CITY OF ANTIOCH
COMMUNITY DEVELOPMENT DEPARTMENT

AMCAL Family & Senior Apartments

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

April 2019

RANEY
PLANNING & MANAGEMENT, INC.

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INITIAL STUDY

April 2019

A. BACKGROUND

1. Project Title: East 18th Street Project

2. Lead Agency Name and Address: City of Antioch
Community Development Department
P.O. Box 5007
Antioch, CA 94531

3. Contact Person and Phone Number: Alexis Morris
Planning Manager
(925) 779-7035

4. Project Location: Southwest of the East 18th Street/Holub Lane Intersection
Antioch, CA 94509

5. Project Sponsor's Name and Address: Amcal Multi-Housing, Inc.
30141 Agoura Road, Suite 100
Agoura Hills, CA 91301
(818) 706-0694

6. Existing General Plan Designation: Focus Area: High Density Residential

7. Existing Zoning Designation: Planned Business Center (PBC)

8. Proposed Zoning Designation: High Density Residential District (R-25)
with Senior Housing Overlay District

9. Required Approvals from Other Public Agencies: None

10. Surrounding Land Uses and Setting:

Currently, the project site is undeveloped and is regularly disked to limit vegetation growth. The project site is bounded by East 18th Street to the north, Holub Lane and vacant land to the east, Gotcha Bait & Tackle, Inc., an automobile repair shop, and a single-family residential subdivision to the west, and a church (Grace Bible Fellowship of Antioch) to the south. Additional vacant land is located north of the site across East 18th Street. The existing residential neighborhood to the west is separated from the project site by an approximately eight-foot-tall masonry wall that spans the length of the western project site

boundary. One of the parcels located east of the site across Holub Lane (APN 051-200-037) is developed with a single-family home and various outbuildings and is also used for storage of RVs and various other equipment.

11. Project Description Summary:

The East 18th Street Project (proposed project) would include development of a 14.85-acre site with a 394-unit multi-family apartment complex, with 178 of the units intended for seniors, as well as parking areas, clubhouses/community buildings, and various associated improvements. The project would require a Rezone, Lot Merger, Use Permit, and Design Review.

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

In compliance with Assembly Bill (AB) 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the Amah Mutsun Tribal Band of Mission San Juan Bautista, the Indian Canyon Mutsun Band of Costanoan, the Ohlone Indian Tribe, the Wilton Rancheria, and the Ione Band of Miwok Indians. The letters were distributed on September 12, 2018 and requests to consult were not received within the required response period.

B. SOURCES

The following documents are referenced information sources used for the purposes of this Initial Study/Mitigated Negative Declaration (IS/MND):

1. Bay Area Air Quality Management District. *Air Quality Plans*. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans.aspx. Accessed September 2018.
2. Bay Area Air Quality Management District. *Air Quality Standards and Attainment Status*. Available at: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed September 2018.
3. Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2010.
4. Bollard Acoustical Consultants, Inc. *Environmental Noise Assessment, East 18th Street Apartments.* September 5, 2018.
5. California Department of Conservation. *Contra Costa County Important Farmland Map 2016.* Published August 2018.
6. California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.
7. California Department of Transportation. *California Scenic Highway Mapping System*. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed September 2018.
8. City of Antioch. *2015 Urban Water Management Plan*. May 2016.

9. City of Antioch. *About APD*. Available at: http://www.antiochca.gov/police/about-apd/. Accessed September 2018.
10. City of Antioch. *City of Antioch Housing Element 2015-2023*. Adopted April 14, 2015.
11. City of Antioch. *Citywide Design Guidelines Manual*. October 2009.
12. City of Antioch. *Citywide Engineering and Traffic Survey.* February 6, 2015.
13. City of Antioch. *General Plan Update EIR*. July 2003.
14. City of Antioch. *General Plan*. Updated November 24, 2003.
15. Contra Costa Clean Water Program. *Stormwater C.3. Guidebook, Stormwater Quality Requirements for Development Applications*. May 17, 2017.
16. Delta Diablo. *Quick Facts*. Available at: https://www.deltadiablo.org/about-us/organization/quick-facts. Accessed March 2018.
17. Geocon Consultants, Inc. *Geotechnical Investigation, East 18th Street Multifamily, 3560 East 18th Street, Antioch, California.* March 2018.
18. Hexagon Transportation Consultants, Inc. *3530-3560 E. 18th Street Residential Development.* April 4, 2019.
19. Live Oak Associates, Inc. *E 18th Street Technical Biological Report, Antioch, Contra Costa, California.* August 29, 2018.
20. Rincon Consultants, Inc. *Phase I Environmental Site Assessment & Vapor Encroachment Screening, Proposed Antioch Apartments Site, Antioch, California.* February 15, 2018.
21. San Francisco Bay Regional Water Quality Control Board. *Order No. R2-2014-0030, NPDES No. CA00.8547.* Adopted August 13, 2014.
22. SWT Engineering. *Joint Technical Document, Keller Canyon Landfill (SWIS NO. 07-AA-0032)* [pg. B.3-1]. May 2016.
23. Tom Origer & Associates. *Historic Resources Study of 3530-3560 E. 18th Street, Antioch, Contra Costa County, California.* September 7, 2018.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ **Aesthetics**	☐ **Agriculture and Forest Resources**	✖ **Air Quality**
✖ **Biological Resources**	✖ **Cultural Resources**	☐ **Energy**
✖ **Geology and Soils**	✖ **Greenhouse Gas Emissions**	☐ **Hazards and Hazardous Materials**
✖ **Hydrology and Water Quality**	☐ **Land Use and Planning**	☐ **Mineral Resources**
✖ **Noise**	☐ **Population and Housing**	☐ **Public Services**
☐ **Recreation**	✖ **Transportation**	✖ **Tribal Cultural Resources**
☐ **Utilities and Service Systems**	☐ **Wildfire**	☐ **Mandatory Findings of Significance**

D. DETERMINATION

On the basis of this initial study:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	Date
Alexis Morris, Planning Manager	City of Antioch
Printed Name	For

E. BACKGROUND AND INTRODUCTION

This Initial Study identifies and analyzes the potential environmental impacts of the East 18th Street Project (proposed project). The information and analysis presented in this document is organized in accordance with the order of the California Environmental Quality Act (CEQA) checklist in Appendix G of the CEQA Guidelines. Where the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures are prescribed.

The mitigation measures prescribed for environmental effects described in this IS/MND would be implemented in conjunction with the project, as required by CEQA. The mitigation measures would be incorporated into the project through project conditions of approval. The City would adopt findings and a Mitigation Monitoring/Reporting Program for the project in conjunction with approval of the project.

In 2003, the City of Antioch completed a comprehensive update of the City's General Plan and adopted an Environmental Impact Report (EIR) for the updated General Plan. The General Plan EIR is a program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations, Sections 15000 *et seq*.). The General Plan EIR analyzed full implementation of the General Plan and identified measures to mitigate the significant adverse impacts associated with the General Plan.

F. PROJECT DESCRIPTION

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

Project Location and Setting

The project site consists of approximately 14.85 acres located southwest of the East 18th Street/Holub Lane intersection in the City of Antioch, Contra Costa County, California (see Figure 1 and Figure 2). Regional access to the site area is provided by State Route (SR) 160, located approximately 650 feet east of the project site frontage at East 18th Street. The site is identified by Assessor's Parcel Numbers (APNs) 051-200-025 and -026 and is zoned PBC. The site is located within the planning area of the Eastern Waterfront Employment Focus Area and is designated High Density Residential.

Currently, the project site is undeveloped and is regularly disked to limit vegetation growth. With the exception of sparse, heavily disturbed weedy growth along the northern site boundary, the project site does not contain any existing vegetation. The site does not contain any wetland features or waterways. The site was previously developed with an orchard and up to seven permanent structures; however, the site has been cleared and vacant since at least 2006.

The project site is bounded by East 18th Street to the north, Holub Lane and vacant land to the east, Gotcha Bait & Tackle, Inc., an automobile repair shop, and a single-family residential subdivision to the west, and a church (Grace Bible Fellowship of Antioch) to the south. Additional vacant land is located north of the site across East 18th Street.

Figure 1
Regional Project Location

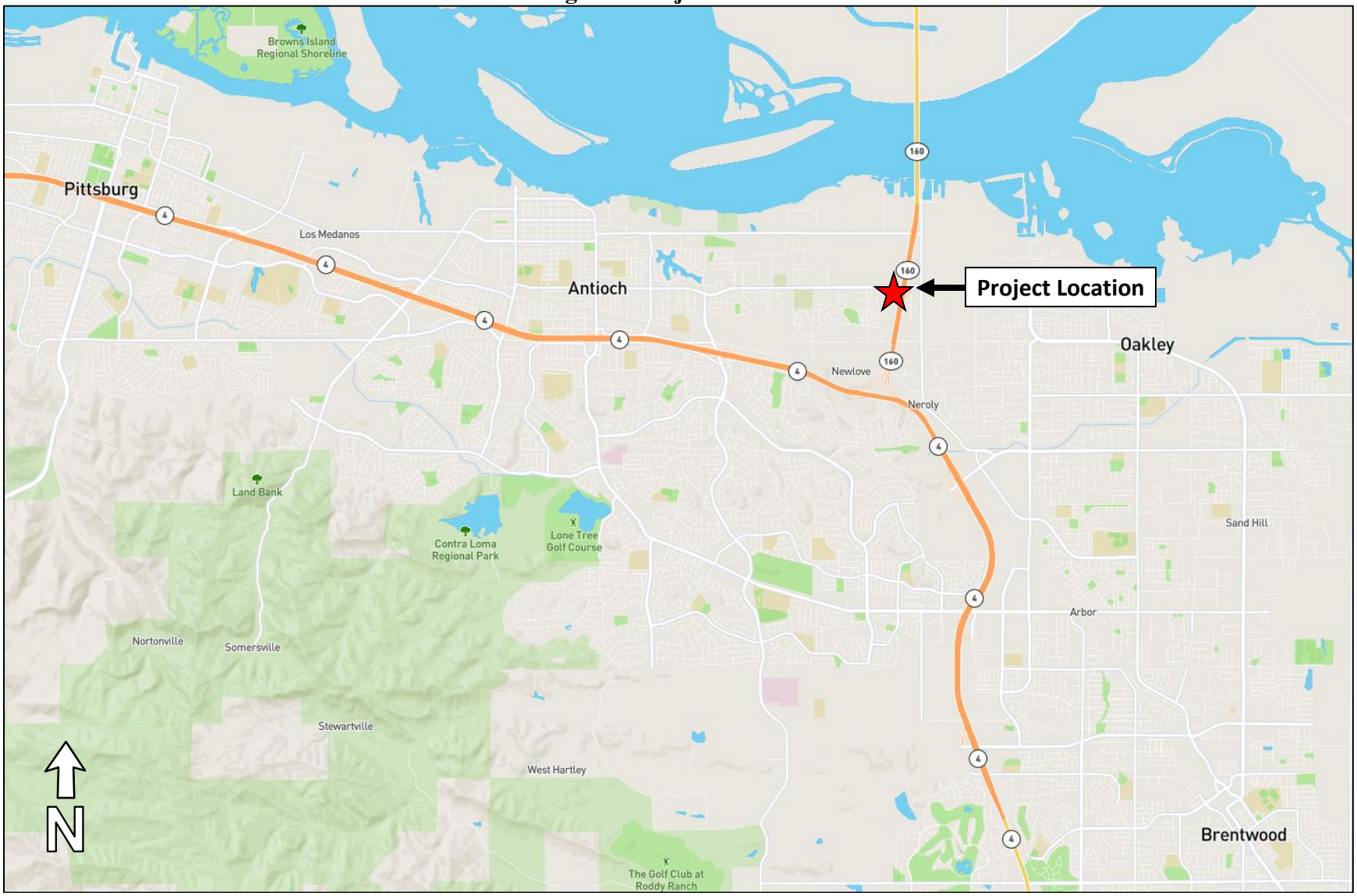


Figure 2
Project Site Boundaries

The existing residential neighborhood to the west is separated from the project site by an approximately eight-foot-tall masonry wall that spans the length of the western project site boundary. One of the parcels located east of the site across Holub Lane (APN 051-200-037) is developed with a single-family home and various outbuildings and is also used for storage of RVs and various other equipment.

