A, Land Use and Planning*.

**TABLE IV.M-5 6<sup>TH</sup> CYCLE (2023-2031) ABAG HOUSING ALLOCATIONS FOR CITY OF ANTIOCH**

<b>Income Category</b>	<b>Number of Housing Units</b>	<b>Portion of Total Allocation</b>
<b>Very Low Income</b> (<50% of Median Area Income)	792	26.3%
<b>Low Income</b> (50-80% of Median Area Income)	456	15.1%
<b>Moderate Income</b> (80-120% of Median Area Income)	493	16.3%
<b>Above Moderate Income</b> (>120% of Median Area Income)	1,275	42.3%
<b>Total</b>	<b>3,016</b>	<b>100%</b>

Source: Association of Bay Area Governments and Metropolitan Transportation Commission, 2021.

## (2) Plan Bay Area 2050

Plan Bay Area 2050, discussed in detail in *Section IV.A, Land Use and Planning*, is a 30-year plan for the Bay Area that presents 35 strategies for improving housing, the economy, transportation, and the environment across the nine-county region. Plan Bay Area 2050 helps guide, but does not directly establish, new State-mandated RHNA numbers for Bay Area jurisdictions. The Metropolitan Transportation Commission (MTC) and ABAG Executive Board adopted the following vision statement for Plan Bay Area 2050, which embodies five guiding principles for the Plan: “To ensure by the year 2050 that the Bay Area is affordable, connected, diverse, healthy, and vibrant for all.” The integrated Implementation Plan includes over 80 concrete actions that can be implemented at the city, county, regional, or state level within the next five years to advance each of the 35 strategies. With respect to housing strategies, the Plan projects that the Bay Area will need to add more than 441,000 new affordable housing units by 2050 to meet the region’s housing needs, and it calls for integrating affordable housing into all major housing projects.

The following housing strategies in Plan Bay Area 2050 are relevant to and would be supported by the proposed Housing Element:

*H1. Further strengthen renter protections beyond State law.* Building upon recent tenant protection laws, limit annual rent increases to the rate of inflation, while exempting units less than 10 years old.

*H2. Preserve existing affordable housing.* Acquire homes currently affordable to low and middle-income residents for preservation as permanently deed-restricted affordable housing.



- H3. Allow a greater mix of housing densities and types in Growth Geographies.* Allow a variety of housing types at a range of densities to be built in Priority Development Areas, select Transit-Rich Areas and select High-Resource Areas.
- H4. Build adequate affordable housing to ensure homes for all.* Construct enough deed-restricted affordable homes to fill the existing gap in housing for the unhoused community and to meet the needs of low-income households.
- H5. Integrate affordable housing into all major housing projects.* Require a baseline of 10-20% of new market-rate housing developments of five units or more to be affordable to low-income households.
- H6. Transform aging malls and office parks into neighborhoods.* Permit and promote the reuse of shopping malls and office parks with limited commercial viability as neighborhoods with housing for residents at all income levels.
- H7. Provide targeted mortgage, rental and small business assistance to Equity Priority Communities.* Provide assistance to low-income communities and communities of color to address the legacy of exclusion and predatory lending, while helping to grow locally owned businesses.
- H8. Accelerate reuse of public and community-owned land for mixed-income housing and essential services.* Help public agencies, community land trusts and other non-profit landowners accelerate the development of mixed-income affordable housing.

### **c. Local Regulations**

The following section describes the existing local regulatory environment related to population and housing.

#### **(1) City of Antioch Housing Element**

The Housing Element is one of seven mandatory elements of a general plan required by State Planning Law (Government Code Section 65300 *et seq.*). The Housing Element must provide a comprehensive assessment of current inventory and projected housing needs for all income levels of the population in the community. It must include a statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the preservation, improvement, and development of housing that will contribute to the attainment of the State's housing goal. The housing element must identify adequate sites for housing—including rental housing, factory-built housing, mobile homes, and emergency shelters—to provide for the existing and projected needs of all economic segments of the community, and to meet the jurisdiction's RHNA obligation for the planning period covered by the Housing Element. The goals and policies of the Housing Element will be revised and updated as part of the Project, so the existing policies are not listed here.

## **(2) Specific Plans**

Specific Plans are customized regulatory documents that provide focused guidance and regulations for a particular area to address the specific characteristics or needs for that area. They are also intended to contribute to the implementation of the goals and policies of the Housing Element. A Specific Plan generally includes a land use plan, circulation plan, infrastructure plan, zoning classifications, development standards, design guidelines, and implementation plan. The City has the following four adopted Specific Plans:

- East Eighteenth Street Specific Plan
- East Lone Tree Specific Plan (Future Urban Area #2)
- Hillcrest Station Area Specific Plan
- Downtown Specific Plan

## **3. Impacts and Mitigation Measures**

This section analyzes the impact related to Population and Housing that would result from implementation of the Project. The section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project and identifies mitigation measures to address these impacts as needed.

### **a. Significance Criteria**

Implementation of the Project would result in a significant impact on population and housing if it would:

1. 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)?
2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

### **b. Findings**

The following discussion describes the potential population and housing impacts that would result from the Project.

### **(1) Induce Unplanned Population Growth (Criterion 1)**

Implementation of the proposed Housing Element could result in the creation of 4,575 new housing units in Antioch by 2031 or later if all of the 182 identified Sites Inventory were developed at the maximum allowable density. Although Antioch's RHNA share for the 2023-2031 6<sup>th</sup> Cycle Housing Element Update is 3,016 housing units, the HCD recommends that each jurisdiction provides a buffer of at least 15 to 30 percent above the capacity required by the RHNA. The capacity provided by Antioch's proposed Sites Inventory at maximum density would provide an approximately 52-percent buffer above the 6<sup>th</sup> Cycle RHNA.

The Project would include rezoning of 169 of the sites to allow residential development or more intense residential development, and comparable General Plan and Specific Plan amendments would be required to make the land use designations of the sites consistent with the zoning. The physical environmental effects of these rezonings and the greater density of development that could result are addressed in other topical sections of this EIR, including those addressing air quality, biological resources, greenhouse gases, transportation, and utilities. The Project would accommodate residential growth and associated population growth in accordance with the City's policies for location, type, and intensity of residential development, as set forth in the Housing Element, Land Use Element, and applicable Specific Plans.

It's unrealistic to assume that all housing site parcels identified in the Housing Element would be developed and that they would all be developed at the maximum allowable density, so the actual number of housing units that will be developed as a result of the Project is undoubtedly below 4,575 units. While the Housing Element encourages the development of new housing, the actual construction of new units will be driven by market forces, the motivation of property owners, subsidies for affordable housing, and other factors outside the control of the City. Nonetheless, this theoretically possible number of 4,575 new housing units is used as a basis for estimating the effect this could have on Antioch's population.

Based on the DOF data, Antioch has an average household size of 3.22 persons.<sup>29</sup> Applying this average, development of 4,575 new housing units would increase the population in Antioch by approximately 14,732 people. In addition to the reasons cited above, other factors would also serve to reduce this number in actual practice. First, many of the new units would be accessory dwelling units (ADUs) added to existing residential properties, studio apartments, and one-bedroom apartments, all of which would typically provide a residence for one or two people. Secondly, one objective of the proposed Housing Element is to provide housing for currently unhoused people residing in Antioch. Implementing Program 2.1.10 sets an objective of developing 30 to 50 units for homeless individuals, which could include SROs, studio apartments,

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<sup>29</sup> California Department of Finance (DOF), 2021. E-5 City/County Population and Housing Estimates, April 1.

and/or a CARE center providing permanent supportive housing for extremely low- and very low-income persons. Providing this housing to existing residents would not add to the city's population. Finally, existing residents of Antioch would likely take advantage of new housing opportunities in the city, which would not add to the city's population. Consequently, implementation of the Project would increase the population in Antioch by fewer than 15,006 people.

With respect to household size, the growth forecasts presented in Plan Bay Area 2050 were developed using the Bay Area UrbanSim 2 Land Use Model. The model, which synthesizes U.S. Census data, developed a region-wide average household size of 2.7 persons per household. Applying this average, development of 4,575 new housing units would increase the population in Antioch by approximately 12,352 people.

The proposed Housing Element is intended to accommodate anticipated growth and facilitate the development of new housing to meet the City's RHNA obligation share determined by ABAG for the 2023-2031 planning period. As such, the population growth engendered by the creation of up to 4,575 new housing units would not be unplanned; to the contrary, it is specifically being planned for, with suitable sites for development identified and evaluated. The Project would be consistent with the General Plan, including the Housing Element, and applicable specific plans, as amended by the Project. The population growth would also be consistent with Plan Bay Area 2050, a regional plan intended to guide the regional population growth anticipated by 2050. Consequently, the Project would not induce substantial unplanned population growth. This would be a less-than-significant impact.

## **(2) Displace People or Housing (Criterion 2)**

A substantial number—125 parcels—of the 182 Sites Inventory identified in the proposed Housing Element are currently nonvacant and support some degree of existing land use, which in most cases is a single-family home. All of the nonvacant parcels are considered underutilized and good candidates for redevelopment.

The nonvacant Sites Inventory not currently occupied by a single-family home are sparsely developed. Site 125 is currently developed with a surface parking lot. A senior living facility occupies Site 163, but it was recently subdivided and the new parcels, comprising 4.2 acres, are vacant. A boarded-up vacant building is on Site 122. Site 124, which includes a single-family home, is also being used for vehicle and material storage on a 2.5-acre parcel. The 12-acre City-owned Site 143 is developed with solar panels on approximately 4 acres, and the remainder of the site is vacant. A billboard occupies Site 145. Site 177, part of 11 consolidated parcels comprising 2.98 acres, appears to be developed with a single shed. With the possible exception of Site 124, development or redevelopment of these parcels would not displace existing housing or people.

Sites 120, 138, 154, 155, 164, and 166 are all currently occupied by churches that have expressed interest to the City in adding housing to their underutilized properties. In all cases, they have vacant land available on their properties, and residential development would not displace the existing churches.

The proposed Housing Element includes the following General Plan policies related to displacement of homes people and homes:

*Policy 1.2: Housing Rehabilitation.* Continue to participate in housing rehabilitation programs and pursue funding to rehabilitate older housing units.

*Policy 5.4: Anti-Displacement.* Reduce the displacement of low-income communities of color by enhancing protections for vulnerable tenant and homeowners and preserving affordable housing in areas that are gentrifying or at risk of gentrification.

General Plan Policy 1.2 calls for rehabilitation of older housing units; however, there are no policies or implementing programs that encourage or would lead to the displacement of existing residential or other land uses. General Plan Policy 5.4 specifically calls for reduced displacement of low-income communities of color by enhancing protections for vulnerable tenants and homeowners and preserving affordable housing in areas that are gentrifying or at risk of gentrification.

The Project would not directly authorize new residential development that could potentially displace existing uses, and such activity would be subject to separate discretionary approvals. None of the proposed Sites Inventory currently contain multi-family residential development, so no multi-family residents would be displaced as a result of Project implementation. While a sizable number of identified Housing Sites are currently occupied by single-family homes that would likely be displaced by future redevelopment with higher-density residential use, the owners of these properties would receive fair compensation and they would be voluntary sellers to prospective developers or would undertake redevelopment on their own initiative. Although existing housing would be displaced on individual parcels, in all cases displaced houses would be replaced by higher-density residential development. Thus, there would be a net increase in housing, and no need to construct replacement housing to accommodate displaced residents. Therefore, this would be a less-than-significant impact.

### **c. Cumulative Population and Housing Impacts**

As discussed in the preceding impact discussions, the proposed Housing Element would not result in substantial unplanned population growth or the displacement of substantial numbers of housing units, requiring the construction of replacement housing. The potential growth in housing and population that would be facilitated by the Project would be consistent with the City's RHNA obligation, as assigned by ABAG, and would be consistent with Plan Bay Area 2050,

the regional plan guiding sustainable development in the Bay Area. Other planning jurisdictions in the Bay Area are currently updating their housing elements on the same State-mandated schedule driving Antioch's Housing Element update, and those cities and counties will also be identifying available sites to accommodate their designated RHNA share. Together, Bay Area jurisdictions must accommodate more than 441,000 new housing units to meet the RHNA obligation for the region during the 2023-2031 planning period. Similar to Antioch, the housing elements prepared by other jurisdictions are plans to prepare for the population growth projected for the region and the associated need for new housing to accommodate that growth. Thus, the growth accommodated by the housing elements of other jurisdictions would be *planned* growth, not *unplanned* growth. Consequently, implementation of the Project would not result in a significant cumulative impact.

While it's possible that new housing development in other jurisdictions could lead to the displacement of existing housing, either consistent with the local housing element or otherwise, implementation of Antioch's Housing Element would not lead to the involuntary displacement of housing and would result in a net increase in housing. Thus, the Project would not make a cumulatively considerable contribution to a regional impact related to displacement of housing or people.

## N. PUBLIC SERVICES AND RECREATION

This section describes the current public services and recreation conditions in the city of Antioch; discusses the regulations and policies pertinent to public services and recreation; and assesses the potentially significant impacts to the environment that could result from implementation of the Project and its associated development.

### 1. Setting

The following section describes existing services for fire, police, schools, libraries, and recreation in the city of Antioch.

#### a. Fire Protection

The Contra Costa County Fire Protection District (CCCYPD) provides fire services to Antioch. The CCCYPD's service area encompasses the central and northern portions of Contra Costa County from the city of Antioch in the east to the eastern border of the city of Richmond in the west, and as far south as the northern border of the city of Moraga. It provides fire prevention services, such as inspections; operational services, including responding to fires and providing emergency medical services; special operational services related to emergency preparedness and disaster management; and general support services. In total, CCCYPD has 379 firefighters on staff, across 30 fire stations.<sup>1</sup> Of these resources, a total of 39 firefighters are stationed across four fire stations located within the city of Antioch.<sup>2</sup>

CCCYPD maintains the following four stations in Antioch:

- Station 81, 315 W 10<sup>th</sup> Street
- Station 82, 196 Bluerock Drive
- Station 83, 2717 Gentrytown Drive
- Station 88, 4288 Folsom Drive

In 2021, there were 15,072 incidents in the city of Antioch. The average response time in the city was 8 minutes and 13 seconds, which is outside the City's targeted response time of five minutes for 80 percent of emergency, fire, medical, and hazardous materials calls.<sup>3</sup>

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<sup>1</sup> Contra Costa County Fire Protection District (CCCYPD). "Station Addresses." Available at: <https://cccypd.org/station-address/>, accessed June 6, 2022.

<sup>2</sup> Hill, Steve, Contra Costa County Fire Protection District (CCCYPD). Personal communication with Urban Planning Partners, Inc., July 28, 2022.

<sup>3</sup> Aaron J. McAlister, Deputy Fire Chief, Contra Costa County Fire Protection District (CCCYPD), 2022. Personal communication with Urban Planning Partners, April 2022.

The CCCFPD's future plans include adding an additional company or crew to Fire Station 81 as well as the construction of a new station in southern Antioch in the area of Deer Valley Road and Wellness Way. This planned station is anticipated sometime between 2027 and 2029. It is associated with development in the Sand Creek Focus Area and is expected to be funded in part from Community Facility District Fees.<sup>4</sup>

## **b. Police Services**

The city of Antioch is served by the Antioch Police Department (APD), which has one station located in the northern portion of the city at 300 L Street. APD has an authorized strength of 115 sworn officers as well as non-sworn employees, including dispatchers, administrative support staff, and community services officers. The APD is broken up into two divisions: Field Services and Support Services. The Field Services Division includes Community Engagement, Traffic Bureaus, and Patrol. The Support Services Division includes Dispatch, Special Operations, Investigations, Administration, and Records. Additionally, the APD provides animal control services within Antioch.<sup>5</sup>

There are three planned improvements to police services in Antioch. There will be an upgrade to technology services for APD's emergency operations center and community room, expansion of APD's investigations office, and an expansion to APD's employee parking lot.<sup>6</sup>

The city of Antioch is divided into seven "beats," or patrol zones, based on geographical area. Additionally, each service call is categorized as a Priority 1, Priority 2, Priority 3, or Priority 4 call. Description of each priority call and their current average response times are classified below:<sup>7</sup>

- **Priority 1:** Emergencies, in-progress crimes or life-threatening situations. (2021 average response time: 8 minutes and 49 seconds)
- **Priority 2:** Calls demanding immediate attention but are not life threatening or crimes in progress. (2021 average response time: 25 minutes and 59 seconds)
- **Priority 3:** Calls that do not require immediate response and can be handled as soon as practical. (2021 average response time: 27 minutes and 4 seconds)

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<sup>4</sup> Aaron J. McAlister, Deputy Fire Chief, Contra Costa County Fire Protection District (CCCFPD), 2022. Personal communication with Urban Planning Partners, April 2022.

<sup>5</sup> Tony Morefield, Chief of Police, Antioch Police Department, 2022. Personal communication with Urban Planning Partners, April 2022.

<sup>6</sup> Tony Morefield, Chief of Police, Antioch Police Department, 2022. Personal communication with Urban Planning Partners, April 2022.

<sup>7</sup> East County Today, 2022. Antioch Police Chief Provides 2022 Crime Data. Available at: <https://web.archive.org/web/20220615161151/https://eastcountytoday.net/antioch-police-chief-provides-2022-crime-data/>, accessed August 29, 2022.



- **Priority 4:** Informational and other calls. (Response Time: 21 minutes and 25 seconds)

### c. Schools

The city of Antioch is served by the Antioch Unified School District (AUSD). Parts of the city, mainly those within the East Lone Tree and Sand Creek Focus Areas, are served by Liberty and Brentwood Unified School Districts.<sup>8</sup> The AUSD contains thirteen elementary schools, four middle schools, three high schools, two continuation high schools, one alternative high school, one K–8 school, one transitional kindergarten (TK)-8 virtual school, and one adult school.<sup>9</sup>

For the 2022-2023 school year, there are an anticipated 15,709 students that will be enrolled in AUSD.<sup>10</sup> This places current enrollment below capacity standards for the district.<sup>11</sup>

As authorized by California Government Code Sections 65995, 65996(a), and 65996(b), AUSD collects school impact fees from developers of new residential and non-residential building space. The impact fee revenue is used together with other district funds (e.g., State grants, general obligation bonds) to complete capital improvement. As of 2022, AUSD collects a developer fee of \$3.79 per square foot of residential development and \$0.61 per square foot of commercial development.<sup>12</sup>

### d. Libraries

Contra Costa County operates two library facilities within Antioch: Prewett Library and the Antioch Public Library. The 11,000-square-foot Antioch Library, located at 501 West 18<sup>th</sup> Street houses a large collection of materials including books, DVDs, and audio books.<sup>13</sup> The Prewett Library, which opened in January 2011, is located within the Antioch Community Center on Lone Tree Way. The Prewett Library is an “express library” where customers can pick up their requested materials and browse through almost 9,000 items including best sellers, teen books, magazines, audio books, CDs, DVDs, and children’s materials. The Prewett Library houses two

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<sup>8</sup> City of Antioch, 2003. General Plan, Section 8.8, School Facilities Objective and Policies.

<sup>9</sup> Antioch Unified School District (AUSD), 2022. Overview. Available at: <https://www.antiochschools.net/domain/52>, accessed May 25, 2022.

<sup>10</sup> Anello, Stephanie, Antioch Unified School District (AUSD), 2022. Personal communication with Urban Planning Partners. July 27, 2022.

<sup>11</sup> Rasanayagam, Ishani, Antioch Unified School District (AUSD), 2022. Personal communication with Urban Planning Partners. August 26, 2022.

<sup>12</sup> Antioch Unified School District (AUSD), 2022. Developer Fee’s Overview. Available at: <https://www.antiochschools.net/Page/284>, accessed June 6, 2022.

<sup>13</sup> Contra Costa County Library. “About Antioch Library.” Available at: <https://ccclib.org/about-antioch-library/>, accessed May 25, 2022.

early literacy workstations for children and is adjacent to the Antioch Community Center's technology lab, which contains 25 computers. Both Antioch libraries offer free wireless internet access.<sup>14</sup>

## **e. Recreation**

There are several local, regional, and state parks and recreational facilities within or near Antioch.

### **(1) State Parks**

California Department of Parks and Recreation (CDPR) manages and preserves 1,400,000 acres within 279 parklands and 5,200 miles of trails throughout the State.<sup>15,16</sup> Marsh Creek State Historic Park is the only one State Park within proximity to the city and is located about 4 miles from the city, outside the boundaries of the city of Antioch.

### **(2) Regional Parks**

The East Bay Regional Park District (EBRPD) operates manages and preserves 125,000 acres of regional park facilities, including 73 parks and more than 1,250 miles of trails.<sup>17</sup> There are three regional parks located within the city: Black Diamond Mines Regional Preserve, Contra Loma Regional Park, and Antioch/Oakley Regional Shoreline.

Black Diamond Mines Regional Preserve is almost 8,533 acres and serves as a location for nature study, hiking, and picnics.<sup>18</sup> The park includes the historic Rose Hill Cemetery, which is home to former residents of the city that were buried at the cemetery. Additionally, the preserve contains the Sidney Flats Visitor Center, a building originally associated with the coalfield that now displays photos and artifacts from the 1800s and early 1900s. The Greathouse Visitor Center is also located within the preserve. This center is located in an underground chamber that was excavated during the mid-1920s. The center contains historical displays, photographs, and artifacts about the Preserve's coal and sand mining history.

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<sup>14</sup> Contra Costa County Library. "About Antioch Library." Available at: <https://ccclib.org/about-antioch-library/>, accessed May 25, 2022.

<sup>15</sup> California Department of Parks and Recreation (CDPR), 2002. Fact Sheet. Available at: <https://www.parks.ca.gov/pages/712/files/fact%20sheet%20parks%20150th%20anniversary%20final.pdf?msclkid=76eaf73dcfc911ec80430c394bc3bdb8>, accessed May 9, 2022

<sup>16</sup> California Department of Parks and Recreation (CDPR), 2022. About Us. Accessed May 9. Available at: [https://www.parks.ca.gov/?page\\_id=91](https://www.parks.ca.gov/?page_id=91), accessed May 9, 2022.

<sup>17</sup> East Bay Regional Park District (EBRPD), 2022. About Us. Available at: <https://www.ebparks.org/about?msclkid=b6b5c5d2cfa11eca73717556f63a708>, accessed May 9, 2022

<sup>18</sup> East Bay Regional Park District (EBRPD), 2022. Black Diamond Mines Regional Preserve. Available at: <https://www.ebparks.org/parks/black-diamond#features>, accessed May 9, 2022.

Contra Loma Regional Park is a 775-acre park that includes a lifeguarded swim lagoon and 80-acre reservoir for year-round fishing.<sup>19</sup>

Antioch/Oakley Shoreline East Bay Regional Park includes a 550-foot pier and allows fishing, picnics, and kite flying. Fishing is allowed 24-hours a day, year-round. The park also offers a fish cleaning station, several paved trails, and picnic tables.<sup>20</sup>

### **(3) Local Parks**

Parks in Antioch are primarily classified into three categories: Neighborhood, Community, and Open Space. Neighborhood parks are defined as a park or playground generally 5 to 10 acres in size that are primarily developed to meet the recreational needs of citizens living within 0.5- to 1-mile radius. Community parks are defined as a larger park or facility developed to meet the park and recreational needs of those living or working within a 3- to 5-mile radius. Community parks generally range in size from 10 to 60 acres. There are 30 neighborhood parks, 3 community parks, and 1 open space park. Additionally, there is one park, Memorial Field, that is only available during limited times because it is operated in collaboration with the Antioch Unified School District. Table IV.N-1 below provides a list of local parks within the city.<sup>21</sup>

In addition to these existing park facilities, there are two parks currently in development within eastern Antioch within the Park Ridge and Aviano suburban areas subdivisions. Each of these parks will be approximately 5 acres. There are also plans to renovate the Nick Rodriguez Community Center and Antioch Senior Center located in downtown Antioch. The renovation will not increase existing square footage but will allow for the facilities to better serve the needs of the community.<sup>22</sup>

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<sup>19</sup> East Bay Regional Park District (EBRPD), 2022. Contra Loma Regional Park. Available at: <https://www.ebparks.org/parks/contra-loma#overview>, accessed May 9, 2022.

<sup>20</sup> East Bay Regional Park District (EBRPD), 2022. Antioch/Oakley Regional Shoreline. Available at: <https://www.ebparks.org/parks/contra-loma#overview>, accessed May 9, 2022.

<sup>21</sup> City of Antioch, 2022. Parks & Picnic Info. Available at: [https://www.antiochca.gov/fc/public-works/parks/park\\_amenities.pdf](https://www.antiochca.gov/fc/public-works/parks/park_amenities.pdf), accessed March 31, 2022.

<sup>22</sup> Brad Helfenberger, Parks and Recreation Director, City of Antioch, 2022. Personal communication with Urban Planning Partners, March 2022.

**TABLE IV.N-1 PUBLIC PARKS WITHIN THE CITY OF ANTIOCH**

<b>Park Name</b>	<b>Location</b>	<b>Type</b>	<b>Size</b>
Almondridge Park	Almondridge Dr. & Beechnut St.	Neighborhood	5.4
Community Park	James Donlon Blvd. & Blythe Dr.	Community	20.0
Water Park	Deer Valley Rd. & Lone Tree Wy.	Community	99.0
Youth Sports Complex	Wilbur Ave. & Apollo Ct.	Community	34.0
Canal Park	Gentrytown Dr. & Curtis St.	Neighborhood	4.8
Chaparral Park	Prewett Ranch Dr. & Candlewood Way	Neighborhood	-
Chichibu Park	Longview Rd. & Acorn Dr.	Neighborhood	6.3
City Park	10th St. & A St.	Neighborhood	5.0
Contra Loma Estates Park	Mahogany Dr. & Manzanita Way	Neighborhood	5.0
Country Manor Park	Asilomar Dr. & Carpenteria Dr.	Neighborhood	20.0
Dallas Ranch Park	1137 Prewett Ranch Dr.	Neighborhood	5.0
Deerfield Park	Deerfield Dr. & Buckskin Dr.	Neighborhood	0.5
Diablo West Park	2000 Prewett Ranch Dr.	Neighborhood	4.0
Eaglesridge Park	Eaglesridge Dr. & Greystone Dr.	Neighborhood	5.4
Fairview Park	Crestview Dr. & Aster Dr.	Neighborhood	3.0
Gentrytown Park	Carmona Way & Monterey Dr.	Neighborhood	14.1
Hansen Park	Nortonville Wy. & Hansen Dr.	Neighborhood	-
Harbour Park	Ashburton Dr. & Lindley Dr.	Neighborhood	7.9
Heidorn Park	Vista Grande Dr.	Neighborhood	3.0
Hillcrest Park	Larkspur Dr. & Sunflower Dr.	Neighborhood	18.0
Jacobsen Park	Jacobsen Dr.	Neighborhood	1.3
Knoll Park	Country Hills Dr. & Valley Way	Neighborhood	5.0
Marchetti Park	Kendree St. & S of Delta Fair Blvd.	Neighborhood	5.0
Markley Creek Park	E. Somersville Rd.	Neighborhood	2.0
Meadow Creek Park	Vista Grande Dr.	Neighborhood	5.0
Meadowbrook Park	Yellowstone Dr. & Calaveras Cir.	Neighborhood	8.5
Mira Vista Hills Park	Silverado Dr. & Cordoba Way	Neighborhood	9.2
Mira Vista Park	S. Francisco Way & Hacienda Way	Neighborhood	6.8
Mountaire Park	Sunset Ln. & Elmo Rd.	Neighborhood	5.1
Prosserville Park	6th St. & O St.	Neighborhood	1.6
Sunnyridge Park	James Donlon Blvd. & G St.	Open Space	5.3
Village East Park	Gentrytown Dr. & Melon Ct.	Neighborhood	7.4
Nelson Ranch Park	Wild Horse Rd. & Sweet Water St.	Neighborhood	9.5

**TABLE IV.N-1 PUBLIC PARKS WITHIN THE CITY OF ANTIOCH**

Park Name	Location	Type	Size
Williamson Ranch Park	Lone Tree Way & Hillcrest Ave.	Neighborhood	5.0
Memorial Field (AUSD)		Collaborated <sup>a</sup>	

<sup>a</sup> Collaborated site with Antioch Unified School District, only accessible weekdays after 3:00 p.m.  
 Source: City of Antioch, 2022.