Project Components

The proposed project would include development of the 14.85-acre site with a 394-unit multi-family apartment complex, with 178 of the units being age-restricted (senior) units and 216 of the units being affordable (family) units, as well as parking areas, clubhouses/community buildings, and various associated improvements (see Figure 3 and Figure 4). The family and senior units would be clustered within the northern and southern portions of the site, respectively, and a new drive aisle would extend through the length of the site parallel to the western site boundary. The sections below describe the following project components: apartment buildings; circulation and parking; landscaping, common area, and fencing improvements; utility improvements; Rezone; Lot Merger; Use Permit; and Design Review.

Apartment Buildings

The senior component of the proposed apartment complex would comprise a total of 178 units, including 144 one-bedroom units and 34 two-bedroom units. The family component of the complex would comprise 216 units, including 108 two-bedroom units and 108 three-bedroom units. Table 1 below provides a summary of the proposed unit mix for both components. Development of the site with 394 units would result in a density of 26.5 dwelling units per acre (du/ac).

Table 1
Proposed Unit Mix

Unit Type	Unit Size (sf)	# of Units	% of Total
Senior Units			
1 Bed/1 Bath	596	144	81%
2 Bed/1Bath	824	34	19%
	Total:	**178**	**100%**
Family Units			
2 Bed/1 Bath	824	108	50%
3 Bed/2 Bath	1,059	54	25%
3 Bed/2 Bath	1,054	54	25%
	Total:	**216**	**100%**

The senior component of the proposed project would include development of two apartment buildings and associated improvements on the southern portion of the project site. All of the senior units would be age-restricted per an agreement with the City. Both buildings would be three stories with corridors/elevators and surface parking. In addition, the senior component would include a 2,327-sf community clubhouse with a manager's office, social services offices, a media lounge, computer lab, and laundry rooms.

Figure 3
Project Site Plan – North

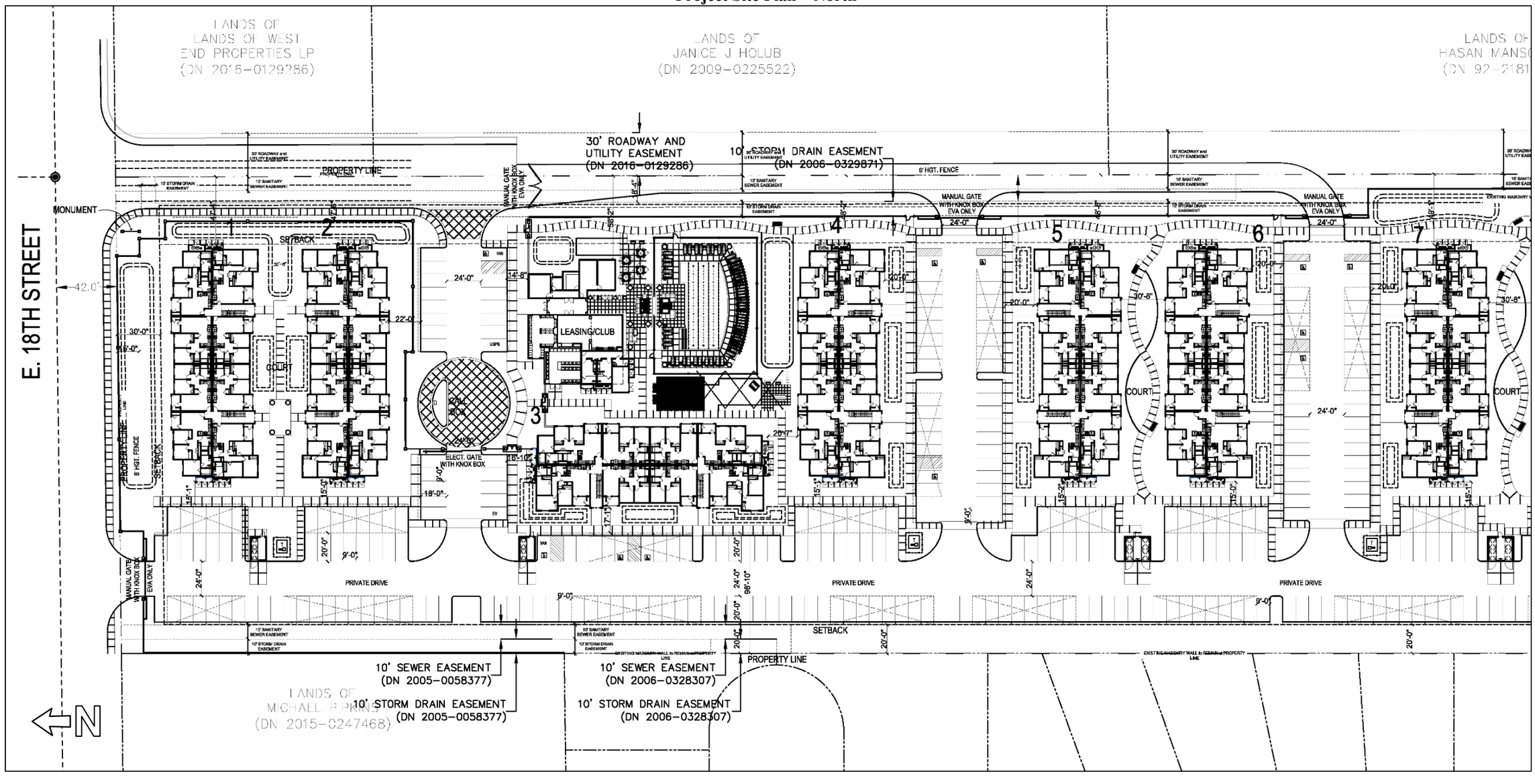
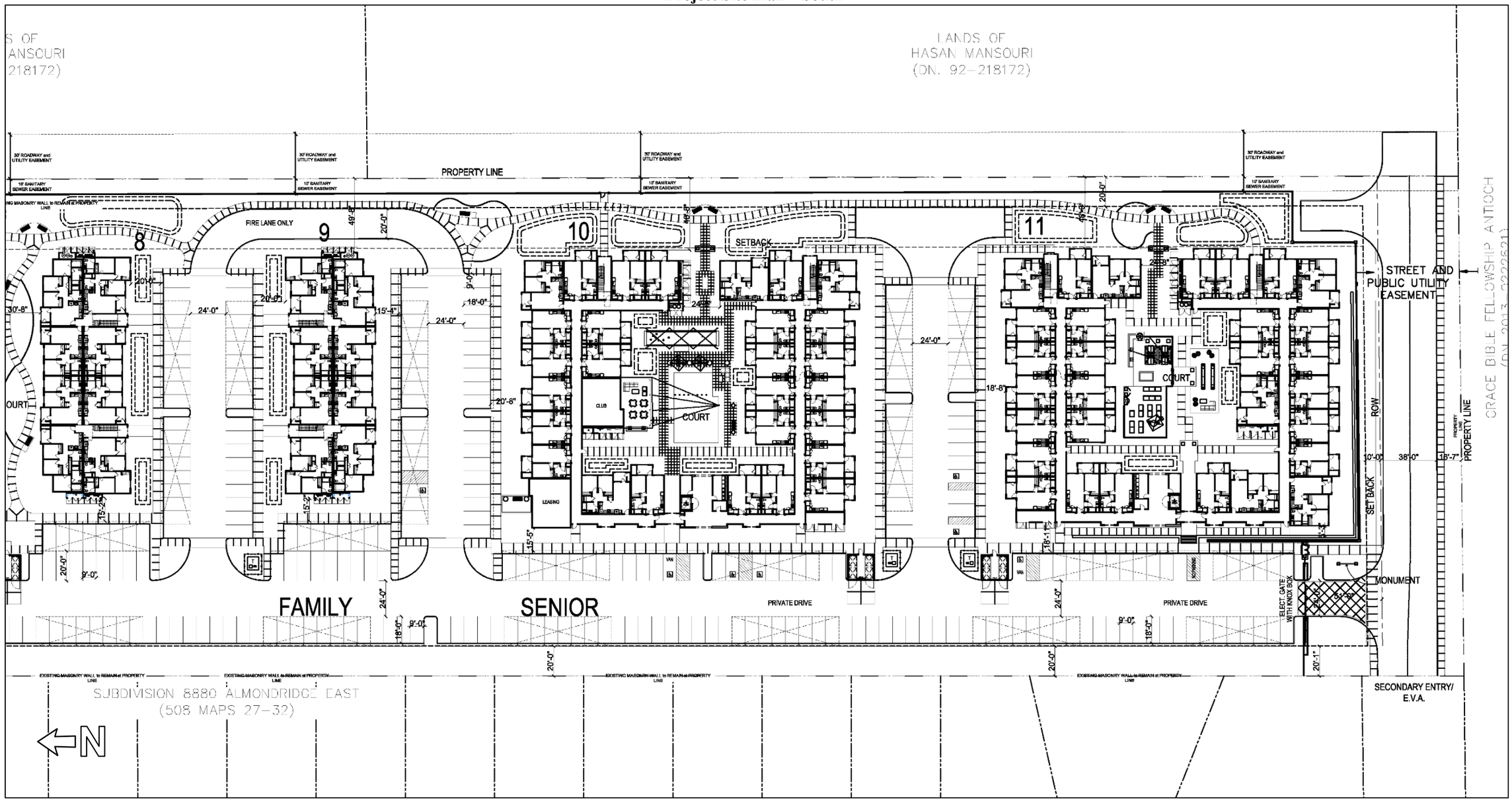


Figure 4
Project Site Plan – South



Pedestrian access to the senior units would be provided by an enclosed interior corridor associated with each building. All of the proposed senior buildings would include rooftop solar arrays.

The family component of the proposed project would include development of nine apartment buildings and associated improvements on the northern portion of the project site. The nine buildings would each be three stories, similar to the proposed senior buildings, and would include stair enclosures and surface parking. In addition, the family component would include a 3,541-sf community clubhouse with a manager's office, social services offices, a media lounge, computer lab, and laundry rooms. Unlike the senior units, the proposed family buildings would not include enclosed interior corridors. All of the proposed family building would include rooftop solar arrays.

Circulation and Parking

The proposed project would include a stub extension of Holub Lane, south of East 18th Street, that would provide primary access to the project site. In addition, Filbert Street would be extended as a 60-foot right-of-way for approximately 300 feet eastward along the southern site boundary to provide secondary access to the site. The Holub Lane and Filbert Street extensions would both connect, by way of gated entry points, to a new 24-foot-wide, on-site parking aisle that would extend along the western boundary of the project site, with a gated emergency vehicle access (EVA) connecting to East 18th Street. Additional parking aisles would extend eastward from the main north-south aisle to provide access to each of the proposed buildings. One of the east-west parking aisles would terminate at a hammerhead turnaround, two of the aisles would be linked by a fire lane allowing reciprocal access, and the remaining two aisles would terminate at an EVA with a manual gate connecting to the proposed extension of Holub Lane. It should be noted that the proposed stub extension of Holub Lane would require a limited amount of off-site improvements extending approximately 10 feet beyond the eastern site boundary.