**2. Regulatory Setting**

The following describes the State and local regulatory setting as it relates to public services.

**a. State Regulations**

The following State regulations apply to public services and facilities and are applicable to the Project.

**(1) California Fire Code**

The California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location maintenance, removal, and demolition of every building or structure throughout the State of California. The Fire Code includes regulations regarding fire resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, and fire safety during construction and demolition.

California Fire Code Section 403.2 addresses public safety for both indoor and outdoor gatherings, including emergency vehicle ingress and egress, fire protection, emergency medical services, public assembly areas and the directing of both attendees and vehicles (including the parking of vehicles), vendor and food concession distribution, and the need for the presence of law enforcement and fire and emergency medical services personnel at the event.

**(2) Leroy F. Greene School Facilities Act of 1998 (Senate Bill 50)**

The Leroy F. Greene School Facilities Act of 1998, or Senate Bill 50 (SB 50), codified as California Government Code Sections 65995, 65996(a) and 65996(b), authorizes school districts to levy

developer fees to finance the construction or reconstruction of school facilities.<sup>23</sup> The California State Legislature has determined that school impact fees shall be the exclusive method of mitigating the school facilities impacts of a project or plan, has set limits on school impact fees, and has determined that payment of school impact fees shall be deemed to provide full and complete school facilities mitigation. SB 50 also prohibits local agencies such as the City of Antioch from denying land use approvals on the basis that school facilities are inadequate.

### **(3) Quimby Act**

California Government Code Section 66477, within the Subdivision Map Act, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The dedication of land or in-lieu fees may be required for land or condominium subdivisions. The dedication of land or in-lieu fees is not to exceed the proportionate amount necessary to provide 3 acres of neighborhood and community parkland per 1,000 persons. Dedication requirements may be increased if the existing ratio of parkland per 1,000 persons at the time of adoption of a city's local park and land dedication, and fees collected pursuant to the Quimby Act may only be used for developing new or rehabilitating existing park or recreational facilities.

The Quimby Act requires a city or county to adopt standards for recreational facilities in its general plan to adopt a parkland dedication or fee ordinance. The City of Antioch has established a parks and recreation fee of \$3,261 per single-family residential unit and \$2,065 per multi-family unit.

#### **b. Local Regulations**

The City regulations related to public services and facilities that are applicable to the Project are discussed below.

### **(1) City of Antioch General Plan**

The City General Plan contains the following goals and policies that are relevant to the Project:

*Policy 3.5.2: Fire Protection Facilities*

*3.5.2.1: Performance Objective.* Maintain competent and efficient fire prevention and emergency fire, medical and hazardous materials response services with first responder capability in order to minimize risks to life and property.

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<sup>23</sup> Eric Brunner, 2006. Financing School Facilities in California. Available at: <https://cepa.stanford.edu/sites/default/files/6-Brunner%283-07%29.pdf>, accessed June 9, 2022.

*3.5.2.2: Performance Standard.* Prior to the approval of discretionary development projects, require written verification from the Contra Costa County Fire Protection District that a five-minute response time (including a three-minute running time) can be maintained for 80 percent of emergency fire, medical, and hazardous materials calls on a citywide response area basis.

*Policy 3.5.3: Police Services*

*3.5.3.1: Performance Objective.* Maintain an active police force, while developing programs and police facilities that are designed to enhance public safety and protect the citizens of Antioch by providing an average response time to emergency calls of between seven and eight minutes from the time the call is received to the time an officer arrives.

*3.5.3.1: Performance Standard.* Maintain a force level within a range of 1.2 to 1.5 officers, including community service officers assigned to community policing and prisoner custody details, per 1,000 population. The ratio of community service officers assigned to community policing and prisoner custody details to sworn officers shall not exceed 20 percent of the total number of sworn officers.

*Policy 3.5.7: Parks and Recreation Facilities*

*3.5.7.1: Performance Objective.* A system of park, recreational, and open space lands of sufficient size in appropriate locations, including provisions of a range of recreational facilities, to serve the needs of Antioch residents of all ages.

*3.5.7.2: Performance Standard.* Provide five acres of improved public and/or private neighborhood parks and public community parkland per 1,000 population, including appropriate recreational facilities.

*Policy 3.5.8: Schools*

*3.5.8.1: Performance Objective.* Provision of schools in locations that are readily accessible to student populations along with sufficient facilities to provide educational services without overcrowding.

*3.5.8.2: Performance Standard.* Require new development to provide necessary funding and/or capital improvements to mitigate projected impacts on school facilities, as determined by the responsible school district.

*Policy 5.4.2: General Design Policies*

- a. Base the City's review of public and private projects on the following general design principles.
  - Innovative design, regardless of its style, is more important to the achievement of "quality" than the use of predetermined themes.
  - "High quality" comes from the explicit consideration of all aspects of development design. It is in design details that "quality" is ultimately manifested.
  - Designers need to respect community goals and needs, as well as address their client's economic objectives.
  - Individual buildings and developments are not isolated entities, but are part of a larger district and community into which they must fit. While innovation and individual expression are sought, compatibility of design elements is also important.
  - Standardized design solutions, "corporate architecture," and "off the shelf models" can not always be depended upon. What worked before or was accepted elsewhere may not work or be acceptable in the proposed application in Antioch.
  - Architectural styles, landscaping, and project amenities should complement surrounding development, and convey a sense of purpose, not expediency.
  - All building elevations visible to the public should be given equal attention and detail.
  - The same design solution, no matter how well done, when repeated too often or over too large an area, can become boring, lose its effectiveness, and no longer communicate "quality."

- b. Incorporate Antioch's "Gateway to the Delta" theme and reminders of its community heritage into the design of new residential, commercial, employment-generating, and recreational development, as well as into public facilities.
  - Incorporate nautical/waterway, gateway/entry, industrial or ranching themes into the design details of new developments and community facilities, such as building architecture, signage, lighting standards, site paving and landscaping, street furniture (e.g., benches, trash enclosures and receptacles), fencing, and placement of murals and sculpture in public locations.
  - Maintain a consistent design theme throughout each development project. Each individual development project and area within the project should portray an identifiable design theme.
  - Select tree species that are appropriate to their specific applications (e.g., providing shade, framing long-distance views of the San Joaquin River or Mt. Diablo, or framing short-distance views of new development).
- c. Maintain View Corridors from public spaces to natural ridgelines and landmarks such as Mount Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies.
  - Recognizing that new development will inevitably result in some loss of existing views, as part of the City's review of development and commercial and industrial landscape plans, minimize the loss of views from public spaces.
  - Important view corridors to be protected include Somerville Road, Lone Tree Way, Hillcrest Avenue, SR 4, SR 160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road.
- d. Strengthen and emphasize community focal points, visual landmarks and features contributing to Antioch's identity using design concepts and standards implemented through the zoning ordinance, design guidelines and design review process and specific plan and planned community documents.
- e. Create a framework of public spaces at the neighborhood, community, and regional scale.
  - Provide for new open space opportunities throughout the City, especially in neighborhoods having minimal access to open space. This includes exploring the potential for creek corridors, bicycle and pedestrian paths, and new small open space and conservation areas.
  - Provide an open space network linked by pedestrian and bicycle paths, which preserves and enhances Antioch's significant visual and natural resources.
  - Provide sitting areas within parks and along pedestrian and bicycle paths.
  - Restore the San Joaquin Riverfront as a linear park and multi-use trail from the westerly City limits to Rodger's Point/Fulton Shipyard.
  - Utilize existing creeks, such as Sand Creek, as linear parks, providing pedestrian and bicycle paths.
  - Views along utility corridors should be retained and enhanced through the use of planting materials to frame and focus views and to provide a sense of orientation.
- f. Provide for consistent use of street trees to identify City streets, residential neighborhoods, commercial and employment districts, and entry points to the City.
  - Select species that enhance the pedestrian character of, and convey a distinctive and high quality visual image for the City's streets; are drought-tolerant, fire- and pest-resistant; and complement existing street trees.
  - Use changes in tree species, scale, color and spacing to differentiate the roadway types identified in the Circulation Element.
  - Use a consistent palette of street trees to distinguish Antioch from other communities, and to distinguish individual areas within the community (e.g., Rivertown, East Lone Tree, "A" Street Corridor) from each other.
  - Street trees should relate to the scale, function, and visual importance of the area in which they are located, establishing a hierarchy of street trees for entry locations, intersections, and activity centers.
  - *Major accent trees* are to be located at City and community entry locations, key intersections, and major activity centers (e.g., County East Mall, Prewett Family Park).

*Street Trees* should be selected as a common tree for street frontages. A single species may be selected for all residential neighborhoods or different species to distinguish different neighborhoods from each other.



- Within residential neighborhoods, street trees should be full, providing shade and color. In commercial districts, the trees should provide shade but be more transparent at the motorist and pedestrian levels to promote views of store fronts and visual interaction of pedestrians. Within employment districts street trees should provide shade and screening, and be used to frame views of buildings and building entries.
- g. Maintain common community design elements throughout the City.
    - Provide a system of well-designed directional signage, facilitating wayfinding to community features such as shopping areas, marinas, parks, and civic buildings.
    - Incorporate common design elements in community features such as roadway landscaping, streetlights, street signs, traffic lights, and community directional signage.
    - Use design variations in landscaping, street light standards, and street signs as a means of defining special design districts (e.g., Rivertown, Somersville Road and "A" Street corridors).
  - h. Wherever feasible, existing above-ground utility lines should be placed underground.
  - i. Preserve and strengthen Rivertown as a vital and attractive place.
    - Promote activity along Rivertown streets through attractive building designs with street level activity and facade windows, public art, and other landscaping elements that are pedestrian-friendly.
    - Maintain views of the San Joaquin River from buildings within Rivertown, where they are available, by placing windows rather than solid walls along the river side of buildings.
    - Avoid blank parking garage building frontages.
    - Orient buildings along the first street inland from the San Joaquin River toward the river to enhance pedestrian and bicycle activity.
    - Utilize murals to enhance the design quality of existing large blank walls (e.g., Campanile Theater).
    - Seek opportunities for small public spaces throughout Rivertown to provide for the comfort of pedestrians and bicyclists, enhance street level activity, and provide sitting areas and protection from the sun and rain. Small left-over spaces between buildings, at street corners, at the edges of parking lots, or along the edges of sidewalks can thus become attractive and lively additions to the street scene.
  - j. Within multi-family, commercial, office and business parks, and industrial developments, screen enclosures, loading areas, mechanical equipment, and outdoor storage areas from view from public streets, and, as appropriate, from other public views.
    - Ground mounted equipment incidental to multi-family, commercial, office, and business park development shall be appropriately screened with solid walls, trellises, and/or landscaping. Equipment location should be away from the front of the building, and screening must be similar to adjacent architecture and materials.
    - Refuse collection areas are to be large enough to accommodate storage of recyclable materials, and be screened with a solid perimeter wall using materials and colors compatible with those of the adjacent structures. Refuse collection areas should be located on an interior building side yard, and are to be roofed if the contents of the area are visible from a freeway.
    - Loading docks and areas, as well as trash enclosure areas shall be screened from public view areas. When there is adjacent residential development, loading and trash enclosure areas shall be physically separated and screened from adjacent residential structures.
    - Service areas, including storage, special equipment, outdoor work areas, and loading areas, should be screened from public view with landscaping and architectural elements.
    - Screen utility equipment and communication devices so that the project will appear free of all such devices.
  - k. Prohibit roof-mounted equipment (with the exception of small satellite dishes and solar panels) for single-family residential development consistent with FCC regulations.
    - New residential uses should be prewired so as to allow for the placement of satellite dishes in a manner that is integrated with the building design, and avoids placement of dishes on chimneys or above the roof line.
    - Where required for commercial, office, and industrial development, screen roof mounted equipment and cellular antennas completely from public view on all sides. Particular attention shall be given to the sides

visible from freeways, with the intent of minimizing the need for screening devices to the greatest extent possible.

- I. Screening of roof-mounted equipment and cellular antennas, where provided, should be an integral part of the building design and not appear as a tacked-on afterthought. Ground-mounted mechanical equipment (with appropriate wall or landscape screening) is encouraged as an alternative to roof mounting.
- m. All roof screens must be solid and continuous. Continuous grills or louvers must cover equipment. Roof screens will be sheathed in a matching or complementary material to the exterior building material.
- n. Utilize street lights in commercial, office, and business park areas that are pedestrian-oriented, attractively designed, compatible in design with other street furniture, and provide adequate visibility and security.
- o. Design onsite lighting to improve the visual identification of adjacent structures.
  - Within commercial areas, lighting should also help create a festive atmosphere by encouraging evening use of areas by pedestrians.
  - Within commercial and industrial development, provide design features such as screened walls, landscaping, setbacks, and lighting restrictions between the boundaries of adjacent residential land use designations to reduce the impacts of light and glare.
  - In all projects, lighting fixtures should be attractively designed and of a low profile to complement the overall design theme of the project within which they are located.
  - On-site lighting shall create a safe environment, adhering to established crime prevention standards, but shall not result in nuisance levels of light or glare on adjacent properties. Limit sources of lighting to the minimum required to ensure safe circulation and visibility.
- p. Lighting should accommodate night use of streets and promote security while complying with the provision of a dark night sky. Streetscape areas that are used by pedestrians at night should be well lit. Within rural and open space areas, limit street lighting to intersections and other locations that are needed to maintain safe access (e.g., sharp curves).
- q. The design of new developments shall protect residents' privacy by avoiding placement of windows directly opposite each other and avoiding windows overlooking the yard areas of adjacent residences to the maximum feasible extent.
- r. New multi-family, commercial, office, and business park developments shall emphasize pedestrian level activities by utilizing the following techniques.
  - design projects so as to have a central plaza or main visual focus which is oriented toward pedestrians;
  - incorporate plaza areas which can be used as informal gathering places;
  - install "street furniture" (benches, bus shelters, planters, bike racks, trash receptacles, newspaper racks, water fountains, and bollards) to create and enhance small plazas and similar open spaces within urban areas; and
  - within commercial, office, business park, and industrial developments, encourage architectural styles that provide covered verandas and other similar pedestrian-oriented shade features.
- s. Where needed, undertake active programs to minimize or prohibit through traffic from using neighborhood collectors and local streets. Visual deterrents to through traffic will be emphasized, using physical deterrents only as a last resort.

*Policy 8.8.1: School Facilities Objective.* Cooperate with the Antioch Unified School District, Brentwood School District, and the Liberty Union High School District to facilitate the acquisition of sites and the construction of school facilities such that all school age children have access to uncrowded school facilities providing superior educational opportunities.

*Policy 8.8.2: School Facilities Policies*

- a. Maintain clear, ongoing communications with area school districts on all matter related to the need for and provision of school sites and other administrative, educational, and recreational facilities.
- b. Coordinate the planning efforts of the City and local school districts by:

- locating school facilities to facilitate the primary educational purpose of the facility and allow for safe pedestrian, bicycle, and vehicular access, including the provision of traffic calming measures, where appropriate, in the vicinity of schools;
  - maximizing the joint use of facilities by the City and local school district (including, joint school/park sites and, where feasible, joint use of athletic fields, community meeting facilities, and provision of child and senior care facilities) by developing joint funding for such facilities through a combination of school district and City sources, provided that City contributions to joint facilities are consistent with the availability of such joint facilities to meet non-school recreational and other community needs;
  - designing attractive facilities that can also serve as neighborhood and community gathering places, and contribute to neighborhood identity and pride;
  - requiring reasonable reservation of appropriate locations for development of new schools as part of new development;
  - regularly exchanging information on ( 1) the status of development review and construction, (2) the capacity of area schools, (3) the status of site acquisitions by the districts, and (4) applicable student generation factors by type of development.
- c. Require new development to pay all legally established fees or participate in land-based financing districts established by local school districts for the acquisition and development of school sites with adequate, permanent classroom space, as required by the local school district.
  - d. Maintain land development regulations permitting the development of public and private educational facilities at appropriate locations within the Planning Area.
  - e. Provide incentives in the City's residential growth management program for the provision of developer assistance to local school districts beyond nominally required mitigation fees. The objective of such incentives is that the combination of required fees and incentives provide a full contribution proportional to the needs of the proposed development for all school related facilities to serve the proposed project.
  - f. Work with Los Medanos College to further accessibility to and the quality of local community college education.
  - g. Work with public and private universities (e.g., CSU Hayward, University of Phoenix) to create satellite campuses within Antioch.
  - h. Work with trade schools (e.g., DeVry Institute, ITT Technical Institute, Bryman College) to locate new facilities in Antioch.

*Policy 8.9.1: Parks and Recreation Objective*

Maintain a system of parks, specialized recreational facilities, and natural open spaces of sufficient size and variety and in the appropriate locations to serve the needs of Antioch residents of all ages.

*Policy 8.9.2: Parks and Recreation Policies*

- a. Provide a comprehensive system of recreation and park facilities and services needed by various segments of the city's population – including specific age groups, persons with special physical requirements, and groups interested in specific recreational activities - and make these facilities and services easily accessible and affordable to all users.
- b. Provide a range of public parklands for use by the community including the following.
  - Neighborhood Park.** A park or playground generally five to ten acres in size primarily developed to meet the recreational needs of citizens living within 0.5 to one mile.
  - Joint School/Park.** A neighborhood park development, improved, and maintained on or adjacent to school grounds by the City. Joint school/park facilities are utilized jointly by students and residents from the surrounding neighborhoods. Since school facilities are only available for use by the general public when school is not in session, only half of the total acreage is to be applied to the City's park standard.
  - Community Park.** A larger park or facility developed to meet the park and recreational needs of those living or working within a three to five mile radius. Community parks generally range in size from 10 to 60 acres.

**Regional Park.** A park having a wide range of improvements not usually found in neighborhood or community parks, and designed to meet recreational needs of an entire regional population. Regional parks are generally over 100 acres and serve a population within a 30-minute driving time. Regional parks are generally provided by County and State agencies, and are therefore not included in local park standards.

**Specialized Recreation Areas.** These include recreational areas of facilities devoted to specific activities or uses. Examples include linear parks (trails), sports and ball field complexes, swimming pools, river access and viewing areas, bicycle facilities, and riverfront trail and sitting areas, and marinas and boat launch facilities. The facilities identified above, with the exception of regional parks devoted to preserving the natural environment, generally require relatively flat land. Areas over 10 percent slope will be reviewed by the City prior to dedication to determine the extent to which they serve the intended purposes of the park and to which dedication of such sloping lands will therefore be credited against the applicable performance standards of the Growth Management Element.

- c. Maintain a minimum size for neighborhood parks of five acres or more, unless there is a specific need for a smaller facility.
- d. Secure and develop a shoreline park along the San Joaquin River consisting of recreational trails, viewing areas, and natural habitat protection so as to ensure availability of the waterfront in the city for public enjoyment.
- e. Provide passive and active elements within neighborhood and community parks to meet the needs of citizens of all ages and interests, and thereby ensure that the need for lands for athletics and team sports is an equal to the provision of tranquil settings for picnicking, walking, and relaxation.
- f. Develop athletic field complexes and specialized recreation areas to accommodate the growing community needs for such facilities.
- g. Encourage the preservation of significant natural features and development of landscaped parkways and trail systems in new developments in addition to required park development.
- h. Work with Contra Costa County to establish joint use flood control/ recreational facilities, including multi-use trails and open space along channels and creeks, and within detention basins.
- i. Provide incentives in the City's residential growth management program for the dedication and improvement of usable parklands beyond those normally required by the City.
- j. Provide incentives for private individuals to donate land and funds for park development to the city by establishing a means to accept tax-deductible donations, which may also include donation of equipment and facilities.
- k. Seek partnership opportunities with the private sector and non-profit organizations for the acquisition, development, and maintenance of park facilities and the provision of leisure activities.
- l. Recognize that high quality maintenance and upkeep of park facilities is necessary for the economic health of the community, and place appropriate priority on park maintenance.
- m. Locate new park facilities so that they are highly visible from adjacent streets and neighborhoods to increase safety and enhance visual quality.
- n. Require the provision of private play space for children in small lot single family subdivisions and attached residential developments.
- o. In addition to the provisions of the Quimby Act, pursue use of park fees through grants, the provisions of AB1600, and land-based financing districts.
- p. Establish limitations on the amount of private recreational facilities (e.g., swimming pools, tennis courts, and private parks) that can be substituted for public park dedication or payment of fees. Base such limitations on the extent of public access to the facilities and the extent to which such private facilities might serve public recreation needs.

*Policy 8.10.1: Fire Protection Objective*

Provision of an adequate number of fire stations, along with fire fighting personnel and equipment to protect Antioch residents and businesses.

*Policy 8.10.2: Fire Protection Policies*

- a. Work with the Contra Costa County Fire Protection District to provide high quality fire protection services to area residents and businesses. The City's role should include, but not be limited to:
  - Determining the appropriateness of station location sites;
  - Enforcement of building codes to reduce fire hazards;
  - Collection of mitigation fees established by the fire district to construct needed additional stations within the Antioch Planning Area.
  - Support the District in providing funding for personnel costs to staff stations within the City;
  - Support the District in establishing fees that are adequate to mitigate the impacts of new development and income to support operation of new stations whose construction is financed with development fees; and
  - Requiring reasonable reservation of appropriate sites for new fire stations as part of new development.
- b. In cooperation with the Contra Costa County Fire Protection District, conduct an annual assessment of the adequacy of facilities and services serving Antioch, personnel and staffing needs, and capital needs, based on anticipated growth and the level of service standard set forth in the Growth Management Element. This assessment should be undertaken as part of the annual review of proposed capital projects required by the California Government code (see Chapter 12, Implementation, Section 12.4b).
- c. Provide the Contra Costa County Fire Protection District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.
- d. Involve the Fire Protection District in the development review process by referring development requests to the Fire District for review and comment.

*Policy 8.11.1: Police Services Objective*

Reduce the risk of crime and provide security to Antioch residents and businesses through maintenance of an adequate force of police personnel, physical planning strategies, and a high level of public awareness and support for crime prevention.

*Policy 8.11.2: Police Services Policies*

- a. Provide an adequate police force meeting the performance standards for police services set forth the Growth Management Element.
  - As part of the annual budget and capital improvements program, assess crime prevention and law enforcement services, and evaluate the adequacy of Antioch's facilities and services, personnel and staffing needs, and capital needs, based on anticipated growth and the level of service standard set forth in the Growth Management Element.
- b. Provide sufficient facilities and staffing to ensure the safety of the citizens of Antioch by:
  - Providing expedient response to emergency calls.
  - Maintaining an efficient well-trained and adequately equipped force of police personnel.
  - Providing neighborhood watch and crime prevention programs, and attempting to improve the participation of individual neighborhoods and businesses.
  - Continuing to provide a variety of programs within the Police Department (e.g., traffic crime prevention, REACH, narcotics, investigations) to meet the needs of an active community.
- c. Provide basic requirements and incentives for the provision of design features in new development to reduce the potential for crime.
  - Provide well-lighted and visible streets and street names, entrances, addresses, recreation areas, and parking areas.
  - Limit access into and between buildings to reduce escape routes and undetected entry is made difficult.
  - Provide landscaping which permits surveillance of open areas and entryways, and does not create places for concealment.

- Within multi-family and non-residential developments, design access systems to allow emergency vehicle access around buildings to the greatest extent possible.
- Within multi-family and non-residential developments, eliminate the potential for access to roofs by pallets, flag poles, etc.
- d. Involve the Antioch Police Department in the development review process by referring development requests to the Police Department for review and comment.
- e. Promote community involvement in crime prevention.
  - Promote the establishment and operation of neighborhood watch, park watch, and business watch programs.
  - Work with area schools to maintain educational programs aimed at preventing gang and drug-related activities.

## **(2) City of Antioch Municipal Code**

All developments within Antioch must comply with the City Municipal Code. The code chapters with specific applicability to public services are in *Title 3: Finance*, *Title 4: Planning and Zoning*, *Title 10: Parks and Recreation*.

## **3. Impacts and Mitigation Measures**

This section describes environmental impacts related to public services and recreational facilities that could result from implementation of the Project. The section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project and identifies mitigation measures to address these impacts as needed.

### **a. Thresholds of Significance**

Implementation of the Project would result in a significant impact on the city's public services and recreational facilities if:

1. The project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
  - Fire Protection
  - Police Protection
  - Schools
  - Parks
  - Other Public Facilities

2. The project increases 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.
3. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

## **b. Findings**

### **(1) Fire Protection (Criteria 1 and 3)**

The increase in development intensity and overall density in the city would result in an increase in demand for fire protection and emergency services. The Project would provide for the development of up 4,575 new residential units, resulting in an estimated increase of 14,732 new residents in the city of Antioch (see *Section IV.M, Population and Housing*, for more detail). With buildout of potential residential units, the population of the city would grow by about 12.7 percent, from 115,327 residents in 2020 to 130,059 residents at full buildout.<sup>24</sup> This increase in population would have an impact on fire district calls, especially in the area around East 18<sup>th</sup> and Willow Avenue in the northeast portion of the city where there is an existing deficiency of fire service.

While the Project would result in additional demand for fire services, future development projects would be subject to General Plan Policy 3.5.2.2, which requires development projects to require written verification from CCCFPD that a five-minute response time (including a three-minute running time) can be maintained for 80 percent of emergency fire, medical, and hazardous materials calls on a citywide response area basis. General Plan Policy 8.10.2 also provides that an annual assessment of CCCFPD facilities and services should be completed and that future development projects and master plans be referred to CCCFPD for review and comment. Furthermore, funds generated from Fire Protection Fees of new development under the Project would be directed to fire services, which would alleviate impacts to over-capacity fire protection areas, such as East 18<sup>th</sup> and Willow Avenue. In addition, future residential projects that would occur under the Project would be required to meet all City of Antioch and California State Fire Code requirements for sprinkler systems, alarms, fire flow, access, and fire hydrant spacing, in accordance with relevant fire regulations.

While development under the Project would result in an increased demand for fire protection and emergency medical response services, for the purposes of CEQA, the Project's impact on fire protection would be less than significant.

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<sup>24</sup> California Department of Finance (DOF), 2021. E-5 City/County Population and Housing Estimates, April 1.

## (2) Police Protection (Criteria 1 and 3)

Assuming the max capacity of units the Project is planning for at 4,575 units, According to APD, they would require 15 new officers, 1 new dispatcher, and 1 community service officer in order to maintain appropriate response times. Additional facilities would be required to accommodate the growth in APD's services.<sup>25</sup>

In addition to information provided by APD, the existing size of APD's police force does meet performance standard set forth within the general plan:

*Policy 3.5.3: Police Service*

*3.5.3.1: Performance Standard.* Maintain a force level within a range of 1.2 to 1.5 officers, including community service officers assigned to community policing and prisoner custody details, per 1,000 population. The ratio of community service officers assigned to community policing and prisoner custody details to sworn officers shall not exceed 20 percent of the total number of sworn officers.

Currently, APD response times fall outside of this targeted response time. As of 2020, the city of Antioch has an estimated population of 115,327 with 115 sworn police officers. This places the officer to per 1,000 population ratio at roughly 1. To meet the 1.2 ratio, there would need to be 138 officers to meet the standard for the existing population. To meet the 1.5 ratio, there would need to be 173 officers to meet the standard for the existing population. To accommodate this growth, additional APD facilities would be required to meet the General Plan goals to maintain average response time to emergency calls between seven and eight minutes.

Similar to funding for fire protection services, new staff, equipment, and facilities necessary to provide additional law enforcement services would be funded by development impact fees, which would be required to be paid by all proposed development within the city, as well as by ongoing payments of property taxes and sales within the city. These developments, if completed, would occur incrementally over the course of eight years, and not all at once. Funds acquired through impact fees, and all interest and investment earnings thereon, shall be used to pay for projects that are required for police and associated facilities. In addition, as provided in General Plan Policy 8.11.2, APD should be involved in the development review process of future development projects. Furthermore, the through the implementation of the Objective Design Standards, future projects would be required to incorporate design measures aimed to heighten safety (through lighting, access, and visibility). Thus, the Project would have a less-than-significant impact on the need for additional police protection facilities and require no mitigation measures.

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<sup>25</sup> Morefield, Tony, Antioch Police Department. Personal communication with Urban Planning Partners. March 21, 2022.



### (3) Schools (Criteria 1 and 3)

As stated previously, implementation of the Housing Element Update could result in an additional 4,575 housing units in the city. This increase of new housing units would result in a potential population increase in the city of up to 14,732 persons when compared to 2020 population estimates. With the anticipated development under the Project, there would be an increase in the number of school-aged children that would reside in the city, potentially triggering the need for additional public school facilities. Based on the existing student generation factors, the Housing Element Update could result in an additional 2,007 students to be enrolled in Antioch Unified School District schools.<sup>26</sup>

Anticipated growth under the Housing Element Update would be in addition to the projected student enrollment, which was developed before adoption of the Housing Element. While the Project would result in increased enrollment and potential for additional facilities, future development projects would be subject to General Plan Policy 3.5.8.2, which requires development projects to provide necessary funding and/or capital improvements to mitigate projected impacts on school facilities, as determined by the responsible school district. Furthermore, future development projects would also be subject to General Plan Policy 8.8.2, which requires developers to pay all legally established fees, as well as provide other incentives beyond nominally required mitigation fees. As prescribed in General Plan Policy 8.8.2 and as described above in *Section IV.N.2.a.(2), Leroy F. Greene School Facilities Act of 1998 (Senate Bill 50)*, residential development projects as a result of the Project would be expected to pay for school impact fees. As of 2022, AUSD collects a developer fee of \$3.79 per square foot of residential development and \$0.61 per square foot of commercial development.<sup>27</sup> With implementation of General Plan policies and the payment of fees, impacts associated with implementation of the Project would result in a less-than-significant impact related to schools.

### (4) Recreational Facilities (Criteria 2 and 3)

With the anticipated development under the Project, there would be an increase in the number of residents that would reside in the city, triggering the need for additional Parks and Recreation facilities and staff. According to Parks and Recreation staff, areas in the northern half of Antioch, along 18<sup>th</sup> street, are currently underserved. Many sites are proposed in this area, so additional measures would need to be taken to adequately serve this area.

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<sup>26</sup> Extrapolating Antioch's 2020 population of 115,327 with the AUSD student count of 15,709, we can estimate that approximately 14 percent of Antioch's population are students in AUSD schools. Applying this 14 percent estimation to the projected 14,732 new residents as a result of the Project yields an estimated 2,007 students.

<sup>27</sup> Antioch Unified School District (AUSD), 2022. Developer Fee's Overview. Available at: <https://www.antiochschools.net/Page/284>, accessed June 6, 2022.

Using the City ratio of 5 acres of improved public and/or private neighborhood parks and public community parkland per 1,000 residents, the approximate addition of 14,732 residents under the Plan would yield an increased demand of approximately 73.66 acres of parkland in the city. According to Parks and Recreation data, there's approximately 337 existing acres of parkland in the city. This currently falls below the ratio of 5 acres per 1,000 residents. To meet this standard for the existing population, an additional 239 acres would need to be provided. However, future residential development projects as a result of the Project would be expected to pay for Parks and Recreation impact fees. As of 2022, the City collects a developer fee of \$3,261 for single-family residential and \$2,065 for multi-family residential.<sup>28</sup> Based on the 182 Housing Sites Inventory, this Park and Recreation impact fee could net approximately \$375,830. Furthermore, as required within the City of Antioch Municipal Code, residential projects are required to provide private and group-usable open space as applicable, which would reduce the overall demand and use on local recreational facilities. With the payment of fees and adherence with applicable open space regulations, impacts associated with implementation of the Project-related recreational facilities would be less than significant.

### **c. Cumulative Public Services Impacts**

The geographic area of concern for cumulative public services impacts is the city of Antioch. The intensification of land uses caused by future development under the Project together with other development projects in the area could result in the increased demand for public services, and thereby create a cumulative increase in demand and need for public services and facilities. However, as described above, future development would be subject to impact fees, applicable municipal code requirements, and General Plan policies which would ensure that facilities are developed at a rate deemed appropriate. Furthermore, development would occur gradually over time, and would not happen all at once. For these reasons, implementation of the Project would result in a less-than-significant cumulative impact.

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<sup>28</sup> Antioch Unified School District (AUSD), 2022. Developer Fee's Overview. Available at: <https://www.antiochschools.net/Page/284>, accessed June 6, 2022.

## O. UTILITIES AND SERVICE SYSTEMS

This section describes the current utilities and service systems in the city of Antioch and analyzes how implementation of the Project and its associated development may affect those conditions. The evaluation in this section is based on a review of available resources from service providers, City of Antioch (City) documents, and correspondence with service providers.

### 1. Setting

The following section describes existing utilities, capacities, and expansion possibilities in the city.

#### a. Water Services

##### (1) Water Supply

The City's principal sources of water supply are surface water diverted directly from the Delta or purchased from Contra Costa Water District (CCWD) and delivered via the Contra Costa Canal. The City's existing service area covers approximately 29.5 square miles of area and largely is consistent with Antioch's city limits. A small portion of the service area extends past the city limits on the west side of the city near Somerville Road and Buchanan Road and on the northeast side near Wilbur Avenue.<sup>1</sup>

The City currently pumps water from the Delta intake and stores it in the Municipal Reservoir before treating it at the Antioch Water Treatment Plant (WTP). The City can pump CCWD water from the Contra Costa Canal (Canal) either into the Municipal Reservoir or directly to the WTP. On an as-needed basis, or in an emergency, the City also can purchase treated water from its neighboring agencies including CCWD, Diablo Water District (DWD), and City of Pittsburg.<sup>2</sup>

For 2020, The city's water use by customer type is shown in the Table IV.O-1 below.

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<sup>1</sup> City of Antioch, 2020. Urban Water Management Plan, Section 3, System Description.

<sup>2</sup> City of Antioch, 2020. Urban Water Management Plan, Section 3, System Description.

**TABLE IV.O-1 DEMANDS FOR POTABLE AND RAW WATER – 2020 ACTUAL**

Use Type	Additional Description	Level of Treatment When Delivered	Volume (MG)*
Single-Family		Drinking water	3,263
Multi-Family		Drinking water	446
CII	Included commercial, industrial, and institutional/governmental	Drinking water	520
Landscape	Includes commercial and City irrigation meters	Drinking water	825
Losses	Non-revenue	Drinking water	38
<b>Total</b>			<b>5,092</b>

\*MG = million gallons

Source: City of Antioch, 2020. Urban Water Management Plan, Table 4-1.

## (2) Water Distribution Systems

The City’s existing service area covers approximately 29.5 square miles of area. The 2020 UWMP<sup>3</sup> identifies eleven primary pressure zones that provide water distribution for various areas in the city. The pressure zones are:

- Bear Ridge Zone
- Sunset Area
- Zone 1
- Zone 2
- Zone 2A
- Zone 2B
- Zone 2C
- Zone 3 East
- Zone 3 West
- Zone 4 East
- Zone 4 West

### b. Wastewater (Sanitary Sewer) System

The City maintains and owns the local sewage collection system and is responsible for the collection and conveyance of wastewater to the Delta Diablo Wastewater Treatment Plant (WWTP). Delta Diablo owns and operates the regional interceptors and wastewater treatment plant. The regional conveyance facilities transport wastewater to the Delta Diablo WWTP located at 2500 Pittsburg- Antioch Highway in Antioch. After secondary treatment, the effluent is either discharged through a deep-water outfall to the New York Slough, or further processed through the Delta Diablo’s Recycled Water Facility to tertiary Title 22 recycled water standards and distributed for reuse.

<sup>3</sup> City of Antioch, 2020. Urban Water Management Plan, Figure 3-1.

## **(1) Wastewater Collection System**

Sanitary sewer collection infrastructure is owned and maintained by the City of Antioch. The City has approximately 300 miles of sanitary sewer system mainlines and over 28,000 residential and commercial sewer lateral connections. The Delta Diablo Sanitation District (DDSD) provides sanitary sewer treatment to the city of Antioch as well as to Pittsburg and Bay Point. Most of the collection system outfalls to the Bridgehead and Antioch Pump Stations owned by the DDSD. From there the DDSD is responsible for conveyance of wastewater to the DDSD Wastewater Treatment Plant, located near the border of Antioch and Pittsburg.<sup>4</sup>

## **(2) Wastewater Treatment Facilities**

The Delta Diablo WWTP has a treatment capacity of 19.5 million gallons per day (mgd) and currently treats an average of 13.6 mgd. Wastewater generated by land uses in the city are conveyed via existing infrastructure to the Delta Diablo WWTP for treatment and then discharged to New York Slough, or further processed through the Delta Diablo's Recycled Water Facility to tertiary Title 22 recycled water standards and distributed for reuse as recycled water.<sup>5</sup>

### **c. Stormwater Drainage System**

The City has over 110 miles of mainlines to collect stormwater, independent from the area's wastewater collection system. The stormwater mainlines discharge to channels owned and maintained by both the City of Antioch and the Contra Costa County Flood Control and Water Conservation District (CCCFCWCD). The City typically works with the CCCFCWCD to ensure that runoff from new development is adequately handled. In addition, the City requires that new development implement post construction stormwater best management practices (BMPs) and provide erosion and sedimentation control measures.<sup>6</sup>

### **d. Solid Waste and Recycling**

Republic Services provides solid waste collection, disposal, recycling, and yard waste services to the city. Solid waste and recyclables from the city are taken to the Contra Costa Transfer and Recovery Station in Martinez. Reusable materials are extracted, and the remaining solid waste is then transferred from the Transfer and Recovery Station to the Keller Canyon Landfill in

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<sup>4</sup> Sherwood Design Engineers. 2022. Antioch Housing Development Infrastructure Analysis, 1.3.2 Sanitary Sewer

<sup>5</sup> Thanh Vo, Acting Engineering Services Director, Delta Diablo, 2022. Personal communication with Urban Planning Partners, April 2022.

<sup>6</sup> Sherwood Design Engineers. 2022. Antioch Housing Development Infrastructure Analysis, 1.3.3 Storm Drain

Pittsburg.<sup>7</sup> Keller Canyon Landfill has a maximum permitted throughput of 3,500 tons each day. This landfill has a maximum permitted capacity of 75,018,280 cubic yards with a remaining capacity of 63,408,410 cubic yards.<sup>8</sup>

### **e. Electricity and Natural Gas**

Pacific Gas and Electric Company (PG&E) provides electricity and natural gas service to the city of Antioch. Electric transmission lines primarily run east to west in the northern half of the city, above Contra Loma Regional Park.<sup>9</sup> The electric transmission lines have voltages of under 100 volts, 100-161 volts, and 220-287 volts. Within the city, there are also natural gas distribution systems, with lines running east to west along or near State Route (SR)-4.<sup>10</sup> In 2021, 50 percent of PGE's electricity came from renewable resources including biopower, geothermal, small hydroelectric, solar and wind power. Overall, 93 percent of PGE's electricity came from greenhouse gas (GHG)-free resources, including renewables, nuclear and large hydroelectric power.<sup>11</sup>

### **f. Telecommunications**

The telecommunications system serving the city of Antioch consists of telecommunications circuits from several providers, primarily AT&T and Xfinity.

## **2. Regulatory Setting**

The following describes the federal, State, regional, and local regulatory setting as it relates to utilities and service systems.

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<sup>7</sup> City of Antioch, 2003. General Plan, Chapter 8.6, Solid Waste Management.

<sup>8</sup> CalRecycle, 2022. SWIS Facility/Site Activity Details. Available at: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228>, accessed June 8, 2022.

<sup>9</sup> Pacific Gas and Electric (PG&E), 2022. Geographic Information System (GIS) & Demographic Data Economic Development Site Tool . Available at: [https://www.pge.com/en\\_US/large-business/services/economic-development/opportunities/sitetool.page](https://www.pge.com/en_US/large-business/services/economic-development/opportunities/sitetool.page), accessed May 6, 2022.

<sup>10</sup> Pacific Gas and Electric (PG&E), 2022. Gas Transmission Pipeline Map Available at: [https://www.pge.com/en\\_US/safety/how-the-system-works/natural-gas-system-overview/gas-transmission-pipeline/gas-transmission-pipelines.page](https://www.pge.com/en_US/safety/how-the-system-works/natural-gas-system-overview/gas-transmission-pipeline/gas-transmission-pipelines.page), accessed May 6, 2022.

<sup>11</sup> Pacific Gas and Electric (PG&E), 2022. Exploring Clean Energy Solutions. Available at: [https://www.pge.com/en\\_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page](https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page), accessed May 6, 2022.

## **a. Federal Regulations**

The following section describes the existing federal regulatory environment related to utilities and service systems.

### **(1) Clean Water Act**

The Clean Water Act established the basic structure for regulating discharges of pollutants into the waters of the U.S. and gave the U.S. Environmental Protection Agency the authority to implement pollution control programs, such as setting wastewater standards for industry. The Clean Water Act sets water quality standards for all contaminants in surface waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The Army Corps of Engineers has jurisdiction over all waters of the U.S. including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. Under Section 401 of the Clean Water Act, every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with State water quality standards.

### **(2) National Pollutant Discharge Elimination System**

The National Pollutant Discharge Elimination System (NPDES) permit program under the Clean Water Act controls water pollution by regulating point and non-point sources that discharge pollutants into "waters of the U.S." California has an approved State NPDES program. The U.S. Environmental Protection Agency has delegated authority for NPDES permitting to the State Water Resources Control Board (State Water Board), which has nine regional boards. The RWQCB regulates water quality in the Plan Area.

## **b. State Regulations**

The following section describes the existing State of California regulatory environment related to utilities and service systems.

The following State regulations apply to water supply and conservation, solid waste disposal, and medical waste management, all of which are applicable to the Project.

### **(1) Water Conservation in Landscaping Act (AB 1881, AB 2006)**

The Water Conservation in Landscaping Act of 2006 (Assembly Bill [AB] 1881, Laird) requires cities, counties, and charter cities and charter counties to adopt landscape water conservation

ordinances by January 1, 2010. Pursuant to this law, the Department of Water Resources has prepared a Model Water Efficient Landscape Ordinance for use by local agencies. Most new and rehabilitated landscapes are subject to a water efficient landscape ordinance. Public landscapes and private development projects, including developer-installed single-family and multi-family residential landscapes with at least 2,500 square feet of landscape area, are subject to the model water ordinance. Homeowner-provided landscaping at single-family and multi-family homes is subject to the ordinance if the landscape area is at least 5,000 square feet. However, the ordinance does not apply to registered local, State, or federal historic sites; ecological restoration projects; mined-land reclamation projects; or plant collections.

## **(2) Water Supply Consultation**

Sections 10910 to 10915 of the California Public Resources Code require local water providers to conduct a water supply assessment for projects proposing over 500 housing units, 250,000 square feet of commercial office space (or more than 1,000 employees), a shopping center or business establishment with over 500,000 square feet (or more than 1,000 employees), or equivalent usage. Local water suppliers must also prepare (or have already prepared) an urban water management plan to guide planning and development in the water supplier's service area, and specifically to pursue efficient use of water resources. Issuance of a water supply assessment determination by the local water supplier for a proposed project verifies that the supplier has previously considered a project in its plan and has adequate capacity to serve a project in addition to its existing service commitments (or, alternatively, measures that would be required to adequately serve the Project).

## **(3) California Integrated Waste Management Act**

In 1989, the California Legislature enacted the California Integrated Waste Management Act, which requires the diversion of waste materials from landfills in order to preserve landfill capacity and natural resources. Cities and counties in California were required to divert 25 percent of solid waste by 1995 and 50 percent of solid waste by 2000. This Act further requires every city and county to prepare two documents demonstrating how the mandated rates of diversion will be achieved. The Source Reduction and Recycling Element must describe the chief source of the jurisdiction's waste, the existing diversion programs, and current rates of waste diversion and new or expanded diversion programs. The Household Hazardous Waste Element must describe each jurisdiction's responsibility in ensuring that household hazardous wastes are not mixed with nonhazardous solid wastes and subsequently deposited at a landfill.



#### **(4) California Solid Waste Reuse and Recycling Access Act of 1991**

Public Resources Code Sections 42900–42901, also known as the California Solid Waste Reuse and Recycling Access Act, are part of the California Integrated Waste Management Act. In addition to the solid waste diversion requirements of AB 939, this legislation required the California Integrated Waste Management Board, on or before March 1, 1993, to adopt a model ordinance for adoption by a local agency relating to adequate areas for collecting and loading recyclable materials in development projects. A local agency is required to adopt and enforce that model ordinance if it did not adopt an ordinance providing for collection and loading by September 1, 1994. In 2010, the California Integrated Waste Management Board was replaced by CalRecycle.

#### **(5) California Code of Regulations, Title 23: California Model Water Efficient Landscape Ordinance**

Title 23, California’s Model Water Efficient Landscape Ordinance, requires new construction and rehabilitated landscape project applicants to submit a Landscape Documentation Package to the local agency or designated agency for approval. The Landscape Documentation Package includes project and water supply information, and a Water Efficient Landscape Worksheet.<sup>12</sup>

#### **(6) California Code of Regulations, Title 24, Part 11: California Building Standards (CALGreen)**

CALGreen is a Statewide regulatory code for all residential, commercial, hospital, and school buildings. The regulations are intended to encourage more sustainable and environmentally friendly building practices, require low-pollution-emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. Title 24 standards require all new residential and nonresidential development to comply with several energy conservation standards through the implementation of various energy conservation measures—including ceiling, wall, and concrete slab insulation; vapor barriers; weather stripping on doors and windows; closeable doors on fireplaces; insulated heating and cooling ducts; water heater insulation blankets; and certified energy-efficient appliances. CALGreen became mandatory on January 1, 2011, for new residential and commercial construction. Please refer to the regulatory framework subsection of *Section IV.D, Greenhouse Gas Emissions*, for a detailed discussion of AB 32, and other energy-related State regulations.

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<sup>12</sup> California Code of Regulations (CCR), Title 23, Section 490 – 495.

## **(7) California Porter-Cologne Water Quality Control Act**

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne), which was passed in California in 1969, the State Water Board has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local and regional level. The RWQCBs engage in several water quality functions in their respective regions and regulate all pollutant or nuisance discharges that may affect either surface water or groundwater.

### **c. Regional Regulations**

The following section describes the existing regional regulatory environment related to utilities and service systems.

#### **(1) Regional Water Quality Control Board (RWQCB)**

The RWQCB governs many of the regulations associated with utilities, specifically potable water, sanitary sewers, storm drains, and recycled water. RWQCB has the authority to enforce water quality regulations found in the Clean Water Act based on the Porter-Cologne Water Quality Control Act. Wastewater discharges are guided by the NPDES permits granted by the RWQCB. San Francisco Regional Water Quality Control Board, region 2, is responsible for Contra Costa County.<sup>13</sup>

### **d. Local Regulations**

The City regulations related to utilities that are applicable to the Project are discussed below.

#### **(1) City of Antioch General Plan**

The City of Antioch General Plan contains the following goals and policies that are relevant to the Project:

*Policy 8.4.1: Water Facilities Objective.* Ensure a water system capable of providing high quality water to existing and future residences, businesses, institutions, recreational facilities, and other uses within the City of Antioch during peak use conditions, with sufficient water in storage reservoirs for emergency and fire protection needs.

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<sup>13</sup> State Water Resources Control Board (State Water Board), 2013. *Fact Sheet*. Available at: [https://www.waterboards.ca.gov/publications\\_forms/publications/factsheets/docs/region\\_brds.pdf](https://www.waterboards.ca.gov/publications_forms/publications/factsheets/docs/region_brds.pdf), accessed May 6, 2022.

*Policy 8.4.2: Water Facilities Policies*

- a. As part of the design of water systems, provide adequate pumping and storage capacity for both drought and emergency conditions, as well as the ability to provide fire flows required by the Contra Costa County Fire Protection District.
- b. Ensure that adequate infrastructure is in place and operational prior to occupancy or new development, such that (1) new development will not negatively impact the performance of water facilities serving existing developed areas, and (2) the performance standards set forth in the Growth Management Element will continue to be met.
- c. Maintain an up-to-date master plan of water facilities.
- d. Maintain existing levels of water service by protecting and improving infrastructure, replacing water mains and pumping facilities as necessary, and improving the efficiency of water transmission facilities.
- e. Permit the construction of interim facilities only when it is found that construction of such facilities will not impair the financing or timely construction of master planned facilities.
- f. Periodically evaluate local water consumption patterns, the adequacy of existing facilities, and the need for new facilities, including this information in the comparison of proposed development projects to the performance standards of the Growth Management Element.
- g. Incorporate expected reductions in the need for water facilities resulting from water conservation programs only after several years of experience with the implementation of such programs.
- h. Provide the Contra Costa Water District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.

*Policy 8.5.1: Wastewater Management Objective.* Ensure a wastewater collection, treatment, and disposal system capable of providing sewer services to existing and future residences, businesses, institutions, recreational facilities, and other uses within the City of Antioch during peak use conditions.

*Policy 8.5.2: Wastewater Management Policies*

- a. As part of the design of sewer systems, provide adequate capacity for average and peak conditions.
- b. Ensure that adequate infrastructure is in place and operational prior to occupancy of new development, such that new development will (1) not negatively impact the performance of sewer facilities serving existing developed areas, and (2) the performance standards set forth in the Growth Management Element will continue to be met.
- c. Maintain an up-to-date master plan of sewer facilities.
- d. Continue to facilitate economically feasible water conservation programs as a means of reducing sewage generation and the need for expanding sewage treatment capacity.
- e. Work with Delta Diablo Sanitation District to explore and develop uses for treated wastewater. Where reclaimed wastewater can be economically delivered, require the installation of dual water systems permitting the use of reclaimed water supplies for irrigation purposes and industrial purposes.
- f. Incorporate expected reductions in sewage flow projections and the need for sewage treatment capacity resulting from water conservation programs only after several years of experience with the implementation of such programs.
- g. Permit the construction of interim facilities only when it is found that construction of such facilities will not impair the financing or timely construction of master planned facilities.
- h. Periodically evaluate local sewage generation patterns, the adequacy of existing facilities, and the need for new facilities, including this information in the comparison of proposed development projects to the performance standards of the Growth Management Element.

## IV. SETTING, IMPACTS, AND MITIGATION MEASURES

## O. UTILITIES AND SERVICE SYSTEMS

- i. Provide the Delta Diablo Sanitary District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.
- j. Work cooperatively with affected agencies to ensure that capacity allocations are adjusted among the agencies served by Delta Diablo Sanitation District to optimize plant utilization, avoid unnecessary expansions, and facilitate needed expansions.

*Policy 8.6.1: Solid Waste Management Objective.* Reduce the amount of solid waste requiring disposal at landfills, enhancing the potential for recycling of the City's solid wastes.

*Policy 8.6.2: Solid Waste Management Policies*

- a. Continue contracting for garbage and recycling collection services.
- b. Require provision of attractive, convenient recycling bins and trash enclosures in new residential and non-residential development.
- c. Provide and promote opportunities to reduce solid waste generation at home and in businesses and public facilities, making possible the safe disposal of hazardous materials.
- d. Require builders to incorporate interior and exterior storage areas for recyclables into new commercial, industrial, and public buildings.
- e. Consider the use of co-generation at appropriate facilities.
- f. Support the identification and selection of new landfill sites in remote locations of the County outside of and not requiring access through the Antioch Planning Area, where such sites would not impact existing or proposed parks or water storage facilities.
- g. Limit the location of solid waste transfer stations to areas where heavy industrial uses would be appropriate, avoiding traffic, odor, and other environmental impacts on the community.
- h. The City of Antioch shall follow State regulations in implementing the goals, policies, and programs in order to achieve and maintain a 50 percent reduction in solid waste disposal through source reduction, reuse, recycling, and composting.
- i. In accordance with State regulations, Antioch shall prepare an annual progress report to determine the City's progress toward meeting its diversion goals and objectives.
- j. The City shall require all development projects to coordinate with appropriate departments and/or agencies to ensure that there is adequate waste disposal capacity to meet the waste disposal requirements of the project, and the City shall recommend that all development projects incorporate measures to promote waste reduction, reuse, recycling, and composting.

*Policy 8.7.1: Storm Drainage and Flood Control Objective.* Conduct all storm water via adequately sized storm drains and channels.

*Policy 8.7.2: Storm Drainage and Flood Control Policies*

- a. Continue working with the Contra Costa County Flood Control District to ensure that runoff from new development is adequately handled.
- b. Require adequate infrastructure to be in place and operational prior to occupancy of new development, such that:
  - new development will not negatively impact the performance of storm drain facilities serving existing developed areas, and
  - the performance standards set forth in the Growth Management Element will continue to be met.
- c. Design flood control within existing creek areas to maximize protection of existing natural settings and habitat.
- d. Provide retention basins in recreation areas where feasible to reduce increases in the amount of runoff resulting from new development.

e. Require new developments to provide erosion and sedimentation control measures to maintain the capacity of area storm drains and protect water quality.

f. Require implementation of Best Management Practices in the design of drainage systems to reduce discharge of non-point source pollutants originating in streets, parking lots, paved industrial work areas, and open spaces involved with pesticide applications.

## **(2) City of Antioch 2020 Urban Water Management Plan (Draft)**

The City of Antioch released a draft of their 2020 Urban Water Management Plan (UWMP) in May 2021.<sup>14</sup> The 2020 UWMP evaluates sources of the water supply for the City's project population and future water demand until 2045, the planning horizon.

### **3. Impacts and Mitigation Measures**

This section describes environmental impacts related to utilities and service systems that could result from implementation of the Project. The section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project and identifies mitigation measures to address these impacts as needed.

#### **a. Thresholds of Significance**

Implementation of the Project would result in a significant impact on the City's utilities and service systems if it would:

1. Exceed wastewater treatment requirements of the applicable Regional water Quality Control Board.
2. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
3. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
4. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.
5. 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.

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<sup>14</sup> City of Antioch, 2021. Urban Water Management Plan.

6. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.
7. Comply with federal, state, and local statutes and regulations related to solid waste.

**b. Findings**

**(1) Wastewater (Criteria 1, 2, and 5)**

The City owns and maintains a collection system that delivers raw sewage to Delta Diablo pumping stations. Delta Diablo manages the wastewater collection and treatment for the domestic and industrial wastewater flows generated within the city as well as Pittsburg and the unincorporated community of Bay Point in Contra Costa County. The capacity of the infrastructure that would serve the Project is dependent on the City's collection system and Delta Diablo's conveyance system. As part of the 2010 Master Plan Update, capacity deficiencies in Delta Diablo's conveyance system were identified primarily at buildout conditions and included minor deficiencies of the infrastructure that currently serves the city (i.e., Bridgehead Force Main/Gravity Main and Antioch Conveyance System). Pending proposed development(s), Delta Diablo may require a sewer study to evaluate and verify the capacity of the infrastructure serving the city.<sup>15</sup>

Buildout of the residential sites identified within the Project's Housing Site Inventory may result in the need for upgrades to existing infrastructure depending on the size and location of the developments. While the 2014 Wastewater Collection System Master Plan (WCSMP) confirms the existing City infrastructure has capacity to treat additional sewage flows from new developments, existing collection mainlines must have adequate capacity to take on additional flows. The WCSMP identifies areas where sanitary sewer flows are at or above their designed capacity. Areas between Wilbur Avenue and E 18<sup>th</sup> Street (west of Hillcrest) and the area around Lone Tree Way and Deer Valley Road are areas with previously identified capacity issues in the WCSMP. The Lone Tree Way and Deer Valley Road areas are within a significantly impacted zone and will likely require the upsizing of the existing City collection mainlines. The E 18<sup>th</sup> Street and Wilbur area is in a less impacted zone. As these development sites are spread-out capacity studies will need to be conducted at the site-specific level to confirm if and where City infrastructure will need to be improved. Future Housing Inventory Sites will also need to consider the construction of new mainlines to connect developments to the larger City collection system.