The project would provide a total of 591 parking spaces, including 160 spaces for the senior component of the project and 431 spaces for the family component. Table 2 provides a summary of the proposed parking space types to be included in the project.

Table 2
Proposed Parking

Stall Type	Proposed # of Stalls	Required # of Stalls*
Senior Units		
Open Stalls	73	-
Carport Stalls	87	-
Total:	**160**	**134**
Family Units		
Open Stalls	155	-
Carport Stalls	218	-
Tandem	58	-
Total	**431**	**378**
Overall Site		
Grand Total	**591**	**512**

* Per City of Antioch Municipal Code.

Landscaping, Common Area, and Fencing

Figure 5 through Figure 7 below provide an overview of the proposed landscaping, common areas, and fencing elements that would be included in the proposed project. As shown in the figures, landscaped strips would be provided along the site boundaries. Such areas would include drought-tolerant trees, shrubbery, and groundcover to provide screening from adjacent neighboring properties, consistent with the City's Zoning Ordinance, as well as to create an aesthetically pleasing streetscape along East 18th Street. At the western site boundary, the southern portion of the landscaped strip would include columnar trees along an existing masonry wall that separates the project site from the neighboring residential subdivision. In addition, shrubs and trees would be provided within the proposed parking areas, at the project access points, and along the perimeter of each of the proposed residential buildings.

New six-foot-tall tubular steel fences would be provided along the portion of the western site boundary adjacent to the existing commercial uses, along the site frontage at Filbert Street to the south, along the eastern site boundary, and along the northern site frontage, approximately 15 feet south of the East 18th Street right-of-way. The existing masonry wall along the western site boundary would be retained.

Throughout the site, each of the proposed buildings would be organized around a landscaped common area/courtyard. The courtyard/common area space associated with the senior buildings would include various amenities for future residents, including, but not limited to, barbeques, outdoor dining, seating areas, a bocce ball court, and a community garden. The family component of the project would include a private pool, a 'tot lot' playground area, and various other amenities such as barbeques and dining tables. In total, approximately 2.64-acres of open space/common area would be provided, including 0.47-acre of private open space associated with individual units. Access to the shared recreation areas would be provided by a series of interconnected sidewalks between the apartment buildings.

Utilities

Currently, two 10-foot-wide sewer easements and two 10-foot-wide storm drain easements are located parallel to each other along the site's northwestern boundary (Document Number [DN] 2005-00583777 and DN 2006-0328307). In addition, a second pair of 10-foot-wide sewer and storm drain easements (DN 1997-0145383 and DN 2006-0329871) are located along the site's eastern boundary adjacent to the 30-foot roadway and utility easement associated with Holub Lane (DN 2016-0129286). The easements at the site's eastern boundary contain sewer and wastewater utility lines that extend from East 18th Street past the southern boundary of the project site.

The proposed project would include construction of a series of drain inlets and underground storm drain pipes to capture stormwater runoff from impervious surfaces created by the project (see Figure 8 and Figure 9). Runoff would be routed to a series of bio-retention basins throughout the site. The bio-retention basins would remove pollutants primarily by filtering runoff slowly through an active layer of soil. Treated runoff would be captured by a perforated underdrain, which would route flows to the City's existing stormwater main located in East 18th Street.

Figure 5
Conceptual Landscape Plan – Northern Detail

Figure 6
Conceptual Landscape Plan – Central Detail

Figure 7
Conceptual Landscape Plan – Southern Detail

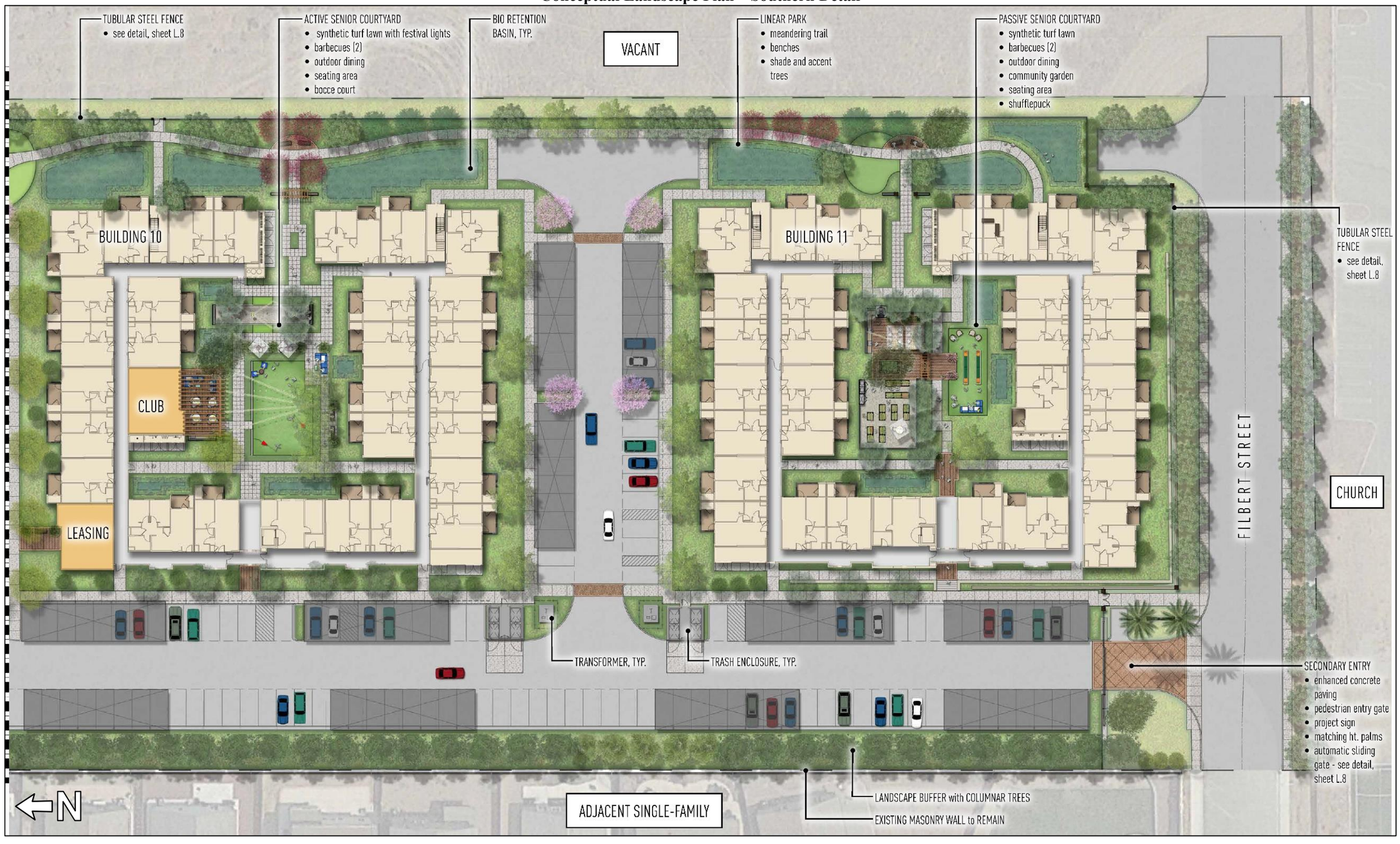


Figure 8
Preliminary Utility Plan – North

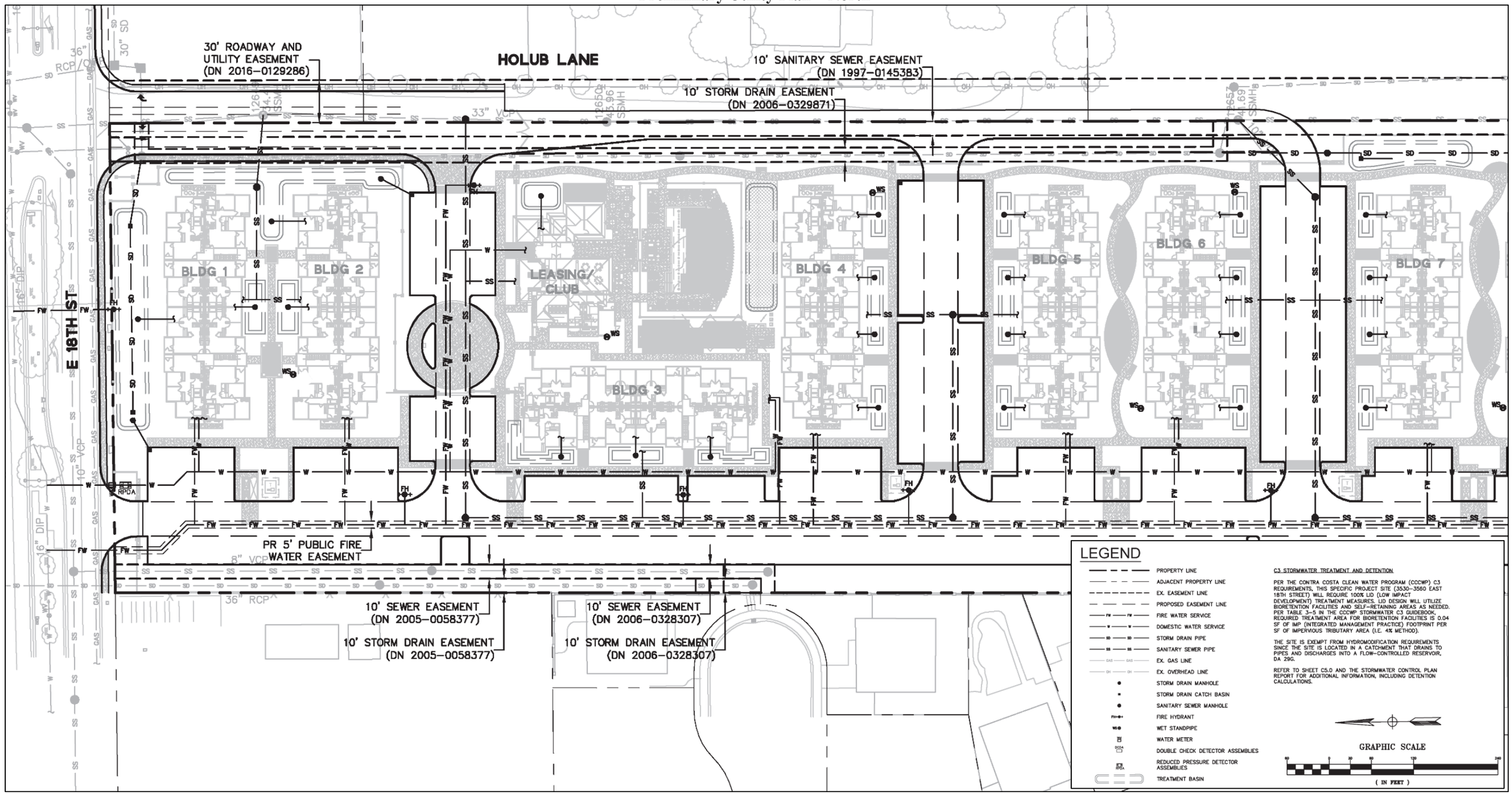
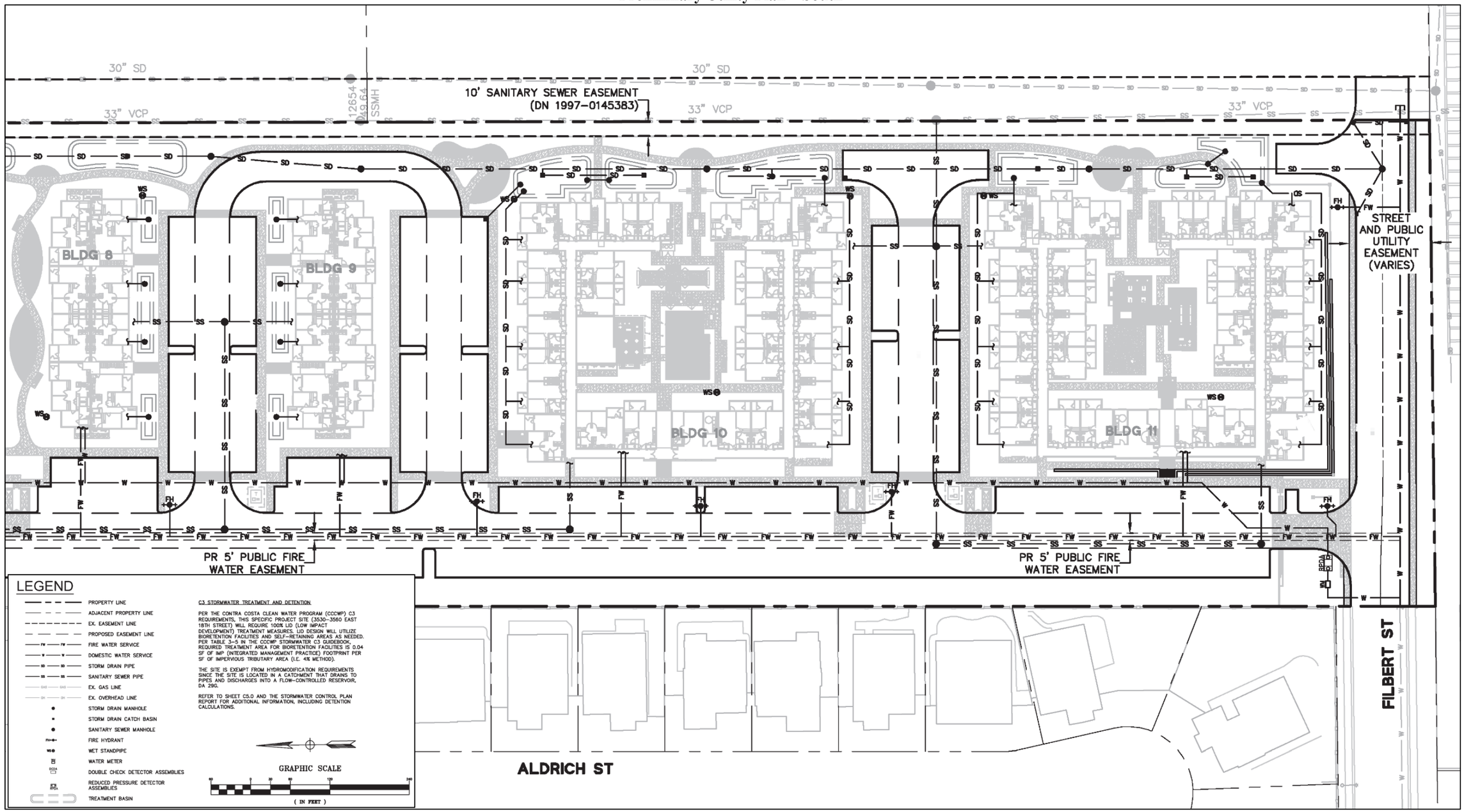