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<sup>15</sup> Thanh Vo, Acting Engineering Services Director, Delta Diablo. Personal communication with Urban Planning Partners, March 2022.

As new mainline construction stretches further from existing City infrastructure, pump stations will be required to maintain positive drainage through the system.<sup>16</sup>

Furthermore, future residential projects that would occur under the Project would be required to meet all applicable General Plan policies regarding water, including General Plan Policy 8.5.2, which ensures that adequate wastewater infrastructure is in place prior to the occupancy of a new development.

Once specific projects are developed, Delta Diablo and relevant City departments would review the environmental documentation and plans and specifications to ensure sewer service can be provided and to ensure compliance with Delta Diablo Code and municipal code relating to construction standards, including permit and capital facilities capacity charges.<sup>17</sup> Additionally, it's worth noting that these residential developments, if developed, would incur incrementally over time, and are dependent on external factors outside of the City's control such as market forces. Therefore, the Project's impact on wastewater would be less than significant.

## **(2) Water (Criteria 2 and 4)**

CCWD currently does not have plans or a need to expand its existing water infrastructure specifically for Antioch. In addition, existing water capacities are projected to be sufficient for anticipated growth within CCWD's service area, which includes the city of Antioch.<sup>18</sup> Per the UWMP, additional raw water provided by the Brackish Desalination facility is expected to supply all new developments with adequate domestic water. However, the distribution system for domestic water will require improvements to the City distribution mainlines at several project sites. The installation of distribution mainlines will affect the pressure sustained in the existing system. Studies conducted in the Urban Water Management Plan (UWMP) and Water Supply Management Program (WSMP) showed all but one of proposed developments sites lay within pressure zones that were modeled to be sufficient for both current and future demands.

Sites along Contra Loma Blvd, south of SR-4 was modeled in 2014 for the WSMP and showed the fire water delivery is less than half what is required. To rectify this will require additional distribution mains or booster pumps to increase standing pressure before development of the area continues.

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<sup>16</sup> Sherwood Design Engineers. 2022. Antioch Housing Development Infrastructure Analysis, 1.4.2 Sanitary Sewer.

<sup>17</sup> Thanh Vo, Acting Engineering Services Director, Delta Diablo. Personal communication with Urban Planning Partners, March 2022.

<sup>18</sup> Mark Quady, Planning Manager, Contra Costa Water District. Personal communication with Urban Planning Partners, March 2022.

Sites along E 18th Street, east of Hillcrest Avenue, require significant mainline additions to supply the new planned developments. While this will increase the capital costs of the proposed sites, there is expected to be little impact to the city system as a whole.

Sites 113, 114, and 115 along Laurel Road will also require additional water mainline installation. Due to the distance from the nearest distribution pumps, this mainline extension will require further studies analysis to confirm adequate pressure will be maintained at the proposed building sites. Additionally, as with all new developments, the Project will require typical infrastructure improvements such as water laterals and backflow preventors.<sup>19</sup>

Furthermore, future residential projects that would occur under the Project would be required to meet all applicable General Plan policies regarding water, including General Plan Policy 8.4.2, which ensures that adequate water infrastructure is place prior to the occupancy of a new development.

Although the improvements at the discussed sites increase the financial cost of the development for the projects, they do not pose an adverse environmental hazard. For these reasons, the Project would have a less-than-significant impact related water supply and facilities.

### **(3) Stormwater (Criteria 3)**

Existing stormwater infrastructure covers most of Antioch's neighborhoods allowing for increased development. However, as storm drainpipes spread further from their outfall location, the need for pump stations to keep the system shallow increases. Pump station requirements will need to be studied at the individual project level and will depend on the developments increase of impervious surfaces as it relates to the existing site.<sup>20</sup>

Several development areas will require expansions to the City storm drain system beyond typical lateral connections. These include potential sites in Northeast Antioch east of Hillcrest Avenue, along Viera Avenue and Laurel Road. This area would require typical lateral expansions as well as significant mainline expansions to connect the new storm drain network to the larger city-wide conveyance system. Viera Avenue contains existing developments, however per the city storm drain system maps and visual inspection, the neighborhood does not currently contain any existing drainage infrastructure. As with the sewer system, storm drain is gravity driven and mainline expansion carries the risk of pump station requirements. However, without specific data

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<sup>19</sup> Sherwood Design Engineers. 2022. Antioch Housing Development Infrastructure Analysis, 1.4.1 Water

<sup>20</sup> Sherwood Design Engineers. 2022. Antioch Housing Development Infrastructure Analysis, 1.3.3 Storm Drain.



on the distribution pipes for each area further analysis is needed at the development specific level to determine if and where pump stations are required.<sup>21</sup>

Future residential projects that would occur under the Project would be required to meet all applicable stormwater standards and ensure adequate infrastructure is in place during the permitting process, as described General Plan Policy 8.7.2. As specific projects are proposed, the City will need to review the environmental documentation, plans, and specifications to ensure projects meet applicable city stormwater engineering standards. Additionally, it's worth noting that these residential developments, if developed, would incur incrementally over time, and are dependent on external factors outside of the City's control such as market forces.

While the identified constraints would increase capital costs for individual projects, none of the constraints pose severe barriers to the development nor pose increased risk to overall city utility treatment or supply capacities. Therefore, the Project's impact on stormwater would be less than significant.

#### **(4) Solid Waste (Criteria 6 and 7)**

The Project would provide for the development of up 4,575 new residential units, resulting in an estimated increase of 14,732 new residents in the city. Using the 2020 solid waste disposal rate of .77 tons per resident per year (equivalent to 4.2 pounds per day), implementation of the Project would generate approximately 11,343 tons of waste per year (equivalent to 61,872 pounds per day). This increase would occur gradually over eight years and be on par with the population growth Antioch. It's reasonable to assume that the per resident disposal rate would remain at the citywide per capita target of 4.2 pounds per person per day.<sup>22</sup> According to CalRecycle, Keller Canyon Landfill, a 244-acre landfill in Pittsburg has a maximum capacity of 75,018,280 cubic yards of solid waste with an estimated closure date of 2050.<sup>23</sup> Currently there are 63,408,410 cubic yards of remaining capacity, for which the Project's contribution would not be significant. Furthermore, the 2050 closure date of the Keller Landfill extends past the Project's horizon of 2031. Solid waste services would therefore have the capacity to process solid waste generated from implementation of the Project.

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<sup>21</sup> Sherwood Design Engineers. 2022. Antioch Housing Development Infrastructure Analysis, 1.4.3 Storm Drain.

<sup>22</sup> CalRecycle, 2022. Antioch - Jurisdiction Per Capita Disposal Rate Trends (Post 2006). Available at: <https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/ReviewReports>, accessed May 6, 2022.

<sup>23</sup> CalRecycle, 2022. SWIS Facility/Site Activity Details. Available at: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228>, accessed May 6, 2022.

Lastly, as described in General Plan Policy 8.6.2, future development projects are required to coordinated with appropriate departments and/or agencies to ensure there's adequate waste disposal capacity.

For these reasons, with implementation of General Plan policies, the Project's impact on solid waste would be less than significant.

### **c. Cumulative Utilities and Service Systems Impacts**

The geographic area of concern for cumulative utilities services impacts is the city of Antioch. The intensification of land uses caused by future development under the Project together with other development projects in the area could result in the increased demand for utilities, and thereby create a cumulative increase in demand and need for utilities and facilities. However, as described above, future development would be subject to impact fees, applicable municipal code, and General Plan policies, all of which would ensure that facilities are developed at a rate deemed appropriate. Furthermore, development would occur gradually over time, and would not happen all at once. For these reasons, implementation of the Project would result in a less-than-significant cumulative impact.

## P. WILDFIRE

This section describes the current wildfire conditions in the city of Antioch; discusses the regulations and policies pertinent to wildfire; and assesses the potentially significant impacts to the environment that could result from implementation of the Project and its associated development.

### 1. Setting

Wildfire hazards typically occur in areas, adjacent or proximate to open space which contains grass, trees, shrubs, or other vegetation that can combine with natural or man-made conditions such as winds, droughts, or human activity to cause a wildfire. Wildfires often spread and pose hazards far beyond the area of their origin. Because of this, wildfires are extremely costly events that pose a serious threat to the preservation of the health and safety of California property owners, residents, and local agencies. Subsequently, California Government Code Section 51175 establishes prevention of wildfire hazards as a matter of statewide concern and entrusts the Office of the State Fire Marshall, the California Department of Forestry and Fire Prevention (CAL FIRE) to identify areas throughout the state at risk of wildfire for identification as moderate, high and very high fire hazard severity zones (FHSZs). This statewide identification and classification of areas is based on a consistent criterion that considers various factors such as an area's fire history, climate, vegetative coverage, and predicted flame length, among others. Areas throughout California where the state assumes financial responsibility for wildfire protection and prevention are referred to as "State Responsibility Areas" (SRAs). Many incorporated municipalities or jurisdictions have separate "Local Responsibility Areas" (LRAs) where they assume responsibility for providing wildfire protection and prevention services in local areas.

According to CAL FIRE's Fire Hazard Severity Zones Maps, depicted in Figure IV.P-1, a majority of the city of Antioch is located within the Contra Costa County LRA, while a small portion of the southern edge of the city is designated a moderate and high FHSZ within a SRA. These lands are located within the City's Roddy Ranch Focus Area as described within the City's General Plan. Lands to the south of the city of Antioch are also designated moderate and high FHSZ as shown on Figure IV.P-1, with areas of very high FHSZ within a SRA located closer to Mount Diablo located further to the south.

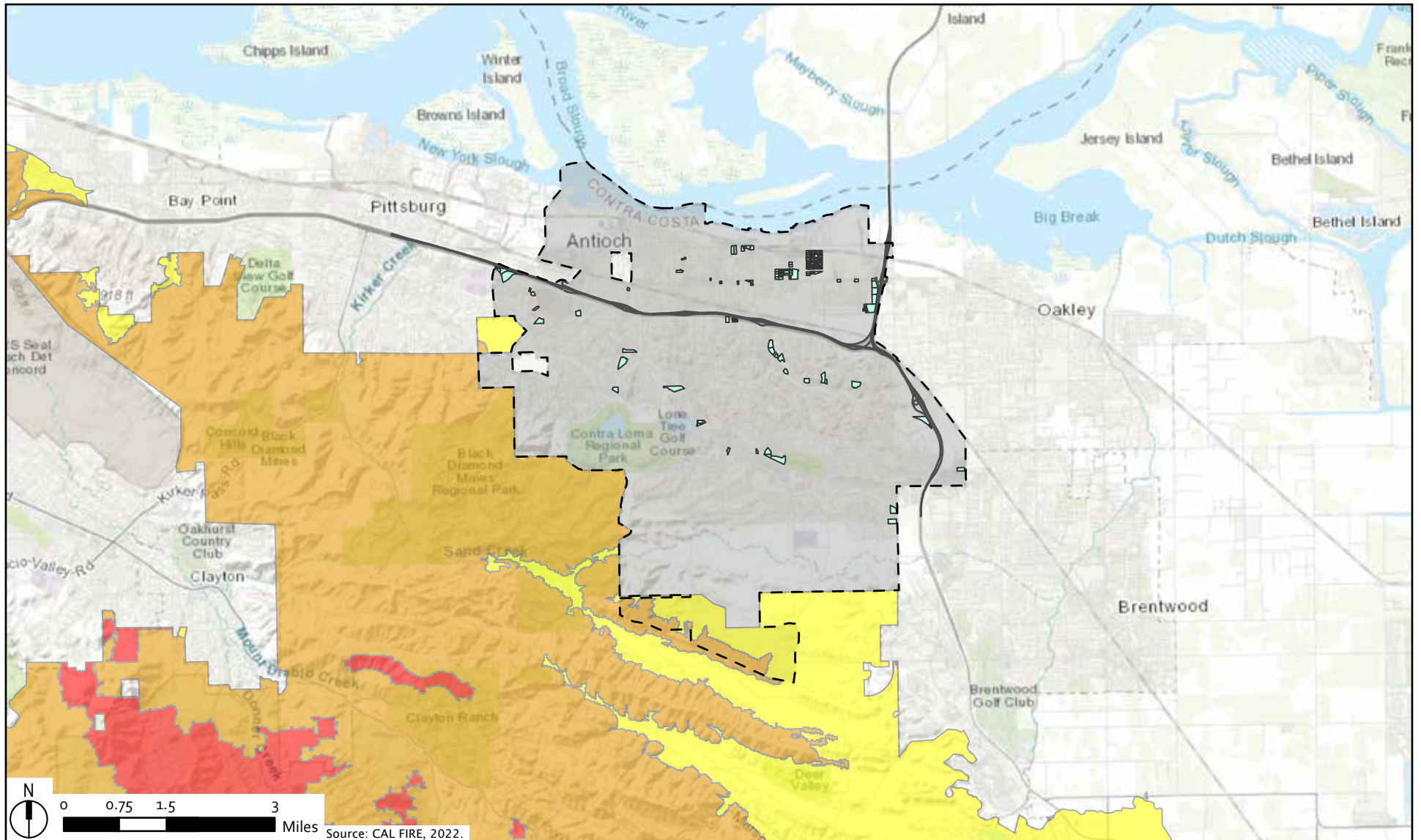


Figure IV.P-1  
Fire Hazard Severity Zones

## 2. Regulatory Setting

The following section includes federal, state, and local regulations pertaining to wildfire hazards that are applicable to the Project.

### a. Federal Regulations

The following section describes the existing federal regulatory environment related to wildfire.

#### (1) National Fire Protection Association 1710

The National Fire Protection Association (NFPA) is the international nonprofit organization devoted to establishing industry standards related to eliminating death, injury, property, or economic loss due to fire, electrical and related hazards. The NFPA recommends that fire departments respond to fire calls within 6 minutes of receiving the request for assistance for 90 percent of incidents. These time recommendations are based on the demands created by a structural fire. It is crucial to attempt to arrive and intervene at a fire scene prior to the fire spreading beyond the room of origin. Total structural destruction typically starts within 8 to 10 minutes after ignition. Response time is generally defined as 1 minute to receive and dispatch the call, 1 minute to prepare to respond to the fire station or field, and 4 minutes (or less) travel time. (NFPA, 2020.)

### b. State Regulations

The following section describes the existing State of California regulatory environment related to wildfire.

#### (1) California Department of Forestry and Fire Protection

California Government Code Section 51175 establishes prevention of wildfire hazards as a matter of statewide concern and entrusts the Office of the State Fire Marshall, the California Department of Forestry and Fire Prevention (CAL FIRE) to identify areas throughout the state at risk of wildfire for identification as moderate, high, and very high fire hazard severity zones (FHSZs). This statewide identification and classification of areas is based on a consistent criterion that considers various factors such as an area's fire history, climate, vegetative coverage, and predicted flame length, among others. FHSZ designations are tied to regulations regarding how buildings are constructed, and property protected in these areas to reduce wildland fire risks. Areas throughout California where the state (CAL Fire) assumes legal and financial responsibility for wildfire protection and administers fire hazard classifications and building standard regulations, are referred to as "State Responsibility Areas" (SRAs). SRAs are defined as land that meets the following criteria:

- Are county unincorporated areas.
- Are not federally owned.
- Have wildland vegetation cover rather than agricultural or ornamental plants.
- Have watershed and/or range/forage value.
- Have housing densities not exceeding three units per acre.

Where SRAs contain built environment or development, the responsibility for fire protection of those improvements (non-wildland) is that of a local government agency.

Many incorporated municipalities or jurisdictions have separate “Local Responsibility Areas” (LRAs) that do not meet the above criteria of SRAs. Therefore, fire protection of LRAs typically provided by City fire departments, fire protection districts, and counties, or by CAL FIRE under contract to local governments. LRAs may include flammable vegetation and wildland urban interface areas where the financial and jurisdictional responsibility for improvement and wildfire protection is that of a local government agency.

As depicted in Figure IV.P-1, a majority of the city of Antioch is located within a LRA, while a small portion of the southern edge of the city is designated a moderate and high FHSZ within a SRA. These lands are located within the City’s Roddy Ranch Focus Area as described within the City’s General Plan. Lands to the south of the city of Antioch are also designated moderate and high FHSZ as shown on Figure IV.P-1, with areas of very high FHSZ within a SRA located closer to Mount Diablo located further to the south.

## **(2) California Emergency Services Act**

Under the Emergency Services Act, Government Code Section 8550, et seq., the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving wildfire and other natural and/or human-caused incidents is an important part of the plan, which is administered by the Governor’s Office of Emergency Services (OES). The office coordinates the responses of other agencies, including the California Environmental Protection Agency (CalEPA), the California Highway Patrol (CHP), regional water quality control boards, air quality management districts, and county disaster response offices.

## **(3) California Fire Code**

The 2019 California Fire Code (CCR Title 24, Part 9) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement,

replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

### c. Local Regulations

The following section describes the existing local regulatory environment related to wildfire.

#### (1) City of Antioch General Plan

The following existing policies and actions from the City's General Plan<sup>1</sup> are related to wildfire and are applicable to the Project.

#### 3.5.2 Fire Protection Facilities

*Policy 3.5.2.1: Performance Objective*

Maintain competent and efficient fire prevention and emergency fire, medical, and hazardous materials response services with first responder capability in order to minimize risks to life and property.

*Policy 3.5.2.2: Performance Standard*

Prior to approval of discretionary development projects, require written verification from the Contra Costa County Fire Protection District that a five-minute response time (including three-minute running time) can be maintained for 80 percent of emergency fire, medical, and hazardous materials call on a citywide response area basis.

### 8.10 Fire Protection Objective and Policies

*Policy 8.10.2: Fire Protection Policies*

- a. Work with the Contra Costa County Fire Protection District to provide high quality fire protection services to area residents and businesses. The City's role should include, but not be limited to: Determining the appropriateness of station location sites; Enforcement of building codes to reduce fire hazards; Collection of mitigation fees established by the fire district to construct needed additional stations within the Antioch Planning Area. Support the District in providing funding for personnel costs to staff stations within the City; Support the District in establishing fees that are adequate to mitigate the impacts of new development and income to support operation of new stations whose construction is financed with development fees; and Requiring reasonable reservation of appropriate sites for new fire stations as part of new development.
- b. In cooperation with the Contra Costa County Fire Protection District, conduct an annual assessment of the adequacy of facilities and services serving Antioch, personnel and staffing needs, and capital needs, based on anticipated growth and the level of service standard set forth in the Growth Management Element. This assessment should be undertaken as part of the annual review of proposed capital projects required by the California Government code (see Chapter 12, Implementation, Section 12.4b).

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<sup>1</sup> LSA, 2003. City of Antioch General Plan, November 24.

- c. Provide the Contra Costa County Fire Protection District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.
- d. Involve the Fire Protection District in the development review process by referring development requests to the Fire District for review and comment.

## 11.5 Fire Hazards Objective and Policies

### *Policy 11.5.2: Fire Hazards Policies*

- a. Where new development borders wildland areas, require appropriate fuel modification and use of fire retardant building materials per the requirements of the Contra Costa County Fire Protection District. Fuel modification may be permitted to extend beyond the boundaries of the site for which wildland fire protection is being provided only if the adjacent owner provides written permission, the proposed fuel modification is consistent with the management practices of the agency controlling such land (if it is in permanent open space), and the off-site fuel modification activity will not significantly impact sensitive habitat areas.
- b. Require that adequate fire protection be available at initial project occupancy, whenever feasible. Thus, stations should be constructed and manned at the outset of new development. If the Contra Costa Fire Protection District finds that a lag time between initial occupancy and operation of new stations cannot be avoided, the City may consider requiring sprinklers in new homes as an alternative.

## 11.8 Disaster Response

### *Policy 11.8.2: Fire Hazards Policies*

- a. Maintain and update the City's emergency Response Plan, as required by State law.
- b. Disseminate disaster preparedness information to local residents and businesses, describing how emergency response will be coordinated, how evacuation, if needed, will proceed, and what residents and businesses can do to prepare for emergency situations. Provide information to the public about:
  - Environmental hazards existing in Antioch;
  - The costs of doing nothing to mitigate these hazards;
  - Why governmental agencies can not eliminate all hazards;
  - What the City does to assist;
  - What the City cannot do;
  - What the public can do to protect itself.
- c. Maintain an effective and properly equipped emergency operations center, along with trained personnel, for receiving emergency calls, providing initial response and key support to major incidents, meeting the demands of automatic and mutual aid programs, and maintaining emergency incident statistical data.
- d. Maintain ongoing emergency response coordination with surrounding jurisdictions.
- e. Encourage private businesses and industrial uses to be self-sufficient in an emergency by:
  - Maintaining a fire control plan, including onsite fire fighting capability and volunteer response teams to respond to and extinguish small fires; and
  - Identifying personnel who are capable and certified in first aid and CPR.
- f. Regularly review and clarify emergency evacuation plans for dam failure, fire, and hazardous materials releases.



## (2) City of Antioch Municipal Code

The following policies and actions from the City's Municipal Code are related to wildfire and are applicable to the Project.

### Title 4, Chapter 2 Disaster Council

#### *Policy 4-2.08: Emergency Plan*

The Disaster Council shall be responsible for the development of the Emergency Plan, which plan shall provide for the effective mobilization of all the resources of the City, both public and private, to meet any condition constituting a local emergency, state of emergency, or state of war emergency and shall provide for the organization, powers and duties, services, and staff of the Emergency Organization. Such plan shall include compliance with the Standardized Emergency Management System pursuant to Cal. Gov't Code §§ 8607 et seq. and shall take effect upon adoption by resolution of the City Council.

### Title 8, Chapter 15 Fire Code

#### *Policy 8-15.01: Adoption of the 2019 California Fire Code*

(A) The 2019 California Fire Code (California Code of Regulations, Title 24, Part 9 [based on the 2018 International Fire Code published by the International Code Council]), including Chapters 1-10 and 12-80, Appendix B, Appendix C, Appendix D, Appendix F, Appendix H, Appendix I, Appendix J, and Appendix K, as amended by the changes, additions, and deletions set forth in ordinance are adopted by reference and shall be controlling and enforceable within the jurisdictions boundaries of the city.

(B) In addition, those amendments to the California Fire Code adopted by the Contra Costa County Fire Protection District pursuant to Ordinance Number 2019-37 are adopted by reference and shall be controlling and enforceable within the jurisdictional boundaries of the city. Copies of the 2019 California Fire Code and Contra Costa Fire Protection District Ordinance 2019-37 are on file with the Community Development Department.

#### *Policy 8-15.03: Enforcement of the 2019 California Fire Code*

The Fire Chief of the Contra Costa County Fire Protection District or designee is authorized to enforce the Fire Code as amended within the boundaries of the city.

### Title 9, Chapter 5, Article 21 Fire Retardant Roofing Materials

#### *Policy 9-5.2101: Applicability*

(A) All roofing materials used in new residential, commercial, and industrial construction and in all building additions shall have a minimum Class "C" fire rating.

(B) Replacement roofing materials shall also have a minimum Class "C" fire rating. The use of materials with less than a Class "C" fire rating may be allowed for minor repair work at the discretion of the Chief Building Official. Re-roofs of mineral aggregate built-up roofs shall not be affected.

(C) Both main and accessory structures shall be subject to these requirements.

(D) The standards listed in this article are minimum ones and stricter requirements may be imposed by the city based on the need for same.

#### *Policy 9-5.2103: Criteria and Standards*

(A) If treated wood shakes and/or shingles are permitted for use they shall have a minimum Class "C" fire rating and be approved by the Chief Building Official. Documentation shall be provided that demonstrates to the satisfaction of the Chief Building Official that the treatment used will last for the life of the roof, is non-toxic, and

will not be adverse to the public's health and safety if washed off the roofing material. In no case shall treated wood shakes and/or shingles be used for buildings which are adjacent to permanent open space areas. In addition, the use of wood shakes and/or shingles for homes at the perimeter of a residential project's phase shall be at the discretion of the Chief Building Official.

(B) Roofing materials used are to be architecturally compatible with the buildings that they are placed on and with the surrounding neighborhood. The City shall have the discretion to review roofing materials proposed for new buildings, additions, and re-roofings to assure such compatibility.

### **(3) City of Antioch Emergency Operations Plan**

The City of Antioch Emergency Operations Plan (EOP) addresses the City's response to an actual or threatened extraordinary incident, disaster, or emergency associated with natural, technological, and human caused hazards, or a national security emergency. The plan outlines the roles and responsibilities assigned to City employees for response and short-term recovery activities and is flexible enough for use to address all hazards, including wildfires. The Plan also includes strategies and procedures for the City of Antioch, Contra Costa County, and other agencies' response to emergencies which require the evacuation of population from impacted areas. These strategies are contained with The Plan was developed with guidance from the California Governor's Office of Emergency Services (Cal OES) and the Federal Emergency Management Agency (FEMA) Comprehensive Planning Guide (CPG 101).

### **(4) Contra Costa County Resources**

#### **Contra Costa County Fire Protection District**

The Contra Costa County Fire Protection District (CCCYPD) provides fire safety and protection services to the CCCYPD which includes unincorporated Contra Costa County and 14 municipalities, inclusive of the City of Antioch. Additionally, as part of the City of Antioch's design review process, the CCCYPD reviews review and approves applications for new construction buildings, access, and water supply systems for subdivisions and new buildings, tenant improvement in existing commercial buildings, new fire suppression and life safety systems installations and modifications to existing systems, high-piled combustible rack storage systems, hazardous materials storage, and process piping systems for compliance with applicable Building Code and/or Fire Code and NFPA Standards

#### ***Contra Costa County Fire Protection District Ordinance 2019-37***

The CCCYPD Ordinance 2019-37 was adopted by the Contra Costa Board of Supervisors on December 17, 2019, and is adopted by the City of Antioch via reference within Title 8, Chapter 15 the City's Municipal Code. The Ordinance itself adopts the 2019 California State Fire Code as well as establishes several amendments and/or additions to the Code to be applied within the CCCYPD.

### **Contra Costa County Emergency Operations Plan**

The Contra Costa County EOP, adopted in 2015 establishes a coordinated response before, during and after an emergency affecting Contra Costa County, inclusive of wildfire hazards. The Plan is intended to facilitate multi-jurisdictional and interagency coordination in emergency operations; establish associated protocols required to effectively prepare for—and respond to, manage, and recover from major emergencies and/or disasters, and establish the operational concepts and procedures associated with field response to emergencies.

### **Contra Costa County Hazard Mitigation Plan**

The Contra Costa County Hazard Mitigation Plan, updated in 2018 is intended to utilize long and short term polices, programs and projects to alleviate death, injury, and property damage that can result from a disaster. The Plan represents the County’s partnership with local governments within the County to reduce risks from natural disasters within the unincorporated and incorporated parts of the County.

## **3. Impacts and Mitigation Measures**

This section analyzes environmental impacts related to wildfire that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project.

Please note that this analysis relies on several existing and “as proposed” General Plan policies to ensure impacts are reduced to the greatest extent feasible. As a part of the Project, individual elements of the existing General Plan are being updated or added. In a corresponding effort, many of their associated objectives and policies are also being modified and added. As such, many of the objective and policy numbers have changed when compared to the existing General Plan. Where applicable, both the existing and proposed objective/policy numbers are given at first reference. After first reference, any referenced General Plan objective/policy number is provided as proposed.