Figure 9
Preliminary Utility Plan – South



Each bio-retention basin would include an overflow inlet which would route excess runoff entering the basin to flow directly to the City's stormwater system during large storm events.

Domestic water and fire water supply for the proposed development would be provided by the City by way of new connections to the City's existing 16-inch water main located in East 18th Street. A new fire hydrant would be provided at the project's East 18th Street frontage. Wastewater generated at the project site would be captured by a series of new pipes that would connect to the City's existing sewer line located at Holub Lane east of the site.

Rezone

The proposed project would include a rezone to change the site's zoning from PBC to R-25 with a Senior Housing Overlay District. The R-25 zoning designation allows for multi-family residential development at densities between 20 and 25 dwelling units per gross developable acre. Per the City's Municipal Code, higher densities may be allowed within the R-25 zoning district where measurable community benefit is to be derived, such as the provision of senior housing or low- to moderate-income housing units. Given that the proposed project would include 178 units of senior housing and a Senior Housing Overlay, the proposed densities would be compatible with the R-25 zoning district with approval of a Use Permit.

Use Permit and Design Review

According to Section 9-5.3803 of the Antioch Municipal Code, multi-family development at densities of 20 du/ac or greater within R-25 zoning districts requires a Use Permit. In addition, per Section 9-5.207 of the Municipal Code, all new development within the City is subject to Design Review approval. The purpose of the Design Review process is to promote the orderly development of the City, encourage high quality site design and planning, protect the stability of land values and investments, and ensure consistency with the Citywide Design Guidelines.

Discretionary Actions

Implementation of the proposed project would require the following discretionary actions by the City of Antioch:

- Rezone of the site from PBC to R-25 with a Senior Housing Overlay District;
- Lot Merger for parcels APN 051-200-025 and -026; and
- Use Permit and Design Review for the development of a multi-family residential project at a density of 26.5 du/ac within an R-25 zoning district.

G. ENVIRONMENTAL CHECKLIST

The following Checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. Included in each discussion are project-specific mitigation measures recommended, as appropriate, as part of the proposed project.

For this checklist, the following designations are used:

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

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

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

No Impact: The project would not have any impact.

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

Discussion

a,b. Examples of typical scenic vistas would include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project's impact to a scenic vista would occur if development of the project would substantially change or remove a scenic vista. The City's General Plan does not specifically identify any scenic vistas.

According to the California Scenic Highway Mapping System, the proposed project site is located approximately 17 miles northeast of the nearest State Scenic Highway, Interstate 680 (I-680). It should be noted that while not officially designated, SR 160, located approximately 375 feet east of the site, is an Eligible State Scenic Highway.[1] The project site and the existing residential development west of the project site are visible from SR 160. However, the project site does not contain any scenic resources such as trees, rocks, or historic buildings. Thus, while the proposed residential development would be visible from SR 160, scenic resources would not be substantially damaged as a result of the project.

The proposed project site is not located within the vicinity of a designated scenic vista. In addition, SR 160 in the project vicinity has not been designated as an official State Scenic Highway. Therefore, the proposed project would not have a substantial adverse effect on a scenic vista and would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway. Thus, a ***less-than-significant*** impact would occur.

[1] California Department of Transportation. *California Scenic Highway Mapping System*. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed September 2018.

c. General Plan Policy 5.4.2.c states that view corridors from public spaces to natural ridgelines and landmarks, such as Mt. Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies (such as Sand Creek), should be preserved. Specific view corridors identified in Policy 5.4.2.c include Somersville Road, Lone Tree Way, Hillcrest Avenue, SR 4, SR 160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road. However, Policy 5.4.2.c also recognizes that new development will inevitably result in some loss of existing views.

Distinguishing between public and private views is important when evaluating changes to visual character or quality, because private views are views seen from privately-owned land and are typically associated with individual viewers, including views from private residences. Public views are experienced by the collective public, and include views of significant landscape features and along scenic roads. According to CEQA (Pub. Resources Code, § 21000 et seq.) case law, only public views, not private views, are protected under CEQA. For example, in *Association for Protection etc. Values v. City of Ukiah* (1991) 2 Cal.App.4th 720 [3 Cal. Rptr.2d 488], the court determined that "we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188 [129 Cal.Rptr. 739]: '[A]ll government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general.'" Therefore, the focus in this section is on potential impacts to public views. Sensitive public viewers in the surrounding area would primarily consist of motorists, pedestrians, and bicyclists travelling on East 18th Street, as well as motorists travelling on SR 160 in the project vicinity. Figure 10 through Figure 12 provide examples of typical views of the project site from both roadways. As noted above, SR 160 is identified as a view corridor to be preserved per Policy 5.4.2.c of the General Plan.

The proposed project would change the visual character and quality of the site from a vacant, undeveloped lot to a multi-family apartment complex with associated landscaping. For motorists, bicyclists, and pedestrians travelling on East 18th Street, the proposed project could potentially obscure distant views of Mount Diablo to the southwest of the site. However, the project would provide for a 34.5-foot-wide setback between the proposed buildings and the northern project site boundary at East 18th Street. Consistent with the City's Zoning Ordinance, the setback would include drought-tolerant trees, shrubbery, and groundcover in order to provide for an aesthetically pleasing streetscape. In addition, a six-foot-tall tubular steel fence would be provided along the north side of the proposed buildings closest to the roadway. Therefore, views of the site from East 18th Street would not be substantially degraded.

For motorists travelling on SR 160, the proposed project would essentially serve as an extension of the existing single-family residential neighborhood to the west of the site. Thus, the proposed three-story buildings would not substantially affect views of Mount Diablo and the surrounding ridgelines as seen from SR 160.

Figure 10
Existing View of Site from East 18th Street Looking South

Figure 11
Existing View of Site from East 18th Street Looking Southwest

Figure 12
Existing View of Site from SR 160 Looking West

The potential for future development within the City to result in the substantial degradation of the visual character or quality of the City and the surrounding area was analyzed in the City's General Plan EIR. The City's General Plan EIR concluded that General Plan policies related to the protection of visual resources and future development design would ensure that buildout of the City would result in less-than-significant impacts related to the degradation of the existing visual character or quality of the City.

Furthermore, the project site is located within an urbanized area, and the proposed project would not conflict with applicable zoning standards and other regulations governing scenic quality. The proposed buildings would not exceed the maximum building height of 45 feet established for the R-25 zoning district per Section 9-5.601 of the City's Municipal Code. Site lines of the proposed buildings from the existing residential development to the west of the site would be blocked by the existing masonry wall and the proposed landscaping elements along the western site boundary. In addition, the project would be subject to Design Review by the City of Antioch per Section 9-5.2607 of the Municipal Code. The purpose of the Design Review process is to promote the orderly development of the City, encourage high quality site design and planning, protect the stability of land values and investments, and ensure consistency with the Citywide Design Guidelines. The Design Review process would help to ensure that the proposed three-story apartment buildings would be visually compatible with the existing residential development located west of the project site.