### **a. Significance Criteria**

Implementation of the Project would result in a significant impact on related to wildfire if it would:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan.

2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, because of runoff, post-fire slope instability, or drainage changes.

## **b. Findings**

### **(1) Impair Emergency Response Plan or Evacuation Plan (Criterion 1)**

Adoption and implementation of the Project would increase residential densities in several areas throughout the city of Antioch identified by the Housing Sites Inventory (Housing Sites). However, these Housing Sites are proposed within existing developed areas of the city and not within any hillside areas or areas of the city designated as a FHSZ located within an SRA as shown on Figure IV.P-1.

Furthermore, these Housing Sites are proposed along major transportation corridors in the city which will allow for continued implementation of both the City and County's EOPs as outlined above. These plans will not be impaired by adoption and implementation of the Project due to existing applicable General Plan Policies and Municipal Code Regulations (Code) regarding emergency and disaster response. These include Section 4-2 of the City's Code, which implements the General Plan's disaster response goals by establishing a Disaster Council to provide for the preparation and carrying out of plans for the protection of persons and property within the city in the event of an emergency. In addition, General Plan Policy 11.11.2 (previously General Plan Policy 11.8.2) requires the City of Antioch to regularly maintain and update their adopted Emergency Response Plan as required by State Law, and regularly review and clarify the City's emergency evacuation plans along with a number of other policies intended to reinforce the City's disaster preparedness.

Additionally, as development of Housing Sites identified by the Project occurs, individual developments would be required to be reviewed for consistency with applicable State Building and Fire Codes as described above in *Section IV.P.2*. These codes establish requirements for construction of new buildings in areas at risk of wildfires to provide safety and assistance to emergency responders and firefighters in addressing wildfire risks. These regulations ensure that both by-right and discretionary development applications for Housing Sites identified by the Project will be reviewed for inclusion of necessary improvements related to fire safety. Individual development projects would be required to include improvements as necessary per the applicable

codes to address wildfire risks such as alarm and fire sprinklers, fire-resistance construction, and fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas. Together, these existing policies ensure continued implementation of the City's Emergency Response Plan as well as the absence of any substantial impairments to the City's adopted Emergency Response Plan upon adoption and implementation of the Project. Therefore, impacts are considered to be less than significant.

## **(2) Exacerbate Wildfire Risks (Criterion 2)**

As depicted in Figure IV.P-1, a majority of the city of Antioch is located within a LRA, while a small portion of the southern edge of the city is designated a moderate and high FHSZ within a SRA. These particular lands are located within the City's Roddy Ranch Focus Area as described within the City's General Plan and no Housing Sites are proposed within this area of the city as part of the Project. Lands to the south of the city of Antioch are also designated moderate and high FHSZs as shown on Figure IV.P-1, with other areas of very high FHSZ located closer to Mount Diablo, further to the south. Adoption and implementation of the Project would increase residential densities in several areas throughout the city of Antioch identified as Housing Sites; however, these Housing Sites are intentionally proposed within existing developed areas of the city and along major transportation corridors to avoid exacerbating wildfire risks throughout the city. Additionally, both future ministerial and discretionary review of proposed Housing Site developments would be required to comply with existing regulations as described above, which are intended to address and mitigate for wildfire risks throughout Antioch. This includes design and building permit review by the CCCFPD, for consistency with relevant local and state policies regarding preventative building practices as established by the California Fire and Building Codes as discussed by Policy 9-5.2101, Policy 9-5.2103, Policy 8-15.01, and Policy 8-15.013 which are detailed above.

Review by the CCCFPD also includes review for consistency with General Plan Policy 3.5.2 relating to Fire Protection Facilities. This General Plan Policy requires the fire department to verify that individual development projects will not prohibit the department from maintaining a five-minute response time (inclusive of a 3-minute running time) for 80 percent of emergency fire, medical and hazardous materials call throughout the city – consistent with industry safety standards. It also includes review of projects for consistency with General Plan Policies 8.10.2 and 11.6.2 (previously General Plan Policy 11.5.2). These policies are intended to minimize the effects prospective growth in the city has on wildland fire hazards and requires that adequate fire protection services be provided as development occurs throughout the planning period.

Based on discussions with CCCFPD as part of this EIR, CCCFPD indicated that it is likely that build-out of the 4,575 residential units identified by the Project would likely necessitate the need

for additional fire protection facilities and infrastructure. CCCFPD Staff indicated the need for additional facilities is anticipated especially in the area generally surrounding East 18<sup>th</sup> Street and Willow Avenue in the northeastern portion of the city. Per CCCFPD, this area of the city is located 3 miles from an existing fire station and response times of future proposed development is likely to be in excess of industry-established response time standards. Several Housing Sites are proposed within this general area of the city, including Housing Sites 1 through 82, 105 through 110, 125 through 127, 130 through 133, and 165. Accordingly, both discretionary and by-right developments proposals for Housing Sites will be reviewed for consistency with relevant regulations pertaining to fire protection facilities as described within the above in *Section IV.P.2*, including General Plan Policies 3.5.2 and 11.6.2. This review will occur as part of design and building permit review and where additional fire protection facilities or infrastructure is identified by CCCFPD as necessary to comply with said regulations, such improvements will be required and conditioned as part of Housing Site development approvals. Accordingly, the Project is not anticipated to expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire and impacts for both ministerial and discretionary development on Housing Sites would be less than significant.

### **(3) Associated Infrastructure (Criterion 3)**

Adoption and implementation of the Project would increase residential densities in several areas throughout the city of Antioch identified in the Housing Sites Inventory. However, these Housing Sites are intentionally proposed within existing developed areas of the city with existing infrastructure availability as part of the site selection process. Further, any future ministerial or discretionary development of Housing Sites as identified by the Project would be required to adhere to all regulatory requirements regarding development and associated infrastructure improvements that are intended to minimize wildfire hazards throughout the city of Antioch. This includes applicable sections of the City's General Plan, Municipal Code, and relevant State fire and building codes as described within the Regulatory Setting Subsection of this Resource Topic, such as General Plan Policy 11.6.2. For discretionary development of Housing Sites identified by the Project, impacts associated with infrastructure improvements including any required measures to address fire safety would be evaluated in their respective subsequent environmental documents. For ministerial development of Housing Sites identified by the Project, review will include consistency with objective design standards developed by the City to reduce physical impacts to the extent feasible, related to the ministerial development of Housing Sites identified by the Project. Accordingly, the Project is not anticipated to exacerbate fire risk or result in temporary or ongoing impacts on the environment. Impacts for both ministerial and discretionary development on Housing Sites would be less than significant.

#### **(4) Downstream Flooding or Landslides (Criterion 4)**

Both ministerial and discretionary development of Housing Sites identified by the Project would be required to comply with applicable regulations and policies related to development's effect on drainage patterns, flooding, and the potential landslides. Accordingly, the Project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts are determined to be less than significant.

##### **c. Cumulative Wildfire Impacts**

As depicted in Figure IV.P-1, a majority of the city of Antioch is located within a LRA, while a small portion of the southern edge of the city is designated a moderate and high FHSZ within a SRA. Adoption and implementation of the Project would increase residential densities in several areas throughout the city of Antioch identified as Housing Sites; however, these Housing Sites are proposed within existing developed areas of the city and not within any areas of the city designated as a FHSZ located within an SRA. Development of Housing Sites identified by the Project in conjunction with other individual developments throughout the city would be required to be reviewed for consistency with applicable State Building and Fire Codes. Compliance with applicable regulations and review processes would ensure that the Project would not contribute to any cumulative impacts related to wildfire hazards.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

P. WILDFIRE



## Q. AGRICULTURE AND FORESTRY RESOURCES

This section describes the current agriculture and forestry resources conditions in the city of Antioch; discusses the regulations and policies pertinent to agriculture and forestry resources; and assesses the potentially significant impacts to the environment that could result from implementation of the Project and its associated development.

### 1. Setting

This section provides background information on agriculture and forestry resources and summarizes the existing environmental setting related to agriculture and forestry resources within the city of Antioch.

#### a. Agricultural Resources

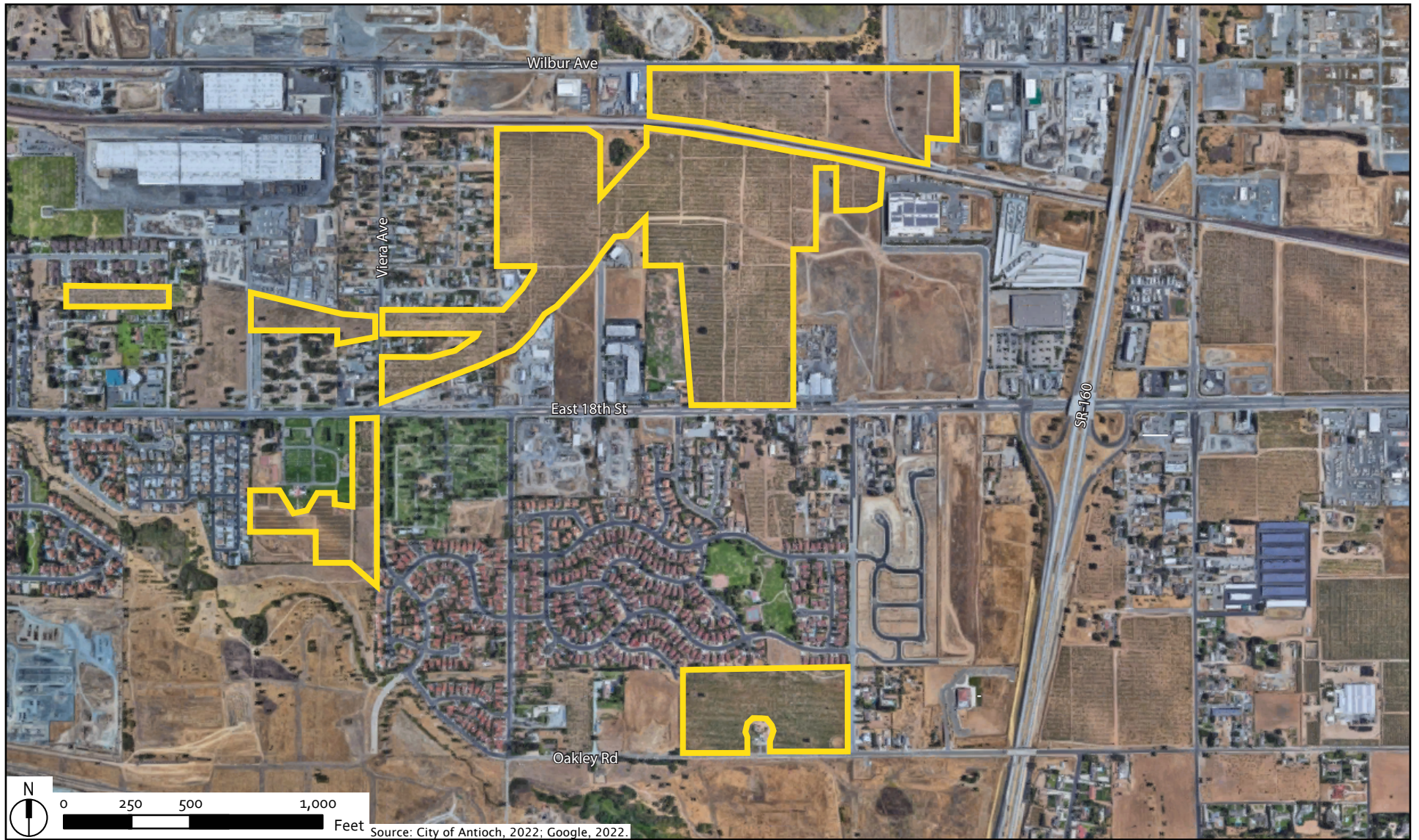
Agriculture and forestry resources in the San Francisco Bay Area are for the most part located outside of incorporated cities, in the less developed unincorporated areas. However, the city of Antioch does have some active agricultural production within its borders. There are active viticultural operations (the cultivation and harvesting of grapes, primarily for wine growing) in the northeast part of the city in the vicinity of Wilbur Avenue west of State Route 160, as shown on Figure IV.Q-1. These parcels are in a larger area designated Eastern Waterfront Employment Focus Area on the General Plan Land Use Map. There is also a large parcel on the north side of Oakley Road in the same general vicinity that is in viticultural production. The land use designation on this parcel is Medium Low Density Residential.

Viticultural production is also currently occurring on smaller parcels in the vicinity. There is a swath of vineyards north of East 18<sup>th</sup> Street that extends from west of Wymore Way continuing eastward past Viera Avenue where it merges with the extensive vineyards between Wilbur Avenue and East 18<sup>th</sup> Street. These parcels are designated Open Space on the General Plan Land Use Map. There are also vineyards on the south side of East 18<sup>th</sup> Street, west of Viera Avenue, that have a land use designation of Medium Density Residential. These vineyards are flanked on the east and west by cemeteries.

As shown on Figure IV.Q-2, all of the viticultural parcels denoted on Figure IV.Q-1 are designated as Farmland of Statewide Importance by the California Department of Conservation (DOC), a Department of the California Resources Agency.<sup>1</sup> One of five categories of important farmland

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<sup>1</sup> California Department of Conservation (DOC), Division of Land Resource Protection, 2021. Contra Costa County Important Farmland 2018 [map], December.

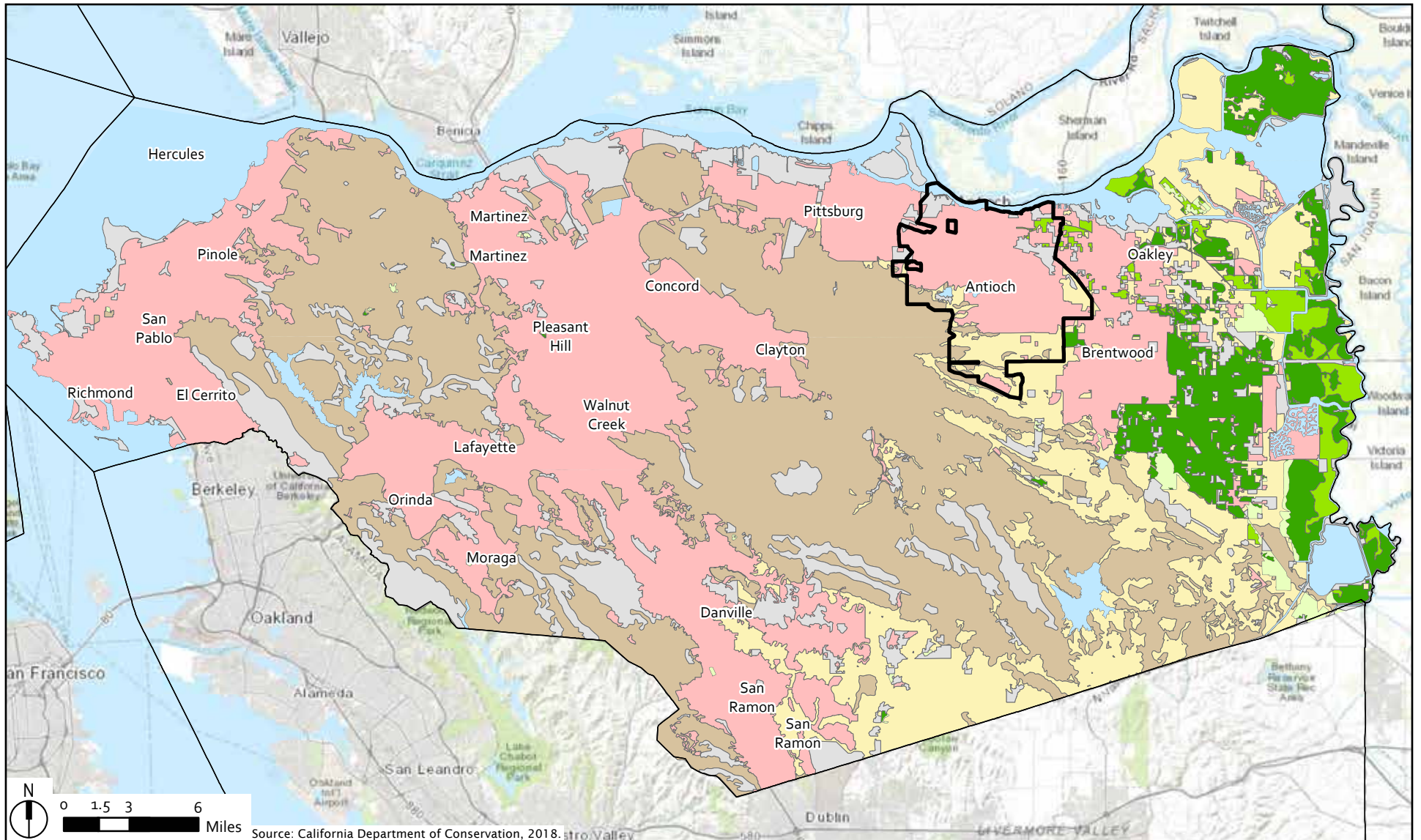


 Active Viticultural Production

Figure IV.Q-1

Areas of Active Viticultural Production

**Antioch Housing, Environmental Hazards, and EJ Elements EIR**



- County Boundary
- City Boundary
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Grazing Land
- Urban and Built-Up Land
- Other Land
- Water

Figure IV.Q-2  
Farmland of Statewide Importance

designated by the DOC, Farmland of Statewide Importance lands are similar to Prime Farmland—the highest quality farmland given the highest priority for protection—but have minor shortcomings, such as greater slopes or less ability to store soil moisture. As with Prime Farmland, Farmland of Statewide Importance must have been used for irrigated agricultural production as sometime during the last four years prior to the mapping date.

Although the City of Antioch has no agriculture and/or forestry land use designations on its General Plan Land Use Map, it does identify four focus areas in the planning area—Roddy Ranch, Sand Creek, Ginochio, and East Lone Tree—that are currently largely or partially devoted to cattle grazing or dryland farming. Only the Ginochio Focus Area lies outside the city limits but within its planning area and partially within the Urban Limit Line. These focus areas, outlined on Figure IV.Q-2, are discussed further under Regulatory Setting, below.

As shown on Figure IV.Q-2, the DOC designates the majority of all four focus areas as Farmland of Local Importance. These lands are typically used for livestock grazing, but they are also capable of producing dryland grain on a two-year summer fallow or longer rotation with volunteer hay and pasture.

Portions of the Sand Creek and Roddy Ranch focus areas are designated by the DOC as Grazing Land, which the DOC defines as land on which the existing vegetation is suited to the grazing of livestock. Portions of land at the fringes of the city to the north and northwest of the Sand Creek Focus Area are also designated as Farmland of Local Importance or Grazing Land by the DOC. These areas have General Plan land use designations of Estate Residential or Open Space.

## **b. Forestry Resources**

Nearly 32 million acres of land in California are covered with forestland, approximately 61 percent of which is publicly owned, including about 48 percent owned by the U.S. Forest Service.<sup>2</sup> Pursuant to Public Resources Code 4789, the California Department of Forestry and Fire Protection (CAL FIRE) must periodically assess California's forest and rangeland resources; the most recent assessment was conducted in 2017. The assessment is broken down into eight different eco-regions, each of which is unique in terms of climate, topography, geology, and soils, and each of which supports unique biological communities. The city of Antioch is at the northern end of the Central Coast and Interior Ranges eco-region. There are approximately 1.85 million

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<sup>2</sup> California Department of Forestry and Fire Protection (CAL FIRE), Fire and Resource Assessment Program, 2018. *California's Forests and Rangelands 2017 Assessment*, Table 1.2: Statewide Area of Forestland, Timberland, and Rangeland (Reserved and Unreserved) by Owner Group (Acres in Thousands), August.

acres of forestland within this eco-region, which is outside the areas of California where the State places an emphasis on timber management.<sup>3</sup>

The majority of the city of Antioch is urbanized, and tree cover is generally limited to street trees and landscape trees. The open space hillsides in the southern portions of the planning area are dotted with oak trees, California buckeyes, and other native and non-native trees. There is no forestland or land devoted to timber production.

## **2. Regulatory Setting**

This section describes the existing State and local regulatory frameworks related to agriculture and forestry resources.

### **a. State Regulations**

The following section describes the existing State of California regulatory environment related to agriculture and forestry resources.

#### **(1) Farmland Mapping and Monitoring Program**

Established in 1982 to track the conversion of the State's agricultural land to other uses, the DOC's Farmland Mapping and Monitoring Program (FMMP) produces maps and statistical data used for analyzing impacts on California's agricultural resources. The DOC's Important Farmland maps are updated every two years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. The most recent map for Contra Costa County was prepared in 2018 and published in 2021.

Agricultural land is rated by the DOC according to soil quality and irrigation status; the best quality land is called Prime Farmland. Prime Farmland is defined by the Department as "Land with the best combination of physical and chemical characteristics able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields." As previously noted, land with this designation must have been used for production of irrigated crops at some time during the four years prior to the mapping date.

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<sup>3</sup> California Department of Forestry and Fire Protection (CAL FIRE), Fire and Resource Assessment Program, 2018. *California's Forests and Rangelands 2017 Assessment*, Table 1.4: Central Coast and Interior Ranges – Area of Forestland, Timberland, and Rangeland (Reserved and Unreserved) by Owner Group (Acres in Thousands) and Figure 4: Timber Management Emphasis, August.

The State CEQA Guidelines consider the conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural use to be a potentially significant impact, depending on the quantity and quality of the land to be converted. The DOC's definition of Farmland of Statewide Importance was provided above in *Section IV.Q.1, Setting*. Unique Farmland is defined as farmland "of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date."

Conversion of the other types of agricultural mapped by the FMMP— Farmland of Local Importance and Grazing Land—are not treated as significant impacts pursuant to CEQA. Urban and Built-Up Land and Other Land are also included and tracked in the FMMP. In addition to residential, industrial, commercial, institutional, and public administrative purposes, Urban and Built-Up Land may include railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed uses. Other Land is land not included in any other mapping category, and includes brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land. It also includes low-density rural developments.

To assist lead agencies in evaluating potential impacts to agricultural resources, the CEQA Guidelines recommend utilization of the Land Evaluation and Site Assessment (LESA) Model, which is used to rate the relative quality of land resources based upon specific measurable features. The formulation of the Agricultural LESA Model was the result of Senate Bill 850 (1993), which charged the Resources Agency with developing, in consultation with the Governor's Office of Planning and Research and the U.S. Department of Agriculture (USDA), an amendment to Appendix G of the CEQA Guidelines concerning agricultural lands that would "provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process."<sup>4</sup> SB 850 provided for the adoption of the LESA Model in lieu of an amendment to Appendix G.

The LESA Model assigns numeric values to parcels of land based on six different factors. Two Land Evaluation (LE) factors are based upon measures of soil resource quality. Four Site Assessment (SA) factors provide measures of a site's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. Each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined,

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<sup>4</sup> Public Resources Code, Section 21095.

resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. Scores of 0 to 39 are not considered significant and scores of 80 to 100 are considered significant. Scores of 40 to 59 are considered significant only if LE and SA subscores are both 20 or higher. Scores of 60 to 79 are considered significant only if either the LE subscore or SA subscore is 20 or higher.

## **(2) Williamson Act**

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is a tax relief measure for owners of agricultural land. The Williamson Act permits a landowner to sign a contract with the local county or city jurisdiction guaranteeing that the land will be preserved in agricultural use for a period of at least 10 years in return for reduced property taxes based on a restricted income approach rather than the market value of the land. A Williamson Act contract can result in 20 to 75 percent reduction in a landowner's property taxes.<sup>5</sup> To be eligible, an agricultural preserve must include at least 100 acres, though smaller contiguous parcels under single ownership may be combined to meet this threshold, and smaller thresholds may be established at the county or city level. In Contra Costa County, pursuant to County Code Chapter 810-2, agricultural preserves of 35 contiguous acres may be established in the areas of the East Contra Costa and Byron-Bethany Irrigation Districts, as previously established by the Board of Supervisors. The County also establishes a minimum parcel size (when combining parcels) of 40 acres for non-prime agricultural land and 10 acres for prime agricultural land.<sup>6</sup> The County uses its own codified definition of prime agricultural land, distinct from the DOC's definition. Although some counties stipulate that land under a Williamson Act contract must be zoned for agricultural use, that is not the case in Contra Costa County.

## **(3) Forestry Resources**

Public Resources Code Section 12220(g) defines forest land as 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. There is no forest land as defined in Public Resources Code Section 12220(g) on any of the proposed Housing Sites Inventory (Sites Inventory or Housing Sites).

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<sup>5</sup> California Department of Conservation (DOC), Division of Land Resource Protection, Williamson Act Questions and Answers [undated]. Available at: <https://www.contracosta.ca.gov/DocumentCenter/View/876/Department-of-Conservation---Q--A?bidId=>, accessed April 6, 2022.

<sup>6</sup> Contra Costa County, Ordinance Code, Article 810-2.4: Standards.

## **b. Local Regulations**

The following section describes the existing local regulatory environment related to agriculture and forestry resources.

### **(1) General Plan Focus Areas**

Because the FMMP identifies them as Farmland of Local Importance in whole or in large part, the four of the City's focus areas designated as such are discussed below, indicating the General Plan's intentions for the future development of these areas.

The Sand Creek Focus Area encompasses approximately 2,712 acres of land in the southern end of the city, just east of Black Diamond Mines Regional Preserve. The General Plan anticipates development of this area with up to 3,537 single-family homes, 433 multi-family apartment units, and over 1.2 million square feet of office and commercial development. Although the area contains steep topography, abandoned coal mines, and sensitive biological habitats, it also has a substantial amount of grassland. The General Plan requires a minimum of 25 percent of this focus area to be preserved as open space but does not indicate any portion of the area should be preserved as or used for agricultural purposes. It does require preparation and approval of a Resource Management Plan prior to development that will need to address mitigation of impacts to biological resources and long-term management of the natural open space.

The Roddy Ranch Focus Area encompasses more than 2,100 acres of land in the southern end of the city, just to the south of the Sand Creek Focus Area. Formerly within the Urban Limit Line adopted by Contra Costa County voters in 1990 but outside city limits, it was annexed into the city in November 2006. The General Plan anticipates development of this area with up to 600 single-family homes, 100 multi-family apartment units, and over 225,000 square feet of office and commercial development.

The Ginocchio Focus Area, encompassing nearly 1,070 acres of rolling lands and canyon areas, is located in the southerly portion of the General Plan study area, south of the Sand Creek Focus Area and east of the Roddy Ranch Focus Area. The General Plan indicates that this property is intended for a high-end planned community but should include preservation of large blocks of open space. The General Plan discussion of policy direction for this focus area does not indicate that the preserved open space is intended for agriculture. It does require preparation and approval of a Resource Management Plan prior to development that will need to address mitigation of impacts to biological resources and long-term management of the natural open space.

The East Lone Tree Focus Area encompasses approximately 720 acres of rolling grassland at the eastern edge of town, bisected by State Route 4. The area is the subject of a 1996 Specific Plan.



Although this area is planned primarily for commercial development, including a retail nucleus of restaurants, shops, and service providers, the western portion of the focus area is allocated to single-family residential development at a density of 4 to 6 units per acre. The proposed Housing Element identifies three Housing Sites within the East Lone Tree Specific Plan Focus Area, encompassing 8.404 acres of land that would be rezoned for 35 units per acre.

## **(2) Zoning**

The City of Antioch does not have any agricultural or forestry-related zoning districts. Section 9-5.3809 of the Municipal Code states that pre-existing agricultural uses can be continued, but not expanded. Although processing and packaging of agricultural products is allowed in food handling establishments, subject to a permit, agricultural production is not otherwise permitted by the Zoning Ordinance, other than the pre-existing uses referenced above.

## **3. Impacts and Mitigation Measures**

This section analyzes environmental impacts related to agriculture and forestry resources that could result from the implementation of the Project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the Project.