Based on the above, impacts related to degrading the existing visual character of the site and its surroundings or a conflict with applicable zoning and other regulations governing scenic quality would be ***less-than-significant***.

d. The project site is currently undeveloped, and, thus, does not contain any existing sources of light or glare. Implementation of the proposed project would develop the site with residential buildings, and, thus, would introduce new sources of light and glare where none currently exists. Potential sources of light and glare associated with the proposed project would include interior light spilling through windows, exterior lighting on homes, street lighting on the internal street system, and light reflected off windows. While the site does not currently contain sources of light or glare, the site is bordered by existing development that currently generates light and glare in the area. Furthermore, all components of the proposed project would be subject to Design Review by the City of Antioch to ensure light and glare do not obstruct day or nighttime views in the area. Citywide design guidelines for landscaping, common space, and lighting prohibit the use of flood lights to light entire structures or yards and state that any exterior night lighting installed shall be of a low intensity, low-glare design, and shall be hooded to direct light downward onto the subject parcel and prevent spillover onto adjacent parcels.[2] Compliance with such standards would ensure that on-site lighting would be directed within the project site and would not substantially illuminate adjacent properties. In addition, new landscaping within the proposed buffer along the western site boundary would help to further screen the proposed exterior light fixtures. Given the consistency of the proposed project with surrounding residential development, and the added assurance of the Design Review process,

[2] City of Antioch. *Citywide Design Guidelines Manual* [pg 6-43]. October 2009

implementation of the project would result in a ***less-than-significant*** impact with respect to creating a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

II. AGRICULTURE AND FOREST RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping Program of the California Resources Agency, to non-agricultural use?	☐	☐	✖	☐
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	✖
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	✖
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	✖
e. Involve other changes in the existing environment which, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use?	☐	☐	✖	☐

Discussion

a,e. The proposed project site is currently vacant and undeveloped. While the project site was historically used for agricultural purposes, the site has not been used recently for agricultural production and is currently designated as "Urban and Built-Up Land" and "Other Land" on the Contra Costa County Important Farmland map.[3] Furthermore, the site is not zoned or designated in the General Plan for agriculture uses, and such uses would be incompatible with surrounding land uses in the area. Given the Urban and Built-Up Land designation of the site, development of the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, or otherwise result in the loss of Farmland to non-agricultural use. Therefore, the proposed project would have a ***less-than-significant*** impact.

b. The proposed project site is not under a Williamson Act contract and is not designated or zoned for agricultural uses. Therefore, buildout of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and ***no impact*** would occur.

c,d. The project area is not considered forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), and is not zoned Timberland Production (as defined by Government Code section 51104[g]). In

[3] California Department of Conservation. *Contra Costa County Important Farmland Map 2016.* Published August 2018.

addition, the site is designated High Density Residential, which is not compatible with timberland production. Therefore, the proposed project would have ***no impact*** with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

III. AIR QUALITY. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	✖	☐	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	✖	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	✖	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	✖	☐

a,b. The City of Antioch is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The SFBAAB area is currently designated as a nonattainment area for the State and federal ozone, State and federal fine particulate matter 2.5 microns in diameter ($PM_{2.5}$), and State respirable particulate matter 10 microns in diameter (PM_{10}) ambient air quality standards (AAQS). The SFBAAB is designated attainment or unclassified for all other AAQS. It should be noted that on January 9, 2013, the U.S. Environmental Protection Agency (USEPA) issued a final rule to determine that the Bay Area has attained the 24-hour $PM_{2.5}$ federal AAQS. Nonetheless, the Bay Area must continue to be designated as nonattainment for the federal $PM_{2.5}$ AAQS until such time as the BAAQMD submits a redesignation request and a maintenance plan to the USEPA, and the USEPA approves the proposed redesignation.

In compliance with regulations, due to the nonattainment designations of the area, the BAAQMD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the AAQS, including control strategies to reduce air pollutant emissions through regulations, incentive programs, public education, and partnerships with other agencies. The current air quality plans are prepared in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which was adopted on October 24, 2001 and approved by the California Air Resources Board (CARB) on November 1, 2001. The plan was submitted to the USEPA on November 30, 2001 for review and approval. The most recent State ozone plan is the 2017 Clean Air Plan (CAP), adopted on April 19, 2017. The 2017 CAP was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, toxic air contaminants (TACs), and greenhouse gases (GHGs). Although a plan for achieving the State PM_{10} standard is not required, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 CAP. The control strategy serves as the backbone of the BAAQMD's current PM control program.

The aforementioned air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented in the region to attain the State and federal AAQS within the SFBAAB. Adopted BAAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with applicable air quality plans. The BAAQMD's established significance thresholds associated with development projects for emissions of the ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NO_x), as well as for PM_{10}, and $PM_{2.5}$, expressed in pounds per day (lbs/day) and tons per year (tons/yr), are listed in Table 3. Thus, by exceeding the BAAQMD's mass emission thresholds for operational emissions of ROG, NO_X, PM_{10}, or PM_{25} a project would be considered to conflict with or obstruct implementation of the BAAQMD's air quality planning efforts.

Table 3
BAAQMD Thresholds of Significance

	Construction	Operational	
Pollutant	**Average Daily Emissions (lbs/day)**	**Average Daily Emissions (lbs/day)**	**Maximum Annual Emissions (tons/year)**
ROG	54	54	10
NO_x	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10

Source: BAAQMD, CEQA Guidelines, May 2017.

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

- Construction would commence in June of 2019;
- Construction would occur over an approximately 23-month period;
- An average daily trip rate of 4.73 trips per unit was assumed based on the Traffic Impact Analysis prepared for the proposed project;
- The project would exceed the most recent 2016 Title 24 Standards by 15 percent;
- The project would meet 15 percent of on-site energy demand with renewable energy in the form of solar panels; and
- The project would include a 20 percent reduction in indoor and outdoor water use.

The proposed project's estimated emissions associated with construction and operations are presented and discussed in further detail below. A discussion of the proposed project's contribution to cumulative air quality conditions is provided below as well. All CalEEMod results are included in Appendix A to this IS/MND.

Construction Emissions

According to the CalEEMod results, the proposed project would result in maximum unmitigated construction criteria air pollutant emissions as shown in Table 4. As shown in the table, the proposed project's construction emissions would be below the applicable thresholds of significance for ROG, PM_{10}, and $PM_{2.5}$. However, the project would exceed the threshold of significance for NO_X emissions.

Table 4
Maximum Construction Emissions (lbs/day)

Pollutant	Proposed Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	16.98	54	**NO**
NO_X	54.58	54	**YES**
PM_{10} (exhaust)	2.39	82	**NO**
PM_{10} (fugitive)	18.21	None	**N/A**
$PM_{2.5}$ (exhaust)	2.20	54	**NO**
$PM_{2.5}$ (fugitive)	9.97	None	**N/A**

Source: CalEEMod, September 2018 (see Appendix A).

Although thresholds of significance for mass emissions of fugitive dust PM_{10} and $PM_{2.5}$ have not been identified by the City of Antioch or BAAQMD, the proposed project's estimated fugitive dust emissions have been included for informational purposes. All projects within the jurisdiction of the BAAQMD are required to implement all of the BAAQMD's Basic Construction Mitigation Measures, which include the following:

1. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
2. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
3. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
4. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
5. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
6. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
7. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

The proposed project's required implementation of the BAAQMD's Basic Construction Mitigation Measures listed above would help to further minimize construction-related emissions. Nonetheless, because the proposed project would result in emissions above the applicable threshold of significance for construction NO_x, the project would be considered to result in a potentially significant air quality impact during construction.

Operational Emissions

According to the CalEEMod results, the proposed project would result in maximum operational criteria air pollutant emissions as shown in Table 5. As shown in the table, the proposed project's operational emissions would be below the applicable thresholds of significance. As such, the proposed project would not result in a significant air quality impact during operations.

Table 5
Unmitigated Maximum Operational Emissions

Pollutant	Proposed Project Emissions		Threshold of Significance		Exceeds Threshold?
	lbs/day	tons/yr	lbs/day	tons/yr	
ROG	14.46	2.34	54	10	**NO**
NO_X	18.51	2.42	54	10	**NO**
PM_{10} (exhaust)	0.73	0.46	82	15	**NO**
PM_{10} (fugitive)	8.69	1.52	None	None	**N/A**
$PM_{2.5}$ (exhaust)	0.72	0.05	54	10	**NO**
$PM_{2.5}$ (fugitive)	2.32	0.41	None	None	**N/A**

Source: CalEEMod, September 2018 (see Appendix A).

Cumulative Emissions

Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By nature, air pollution is largely a cumulative impact. A single project is not sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The thresholds of significance presented in Table 3 represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If a project exceeds the significance thresholds presented in Table 3, the proposed project's emissions would be cumulatively considerable, resulting in significant adverse cumulative air quality impacts to the region's existing air quality conditions. Because the proposed project would result in emissions above the applicable threshold of significance for construction-related emissions of NO_X, the project could result in a cumulatively considerable contribution to the region's existing air quality conditions.

Conclusion

As stated previously, the applicable regional air quality plans include the 2001 Ozone Attainment Plan and the 2017 CAP. According to BAAQMD, if a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project may be considered consistent with the air quality plans. Because the proposed project would result in short-term construction emissions of NO_X, an ozone precursor, above the applicable threshold of significance, the project could conflict with or obstruct implementation of regional air quality plans. Therefore, the proposed project could conflict with or obstruct implementation of the applicable air quality plan and result in a cumulatively considerable net increase of a criteria pollutant or which the project region is nonattainment under an applicable federal or State AAQS, and a ***potentially significant*** impact associated with construction-related emissions of NO_X would result.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the construction-related emissions of NO_X from 54.58 lbs/day to 51.29 lbs/day, which would be below the BAAQMD's threshold of significance of 54 lbs/day. Thus, implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

III-1. *Prior to approval of any grading plans, the project applicant shall show on the plans via notation that the contractor shall ensure that all heavy-duty diesel-powered equipment (e.g., rubber-tired dozers, scrapers, cranes, etc.) to be used in the construction of the project (including owned, leased, and subcontractor vehicles) shall, at a minimum, meet U.S. Environmental Protection Agency emissions standards for Tier 2 engines or equivalent. The plans shall be submitted to the Community Development Department for review and approval.*

c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest existing sensitive receptors would be the single-family residences located immediately to the east and west of the site. In addition, the proposed project would include the construction of housing, and, thus, would be considered a sensitive receptor.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions and toxic air contaminant (TAC) emissions, which are addressed in further detail below. In addition, a discussion of health effects related to criteria pollutants is provided.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Emissions of CO are of potential concern, as the pollutant is a toxic gas that results from the incomplete combustion of carbon-containing fuels such as gasoline or wood.

In order to provide a conservative indication of whether a project would result in localized CO emissions that would exceed the applicable threshold of significance, the BAAQMD has established screening criteria for localized CO emissions. According to BAAQMD, a proposed project would result in a less-than-significant impact related to localized CO emission concentrations if all of the following conditions are true for the project:

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

As discussed in Section XVII, Transportation, of this Initial Study, the proposed project would not conflict with the Contra Costa Transportation Authority (CCTA) Congestion Management Program (CMP). Additionally, traffic counts completed for the City of Antioch as part of a Citywide Engineering and Traffic Survey showed that all of the City roadways experienced traffic volumes far below 44,000 vehicles per hour.[4] Thus, the proposed project would not increase traffic volumes at an affected intersection to more than 44,000 vehicles per hour. Furthermore, areas where vertical and/or horizontal mixing is limited due to tunnels, underpasses, or similar features do not exist in the project area. As such, the proposed project would not be expected to result in substantial levels of localized CO at surrounding intersections or generate localized concentrations of CO that would exceed standards.

TAC Emissions

Another category of environmental concern is TACs. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and

[4] City of Antioch. *Citywide Engineering and Traffic Survey* [pg. 7]. February 6, 2015.

constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk.

The proposed project would not involve any land uses or operations that would be considered major sources of TACs, including DPM. As such, the proposed project would not generate any substantial pollutant concentrations during operations. However, short-term, construction-related activities could result in the generation of TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions. Construction is temporary and occurs over a relatively short duration in comparison to the operational lifetime of the proposed project. Specifically, as noted above, construction would occur over an approximately 23-month period. Mass grading of the project site, when emissions would be most intensive, would occur over the period of approximately nine days. Health risks are typically associated with exposure to high concentrations of TACs over extended periods of time (e.g., 30 years or greater), whereas the construction period associated with the proposed project would be limited to approximately 23 months.