### **a. Significance Criteria**

Implementation of the Project would result in a significant agriculture and forestry resources impact if it would:

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

## **b. Findings**

The following discussion describes the potential impacts to agriculture and forestry resources that would result from the implementation of the Project.

### **(1) Convert Important Farmland (Criterion 1)**

There is no Prime Farmland designated by the DOC within the city of Antioch. There are several contiguous parcels carrying the Prime Farmland designation immediately to the east of the City's planning area, within the city of Brentwood, just to the east of the Sand Creek Focus Area. The Project would have no effect on these parcels.

There are multiple parcels in the northeast quadrant of the city that are designated Farmland of Statewide Importance by the DOC, one of the three categories of Important Farmland. Additional parcels with this designation lie to the east, outside the city limits, in the neighboring city of Oakley. The parcels within Antioch carrying this designation are all developed with active viticulture. Although some of the parcels are designated for residential use on the General Plan land use map, there are no future Housing Sites identified in the Housing Element on any of these parcels.

The City's Roddy Ranch, Sand Creek, Ginocchio, and East Lone Tree focus areas are predominantly designated as Farmland of Local Importance by the DOC, with portions of the first three designated as Grazing Land. Land to the north and northwest of the Sand Creek Focus Area also carries these farmland designations. Although the Farmland of Local Importance category supports livestock grazing and limited dryland farming, it lacks the characteristics for high-quality agricultural production that is inherent in the Important Farmland categories. Conversion of these lands to non-agricultural uses would not be considered a significant impact pursuant to CEQA. In any event, there are no future Housing Sites identified in the Housing Element within the Roddy Ranch, Sand Creek, or Ginocchio focus areas.

Four Housing Sites are assigned to the East Lone Tree Focus Area: sites 113, 114, 115, and 162. As shown on Figure III-9 in *Chapter III, Project Description*, the first three of these sites are clustered together, just to the west of the State Route (SR-) 4/Laurel Road interchange southbound on-ramp. Together, these sites have a total area of 8.404 acres and development potential for 286 dwelling units, including 118 low-income units. These three sites represent approximately 1.2 percent of the 720 acres in the East Lone Tree Focus Area.

The fourth site, Site 162, is located at the eastern edge of the focus area, on Empire Avenue. This is an infill parcel of 3.3 acres that is surrounded by the Empire Shopping Center, with a JC Penney store immediately to the north, a Best Buy store immediately to the west, and a Dollar Tree store immediately to the south. The parcel is a rural residential property developed with a single-family

home and agricultural outbuildings. The southern half of the property is largely in some form of tilled agricultural production. The proposed Housing Element indicates that this property has development potential for 96 housing units, 39 of them affordable to low-income households.

All told, the Project could lead to housing development on 11.704 acres in the East Lone Tree Focus Area that are designated as Farmland of Local Importance by the DOC. Pursuant to the Project, less than 2 percent of the focus area would be developed with new housing. The General Plan already envisions development of the area west of SR-4 with commercial and residential development. To the east of SR-4, Site 162 is surrounded by commercial development and has limited viability as an agricultural production site, and it is also in an area planned for commercial development. The amount of land removed from agricultural production would represent about 0.012 percent of the 97,073 acres of Important Farmland (including Farmland of Local Importance) inventoried by the DOC in Contra Costa County in 2018.<sup>7</sup> This would have a negligible effect on agricultural production in the County. Furthermore, Farmland of Local Importance is not treated as Important Farmland for purposes of CEQA, as reflected in the criterion of significance established in the CEQA Guidelines. Therefore, the Project's impact on Important Farmland would be less than significant.

### **(2) Conflict with Zoning for Agricultural Use or Forest Land (Criterion 2 and Criterion 3)**

None of the proposed Housing Sites are zoned for agriculture or forestry, and none of them are under a Williamson Act contract.<sup>8</sup> Implementation of the Project would have no impact on land zoned for agriculture, forestry, or timberland production.

### **(3) Convert Farmland or Forest Land to Other Use (Criterion 4 and Criterion 5)**

Implementation of the Project would have no impact on forest land, as there is none on any of the proposed Housing Sites. While there is active viticultural production on parcels adjacent to Housing Sites in the northeast quadrant of the city, construction and occupation/operation of housing development on these sites would not obstruct or interfere with the cultivation or harvesting of grapes on the adjacent properties.

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<sup>7</sup> California Department of Conservation, Division of Land Resource Protection, 2018. Contra Costa County 1984-2018 Land Use Summary.

<sup>8</sup> Contra Costa County, Department of Development and Conservation, 2017. 2016 Agricultural Preserves Map, Contra Costa County, California, February 1.

Although dryland farming or grazing are currently occurring in the East Lone Tree Focus Area on Housing Sites 113, 114, and 115, the City has planned for many years to develop this area with residential and commercial development, as indicated by the 1996 East Lone Tree Specific Plan. The acreage encompassed by the Housing Sites represents a small fraction of the 1996 East Lone Tree Specific Plan area, and the agriculture that would be displaced does not represent high-quality agricultural production. Furthermore, as noted in the impact discussion under Criterion 1 above, the land is not one of the types of farmland afforded protection under CEQA.

A portion of housing site 162 appears to be in some kind of tilled agricultural production. This 3.3-acre parcel is zoned PD–Planned Development, and it is located in the East Lone Tree Focus Area. The City’s General Plan states that General Plan policy has long held that the eastern portion of the focus area, in which Site 162 is located, is to be developed with employment-generating retail businesses, including restaurants, shops, and service providers. Such development already surrounds housing site 162. Development of the site with new housing would displace less than 1.5 acres of land from agricultural production. The conversion of this small amount of agricultural that has long been designated for commercial development, and that is already surrounded by such development. For these reasons, the Project would have a less-than-significant impact related farmland and forestry resources.

### **c. Cumulative Agriculture and Forestry Resources Impacts**

As described throughout this section, the Project would not result in any significant impacts to agriculture or forestry resources by converting lands currently devoted to these resources to non-agricultural or non-forestry uses, nor would the Project adversely affect lands zoned for agriculture or forestry. New housing units would be developed pursuant to the Project in areas that are already urbanized, have long been planned for urban development, and that for the most part would consist of infill development surrounded by existing urbanized areas. On the few Housing Sites where existing agriculture would be displaced, they are within areas that have been planned for urban development by the City for more than 20 years. Since implementation of the Project would have little to no effect on agricultural production in Contra Costa County, it would not have a significant cumulative effect on agriculture or forestry resources.

## **V. EFFECTS FOUND NOT TO BE SIGNIFICANT OR LESS THAN SIGNIFICANT**

This chapter contains a brief analysis of the environmental topics determined to be less than significant relevant to the Project. Mineral resources were excluded from extensive discussion in this EIR as it was determined during the scoping phase for the EIR that the Project would have no impact or a less-than-significant impact related to this topic due to the nature of the project.

### **A. MINERAL RESOURCES**

The Project would be located in an urban area and would utilize existing properties and parcels. The Project Area has no known existing significant mineral resources. The Project would not require quarrying, mining, dredging, or extraction of locally important mineral resources on-site, nor would it deplete any known mineral resource that would be of value to the region and the residents of the state. As a result, the Project would have no significant impacts related to mineral resources.



## VI. ALTERNATIVES

The CEQA Guidelines require the analysis of a range of reasonable alternatives to the Antioch Housing, Environmental Hazards, and Environmental Justice (EJ) Elements (the Project). The reasonable range of alternatives considered should feasibly attain most of the Project's basic objectives and avoid or substantially lessen any of the significant effects of the Project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. An EIR is not required to consider every conceivable project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

The primary purpose of this chapter is to ascertain whether there are alternatives of design, scale, land use, or location that would substantially lessen the project's significant impacts, even if those alternatives "impede to some degree the attainment of the project objectives, or would be more costly."

The three Project alternatives considered are summarized below and comparisons of these alternatives with the Project are provided in Table VI-1:

1. **No Project Alternative:** Under this alternative, the City would continue to implement the adopted 2015-2023 Housing Element and Environmental Hazards Element adopted with the 2003 General Plan, and the proposed 2023-2031 Housing Element and Environmental Hazards Element would not be adopted. In addition, the proposed Environmental Justice Policies would not be adopted. Future housing development would be developed in accordance with the 2015-2023 Housing Element and would continue to have a development potential of 1,448 units. This alternative would result in a total net reduction in development potential by 3,127 units when compared to the Project and a 1,559-unit shortfall of the City's RHNA obligation.
2. **Reduced VMT Alternative:** Under this alternative, housing sites which are not targeted for very-low or low-income housing and located in Traffic Analysis Zones (TAZs) with home-based vehicle miles traveled (VMT) above the significance threshold would be eliminated from the Housing Sites Inventory (Sites Inventory). All sites located in TAZs with home-based VMT below the significance threshold would be retained. Based on the Sites Inventory, this alternative would result in a total net reduction in development potential by 468 units when compared to the Project and would continue to exceed the City's RHNA obligation by 1,091 units.

**TABLE VI-1 SUMMARY OF ALTERNATIVES TO THE PROJECT**

Housing Units by Income Category	2015-2023	2023-2031	No Project Alternative	Reduced VMT Alternative	Reduced RHNA Buffer Alternative
	Housing Element (Existing Baseline)	Housing Element (Project)			
Very Low Income (0-50% AMI)	349	967	349	967	990
Low Income (51-80% AMI)	205	548	205	548	570
Moderate Income (81-120% AMI)	214	947	214	771	616
Above Moderate Income (>120% AMI)	680	2,113	680	1,821	1,594
<b>Total Allocation</b>	<b>1,448</b>	<b>4,575</b>	<b>1,448</b>	<b>4,107</b>	<b>3,770</b>

Source: Urban Planning Partners, 2022.

- 3. Reduced RHNA Buffer Alternative:** This alternative would reduce the buffer above the City’s RHNA obligation in comparison with the Project, which provides a buffer of 1,559 units beyond the City’s RHNA obligation of 3,016 units, providing an overall buffer of 52.0 percent. Under this alternative, the overall RHNA buffer would be reduced to 25.0 percent, which is within the 15- to 30-percent buffer recommended by the California Department of Housing and Community Development (HCD) to ensure that jurisdictions remain in compliance with the State Housing Law and the No Net Loss Requirements Law (Government Code Section 65863). A 25-percent buffer was applied to the number of the City’s RHNA unit obligation in each income category, as well as to the total unit count. This alternative would result in 3,770 developable units in total, which would be a total net reduction in 805 units when compared to the Project but would continue to exceed the City’s RHNA obligation by 754 units.

The remainder of this chapter is organized as follows: overview of Project objectives and impacts; description of alternatives considered and rejected; description and analysis of CEQA Project alternatives; and discussion of environmentally superior alternatives.

## A. PROJECT OBJECTIVES AND IMPACTS

In accordance with CEQA Guidelines Section 15124, an EIR must present a statement of project objectives, which in the case of a Housing Element and Environmental Hazards Element are often the same as the goals and policies proposed for those General Plan elements. In this EIR, and as presented in *Chapter III, Project Description*, the Housing Element’s five goals and 19 supporting policies, the eight objectives included in Environmental Hazards Element, and the eight objectives associated with the EJ Element, are used here as the Project objectives, along with the proposed Environmental Justice goals and policies. The Project goals and objectives are:



## 1. Housing Element Goals and Policies

The updated Housing Element's goals are described below:

- **Goal 1, Housing Conservation and Improvement:** Conserve and improve the existing housing supply to provide adequate, safe, and decent housing for existing Antioch residents.
- **Goal 2, Housing Production:** Facilitate the development of a broad array of housing types to meet the City's fair share of regional housing needs and accommodate new and current Antioch residents of diverse ages and socioeconomic backgrounds.
- **Goal 3, Special Needs Housing:** Facilitate the development of special purpose housing to meet the needs of the elderly, persons with disabilities, large families, and the unhoused.
- **Goal 4, Elimination of Government Constraints:** Remove governmental constraints inhibiting the development of housing required to meet identified needs in Antioch.
- **Goal 5, Fair Housing:** Provide equal housing opportunities for all existing and future Antioch residents.

## 2. Environmental Hazards Element Goals and Policies

The overall goal of the Environmental Hazards Element is to minimize the potential for loss of life, injury, property damage, and economic and social disruption resulting from natural and human-caused hazards in the community. The following are the specific hazards and related objectives provided within the updated Environmental Hazards Element:

- **Objective 11.4.1, Geology and Seismicity Hazards:** Ensure Antioch residents and businesses are better prepared and protected from the threat of seismic ground shaking and other geologic events.
- **Objective 11.5.1, Flood Protection:** Ensure flooding impacts in Antioch are minimized or eliminated wherever possible.
- **Objective 11.6.1, Fire Hazards:** Meet anticipated needs and demands that address hazards associated with wildland and urban fire.
- **Objective 11.7.1, Climate Change Adaptation:** Incorporate the changing risks associated with climate change into the protection of life, property, the economy, and the environment.
- **Objective 11.8.1, Noise:** Achieve and maintain exterior noise levels appropriate to planned land uses throughout Antioch.
- **Objective 11.9.1, Hazardous Materials:** Minimize the negative impacts associated with the storage, use, generation, transport, and disposal of hazardous materials.

- **Objective 11.10.1, Disaster Response:** Maintain a level of preparedness to adequately respond to emergency situations to save lives, protect property, and facilitate recovery with minimal disruption.
- **Objective 11.11.1, Evacuation:** Ensure Antioch staff, residents, and businesses can effectively respond and evacuate during hazard events.

### 3. Environmental Justice Goals and Policies

The EJ Element would minimize pollution and its effects for all communities and strives to ensure that all people, regardless of race, ethnicity, or income, have equal protection from environmental hazards where they live, work, and play; this includes giving people equal ability to participate in, and influence, the decision-making process regarding environmental regulations. The primary objectives of the EJ Element include:

- Reduce pollution exposure.
- Promote public facilities.
- Promote food access.
- Promote safe and sanitary homes.
- Promote physical activity.
- Reduce unique or compounding health risks.
- Promote civic engagement.
- Prioritize the needs of disadvantaged communities.

### 4. Project Impacts

As detailed in *Chapter IV, Setting, Impacts, and Mitigation Measures* and *Chapter V, Effects Found Not to be Significant or Less Than Significant*, the Project's impacts, with the exception of one significant and unavoidable impact associated with transportation, would be less than significant with implementation City policies and/or mitigation measures. To help define project alternatives that could further reduce or eliminate significant impacts, the significant and unavoidable impact identified as the result of implementation of the Project is presented below.

#### a. Significant and Unavoidable Transportation Impacts

- **Impact TRANS-2:** Implementation of the HEU could generate home-based VMT per resident that is greater than 85 percent of the citywide average home-based VMT per resident.

## **B. ALTERNATIVES CONSIDERED AND REJECTED**

The Project is specific to the geography of the City of Antioch's planning boundaries; therefore, this analysis does not consider an off-site alternative. Alternatives were identified during design development that were not selected to be further analyzed in this document. These alternatives would not feasibly satisfy most of the Project's basic objectives and avoid or substantially lessen a significant effect of the Project. An alternative that would concentrate new housing development within a half-mile radius of the Antioch BART station, which would result in significantly lower and less-than-significant home-based VMT per resident, was considered and rejected because the number housing units that could be developed would fall far short of the City's 6<sup>th</sup>-cycle RHNA obligation, which is the objective of the Project.

Another alternative considered was to eliminate all housing sites in the Sites Inventory which are in TAZs with home-based VMT above the significance threshold. This alternative would significantly reduce transportation and air quality impacts; however, this alternative would result in a development potential of up to 1,307 units and would result in a 1,709-unit shortfall of the City's RHNA obligation. This alternative was rejected because the number of housing units that could be developed would fall far short of the City's 6<sup>th</sup>-cycle RHNA obligation, which is the whole purpose of the Project.

Since the only significant impacts identified for the Project are related to transportation and air quality, the City was unable to identify other viable alternatives that would avoid these impacts while meeting its RHNA obligation. Other alternatives that were considered but quickly rejected included an alternative that would rely more on the development of accessory dwelling units (ADUs), one that would focus development in the downtown area, and one that would reduce density on the housing sites.

## **C. CEQA ALTERNATIVES CONSIDERED**

The principal characteristics of each alternative and associated effects relative to the Housing Element and Environmental Hazards Element updates are described below for each alternative. The alternatives included are intended to meet the CEQA requirement to consider a reasonable range of alternatives to the Project that would feasibly attain most of the basic objectives of the Project while avoiding or substantially lessening significant impacts.

The set of selected alternatives are considered to reflect a "reasonable range" of feasible alternatives in that they include reduced scenarios that lessen and/or avoid significant and unavoidable effects and less-than-significant effects of the HEU. These selected alternatives would generally align with the basic objectives of the Project, which the city would assess when it considered the merits of the Project and the alternatives.

A comparison of the CEQA alternatives is provided below in Table VI-2.

**TABLE VI-2 CEQA ALTERNATIVES IMPACTS COMPARED TO THE PROJECT**

<b>Environmental Resource</b>	<b>No Project Alternative</b>	<b>Reduced VMT Alternative</b>	<b>Reduced RHNA Buffer Alternative</b>
Land Use	Greater	Equal	Equal
Transportation	Reduced	Reduced	Reduced
Air Quality	Reduced	Reduced	Reduced
Greenhouse Gases	Reduced	Reduced	Reduced
Cultural Resources	Reduced	Reduced	Reduced
Aesthetics	Reduced	Equal	Equal
Biological Resources	Reduced	Reduced	Reduced
Geology and Soils	Reduced	Equal	Equal
Hazards and Hazardous Materials	Greater	Equal	Equal
Hydrology and Water Quality	Greater	Reduced	Reduced
Noise	Equal	Equal	Equal
Population and Housing	Greater	Greater	Equal
Public Services and Recreation	Equal	Reduced	Reduced
Utilities	Reduced	Reduced	Reduced

Source: Urban Planning Partners, 2022.

Please note that this analysis relies on several existing and “as proposed” General Plan policies to ensure impacts are reduced to the greatest extent feasible. As a part of the Project, individual elements of the existing General Plan are being updated or added. In a corresponding effort, many of their associated objectives and policies are also being modified and added. As such, many of the objective and policy numbers have changed when compared to the existing General Plan. Where applicable, both the existing and proposed objective and/or policy numbers are given at first reference. After first reference, any referenced General Plan policy is provided as proposed.

**1. No Project Alternative**

The No Project Alternative’s characteristics and relationship to Project objectives, as well as a brief analysis of environmental impacts, is described below.

**a. Principal Characteristics**

Under the No Project Alternative, the 2023-2031 Housing Element would not be adopted, and the city would continue to implement the adopted 2015-2023 Housing Element. Additionally, the

Environmental Hazards Element and proposed Environmental Justice Policies would not be adopted. The City would continue to foster development of new housing in accordance with the 2015-2023 Housing Element, which demonstrated the capacity to accommodate development of 2,448 new housing units on 23 sites, five of which (encompassing multiple parcels) that had been previously rezoned to accommodate high-density residential development. Most of Sites Inventory (all but 95 units) would occur on the five rezoned sites, all of which were located north of or immediately adjacent to State Route (SR)-4. Three of the five sites are included in the Sites Inventory for the proposed 2023-2031 Housing Element; they encompass current sites 106-108, 123, 124, and 143-146. Most of the remaining sites in the Sites Inventory had capacity for just one or two units, though one 3.3-acre site had a capacity for 36 units.

The City's RHNA obligation for the previous housing element cycle was for 1,448 dwelling units, so the previous Housing Element provided a Sites Inventory with a substantial buffer of approximately 69 percent. However, the Sites Inventory identified in the previous Housing Element would not be adequate to meet the City's 6<sup>th</sup> cycle RHNA obligation of 3,016 units.

Under the No Project Alternative, the 2023-2031 Housing Element would not be adopted and the goals and policies within the City's existing Housing Element would remain unchanged. The city would not rezone 169 sites to allow residential development or more intense residential development, nor would the associated General Plan amendments be made. Development of new housing could still occur in accordance with existing zoning but would be restricted to lower densities and unit counts on many parcels proposed for upzoning.

#### **b. Relationship to Project Objectives**

The No Project Alternative would not meet one of the key goals described above related to facilitating the development of a broad array of housing types to meet the City's fair share of regional housing needs, since housing production would be well below the City's RHNA obligation for the 6<sup>th</sup> cycle and current Housing Element. This alternative would partially achieve the other goals of the Project, but not to the same degree, including the following:

- Conserve and improve the existing housing supply to provide adequate, safe, and decent housing for existing Antioch residents.
- Facilitate the development of special purpose housing to meet the needs of the elderly, persons with disabilities, large families, and the unhoused.
- Remove governmental constraints inhibiting the development of housing required to meet identified needs in Antioch.
- Provide equal housing opportunities for all existing and future Antioch residents.

## c. Analysis of the No Project Alternative

### (1) Land Use

Under the No Project Alternative, development of housing would still occur in the city, but at a smaller scale when compared to the Project, as discussed above. Most of the new housing would be concentrated in the Hillcrest Specific Plan area on the east side of the city and at the western edge of the city near the intersection of Delta Fair Boulevard and Century Boulevard. Significantly less housing development would occur south of SR-4 in comparison with the Project. New development would be required to be compliant with current planning policy or regulations applicable to individual development sites pursuant to the current City's General Plan and Planning Code. Since the City would fail to meet its 6<sup>th</sup>-cycle RHNA obligation, it would not be compliant with State Housing Law. Similar to the Project, the Sites Inventory under the No Project Alternative is focused on infill development of vacant sites, so there would be little to no potential to divide an established community.

### (2) Transportation

The No Project Alternative would generate substantially fewer vehicle, bicycle, and pedestrian trips than the Project because fewer housing units would be constructed and occupied that could generate trips. Although quantified modeling of the traffic generated by this alternative was not performed using the Contra Costa Countywide Travel Demand Model, a simplified comparison clearly demonstrates that the No Project Alternative would substantially reduce the home-based VMT per resident impact associated with the Project. The Project is conservatively assumed to produce 4,575 new housing units, which is expected to generate an increment (on top of baseline VMT) of 365,627 home-based VMT in 2020 and an increment of 336,721 home-based VMT in 2040. As shown in Tables VI-3 and VI-4, this would result in 21.9 home-based VMT/resident in 2020 and 20.7 home-based VMT/resident in 2040. These numbers were derived from the traffic modeling summarized in *Section IV.B, Transportation*.

By comparison, the No Project Alternative would foster development of 1,448 housing units, which is 68.3 percent fewer units than would be built under the Project. Reducing the home-based VMT calculated for the Project by 68.3 percent would result in 115,722 home-based VMT in 2020 and 106,573 home-based VMT in 2040, as shown in Tables VI-3 and VI-4. The home-based VMT per resident was derived from these numbers by determining the additional population that would be generated by the number of housing units produced by the No Project Alternative, based on the City's average household size of 3.22 persons.<sup>1</sup> This population was added to the

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<sup>1</sup> California Department of Finance, 2021. E-5 City/County Population and Housing Estimates, April 1.

2020 population and projected 2040 population, respectively, in Antioch, to determine an estimate of citywide population under the No Project Alternative. The total VMT under the two scenarios was divided by the total population to provide a rough estimate of home-based VMT/resident in 2020 and 2040.<sup>2</sup> As demonstrated in Tables VI-3 and VI-4, home-based VMT/resident would be reduced slightly in 2020 under the No Project Alternative in comparison with the Project from 21.9 to 21.3 and would be reduced by a larger margin in 2040 from 20.7 to 17.9. However, in both scenarios the home-based VMT/resident would not be reduced below 85 percent of the citywide average, which would be 18.3 in 2020 and 17.4 in 2040. Therefore, the home-based VMT/resident impact under this alternative would still be significant and unavoidable.

**TABLE VI-3 2020 HOME-BASED VMT SUMMARY: PROJECT VS. NO PROJECT**

	Project			No Project Alternative	
	2020 Baseline	Project	2020 + Project	No Project	2020 + No Project
<b>Citywide Average</b>	2,435,265	365,627	2,800,892	115,722	2,550,987
<b>Home-Based VMT/Resident</b>	21.5	--	21.9	--	21.3
<b>Significant (&gt;18.3)?</b>			Yes		Yes

Source: Fehr & Peers, 2022; Urban Planning Partners, 2022.

**TABLE VI-4 2040 HOME-BASED VMT SUMMARY: PROJECT VS. NO PROJECT**

	Project			No Project Alternative	
	2040 Baseline	Project	2040 + Project	No Project	2040 + No Project
<b>Citywide Average</b>	2,310,190	336,721	2,646,911	106,573	2,416,763
<b>Home-Based VMT/Resident</b>	20.4	--	20.7	--	17.9
<b>Significant (&gt;17.4)?</b>			Yes		Yes

Source: Fehr & Peers, 2022; Urban Planning Partners, 2022.

### (3) Air Quality

Although potentially significant impacts on air quality were identified for both construction and operation of the Project, the impacts would be reduced to less than significant through implementation of **Mitigation Measures AIR-1, AIR-2, and AIR-3**. The No Project Alternative

<sup>2</sup> It should be noted that the 2040 household size in Antioch was assumed to be the same as the 2020 household size for purposes of calculating the 2040 home-based VMT/resident for this alternative.

would have similar, though reduced, impacts as the Project. As discussed in the preceding discussion on transportation impacts, the No Project Alternative would generate approximately 68.3 percent fewer vehicle miles traveled than would be generated by the Project. Consequently, operational emissions of criteria air pollutants and toxic air contaminants generated under the No Project Alternative could be expected to be approximately 68.3 percent lower than under the Project. Fewer housing units would be developed under this alternative, so construction-related emissions of air pollutants would similarly be reduced under this alternative. The alternative would not avoid Impacts AIR-1, AIR-2, or AIR-3, nor would it reduce the impacts to a less-than-significant level, and at the same time it would not meet the primary Project objective of meeting the City's RHNA obligation.

#### **(4) Greenhouse Gas Emissions**

Similar to the Project, the No Project Alternative would comply with SB 743. GHG emissions from buildout under the No Project Alternative in 2040 would result in a less-than-significant impact on the environment.

The reduced amount of development and related construction activity and operations of the No Project Alternative would result in lower GHG impacts than the Project, which would have a less-than-significant impact related to GHG emissions due to existing General Plan policies that foster a reduction in GHG emissions. Additional proposed policies in the Housing Element and Environmental Hazards Element as well as proposed Environmental Justice policies would further reduce GHG emissions under the Project. Although the No Project Alternative would result in approximately 68.3 percent lower GHG emissions than the Project, for the same reasoning discussed above for air quality impacts, this reduction might be lessened to some degree because proposed policies related to GHG emissions would not be adopted under this alternative. Nonetheless, the No Project Alternative would have reduced GHG emissions when compared to the Project.

#### **(5) Cultural and Tribal Resources**

Construction of new housing development under the No Project Alternative could result in demolition or alteration of identified and unidentified cultural resources, as well as the potential to uncover cultural, archeological, or tribal resources, the same as development that would occur under the Project. However, as previously discussed, substantially less development is anticipated compared to the Project, and this alternative would therefore result in fewer opportunities for individual projects to affect these resources. Individual projects would be required to comply with adopted General Plan policies designed to avoid or minimize impacts to cultural and tribal resources, including policy 10.9.2, which requires new development to analyze and mitigate any potential impacts related to archaeological, paleontological, and historic



resources. The No Project Alternative would maintain the same less-than-significant impacts to cultural and tribal resources as identified for the Project, even though the extent of potential risks would be reduced given the decreased development.