All construction equipment and operation thereof would be regulated per the In-Use Off-Road Diesel Vehicle Regulation, which is intended to help reduce emissions associated with off-road diesel vehicles and equipment, including DPM. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. In addition, construction equipment would operate intermittently throughout the day and only on portions of the site at a time, and construction activity would be limited to the hours of 7:00 AM to 6:00 PM, Monday through Friday, and 9:00 AM to 5:00 PM on weekends and holidays, per Section 5-17.04 of the City's Municipal Code. Because construction equipment on-site would not operate for long periods of time and would be used at varying locations within the site, associated emissions of DPM would not occur at the same location (or be evenly spread throughout the entire project site) for long periods of time. Due to the temporary nature of construction and the relatively short duration of potential exposure to associated emissions, the potential for any one sensitive receptor in the area to be exposed to concentrations of pollutants for a permanent or substantially extended period of time would be low. Therefore, construction of the proposed project would not be expected to expose nearby sensitive receptors to substantial pollutant concentrations.

Criteria Pollutants

The BAAQMD thresholds of significance were established with consideration given to the health-based air quality standards established by the NAAQS and CAAQS, and are designed to aid the district in achieving attainment of the NAAQS and CAAQS. [5] The BAAQMD's thresholds of significance are intended to aid achievement of the NAAQS and CAAQS for which the SFBAAB is in nonattainment, but the thresholds of significance

[5] Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.

do not represent a level above which individual project-level emissions would directly result in public health impacts. Rather, the thresholds of significance represent emissions levels that would ensure that project-specific emissions would not inhibit attainment of regional NAAQS and CAAQS. As noted previously, with implementation of Mitigation Measure III-1 above, the proposed project would not result in short-term construction-related or long-term operational emissions of criteria pollutants that would exceed BAAQMD standards. Thus, the project would not inhibit attainment of regional NAAQS and CAAQS. Accordingly, the proposed project would not expose sensitive receptors to excess concentrations of criteria pollutants.

Conclusion

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

d. Emissions such as those leading to odors have the potential to adversely affect sensitive receptors within the project area. Pollutants of principal concern include emissions leading to odors, emission of dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in section "a" through "d" above. Therefore, the following discussion focuses on emissions of odors and dust.

Per the BAAQMD CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard.[6] Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The presence of an odor impact is dependent on a number of variables including: the nature of the odor source; the frequency of odor generation; the intensity of odor; the distance of odor source to sensitive receptors; wind direction; and sensitivity of the receptor.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative analysis to determine the presence of a significant odor impact is difficult. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and composting facilities. The proposed project would not introduce any such land uses and is not located in the vicinity of any such existing or planned land uses.

Construction activities often include diesel fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable. However, as discussed above, construction activities would be temporary, and operation of construction equipment would be restricted to the hours of 7:00 AM to 6:00 PM, Monday through Friday, and 9:00 AM to 5:00 PM on weekends and holidays per the City's

[6] Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines* [pg. 7-1]. May 2017.

Municipal Code. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. The aforementioned regulations would help to minimize air pollutant emissions as well as any associated odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

It should be noted that BAAQMD regulates objectionable odors through Regulation 7, Odorous Substances, which does not become applicable until the Air Pollution Control Officer (APCO) receives odor complaints from ten or more complainants within a 90-day period. Once effective, Regulation 7 places general limitation on odorous substances and specific emission limitations on certain odorous compounds, which remain effective until such time that citizen complaints have been received by the APCO for one year. The limits of Regulation 7 become applicable again when the APCO receives odor complaints from five or more complainants within a 90-day period. Thus, although not anticipated, if odor complaints are made after the proposed project is developed, the BAAQMD would ensure that such odors are addressed and any potential odor effects reduced to less than significant.

As noted previously, all projects under the jurisdiction of BAAQMD are required to implement the BAAQMD's Basic Construction Mitigation Measures. The aforementioned measures would act to reduce construction related dust, which would ensure that construction of the proposed project does not result in substantial emissions of dust. Following project construction, the project site would not include any exposed topsoil. Thus, project operations would not include any substantial sources of dust.

For the aforementioned reasons, construction and operation of the proposed project would not create objectionable odors affecting a substantial number of people, and a ***less-than-significant*** impact related to objectionable odors would result.

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

Discussion

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

Currently, the proposed project site is undeveloped and is regularly disked. With the exception of sparse, heavily disturbed weedy growth along the northern site boundary, the project site contains minimal existing vegetation. The southern portion of the site contains an engineered slope, which was partially constructed as an extension of Filbert Street to the west of the site. The site does not contain any trees, wetland features, of waterways.

[7] Live Oak Associates, Inc. *E 18th Street Technical Biological Report, Antioch, Contra Costa, California.* August 29, 2018.

Special-status species include those plant and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal and State Endangered Species Acts. Both acts afford protection to listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFW special-status invertebrates are all considered special-status species. Although CDFW Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal. In addition, plant species on California Native Plant Society (CNPS) Lists 1 and 2 are considered special-status plant species and are protected under CEQA.

As part of the Technical Biological Report prepared for the proposed project, Live Oak Associates, Inc. conducted a search of published records of special-status plant and wildlife species for the Antioch South USGS 7.5" quadrangle, in which the project site occurs, and for the eight surrounding quadrangles (Antioch North, Honker Bay, Jersey Island, Brentwood, Clayton, Diablo, Tassajara and Byron Hot Springs), using the California Natural Diversity Data Base (CNDDB) Rarefind 5 application. The intent of the database review was to identify documented occurrences of special-status species in the vicinity of the project area, to determine their locations relative to the project site, and for use in the field assessment of habitats suitable for special-status species within the site. Additional sources of information used for the analysis include the USFWS's *Endangered and Threatened Wildlife and Plants* and the CDFW's 2018 *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants*. It should be noted that plant and wildlife species that are not considered special-status, as defined above, were excluded from the analysis, as such species are not protected under CEQA.

After completing the database review, a field survey of the project site was conducted by Live Oak Associates, Inc. on August 13, 2018. The results of the CNDDB search, the site survey, and other queries conducted as part of the Technical Biological Report are discussed below.

Special-Status Plants

Based on the results of the CNDDB search, at total of 21 special-status plant species have been recorded within the project region. Of the 21 species, most are considered absent from or unlikely to occur on the site due to a lack of suitable habitat, such as vernal pools and serpentine or alkaline soils. In addition, a number of species for which the site provides marginal habitat have never been observed in the project vicinity or have not been observed for many decades. However, the site does provide potential habitat for two special-status plant species: large-flowered fiddleneck and Hoover's cryptantha. Per the Technical Biological Report, the site survey was conducted outside of the blooming season for the aforementioned species. Thus, focused surveys timed to coincide with the blooming season

for each species would be required to determine whether the species occur on-site. Without such surveys, the species could be considered to occur on-site.

Special-Status Wildlife

Based on the results of the CNDDB search, at total of 35 special-status wildlife species have been recorded within the project region. Of the 35 species, 20 species would be absent from or unlikely to occur on the site due to a lack of suitable habitat. The remaining 15 special-status wildlife species may potentially be foragers or transients to the site, may be resident to the site, or may occur within areas adjacent to the site. Such species include the following: California legless lizard, Coast horned lizard, California glossy snake, Townsend's big-eared bat, Pallid bat, Western red bat, burrowing owl, and Swainson's hawk. In addition, ground-nesting raptors and nesting migratory birds protected under the MBTA have the potential to occur within grassland and bush lupine habitat present on-site and adjacent to the site. Such special-status bird species include, but are not limited to, mountain plover, white-tailed kite, northern harrier, golden eagle, short-eared owl, California least tern, loggerhead shrike, and tricolored blackbird.

Special-Status Reptiles

The proposed project site supports sandy substrate typical of habitat for the Coast horned lizard, northern California legless lizard, and California glossy snake. Thus, construction activities associated with the proposed project could potentially affect each of the aforementioned species, and a potentially significant impact could occur.

Special-Status Bats

The project site supports suitable foraging habitat for Townsend's big-eared bat and pallid bat. However, the site does not contain any suitable roosting habitat for either species. In addition, trees with foliage thick enough for roosting western red bat is absent from the site. Therefore, based on the habitat types currently present on the project site and the surrounding area, special-status bat species are not anticipated to occur on-site. Thus, a less-than-significant impact related to special-status bats would occur.

Burrowing Owls

The site currently supports California ground squirrel burrows and provides potential habitat for burrowing owls. Several occurrences of the species have been documented within the vicinity of the site. Should site grading occur during the nesting season for the species (February 1 through August 31), nests and nestlings that may be present could be destroyed. Over-wintering burrowing owls may also be buried in their roost burrows outside of the nesting season (September 1 through January 31). It should be noted that burrowing owls or their sign have not been observed on the project site. Nonetheless, the potential exists for the species to occur on-site. Thus, in the absence of preconstruction surveys for burrowing owls, a potentially significant impact could occur.

Swainson's Hawk

Swainson's hawks are known to occur within approximately 0.5-mile of the site and likely forage over the site. As suitable foraging habitat exists on-site and breeding habitat exists in the vicinity of the site, ground-disturbing activities associated with the proposed project could result in a potentially significant impact to Swainson's hawk in the absence of preconstruction surveys.

Nesting and Migratory Birds

As noted previously, the grassland and bush lupine present within the project site may support nesting birds and ground-nesting raptors, including mountain plover, white-tailed kite, northern harrier, golden eagle, short-eared owl, California least tern, loggerhead shrike, and tricolored blackbird. Buildout of the project during the nesting period for migratory birds (i.e., typically between February 1 to August 31), including initial site grading and soil excavation, could pose a risk of nest abandonment and death of any live eggs or young that may be present within the nest within or near the site. Thus, a potentially significant impact could occur.

Conclusion

Based on the above, implementation of the proposed project could potentially affect special-status plant species, reptiles, burrowing owls, Swainson's hawk, and nesting birds and ground-nesting raptors protected by the MBTA. Thus, the proposed project could have an adverse effect, either directly or through habitat modifications, on species identified as special-status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS. Therefore, a ***potentially significant*** impact could result.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level. It should be noted that in July 2007, the East Contra Costa County (ECCC) Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) was adopted by Contra Costa County, other member cities, the USFWS, and the CDFW. The City of Antioch, however, declined to participate in the HCP/NCCP. Nonetheless, the mitigation measures include language to reflect the possibility that the City may, in the future, enter into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP covered species or otherwise adopt a different HCP/NCCP.

Special-Status Plants

IV-1. *Prior to initiation of ground-disturbing activities on the project site, the project applicant shall retain a qualified biologist to conduct a focused botanical survey for large-flowered fiddleneck and Hoover's cryptantha. The survey shall be conducted in late April/early May to coincide with the appropriate blooming season for both species. A written summary of the survey results shall be submitted to the City of Antioch Community*

Development Department. If special-status plant species are not detected during the survey, additional mitigation is not required, and construction may continue.

If populations of large-flowered fiddleneck, Hoover's cryptantha, or other special-status plant species are present, and if a qualified botanist or plant ecologist determines that project impacts to such species are significant under CEQA, then the following measures shall be implemented.

- *Avoidance. In consultation with a botanist or plant ecologist, and to the maximum extent feasible, the project shall be redesigned to avoid substantial direct and indirect impacts (e.g. the establishment of an appropriately sized buffer) to special-status plant species.*
- *Compensation. If the project cannot be designed to avoid significant impacts to special-status plant populations, then the following compensatory measures shall be implemented.*
- *Development of an Onsite Restoration Plan. If the project cannot be designed to avoid significant impacts to special status plants (as discussed above), then an on-site or off-site restoration plan shall be developed for the significantly impacted species by a qualified botanist or plant ecologist and approved by the City prior to the start of project development. The restoration plan shall comply with the performance standards established in the Biological Evaluation prepared for this IS/MND by Live Oak Associates, Inc.*

Special-Status Reptiles

IV-1. *Prior to initiation of ground-disturbing activities on the project site, the project applicant shall retain a qualified biologist to conduct preconstruction surveys between May 1 and June 5 for California legless lizard, Coast horned lizard, and California glossy snake. The surveys shall include a minimum of one daytime and one nighttime survey. A written summary of the survey results shall be submitted to the City of Antioch Community Development Department. If any special-status lizard species are found on-site during the preconstruction surveys, the individuals shall be relocated to a CDFW-approved relocation site by a qualified biologist.*

Burrowing Owl

IV-2. *Consistent with the CDFG 2012 Staff Report on Burrowing Owl Mitigation document (or newer CDFW document, should one exist before construction begins), the project applicant shall retain a qualified biologist to conduct a minimum of two preconstruction surveys for burrowing owl, with the first survey no more than 14 days prior to initial construction activities (i.e. vegetation removal, grading, excavation, etc.) and the second survey conducted no more than 24 hours prior to initial construction activities. If*

burrowing owls or fresh sign of burrowing owls are not observed during pre-construction surveys, construction may continue. If burrowing owls or fresh sign of burrowing owls is observed during the surveys, occupied burrows shall be identified by the biologist and a construction-free buffer (up to 250 feet) shall be established and maintained until the biologist determines the burrow is no longer active.

As an alternative to completion of MM IV-2, the project applicant could comply with one of the following conditions:

1. *Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the Conservancy, provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP Covered Species; or*
2. *Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and USFWS have approved the conservation plan.*

IV-3 *If pre-construction surveys determine that burrowing owls occupy the site during the non-breeding season (September 1 through January 31), then a passive relocation effort (e.g., blocking burrows with one-way doors and leaving them in place for a minimum of three days) shall be necessary to ensure that the owls are not harmed or injured during construction. Once it has been determined that owls have vacated the site, the burrows shall be collapsed and ground disturbance may proceed.*

Swainson's Hawk

IV-4. *Prior to any project-related ground disturbance that occurs during the nesting season (March 15th to September 15th), a qualified biologist shall conduct a preconstruction survey at least two survey periods prior to the start of construction. Surveys shall follow the protocol in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000), including the survey period lengths identified therein. A written summary of the survey results shall be submitted to the City of Antioch Community Development Department.*

If an active nest is found within any off-site trees, a minimum buffer distance of 600 feet shall be established for a nest that is already active prior to construction, and a minimum buffer distance of 150 feet shall be used for a nest that starts after construction has already initiated. Such minimum distances are based on potential impact distances stated in the Swainson's Hawk Technical Advisory Committee's Recommended Timing and

Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (2000). Appropriate buffer distances shall be determined on the ground by a qualified biologist and shall be based on actual observations of the nest and parent behavior, the stage of nesting, and level of potential disturbance. The buffer(s) shall be identified on the ground with flagging or fencing, and shall be maintained until a qualified biologist has determined that the young have fledged and the nest is inactive. The biologist shall have the authority to stop construction if construction activities are likely to result in nest abandonment.

IV-5. *As an alternative to completion of Mitigation Measures IV-3(a) and IV-3(b) the project applicant could comply with one of the following:*

1) *Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or*
2) *Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.*

Nesting Migratory Birds

IV-6. *Pre-construction surveys for nesting birds shall be conducted by a qualified biologist within on-site ground-nesting habitat and a 250-foot buffer around the project site boundaries, if feasible, not more than 14 days prior to site disturbance during the breeding season (February 1st to August 31st). If site disturbance commences outside the breeding season, pre-construction surveys for nesting birds are not required. If active nests of migratory birds are not detected within approximately 250 feet of the project site, further mitigation is not required.*

If nesting raptors or other migratory birds are detected on or adjacent to the site during the survey, an appropriate construction-free buffer shall be established around all active nests. Actual size of buffer would be determined by the project biologist, and would depend on species, topography, and type of activity that would occur in the vicinity of the nest. Typical buffers are 25 feet for non-raptors and up to 250 feet for raptors. The project buffer would be monitored periodically by the project biologist to ensure compliance. After the nesting is completed, as determined by the biologist, the buffer would no longer be required. Buffers shall remain in place for the duration of the breeding season or until a qualified biologist has confirmed that all chicks have fledged and are independent of their

parents. Alternatively, the project applicant could comply with one of the following:

1) *Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or*
2) *Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.*

b,c. The project site consists of annual non-native grasses and ruderal vegetation. According to the Technical Biological Report, jurisdictional waters, streambeds, and sensitive plant communities do not exist on or near the site. The project site does not contain riparian habitat or other sensitive natural communities, including wetlands. Therefore, the proposed project would not have a substantial adverse effect on riparian habitat, sensitive natural communities, or State or federally protected wetlands, and ***no impact*** would occur.

d. Per the Technical Biological Report, the proposed project site is not expected to act as a movement corridor. Buildout of the site would not constrain native wildlife movement, as existing residences are located to the west of the site, a church is located to the south of the site, and a rural residence and SR 160 are to the east of the site. The site is bordered to the north by East 18th Street. Thus, the surrounding area does not support any wildlife movement corridors. As noted above, the project does not contain streams or other waterways that could be used by migratory fish or as a wildlife corridor for other wildlife species. As such, the project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. Thus, a ***less-than-significant*** impact would occur.

e. Currently, the proposed project site does not contain any trees. In addition, the site is not located adjacent to any tees that overhang the site. Therefore, the proposed project would not conflict with Title 9, Chapter 5, Article 12 of the Antioch Municipal Code related to protected trees. As a result, the proposed project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and a ***less-than-significant*** impact could occur.

f. As noted previously, in July 2007, the ECCC HCP/NCCP was adopted by Contra Costa County, other member cities, the USFWS, and the CDFW. The City of Antioch, however, declined to participate in the HCP/NCCP. While the City is currently considering drafting a new HCP/NCCP, the document has not yet been finalized or adopted. Therefore, the project site is not located in an area with an approved HCP/NCCP, or local, regional, or

State habitat conservation plan. As a result, ***no impact*** would occur regarding a conflict with the provisions of such a plan.

V. CULTURAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	✖	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	✖	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	☐	✖	☐	☐

Discussion

The following discussion is based on a Historic Resources Study prepared for the proposed project by Tom Origer & Associates.[8]

a. Historical resources are features that are associated with the lives of historically important persons and/or historically significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. Examples of typical historical resources include, but are not limited to, buildings, farmsteads, rail lines, bridges, and trash scatters containing objects such as colored glass and ceramics. Per the Historic Resources Study, the proposed project site does not contain any existing permanent structures or any other resources that could be considered historic. Therefore, the project would not cause a substantial adverse change in the significance of a historical resource, and a ***less-than-significant*** impact would occur.

b-c. The Historic Resources Study included archival research at the Northwest Information Center, examination of the library and files of Tom Origer & Associates, a search of the Native American Heritage Commission (NAHC) Sacred Lands File, and field inspection of the proposed project site. The field survey included completion of three hand-dug auger holes within the site to examine subsurface soils. Based on the results of the archival research, known cultural resources have not been identified within a quarter-mile of the project site. In addition, the Sacred Lands File search did not yield any information regarding the presence of Tribal Cultural Resources within the project site or the immediate area. Archaeological site indicators or soils were not observed during the survey of the project site.

However, unknown archaeological resources, including human remains, have the potential to be uncovered during ground-disturbing construction and excavation activities at the proposed project site. Based on the age of the site landform, the existing environmental setting, and archaeological data for the project region, Tom Origer & Associates determined that a moderate potential exists for buried archaeological site indicators to

[8] Tom Origer & Associates. *Historic Resources Study of 3530-3560 E. 18th Street, Antioch, Contra Costa County, California.* September 7, 2018.

occur within the study area. Therefore, if previously unknown resources are encountered during construction activities, the proposed project could cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb human remains, including those interred outside of dedicated cemeteries, during construction. Therefore, impacts could be considered ***potentially significant***.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

V-1. *In the event of the accidental discovery or recognition of any human remains, further excavation or disturbance of the find or any nearby area reasonably suspected to overlie adjacent human remains shall not occur until compliance with the provisions of CEQA Guidelines Section 15064.5(e)(1) and (2) has occurred. The Guidelines specify that in the event of the discovery of human remains other than in a dedicated cemetery, no further excavation at the site or any nearby area suspected to contain human remains shall occur until the County Coroner has been notified to determine if an investigation into the cause of death is required. If the coroner determines that the remains are Native American, then, within 24 hours, the Coroner must notify the Native American Heritage Commission, which in turn will notify the most likely descendants who may recommend treatment of the remains and any grave goods. If the Native American Heritage Commission is unable to identify a most likely descendant or most likely descendant fails to make a recommendation within 48 hours after notification by the Native American Heritage Commission, or the landowner or his authorized agent rejects the recommendation by the most likely descendant and mediation by the Native American Heritage Commission fails to provide a measure acceptable to the landowner, then the landowner or his authorized representative shall rebury the human remains and grave goods with appropriate dignity at a location on the property not subject to further disturbances. Should human remains be encountered, a copy of the resulting County Coroner report noting any written consultation with the Native American Heritage Commission shall be submitted as proof of compliance to the City's Community Development Department.*

V-2. *If any prehistoric or historic artifacts, or other indications of cultural deposits, such as historic privy pits or trash deposits, are found once ground disturbing activities are underway, all work within the vicinity of the find(s) shall cease and the find(s) shall be immediately evaluated by a qualified archaeologist. If the find is determined to be a historical or unique archaeological resource, contingency funding and a time allotment to allow for implementation of avoidance measures or appropriate mitigation shall be made available (CEQA Guidelines Section 15064.5). Work may continue*

on other parts of the project site while historical or unique archaeological resource mitigation takes place (Public Resources Code Sections 21083 and 21087).

VI. ENERGY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	✖	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	✖	☐

Discussion

a,b. The main forms of available energy supply are electricity, natural gas, and oil. A description of the 2016 California Green Building Standards Code and the Building Energy Efficiency Standards, with which the proposed project would be required to comply, as well as discussions regarding the proposed project's potential effects related to energy demand during construction and operations are provided below.

California Green Building Standards Code

The 2016 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the California Building Standards Code (CBSC), which became effective with the rest of the CBSC on January 1, 2017. 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 reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CALGreen Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of Electric Vehicle charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;
- Outdoor landscaping must comply with the California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills;
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board; and
- For some single-family and low-rise residential development developed after January 1, 2020, mandatory on-site solar energy systems capable of producing 100 percent of the electricity demand created by the residence(s). Certain residential developments, including those developments that are subject to substantial shading,

rendering the use of on-site solar photovoltaic systems infeasible, are exempted from the foregoing requirement.

Building Energy Efficiency Standards

The 2016 Building Energy Efficiency Standards is a portion of the CBSC, which expands upon energy efficiency measures from the 2013 Building Energy Efficiency Standards resulting in a 28 percent reduction in energy consumption from the 2013 standards for residential structures. Energy reductions relative to previous Building Energy Efficiency Standards are achieved through various regulations including requirements for the use of high-efficacy lighting, improved water heating system efficiency, and high-performance attics and walls.

Construction Energy Use

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

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

The CARB has recently prepared the *2017 Climate Change Scoping Plan Update* (2017 Scoping Plan),[9] which builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix B of the 2017 Scoping Plan includes examples of local actions (municipal code changes, zoning changes, policy directions, and mitigation measures) that would support the State's climate goals. The examples provided include, but are not limited to, enforcing

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

idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment. The regulations described above, with which the proposed project must comply, would be consistent with the intention of the 2017 Scoping Plan and the recommended actions included in Appendix B of the 2017 Scoping Plan.