## **(6) Aesthetics**

The existing General Plan contains extensive design guidelines set forth in Policy 5.4.2 that avoid significant adverse aesthetic impacts from new development. Additional protective policies are promulgated in the General Plan for each of the City's ten Focus Areas. The analysis presented in *Section IV.G, Aesthetics*, references these policies along with the City's Tree Preservation Ordinance and Citywide Design Guidelines as a basis for concluding that the Project would have less-than-significant impacts on scenic vistas, scenic quality, and light and glare. The same conclusions would apply to the No Project Alternative, which would have further reduced potential for adverse aesthetic impacts due to the reduced amount of housing development that would occur under this alternative. Fewer sites located along the City's unique view corridors of scenic resources—such as Deer Valley Road, James Donlon Boulevard, Lone Tree Way, and Hillcrest Avenue—would be developed with high-density residential uses under this alternative. Fewer new sources of light and/or glare would be introduced under this alternative due to the reduced amount of potential development. Therefore, the No Project Alternative would have reduced aesthetic impacts in comparison with the Project.

## **(7) Biological Resources**

Similar to the Project, adopted General Plan policies 10.3.2, 10.4.1, 10.4.2, and 10.5.2 would ensure that potential impacts to biological resources from development under the No Project Alternative would not be significant. There would be reduced overall development under this alternative, therefore potential biological impacts would be reduced in comparison with the Project.

## **(8) Geology and Soils**

Construction of new housing development under the No Project Alternative could expose residents to geologic hazards including strong ground shaking during a seismic event, as with the development that would occur under the Project. However, as previously discussed, substantially less development is anticipated compared to the Project, and the alternative would therefore result in fewer new residents and workers in the city who could be exposed to seismic hazards, and fewer buildings that could experience structural instability. Individual projects would be required to comply with adopted General Plan policies designed to avoid or minimize structural instability due to strong seismic shaking or unstable soils, including policies 5.4.14, 8.7.2, 10.7.2, 10.9.2, and 11.3.2. The No Project Alternative would maintain the same less-than-significant

impacts to geology, soils, and geohazards as identified for the Project, even though the extent of exposure and risks would be reduced given the decreased development and population.

## **(9) Hazards and Hazardous Materials**

Construction activities under the No Project Alternative involving demolition, soil disturbance, and excavation could continue to potentially expose construction workers and residents to potential hazards and hazardous materials as identified for the Project. The potential hazardous materials include asbestos, polychlorinated biphenyls (PCBs), lead-based paint (LBP), underground and aboveground storage tanks, and contaminated soil and water. While new construction under the No Project Alternative would have to comply with existing regulations pertaining to asbestos-containing materials (ACM), LBP, and PCBs in electrical and lighting equipment, there are no existing regulations that require testing to identify PCBs in building materials prior to demolition in the city. Under the No Project Alternative, proposed new Environmental Hazards Element Policy 11.9.2 (previously Policy 11.7.2) (t)—which requires a comprehensive Hazardous Building Materials Survey (HBMS) to be completed for any structure proposed for demolition prior to issuance of a demolition permit and appropriate abatement of hazardous building materials identified—would not be adopted. As a result, demolition of older buildings under this alternative could potentially result in the exposure of construction workers to hazardous building materials and/or the release of such substances into the environment could occur that would not occur under the Project.

The Project also proposes new Environmental Hazards Element Policy 11.9.2 (previously Policy 11.7.2) (u), which requires preparation of a Phase I Environmental Site Assessment (ESA) for any proposed development project (except on a property where the only previous land uses are residential and/or open space) to identify potential environmental concerns, including the potential for subsurface soil and/or groundwater contamination, with preparation of a Phase II ESA, including subsurface testing, if potential hazards are identified in the Phase I ESA, and appropriate remediation in the event site contamination is identified. Under the No Project Alternative, Policy 11.9.2 (u) would not be adopted and City policy would not mandate these requirements. Consequently, redevelopment of previously developed properties (including lands previously devoted to agricultural production) under this alternative could potentially result in the exposure of construction workers to hazardous materials in the soil or groundwater and/or the release of contaminants into the environment that would not occur under the Project due to the protections provided by Policy 11.9.2 (u).

Other hazards and hazardous materials impacts identified for the Project—including hazardous emissions within one-quarter mile of schools, development on hazardous materials sites compiled pursuant to Government Code Section 65962.5, aviation hazards, interference with

emergency response/evacuation plans, and wildfire hazards—would be similar for the No Project Alternative and would be less than significant.

Based on the considerations discussed above, the No Project Alternative would have greater potential for adverse hazards and hazardous materials impacts compared to the Project.

### **(10) Hydrology and Water Quality**

Similar to the Project, construction of new development under the No Project Alternative would be required to comply with the provisions of the Construction General Permit (CGP) administered by the State Water Resources Control Board as part of the National Pollutant Discharge Elimination System (NPDES) established under the federal Clean Water Act. Conformance with the CGP requirements and with other State, regional, and local regulations pertaining to stormwater and dewatering during construction would ensure that construction impacts to water quality would be less than significant under this alternative.

Depending on the size of a project, design and operation of future development under this alternative would be subject to the Provision C.3 requirements of the NPDES Municipal Regional Permit (MRP) for low-impact development (LID) source control, site design, and stormwater treatment, and would be required to comply with hydromodification management requirements of Provision C.3.g of the MRP, where applicable. Furthermore, compliance with existing General Plan Policies 8.7.2 (a) through (f); 10.7.2 (e) through (i); and 11.5.2 (previously Policy 11.4.2) (d) and (e), which address potential impacts to water quality related to potential increases in runoff and potential pollutants in runoff from new development, would further reduce potential impacts to water quality under this alternative. Compliance with these and other State, regional, and local regulations would protect receiving water quality from impacts to water quality from operation of residential and other development under the No Project Alternative.

Other water quality/hydrology impacts discussed for the Project would be similar under this alternative, including impacts related to groundwater recharge, erosion and sedimentation, stormwater drainage capacity and flooding, and conflicts with a sustainable groundwater management plan. As discussed in detail in *Section IV.K, Hydrology and Water Quality*, compliance with existing policies and regulations would ensure that these impacts would be less than significant under the Project, and the same is true for the No Project Alternative. However, as discussed in *Section IV.K, Hydrology and Water Quality*, some areas of the city are susceptible to storm-related flooding, dam failure inundation, and inundation from future sea level rise and storm surge events. The Project includes proposed new Environmental Hazards Element Policies 11.9.2 (a) through (u), which include a variety of safeguards that would minimize the potential release of pollutants due to flooding. Compliance with these policies and with the City's Municipal Code, which restricts development in 100-year Flood Hazard Zones and Regulatory Floodways, would result in less-than-significant Project impacts related to the release of hazardous materials

due to flooding. These policies would not be adopted under the No Project Alternative; therefore, this alternative would have a greater potential for the release of hazardous materials during flooding events than the Project.

While most of the No Project Alternative's hydrology and water quality impacts would be similar to those of the Project, and would be less than significant, they could be incrementally reduced in comparison with the Project due to the reduced amount of development that could occur under this alternative. However, the impact related to the potential release of hazardous materials during flooding events would be greater than under the Project and could be significant. Therefore, on balance, the No Project Alternative would have greater hydrology and water quality impacts than the Project.

### **(11) Noise**

Potential noise impacts under the No Project Alternative would be very similar to those identified for the Project. The most noticeable noise would be generated during construction of individual development projects, where noise impacts would be highly localized and temporary. Similar to the Project, construction projects would be required to comply with Antioch's Code of Ordinance limiting the days and hours of construction equipment operation and with General Plan Policy 11.8.2 (previously Policy 11.6.2), which requires implementation of a construction noise mitigation plan and use of construction equipment that utilizes noise-reduction features. Because there would be less new construction under this alternative, there would be fewer instances of these localized, short-term impacts that, similar to the Project, would be less than significant due to the restrictions provided by City policy and regulation.

Operational noise impacts under this alternative would be the same as for the Project: traffic generated by new development would be the primary source of increased noise levels in the city. As is the case with the Project, the No Project Alternative would not generate enough new traffic to produce a perceptible increase in ambient noise levels along the roadways that would be used by development-generated traffic. The No Project Alternative would maintain the same less-than-significant impacts on noise identified with for the Project, even with relatively less construction and development operations.

### **(12) Population and Housing**

Residential development and population growth would still occur within the city under the No Project Alternative, although at a substantially lower rate. Using an average household size of 3.22 persons, the new 1,448 housing units potentially developed under this alternative could increase the population in Antioch by approximately 4,663 people, compared with 14,732 new

residents anticipated under the Project (a difference of 10,069 people).<sup>3</sup> In both cases, the growth would not represent unplanned growth, and the impact of the increased population would be less than significant.

Similar to the Project, development of new housing under this alternative would occur on vacant sites, on properties with willing sellers, or on church owned sites interested in adding housing to their underutilized properties. Therefore, the No Project Alternative would not displace substantial numbers of existing housing or people.

In summary, the No Project Alternative would have very similar population and housing impacts to the Project. However, this alternative would not allow the city to meet its 6<sup>th</sup>-cycle RHNA obligations.

### **(13) Public Services and Recreation**

Substantially less residential development would occur in Antioch under the No Project Alternative, resulting in significantly less demand for public services and recreation facilities. Fewer police, fire, and emergency services and facilities would be needed, and there would be less demand for schools given the reduced housing and demand for parks and recreational facilities. It is not anticipated that new physical facilities would be required, the construction of which could have adverse environmental effects. However, as with the Project impacts, the No Project Alternative would increase the demand for parkland, and the city would continue to fall short of its local-serving parkland goal of 5 acres per 1,000 residents. Similar to the Project, new development under the No Project Alternative would be required to pay the City's Parks and Recreation impact fees and provide private and group-usable open space, as applicable, which would reduce the overall demand and use on local recreational facilities. With the payment of fees and adherence with applicable open space regulations, impacts on recreational facilities associated with implementation of the No Project Alternative would be less than significant. The No Project Alternative would maintain the same less-than-significant impacts to public services (fire services, police services, and libraries) as identified for the Project.

### **(14) Utilities**

Residential development in Antioch would occur at a much lower rate under the No Project Alternative than under the Project, resulting in significantly less demand for utilities and service systems. Less water and energy services and wastewater and solid waste disposal would be needed. It is not anticipated that new physical facilities would be required, the construction of which could have adverse environmental effects. General Plan Policy 8.5.2.b requires adequate

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<sup>3</sup> California Department of Finance, 2021. E-5 City/County Population and Housing Estimates, April 1.

wastewater to be in place prior to occupancy of a new development, which would ensure that the impact of this alternative on wastewater would be less than significant, and existing City stormwater engineering standards would ensure that adequate stormwater drainage facilities are available to serve new residential development under this alternative. Housing Inventory Sites 113, 114, and 115 along Laurel Road would not be developed under the No Project Alternative, and therefore would not require additional water mainline installation. Similar to the Project, there is sufficient existing solid waste disposal capacity at Keller Canyon Landfill to accommodate the solid waste that would be generated under this alternative. In summary, the No Project Alternative would maintain the same less-than-significant impacts to wastewater, water, solid waste, and energy as identified for the Project.

## **2. Reduced VMT Alternative**

The Reduced VMT Alternative's characteristics and relationship to Project objectives, as well as a brief analysis of environmental impacts, is described below.

### **a. Principal Characteristics**

Under this alternative, all housing sites which are not targeted for very low- or low-income housing and located in TAZs with home-based VMT above the significance threshold would be eliminated from the Sites Inventory. The selected sites were chosen based on their anticipated development potential, with those having the proposed zoning designation of R-35 being retained to facilitate the development of as many affordable housing sites as possible. All Sites Inventory located in TAZs with home-based VMT below the significance threshold would be retained under this alternative.

Based on the Sites Inventory, this alternative would allow for the potential development of 4,107 housing units, which would be 468 less units when compared to the Project and 1,091 units above the City's RHNA obligation while still meeting obligation targets at all income levels. This alternative would provide a 36.2 percent buffer for the City's RHNA obligation, as opposed to the approximately 52 percent buffer allotted by the Project.

This alternative would also reduce total the total number of housing units and VMT by 10.2 percent in comparison with the Project, from 365,627 VMT to 328,225 VMT in 2020 and from 336,721 VMT to 302,276 VMT in 2040.

All of the Housing, Environmental Hazards, and Environmental Justice Elements' goals and policies proposed for the Project would be adopted under the Reduced RHNA Buffer Alternative and would apply to future development.

## **b. Relationship to Project Objectives**

The Reduced VMT Alternative would achieve many of the Project objectives, including those related to:

- Facilitate the development of a broad array of housing types to meet the City's fair share of regional housing needs and accommodate new and current Antioch residents of diverse ages and socioeconomic backgrounds.
- Conserve and improve the existing housing supply to provide adequate, safe, and decent housing for existing Antioch residents.
- Facilitate the development of special purpose housing to meet the needs of the elderly, persons with disabilities, large families, and the unhoused.
- Remove governmental constraints inhibiting the development of housing required to meet identified needs in Antioch.
- Provide equal housing opportunities for all existing and future Antioch residents.

Most importantly, this alternative would allow the city to meet its 6th-cycle RHNA obligations, though with less margin for development of some sites at lower than maximum densities.

## **c. Analysis of the Reduced VMT Alternative**

### **(1) Land Use**

Under the Reduced VMT Alternative, residential development would still occur in the city, but at a smaller scale compared with the Project, as discussed above. Fewer parcels would be rezoned for residential use or upzoned for higher-density residential use, restricting the number of housing units that could be built in comparison with the Project. The reduced density would likely result in lower heights on many of the infill parcels, particularly in the northeastern portion of the city, where fewer parcels would be rezoned or upzoned. Similar to the Project, development under this alternative would consist primarily of infill development that would not physically divide existing communities. This alternative would not conflict with a plan or policy adopted for the purpose of reducing or eliminating adverse environmental effects. Consequently, the land use and planning impacts of the Reduced VMT Alternative would be comparable to those of the Project and would be less than significant.

### **(2) Transportation**

The Reduced VMT Alternative would generally generate fewer vehicle, bicycle, and pedestrian trips than the Project because fewer trip-generating housing units would be constructed and

occupied. Although quantified modeling of the traffic generated by this alternative was not performed using the Contra Costa Countywide Travel Demand Model, a simplified comparison demonstrates that the Reduced VMT Alternative would reduce the home-based VMT per resident impact associated with the Project. The Project is conservatively assumed to produce 4,575 new housing units, which is expected to generate an increment (on top of baseline VMT) of 365,627 home-based VMT in 2020 and an increment of 336,721 home-based VMT in 2040, as discussed in more detail in *Section IV.B, Transportation*. As shown in Tables VI-5 and VI-6, this would result in 21.9 home-based VMT/resident in 2020 and 20.7 home-based VMT/resident in 2040. These numbers were derived from the traffic modeling summarized in *Section IV.B, Transportation*.

**TABLE VI-5 2020 HOME-BASED VMT SUMMARY: PROJECT VS. REDUCED VMT ALTERNATIVE**

	Project		Reduced VMT Alternative		
	2020 Baseline	2020 Project	2020 + Project	2020 Alternative	2020 + Alternative
<b>Citywide Average</b>	2,435,265	365,627	2,800,892	328,225	2,763,490
<b>Home-Based VMT/Resident</b>	21.5	--	21.9	--	21.5
<b>Significant (&gt;18.3)?</b>			Yes		Yes

Source: Fehr & Peers, 2022; Urban Planning Partners, 2022.

**TABLE VI-6 2040 HOME-BASED VMT SUMMARY: PROJECT VS. REDUCED VMT ALTERNATIVE**

	Project		Reduced VMT Alternative		
	2040 Baseline	2040 Project	2040 + Project	2040 Alternative	2040 + Alternative
<b>Citywide Average</b>	2,310,190	336,721	2,646,911	302,276	2,612,466
<b>Home-Based VMT/Resident</b>	20.4	--	20.7	--	18.1
<b>Significant (&gt;17.4)?</b>			Yes		Yes

Source: Fehr & Peers, 2022; Urban Planning Partners, 2022.

By comparison, the Reduced VMT Alternative would result in estimated development of 4,107 housing units, which is approximately 10.2 percent fewer units than would be built under the Project. Reducing the home-based VMT calculated for the Project by 10.2 percent would result in 328,225 home-based VMT in 2020 and 302,276 home-based VMT in 2040, as shown in Tables VI-5 and VI-6. The home-based VMT per resident was derived from these numbers by determining the additional population that would be generated by the number of housing units produced by the



Reduced VMT Alternative, based on the City's average household size of 3.22 persons.<sup>4</sup> This population was added to the 2020 population and projected 2040 population, respectively, in Antioch, to determine an estimate of citywide population under the Reduced VMT Alternative. The total VMT under the two scenarios was divided by the total population to provide a rough estimate of home-based VMT/resident in 2020 and 2040.<sup>5</sup> As demonstrated in Tables VI-5 and VI-6, home-based VMT/resident would be reduced in 2020 under the Reduced VMT Alternative in comparison with the Project, from 21.9 to 21.5, and would be reduced by a larger margin in 2040 from 20.7 to 18.1. However, in both scenarios the home-based VMT/resident would not be reduced below 85 percent of the citywide average, which would be 18.3 in 2020 and 17.4 in 2040. Therefore, the home-based VMT/resident impact under this alternative would still be significant and unavoidable.

### (3) Air Quality

Although potentially significant impacts on air quality were identified for both construction and operation of the Project, the impacts would be reduced to less than significant through implementation of **Mitigation Measures AIR-1, AIR-2, and AIR-3**. The Reduced VMT Alternative would have similar, though reduced, impacts when compared to the Project. As discussed in the preceding discussion on transportation impacts, the Reduced VMT Alternative would generate approximately 10.2 percent fewer vehicle miles traveled than would be generated by the Project. Consequently, operational emissions of criteria air pollutants and toxic air contaminants generated under the Reduced VMT Alternative could be expected to be approximately 10.2 percent lower than under the Project. Fewer housing units would be developed under this alternative, so construction-related emissions of air pollutants would similarly be reduced under this alternative. This alternative would not avoid Impacts AIR-1, AIR-2, or AIR-3, nor would it reduce the impacts to a less-than-significant level.

### (4) Greenhouse Gas Emissions

Approximately 10.2 percent fewer homes would be constructed and occupied under this alternative. As a result, construction and operation of the Reduced VMT Alternative would generate roughly 10.2 percent lower emissions of GHGs when compared to the Project. As with the Project, implementation of existing General Plan policies that foster a reduction in GHG emissions would ensure that GHG emissions under this alternative would be less than significant. This alternative would include the additional policies proposed for the Project in the Housing

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<sup>4</sup> California Department of Finance, 2021. E-5 City/County Population and Housing Estimates, April 1.

<sup>5</sup> It should be noted that the 2040 household size in Antioch was assumed to be the same as the 2020 household size for purposes of calculating the 2040 home-based VMT/resident for this alternative.

Element and Environmental Hazards Element as well as proposed Environmental Justice policies that would further reduce GHG emissions of the alternative.

### **(5) Cultural and Tribal Resources**

Construction of new housing development under the Reduced VMT Alternative could result in demolition or alteration of identified and unidentified cultural resources, as well as the potential to uncover cultural, archeological, or tribal resources, the same as development that would occur under the Project. However, as previously discussed, less development is anticipated compared to the Project, and this alternative would therefore result in fewer opportunities for individual projects to affect these resources. Individual projects would be required to comply with adopted General Plan policies designed to avoid or minimize impacts to cultural and tribal resources, including General Plan Policy 10.9.2, which requires new development to analyze and mitigate any potential impacts related to archaeological, paleontological, and historic resources. The Reduced VMT Alternative would maintain the same less-than-significant impacts to cultural and tribal resources as identified for the Project, even though the extent of potential risks would be reduced given the decreased development.

### **(6) Aesthetics**

The Reduced VMT Alternative would have somewhat reduced potential for adverse aesthetic impacts by virtue of the reduced amount of development that would occur in comparison with the Project. However, the Project's aesthetic impacts would not be significant because the existing General Plan contains extensive design guidelines set forth in General Plan Policy 5.4.2 that avoid significant adverse aesthetic impacts from new development, and additional protective policies are promulgated in the General Plan for each of the City's ten Focus Areas. Similar to the Project, the City's Tree Preservation Ordinance and Citywide Design Guidelines, in addition to General Plan Policy 5.4.2, protect the City's scenic resources and ensure that aesthetic impacts from new development are less than significant. The Reduced VMT Alternative would maintain the Project's less-than-significant impacts on scenic vistas, scenic quality, and light and glare.

### **(7) Biological Resources**

Similar to the Project, adopted General Plan Policies 10.3.2, 10.4.1, 10.4.2, and 10.5.2 would ensure that potential impacts to biological resources from development under the Reduced VMT Alternative would not be significant. There would be reduced overall development under this alternative, so potential biological impacts would be reduced in comparison with the Project.

## **(8) Geology and Soils**

Similar to the Project, construction of new housing development under the Reduced VMT Alternative could expose residents to geologic hazards including strong ground shaking during a seismic event. Mandatory compliance with adopted General Plan Policies 5.4.14, 8.7.2, 10.7.2, 10.9.2, and 11.4.2 (previously general Plan Policy 11.3.2) would avoid or minimize structural instability due to strong seismic shaking or unstable soils and ensure that geology and soils impacts would be less than significant, similar to the Project. There could be reduced population growth under this alternative, meaning that fewer people could be potentially exposed to seismic hazards, but potential impacts would be similar to those of the Project and would be less than significant.

## **(9) Hazards and Hazardous Materials**

The Reduced VMT Alternative would have the same hazards and hazardous materials impacts that were identified for the Project, but at a reduced scale because only 4,107 housing units would be developed instead of 4,575 units that would be developed under the Project. Construction workers could be exposed to ACM, PCBs, and/or LBP during demolition of existing structures. Similar to the Project, these potential impacts would remain less than significant through mandatory compliance with existing regulations pertaining to ACM, LBP, and PCBs in electrical and lighting equipment. Proposed new Environmental Hazards Element Policy 11.7.2 (t)—which requires a comprehensive Hazardous Building Materials Survey to be completed for any structure proposed for demolition prior to issuance of a demolition permit and appropriate abatement of hazardous building materials identified—would prevent exposure of workers to PCBs in building materials and other hazards, as this policy would still be adopted under this alternative.

The construction impacts would include the potential exposure of workers to hazardous substances in the soil or groundwater of contaminated sites and the release of contaminants into the environment. The Reduced VMT Alternative would include adoption of new Environmental Hazards Element Policy 11.7.2 (u), which requires preparation of a Phase I ESA where there is potential for subsurface soil and/or groundwater contamination, with preparation of a Phase II ESA with subsurface testing if potential hazards are identified in the Phase I ESA, and appropriate remediation in the event site contamination is identified. These protections would ensure that potential impacts from exposure of construction workers to hazardous materials in the soil or groundwater and/or the release of contaminants into the environment that would be less than significant, similar to the Project.

Other hazards and hazardous materials impacts identified for the Project—including hazardous emissions within one-quarter mile of schools, development on hazardous materials sites compiled pursuant to Government Code Section 65962.5, aviation hazards, interference with

emergency response/evacuation plans, and wildfire hazards—would be similar for the Reduced VMT Alternative and would be less than significant.

## **(10) Hydrology and Water Quality**

Similar to the Project, construction of new development under the Reduced VMT Alternative would be required to comply with the provisions of the NPDES Construction General Permit administered by the State Water Resources Control Board. Conformance with the CGP requirements and with other State, regional, and local regulations pertaining to stormwater and dewatering during construction would ensure that construction impacts to water quality would be less than significant under this alternative.

Also similar to the Project, depending on the size of a project, design and operation of future development under this alternative would be subject to the Provision C.3 requirements of the NPDES MRP for LID source control, site design, and stormwater treatment, and would be required to comply with hydromodification management requirements of Provision C.3.g of the MRP, where applicable. Furthermore, compliance with existing General Plan Policies 8.7.2 (a) through (f); 10.7.2 (e) through (i); and 11.4.2 (d) and (e), which address potential impacts to water quality related to potential increases in runoff and potential pollutants in runoff from new development, would further reduce potential impacts to water quality under this alternative. Compliance with these and other State, regional, and local regulations would protect receiving water quality from impacts to water quality from operation of residential and other development under the Reduced VMT Alternative.

Other water quality/hydrology impacts discussed for the Project would be similar under this alternative, including impacts related to groundwater recharge, erosion and sedimentation, stormwater drainage capacity and flooding, and conflicts with a sustainable groundwater management plan. As discussed in detail in *Section IV.K, Hydrology and Water Quality*, compliance with existing policies and regulations would ensure that these impacts would be less than significant under the Project, and the same is true for the Reduced VMT Alternative. This alternative would include new Environmental Hazards Element Policies 11.7.2 (a) through (u), which include a variety of safeguards that would minimize the potential release of pollutants due to flooding from dam failure inundation, sea level rise, and storm surge events in areas of the city that are susceptible to these hazards. Compliance with these policies and with the City's Municipal Code, which restricts development in 100-year Flood Hazard Zones and Regulatory Floodways, would result in less-than-significant impacts related to the release of hazardous materials due to flooding under this alternative, similar to the Project.

While most of the Reduced VMT Alternative's hydrology and water quality impacts would be similar to those of the Project, and would be less than significant, though they could be

incrementally reduced in comparison with the Project due to the reduced amount of development that could occur.

### **(11) Noise**

Development would still occur at locations throughout the city under the Reduced VMT Alternative and construction activities and development operations may create noise impacts, although at fewer locations and for proportionally fewer residents. Similar to the Project, construction projects would be required to comply with Antioch's Code of Ordinance limiting the days and hours of construction equipment operation and with General Plan Policy 11.6.2, which requires implementation of a construction noise mitigation plan and use of construction equipment that utilizes noise-reduction features. Because there would be less new construction under this alternative, there would be fewer instances of these localized, short-term impacts that, similar to the Project, would be less than significant due to the restrictions provided by City policy and regulation. Nonetheless, the less-than-significant noise impacts of the Reduced VMT Alternative would be similar to those of the Project.

### **(12) Population and Housing**

Residential development and population growth would still occur within the city under the Reduced VMT Alternative, although at a lower rate. Using an average household size of 3.22 persons, the new 4,107 housing units potentially developed under this alternative could increase the population in Antioch by approximately 13,225 people, compared with 14,732 new residents anticipated under the Project (a difference of 1,507 people).<sup>6</sup>

Similar to the Project, development of new housing under this alternative would occur on vacant sites, on properties with willing sellers, or on sites owned by churches interested in adding housing to their underutilized properties. Therefore, the Reduced VMT Alternative would not displace substantial numbers of existing housing or people.

In summary, the Reduced VMT Alternative would have very similar population and housing impacts to the Project. However, this alternative would not allow the City to meet its 6<sup>th</sup>-cycle RHNA obligations.

### **(13) Public Services, Facilities and Recreation**

Substantially less residential development would occur in Antioch under the Reduced VMT Alternative, resulting in significantly less demand for public services and recreation facilities.

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<sup>6</sup> California Department of Finance, 2021. E-5 City/County Population and Housing Estimates, April 1.

Fewer police, fire, and emergency services and facilities would be needed, and there would be less demand for schools given the reduced housing and demand for parks and recreational facilities. It is not anticipated that new physical facilities would be required, the construction of which could have adverse environmental effects. However, as with the Project impacts, the Reduced VMT Alternative would increase the demand for recreational facilities, and the City would continue to fall short of its local-serving parkland goal of 5 acres per 1,000 residents. Similar to the Project, new development under the Reduced VMT Alternative would be required to pay the City's Parks and Recreation impact fees and individual projects would be required to provide private and group-usable open space, as applicable, which would reduce the overall demand and use on local recreational facilities. With the payment of fees and adherence with applicable open space regulations, impacts on recreational facilities associated with implementation of the Reduced VMT Alternative would be less than significant. The Reduced VMT Alternative would maintain the same less-than-significant impacts to public services (fire services, police services, and libraries) as identified for the Project.

#### **(14) Utilities**

Residential development in Antioch would occur at a much lower rate under the Reduced VMT Alternative than under the Project, resulting in significantly less demand for utilities and service systems. Less water and energy services and wastewater and solid waste disposal would be needed. It is not anticipated that new physical facilities would be required, the construction of which could have adverse environmental effects. General Plan Policy 8.5.2 (b) requires adequate wastewater to be in place prior to occupancy of a new development, which would ensure that the impact of this alternative on wastewater would be less than significant, and existing City stormwater engineering standards would ensure that adequate stormwater drainage facilities are available to serve new residential development under this alternative. Housing Inventory Sites 113, 114, and 115 along Laurel Road would not be developed under this alternative, and therefore would not require additional water mainline installation. Similar to the Project, there is sufficient existing solid waste disposal capacity at Keller Canyon Landfill to accommodate the solid waste that would be generated under this alternative. In summary, the Reduced VMT Alternative would maintain the same less-than-significant impacts to wastewater, water, solid waste and energy as identified for the Project.

### **3. Reduced RHNA Buffer Alternative**

The Reduced RHNA Buffer Alternative's characteristics and relationship to Project objectives, as well as a brief analysis of environmental impacts, is described below.

### **a. Principal Characteristics**

This alternative would reduce the buffer above the City's RHNA obligation in comparison with the Project, which provides a buffer of 1,559 units beyond the City's RHNA obligation of 3,016 units, providing an overall buffer of 51.7 percent. Under this alternative, the overall buffer would be reduced to 25.0 percent, which is within the 15- to 30-percent buffer recommended by HCD to ensure that jurisdictions remain in compliance with the State Housing Law and the No Net Loss Requirements Law (Government Code Section 65863). A 25-percent buffer was applied to the number of the City's RHNA unit obligation in each income category, as well as to the total unit count. This would result in 3,770 units in total, or 754 units above the City's RHNA obligation.

The housing unit buffer included in the Project has been distributed across all four income categories, though substantially larger buffers have been allocated to the Moderate Income (92 percent) and Above Moderate Income (66 percent) categories. It is assumed that the buffer under the Reduced RHNA Buffer Alternative would be similarly distributed. As a result, the number of properties that would be rezoned for residential use or upzoned for higher-density residential use under this alternative would be similar to the number of sites proposed for rezoning or upzoning under the Project. It is assumed that most of the same sites would be including in the Sites Inventory, but that they would be developed at a lower intensity. In this way, new development under this alternative would continue to be spread throughout the city.

All of the Housing Element, Environmental Hazards Element, and Environmental Justice goals and policies proposed for the Project would be adopted under the Reduced RHNA Buffer Alternative and would apply to future development.

### **b. Relationship to Project Objectives**

The Reduced RHNA Buffer Alternative would achieve many of the Project objectives, including those related to:

- Facilitate the development of a broad array of housing types to meet the City's fair share of regional housing needs and accommodate new and current Antioch residents of diverse ages and socioeconomic backgrounds.
- Conserve and improve the existing housing supply to provide adequate, safe, and decent housing for existing Antioch residents.
- Facilitate the development of special purpose housing to meet the needs of the elderly, persons with disabilities, large families, and the unhoused.
- Remove governmental constraints inhibiting the development of housing required to meet identified needs in Antioch.

- Provide equal housing opportunities for all existing and future Antioch residents.

Most importantly, this alternative would allow the City to meet its 6<sup>th</sup>-cycle RHNA obligations, though with less margin for development of some sites at lower than maximum densities.

### **c. Analysis of the Reduced RHNA Buffer Alternative**

#### **(1) Land Use**

Under the Reduced RHNA Buffer Alternative, development would still occur on sites located throughout the city, but at a smaller scale compared with the Project. The reduced density would likely result in lower heights on many of the infill parcels. New development would be required to comply with new Housing, Environmental Hazards, and Environmental Justice Elements' goals and policies proposed for the Project, as well as with current planning policy and regulations, pursuant to the current City's General Plan and Planning Code.

Similar to the Project, development under this alternative would consist primarily of infill development that would not physically divide existing communities. This alternative would not conflict with a plan or policy adopted for the purpose of reducing or eliminating adverse environmental effects. Consequently, the land use and planning impacts of the Reduced RHNA Buffer Alternative would be comparable to those of the Project and would be less than significant.

#### Transportation

The Reduced RHNA Buffer Alternative would develop 17.6 percent fewer housing units than the Project (3,770 units compared to 4,575). It would therefore be expected to generate roughly 17.6 percent fewer vehicle, bicycle, and pedestrian trips than the Project. As described for the previous alternatives, this alternative was not evaluated with the Countywide Travel Demand Model, but projected VMT calculated for the Project was scaled based on the reduced number of housing units that would be developed under this alternative.

As demonstrated in Tables VI-7 and VI-8, home-based VMT/resident in 2020 would be slightly less with 21.5 when compared to the Project's 21.9. Home-based VMT/resident would be reduced in 2040 in from 20.7 to 18.1. In both scenarios the home-based VMT/resident would not be reduced below 85 percent of the citywide average, which would be 18.3 in 2020 and 17.4 in 2040. Therefore, the home-based VMT/resident impact under this alternative would still be significant and unavoidable.



**TABLE VI-7 2020 HOME-BASED VMT SUMMARY: PROJECT VS. REDUCED RHNA BUFFER ALTERNATIVE**

	2020 Baseline	Project		Reduced RHNA Buffer Alternative 3	
		Project	2020 + Project	Alternative 3	2020 + Alternative 3
<b>Citywide Average</b>	2,435,265	365,627	2,800,892	301,293	2,736,558
<b>Home-Based VMT/Resident</b>	21.5	--	21.9	--	21.5
<b>Significant (&gt;18.3)?</b>			Yes		Yes

Source: Fehr & Peers, 2022; Urban Planning Partners, 2022.

**TABLE VI-8 2040 HOME-BASED VMT SUMMARY: PROJECT VS. REDUCED RHNA BUFFER ALTERNATIVE**

	2040 Baseline	Project		Reduced RHNA Buffer Alternative 3	
		Project	2040 + Project	Alternative 3	2040 + Alternative 3
<b>Citywide Average</b>	2,310,190	336,721	2,646,911	277,473	2,587,663
<b>Home-Based VMT/Resident</b>	20.4	--	20.7	--	18.1
<b>Significant (&gt;17.4)?</b>			Yes		Yes

Source: Fehr & Peers, 2022; Urban Planning Partners, 2022.

**(2) Air Quality**

Although potentially significant impacts on air quality were identified for both construction and operation of the Project, the impacts would be reduced to less than significant through implementation of **Mitigation Measures AIR-1, AIR-2, and AIR-3**. The Reduced RHNA Buffer Alternative would have similar, though moderately reduced, impacts when compared to the Project. The Reduced RHNA Buffer Alternative would generate 17.6 percent fewer vehicle miles traveled than would be generated by the Project. Consequently, operational emissions of criteria air pollutants and toxic air contaminants generated under the Reduced VMT alternative could be expected to be approximately 17.6 percent lower than under the Project. Fewer housing units would be developed under this alternative, so construction-related emissions of air pollutants would similarly be reduced under this alternative. The alternative would not avoid Impacts AIR-1, AIR-2, or AIR-3, nor would it reduce the impacts to a less-than-significant level, and **Mitigation Measures AIR-1, AIR-2, and AIR-3** would still be required.

### **(3) Greenhouse Gas Emissions**

17.6 percent fewer homes would be constructed and occupied under this alternative. As a result, construction and operation of the Reduced RHNA Buffer Alternative would generate approximately 17.6 percent lower emissions of GHGs when compared to the Project. As with the Project, implementation of existing General Plan policies that foster a reduction in GHG emissions would ensure that GHG emissions under this alternative would be less than significant. This alternative would include the additional policies proposed for the Project in the Housing Element and Environmental Hazards Element as well as proposed Environmental Justice policies that would further reduce GHG emissions of the alternative.

### **(4) Cultural and Tribal Resources**

Construction of new housing development under the Reduced RHNA Buffer Alternative could result in demolition or alteration of identified and unidentified cultural resources, as well as the potential to uncover cultural, archeological, or tribal resources, the same as development that would occur under the Project. However, as previously discussed, less development is anticipated compared to the Project, and this alternative would therefore result in fewer opportunities for individual projects to affect these resources. Individual projects would be required to comply with adopted General Plan policies designed to avoid or minimize impacts to cultural and tribal resources, including General Plan Policy 10.9.2, which requires new development to analyze and mitigate any potential impacts related to archaeological, paleontological, and historic resources. The Reduced RHNA Buffer Alternative would maintain the same less-than-significant impacts to cultural and tribal resources as identified for the Project, even though the extent of potential risks would be reduced given the decreased development.

### **(5) Aesthetics**

The Reduced RHNA Buffer Alternative would have very similar potential for adverse aesthetic impacts, somewhat lowered by the reduced amount of development that would occur in comparison with the Project. However, the Project's aesthetic impacts would not be significant because the existing General Plan contains extensive design guidelines set forth in Policy 5.4.2 that avoid significant adverse aesthetic impacts from new development, and additional protective policies are promulgated in the General Plan for each of the City's ten Focus Areas. Similar to the Project, the City's Tree Preservation Ordinance and Citywide Design Guidelines, in addition to Policy 5.4.2, protect the City's scenic resources and ensure that aesthetic impacts from new development are less than significant. The Reduced RHNA Buffer Alternative would maintain the Project's less-than-significant impacts on scenic vistas, scenic quality, and light and glare.

## **(6) Biological Resources**

Similar to the Project, adopted General Plan Policies 10.3.2, 10.4.1, 10.4.2, and 10.5.2 would ensure that potential impacts to biological resources from development under the Reduced RHNA Buffer Alternative would not be significant. There would be a slightly smaller amount of development under this alternative, so potential biological impacts would be incrementally reduced in comparison with the Project.

## **(7) Geology and Soils**

Similar to the Project, construction of new housing development under the Reduced RHNA Buffer Alternative could expose residents to geologic hazards including strong ground shaking during a seismic event. Mandatory compliance with adopted General Plan policies 5.4.14, 8.7.2, 10.7.2, 10.9.2, and 11.3.2 would avoid or minimize structural instability due to strong seismic shaking or unstable soils and ensure that geology and soils impacts would be less than significant, similar to the Project.

## **(8) Hazards and Hazardous Materials**

The Reduced RHNA Buffer Alternative would have the same hazards and hazardous materials impacts that were identified for the Project, but at a slightly reduced scale because 3,770 housing units would be developed instead of 4,575 units that would be developed under the Project. Construction workers could be exposed to ACM, PCBs, and/or LBP during demolition of existing structures. Similar to the project, these potential impacts would remain less than significant through mandatory compliance with existing regulations pertaining to ACM, LBP, and PCBs in electrical and lighting equipment. Proposed new Environmental Hazards Element Policy 11.9.2 (t)—which requires a comprehensive Hazardous Building Materials Survey to be completed for any structure proposed for demolition prior to issuance of a demolition permit and appropriate abatement of hazardous building materials identified—would prevent exposure of workers to PCBs in building materials and other hazards, as this policy would still be adopted under this alternative.

The construction impacts would include the potential exposure of workers to hazardous substances in the soil or groundwater of contaminated sites and the release of contaminants into the environment. The Reduced RHNA Buffer Alternative would include adoption of new Environmental Hazards Element Policy 11.9.2 (u), which requires preparation of a Phase I ESA where there is potential for subsurface soil and/or groundwater contamination, with preparation of a Phase II ESA with subsurface testing if potential hazards are identified in the Phase I ESA, and appropriate remediation in the event site contamination is identified. These protections would ensure that potential impacts from exposure of construction workers to hazardous

materials in the soil or groundwater and/or the release of contaminants into the environment that would be less than significant, similar to the Project.

Other hazards and hazardous materials impacts identified for the Project—including hazardous emissions within one-quarter mile of schools, development on hazardous materials sites compiled pursuant to Government Code Section 65962.5, aviation hazards, interference with emergency response/evacuation plans, and wildfire hazards—would be similar for the Reduced RHNA Buffer Alternative and would be less than significant.

### **(9) Hydrology and Water Quality**

Similar to the Project, construction of new development under the Reduced RHNA Buffer Alternative would be required to comply with the provisions of the NPDES Construction General Permit administered by the State Water Resources Control Board. Conformance with the CGP requirements and with other State, regional, and local regulations pertaining to stormwater and dewatering during construction would ensure that construction impacts to water quality would be less than significant under this alternative.

Also similar to the Project, depending on the size of a project, design and operation of future development under this alternative would be subject to the Provision C.3 requirements of the NPDES MRP for LID source control, site design, and stormwater treatment, and would be required to comply with hydromodification management requirements of Provision C.3.g of the MRP, where applicable. Furthermore, compliance with existing General Plan Policies 8.7.2 (a) through (f); 10.7.2 (e) through (i); and 11.5.2 (d) and (e), which address potential impacts to water quality related to potential increases in runoff and potential pollutants in runoff from new development, would further reduce potential impacts to water quality under this alternative. Compliance with these and other State, regional, and local regulations would protect receiving water quality from impacts to water quality from operation of residential and other development under the Reduced RHNA Buffer Alternative.

Other water quality/hydrology impacts discussed for the Project would be similar under this alternative, including impacts related to groundwater recharge, erosion and sedimentation, stormwater drainage capacity and flooding, and conflicts with a sustainable groundwater management plan. As discussed in detail in *Section IV.K, Hydrology and Water Quality*, compliance with existing policies and regulations would ensure that these impacts would be less than significant under the Project, and the same is true for the Reduced RHNA Buffer Alternative. This alternative would include new Environmental Hazards Element Policies 11.7.2 (a) through (u), which include a variety of safeguards that would minimize the potential release of pollutants due to flooding from dam failure inundation, sea level rise, and storm surge events in areas of the city are susceptible to these hazards. Compliance with these policies and with the City's Municipal Code, which restricts development in 100-year Flood Hazard Zones and Regulatory

Floodways, would result in less-than-significant impacts related to the release of hazardous materials due to flooding under this alternative, similar to the Project.

While most of the Reduced RHNA Buffer Alternative's hydrology and water quality impacts would be similar to those of the Project, and would be less than significant, they could be incrementally reduced in comparison with the Project due to the somewhat reduced amount of development that could occur under this alternative.

### **(10) Noise**

Development would still occur at locations throughout the city under the Reduced RHNA Buffer Alternative and construction activities and development operations may create noise impacts, although at fewer locations and for proportionally fewer residents. Similar to the Project, construction projects would be required to comply with Antioch's Code of Ordinance limiting the days and hours of construction equipment operation and with General Plan Policy 11.8.2 (previously General Plan Policy 11.6.2), which requires implementation of a construction noise mitigation plan and use of construction equipment that utilizes noise-reduction features. Because there would be roughly 18 percent less new construction under this alternative, there would be fewer instances of these localized, short-term impacts that, similar to the Project, would be less than significant due to the restrictions provided by City policy and regulation. Nonetheless, the less-than-significant noise impacts of the Reduced RHNA Buffer Alternative would be very similar to those of the Project.

### **(11) Population and Housing**

Residential development and population growth would still occur within the city under the Reduced RHNA Buffer Alternative, although at a slightly lower rate. Using an average household size of 3.22 persons, the new 3,770 housing units potentially developed under this alternative could increase the population in Antioch by approximately 12,139 people, compared with 14,732 new residents anticipated under the Project (a difference of 2,592 people).<sup>7</sup>

Similar to the Project, development of new housing under this alternative would occur on vacant sites, on properties with willing sellers, or on sites owned by churches interested in adding housing to their underutilized properties. Therefore, the Reduced RHNA Buffer Alternative would not displace substantial numbers of existing housing or people.

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<sup>7</sup> U.S. Census Bureau, American Community Survey, [undated]. DP02: Selected Social Characteristics in the United States, 2020 5-Year Estimates Data Profiles, Antioch City, California.

In summary, the Reduced RHNA Buffer Alternative would have very similar population and housing impacts to the Project. This alternative would still allow the city to meet its 6<sup>th</sup>-cycle RHNA obligations, but with a reduced buffer to accommodate development of some parcels at lower than maximum densities.

### **(12) Public Services, Facilities and Recreation**

Slightly less residential development would occur in Antioch under the Reduced RHNA Buffer Alternative, resulting in slightly less demand for schools, public services and recreation facilities, which could mean that fewer schools, police, fire, and emergency services and facilities would be needed. It is not anticipated that new physical facilities would be required, the construction of which could have adverse environmental effects. However, as with the Project impacts, the Reduced RHNA Buffer Alternative would increase the demand for parkland, and the city would continue to fall short of its local-serving parkland goal of 5 acres per 1,000 resident. Similar to the Project, new development under the Reduced RHNA Buffer Alternative would be required to pay the City's Parks and Recreation impact fees and provide private and group-usable open space, as applicable, which would reduce the overall demand and use on local recreational facilities. With the payment of fees and adherence with applicable open space regulations, impacts on recreational facilities associated with implementation of the Reduced RHNA Buffer Alternative would be less than significant. The Reduced RHNA Buffer Alternative would maintain the same less-than-significant impacts to public services (fire services, police services, and libraries) as identified for the Project.

### **(13) Utilities**

There would be roughly 17.6 percent less residential development in Antioch under the Reduced RHNA Buffer Alternative than under the Project, resulting in slightly less demand for utilities and service systems. Proportionally less water and energy services and wastewater and solid waste disposal would be needed. It is not anticipated that new physical facilities would be required, the construction of which could have adverse environmental effects. General Plan Policy 8.5.2 (b) requires adequate wastewater to be in place prior to occupancy of a new development, which would ensure that the impact of this alternative on wastewater would be less than significant, and existing City stormwater engineering standards would ensure that adequate stormwater drainage facilities are available to serve new residential development under this alternative. Similar to the Project, there is sufficient existing solid waste disposal capacity at Keller Canyon Landfill to accommodate the solid waste that would be generated under this alternative. In summary, the Reduced RHNA Buffer Alternative would maintain the same less-than-significant impacts to wastewater, water, solid waste and energy as identified for the Project.

## D. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative in an EIR. The Reduced RHNA Buffer Alternative is considered the environmentally superior alternative in that environmental impacts associated with its implementation would be the least of all the alternatives examined (including the Project). The Reduced RHNA Buffer Alternative would not have greater impacts to any environmental resources than the Project and would have somewhat reduced potential for impacts across most resource categories. The alternative would have similar impacts to the Project on land use, aesthetics, geology/soils, hazardous materials, noise, and population/housing. The Reduced RHNA Buffer Alternative would meet the primary Project objectives but would provide a smaller margin for error in the potential for the city to fully meet its 6<sup>th</sup>-cycle RHNA obligations.





## VII. CEQA REQUIRED ASSESSMENT CONCLUSIONS

This chapter presents a summary of the impacts of the Project in several subject areas specifically required by CEQA Guidelines Section 21100, including growth-inducing impacts, significant unavoidable impacts, significant irreversible environmental changes, and effects not found to be significant. These findings are based on the analysis provided in *Chapter IV, Setting, Impacts, and Mitigation Measures*.

### A. GROWTH-INDUCING IMPACTS

According to Section 15126.2 (d) of CEQA Guidelines, growth-inducing impacts of a proposed project must be discussed in the EIR. Growth-inducing impacts are those effects of a proposed project that might foster economic or population growth or the construction of new housing, either directly or indirectly, in the surrounding environment. According to CEQA, increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects.

Induced growth is any growth that exceeds planned growth and results from new development that would not have taken place without implementation of a proposed project. Additionally, growth may be induced through the provision of infrastructure or service capacity that would accommodate new development. Typically, the growth inducing potential of a project would be considered significant if it results in growth or population concentration that exceeds those assumptions included in pertinent master plans, land use plans, or projections made by regional planning authorities. Based on the definition of growth inducement, a general plan, and its associated Housing Element is inherently growth-inducing because it must, by law, accommodate existing and projected housing needs as determined by California Department of Housing and Community Development (HCD) and Association of Bay Area Governments (ABAG) and described in *Chapter III, Project Description*.

As described within *Chapter III, Project Description*, to accommodate the existing and projected housing needs of the City of Antioch, the Housing Element of the City is being updated as part of the Project to compile a Housing Sites Inventory (Sites Inventory) to identify 182 housing sites (Hosing Sites) intended to accommodate the potential for 4,575 new residential units located throughout the city. In conjunction with identification of these 182 Housing Sites, the City will rezone 169 of these sites to allow for residential development or more intense residential development than presently permitted, along with comparable General Plan and Specific Plan

amendments which will be required to make the land use designations of the sites consistent with the zoning.

While the Project anticipates accommodation of up to 4,575 units, it's unrealistic to assume that all housing site parcels identified in the Housing Element would be developed and that they would all be developed at the maximum allowable density. While the Housing Element encourages the development of new housing, the actual construction of new units will be driven by market forces, the motivation of property owners, subsidies for affordable housing, and other factors outside the control of the City. Nonetheless, this theoretically possible number of 4,575 new housing units is used as a basis for estimating the effect this could have on Antioch's population. Using 2020 California Department of Finance (DOF) data, such as the average household size of a household in Antioch, population projections can be estimated to evaluate the potential for induced growth as part of the Project. According to such data, the average household's size in the city of Antioch is 3.22 persons.<sup>1</sup> Applying this average, development of 4,575 new housing units would increase the population in Antioch by approximately 14,732 people. Applying DOF data for the county-wide average household size of 2.82 persons per household, development of 4,575 new housing units would increase the population in Antioch by approximately 12,901 people.<sup>2</sup>

In addition to the reasons cited above, other factors would also serve to reduce this number in actual practice. First, many of the new units would be accessory dwelling units (ADUs) added to existing residential properties, studio apartments, and one-bedroom apartments, all of which would typically provide a residence for one or two people. Secondly, one objective of the proposed Housing Element is to provide housing for currently unhoused people residing in Antioch. Implementing Program 2.1.10 sets an objective of developing 30 to 50 units for homeless individuals, which could include SROs, studio apartments, and/or a CARE center providing permanent supportive housing for extremely low- and very low- income persons. Providing this housing to existing residents would not add to the City's population. Finally, existing residents of Antioch would likely take advantage of new housing opportunities in the city, which would not add to the city's population. Accordingly, it is likely that the implementation of the Project would increase the population in Antioch by fewer than 14,732 people.

Additionally, due to the Project being proposed and implemented to meet the City's RHNA requirements as determined by HCD and ABAG for the 2023-2031 planning period, Housing Sites identified as part of the Project were identified consistent with HCD Guidance which requires the

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<sup>1</sup> California Department of Finance (DOF), 2020. E-5 City/County Population and Housing Estimates, April 1.

<sup>2</sup> California Department of Finance (DOF), 2020. E-5 City/County Population and Housing Estimates, April 1.

locating of Housing Sites according to certain standards. Accordingly, Housing Sites identified by the Project are located within existing urbanized parts of the city, in proximity to existing or planned infrastructure. Additionally, as described within the various subsections of *Chapter IV, Setting, Impacts, and Mitigation Measures*, the Project would accommodate residential growth and associated population growth in accordance with the City's policies for location, type, and intensity of residential development, as set forth in the Housing Element, Land Use Element, and applicable Specific Plans. As such, the population growth anticipated by the Project's potential development of the 182 Housing Sites, totaling a maximum of 4,575 residential units, is considered planned, not unplanned growth that is consistent with the City's General Plan. Accordingly, impacts to unplanned population growth are determined to be less than significant as demonstrated in *Section IV.M, Population and Housing*.

## **B. SIGNIFICANT IRREVERSIBLE CHANGES**

CEQA Guidelines Section 15126.2 (d) requires an evaluation of significant irreversible environmental changes. CEQA defines "Significant Irreversible Changes" as:

*Significant Irreversible Environmental Changes which would be Caused by the Proposed Project Should it be Implemented. Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.*

### **1. Consumption of Non-Renewable Resources**

The Project includes updates to extensive long-range planning documents of the City of Antioch including the City's Housing Element, Environmental Hazards Element, and related Environmental Justice Policies. These planning documents are included within the City's General Plan and are being updated to account for present and future housing needs of the City through the year 2031, as required by HCD and ABAG. As part of these updates the City is planning for the potential accommodation of up to 4,575 residential units between the years 2023-2031 on a total of 182 Housing Sites as described within *Chapter III, Project Description*. These Housing Sites are located within existing urbanized areas of the city, away from nonrenewable resources such as biological habitat, agricultural lands, mineral deposits, and other cultural resources classified as non-renewable resources. Any future development of individual Housing Sites identified by the Project would include limited consumption of slow to renew, or non-renewable resources as part of the construction phase, this may include building materials such as metals, lumber, and

asphalt among other materials; and fuel used to operate machinery and transport persons and other materials. Construction of individual Housing Sites, and the related use of nonrenewable resources will be required to comply with Title 24, Part 6 of the California Code of Regulations (CCR) which regulates energy efficiency standards for residential and nonresidential buildings, new construction, remodels, and additions. Accordingly, while future development of Housing Sites facilitated by the Project would result in consumption of non-renewable resources, they would be developed consistent with regulations included within this EIR which are intended to require green building practices which reduce the consumption of non-renewable resources as part of construction and development. Additionally, it is important to note that development of individual Housing Sites is not anticipated to occur concurrently but rather over the course of the 8-year planning period (2023-2031). Accordingly, the Project would result in the consumption of non-renewable resources on a relatively small scale in a regional context, and therefore the impacts the Project is anticipated to have on the consumption on nonrenewable resources is less than significant.

## **2. Changes in Land Use Which Would Commit Future Generations**

The Project includes updates to extensive long-range planning documents of the City of Antioch including the City's Housing Element, Environmental Hazards Element, and related Environmental Justice Policies. These planning documents are included within the City's General Plan and are being updated to account for present and future housing needs of the City through the year 2031, as required by HCD and ABAG. Accordingly, the Project does not constitute a commitment of future generations to land uses, but rather updates to the City's General Plan, in accordance with State Law.

## **3. Irreversible Changes from Environmental Accidents**

The Project includes updates to extensive long-range planning documents of the City of Antioch including the City's Housing Element, Environmental Hazards Element, and related Environmental Justice Policies. These planning documents are included within the City's General Plan and are being updated to account for future residential growth and development within the city through the year 2031, as required by HCD and ABAG. As part of these updates the City is planning for the accommodation of up to 4,575 residential units between the years 2023-2031 on a total of 182 Housing Sites as described within *Chapter III, Project Description*. Housing Sites are anticipated to be developed over the course of the 8-year planning period. Any future development of Housing Sites may include the temporary use of some hazardous agents, such as paints, oils, solvents, and cleansers, as well as temporary storage of these materials and fuel on site. However, the amounts of chemical agents typically used during the construction of housing units is limited, and any construction activities will be carried out in accordance with the

California Building Code. Accordingly, the impacts the Project is anticipated to have on irreversible damages due to environmental accidents is less than significant.

### C. SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

Section 15126.2(b) of the State CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided even with implementation of feasible mitigation measures. Based on the environmental analysis in *Chapter IV, Setting, Impacts, and Mitigation Measures*, the Project would only result in one significant and unavoidable impact related to transportation:

**Impact TRANS-1: Implementation of the Project would generate home-based VMT per resident that is greater than 85 percent of the citywide average home-based VMT per resident.**

### D. CUMULATIVE IMPACTS

CEQA defines cumulative impacts as “two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited, but cumulatively considerable. Per Section 15065(a)(3) of the CEQA Guidelines, “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 likely future projects. Cumulative effects of the Project are discussed under the respective topic sections in *Chapter IV, Settings, Impacts, and Mitigation Measures*.

### E. EFFECTS FOUND NOT TO BE SIGNIFICANT

The environmental topics analyzed in *Chapter IV, Setting, Impacts, and Mitigation Measures*, represent the topics that generated the greatest potential controversy and expectation of adverse impacts among City staff and members of the public. The following topics were excluded from discussion in this EIR because it was determined during the scoping phase of the Project that impacts would be less than significant:

- Mineral Resources