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

Operational Energy Use

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

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

With regard to transportation energy use, the proposed project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, as discussed in Section XVIII, Transportation, of this Initial Study, the project site is located within the vicinity of existing transit facilities, as well as resident-serving commercial uses. The site's proximity to such uses would reduce VMT and, consequently, fuel consumption associated with the proposed project. Furthermore, the proposed project would provide for

new sidewalks along both sides of the proposed stub extension of Drive-In Way/Holub Lane and along the project frontage at East 18th Street. Pedestrian walkways would be provided throughout the project site. Therefore, the project would provide for increased pedestrian connectivity with the surrounding area and resulting in reduced vehicle use.

Conclusion

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

VII. GEOLOGY AND SOILS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault?	☐	☐	✖	☐
ii. Strong seismic ground shaking?	☐	☐	✖	☐
iii. Seismic-related ground failure, including liquefaction?	☐	✖	☐	☐
iv. Landslides?	☐	✖	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	✖	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	✖	☐	☐
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code, creating substantial direct or indirect risks to life or property?	☐	✖	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	✖
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	✖	☐	☐

Discussion

The following discussion is based on a Geotechnical Investigation prepared for the proposed project by Geocon Consultants, Inc. (Geocon) (see Appendix C).[10]

ai-ii. According to the Geotechnical Investigation, seismicity at the proposed project site is influenced by the San Andreas Fault System, as well as the proximate Great Valley Fault System located at the eastern foot of the Coast Ranges. The nearest mapped active fault is located approximately five miles from the site; active or potentially active faults are not known to intersect with the project site. In addition, the site is not mapped within an Alquist-Priolo Earthquake Fault Zone. Thus, the potential for surface rupture due to

[10] Geocon Consultants, Inc. *Geotechnical Investigation, East 18th Street Multifamily, 3560 East 18th Street, Antioch, California.* March 2018.

faulting occurring beneath the site during the design life of the proposed development would be low.

Due to the site's proximity to the nearest active fault, the potential exists for the proposed apartment buildings to be subject to seismic ground shaking. However, the proposed buildings would be properly engineered in accordance with the California Building Code, which includes engineering standards appropriate for the seismic area in which the project site is located. Conformance with the design standards is enforced through building plan review and approval by the City of Antioch Building Division prior to the issuance of building permits. Proper engineering of the proposed project would ensure that seismic-related effects would not cause adverse impacts. Therefore, a ***less-than-significant*** impact would occur related to seismic surface rupture and strong seismic ground shaking.

aiii,aiv,
c,d. The proposed project's potential effects related to liquefaction, subsidence, landslides, lateral spreading, and expansive soils are discussed in detail below.

Liquefaction

The site is not located within a State of California Seismic Hazard Zone for liquefaction. However, web-based mapping by USGS indicates the project site possesses a "moderate" susceptibility to liquefaction.[11] Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary loss of shear strength due to pore pressure buildup under the cyclic shear stresses associated with intense earthquakes. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile.

Severe ground shaking during an earthquake can cause loose to medium dense granular soils to densify. If the granular soils are below the groundwater table, their densification can cause increases in pore water pressure, which can lead to soil softening, liquefaction, and ground deformation. Soils most prone to liquefaction are saturated, loose to medium dense, silty sands and sandy silts with limited drainage, and, in some cases, sands and gravels that are interbedded with, or that contain, seams or layers of impermeable soil.

As part of the Geotechnical Investigation, Geocon conducted a site-specific liquefaction analysis based on existing soil conditions and groundwater depth. Based on the results of the analysis, the project site contains potentially liquefiable layers of soil generally located more than 30 feet below the existing grade at the site. Based on the depth of the liquefiable layers, as well as the presence of overlying non-liquefiable layers, the potential for ground loss due to liquefaction-related sand boils or fissures during a seismic event is considered low. The likely consequence of potential liquefaction at the site is settlement. Per the Geotechnical Investigation, ground surface settlements of less than 0.75-inch at the site

[11] Geocon Consultants, Inc. *Geotechnical Investigation, East 18th Street Multifamily, 3560 East 18th Street, Antioch, California* [pg. 4]. March 2018.

may result from liquefaction and/or dry sand settlement after a seismic event. Implementation of the grading and structural design recommendations contained within the Geotechnical Investigation would be necessary to alleviate liquefaction risks.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. According to the Geotechnical Investigation, the project site is not located near any known landslides and is not in the path of any known or potential landslides. The site does not contain any considerable slopes. Thus, landslides are not likely to occur on- or off-site as a result of the proposed project.

Unstable Soils

Lateral spreading is associated with terrain near free faces such as excavations, channels, or open bodies of water. As discussed above, liquefaction is a type of seismic-related ground failure in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Subsidence occurs when loose, sandy soils settle during earthquake shaking. In order to reduce risks associated with unstable soils vulnerable to potential failure or collapse under seismic loading, such as liquefiable and/or compressible soils, site-specific engineering measures would be required. The City of Antioch Municipal Code Section 9-4.513 and the City of Antioch General Plan Policy 11.3.2-i require the preparation of site-specific geology and soils reports for all new developments, and require that the findings and recommendations of these studies be incorporated into project development. Compliance with such is verified by the City of Antioch Building Division as part of the building permit process. Compliance with the aforementioned requirements would ensure that the proposed project would be adequately designed to minimize any effects of unstable soils, including lateral spreading, subsidence, liquefaction, and collapse.

Expansive Soils

Per the Geotechnical Investigation, the existing on-site soils are not considered expansive, as defined by the 2016 CBC. Thus, development of the project site with residential structures would not result in risks related to expansive soils.

Conclusion

Based on the above discussion, the proposed project would not result in on- or off-site landslides and would not result in risks related to expansive soils. However, the project would be located on soils that are at risk for liquefaction-related settlement and may be considered unstable. Without implementation of appropriate design measures, a ***potentially significant*** impact could occur.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

VII-1. *All grading and foundation plans for the development shall be designed by a Civil and Structural Engineer and reviewed and approved by the City of Antioch Building Division prior to issuance of grading and building permits to ensure that all geotechnical recommendations specified in the Geotechnical Investigation prepared for the proposed project are properly incorporated and utilized in the project design.*

b. During grading activities associated with development of the proposed project, and prior to overlaying of the ground with impervious surfaces and landscaping elements, topsoil would temporarily be exposed. Thus, the potential exists for wind and water to erode portions of the exposed topsoil during construction, which could adversely affect downstream storm drainage facilities. Impacts related to substantial soil erosion or the loss of topsoil during construction of the proposed project would be ***potentially significant.***

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

VII-2. *Prior to issuance of grading and building permits, the project applicant shall submit, for the review and approval by the City Engineer, an erosion control plan that utilizes standard construction practices to limit the erosion effects during construction of the proposed project. Measures shall include, but are not limited to, the following:*

- *Hydro-seeding;*
- *Placement of erosion control measures within drainage ways and ahead of drop inlets;*
- *The temporary lining (during construction activities) of drop inlets with "filter fabric" (a specific type of geotextile fabric);*
- *The placement of straw wattles along slope contours;*
- *Directing subcontractors to a single designation "wash-out" location (as opposed to allowing them to wash-out in any location they desire);*
- *The use of siltation fences; and*
- *The use of sediment basins and dust palliatives.*

e. The proposed project would connect to the existing City sanitary sewer lines located in Holub Lane. The construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the proposed project. Therefore, ***no impact*** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.

f. Per the City of Antioch General Plan, numerous fossils have been collected from the Antioch Planning Area. A fossil locality search at the California Academy of Sciences, Golden Gate Park (CAS). CAS identified marine pelecypod and gastropod fossils collected from almost all of the sedimentary formations located in the City. Literature review indicated that all of the formations north of Mt. Diablo contain fossils. At least eight fossil localities occur within and immediately adjacent to the City's Planning Area and another five are within a one-mile radius of the Planning Area. Fossils in the Planning Area identified by California Museum of Paleontology, UC Berkeley include mammoths, primitive horses, bison, rats, beaver-type creatures, and sloths. As noted in the General Plan EIR, buildout of vacant parcels within the City's Planning Area will involve ground-disturbing activities and, thus, could potentially destroy, directly or indirectly, unique paleontological resources or sites.

The project site does not contain any unique geologic features. However, based on the above, paleontological resources could exist within the project site. Should previously unknown paleontological resources exist within the project site, ground-disturbing activity, such as grading, trenching or excavating, associated with implementation of the proposed project would have the potential to disturb or destroy such features. Therefore, the proposed project could result in the direct or indirect destruction of a unique paleontological resource, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

VII-3. *Prior to initiation of ground-disturbing activities, the applicant shall retain the services of a professional paleontologist to educate the construction crew that will be conducting grading and excavation at the project site. The education shall consist of an introduction to the geology of the project site and the kinds of fossils that may be encountered, as well as what to do in case of a discovery. Should any vertebrate fossils (e.g., teeth, bones), an unusually large or dense accumulation of intact invertebrates, or well-preserved plant material (e.g., leaves) be unearthed by the construction crew, then ground-disturbing activity shall be diverted to another part of the project site and the paleontologist shall be called on-site to assess the find and, if significant, recover the find in a timely matter. Finds determined significant by the paleontologist shall then be conserved and deposited with a recognized repository, such as the University of California Museum of Paleontology. The alternative mitigation would be to leave the significant finds in place, determine the extent of significant deposit, and avoid further disturbance of the significant deposit. Proof of the construction crew awareness training shall be submitted to the City's Community Development Department in the form of a copy of training materials and the completed training attendance roster.*

VIII. GREENHOUSE GAS EMISSIONS. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	✖	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	✖	☐

a,b. Emissions of greenhouse gases (GHGs) contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2e$/yr).

The proposed project is located within the jurisdictional boundaries of BAAQMD. The BAAQMD threshold of significance for project-level operational GHG emissions is 1,100 $MTCO_2e$/yr or 4.6 $MTCO_2e$/yr per service population (population + employees). BAAQMD's approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move towards climate stabilization. If a project would generate GHG emissions above the threshold level, the project would be considered to generate significant GHG emissions and conflict with applicable GHG regulations. It should be noted that the City of Antioch approved Community and Municipal Climate Action Plans (CAPs), which include city-wide goals and strategies for the reduction of GHG emissions. However, a quantitative threshold of significance for GHG emissions for individual development projects has not been established by the City and is not set forth in the Climate Action Plans. As such, the City has determined that BAAQMD's established thresholds are appropriate for analysis of the proposed project.

The proposed project's GHG emissions were quantified with CalEEMod using the same assumptions as presented in the Air Quality section of this IS/MND, and compared to the applicable thresholds of significance. The proposed project's required compliance with the current California Building Energy Efficiency Standards Code was assumed in the modeling. In addition, the CO_2 intensity factor within the model was adjusted to reflect the Pacific Gas & Electric Company's anticipated progress towards statewide renewable portfolio standard goals. All CalEEMod results are included in an appendix to this IS/MND.

Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Nonetheless, the proposed project's construction-related GHG emissions have been estimated and are presented in Table 6 below. The construction modeling assumptions are described in the Air Quality section of this IS/MND and included in the appendix.

Table 6
Unmitigated Annual Project Construction GHG Emissions

Year	Annual GHG Emissions ($MTCO_2e$/yr)
2019	386.24
2020	792.45
2021	265.24

Source: CalEEMod, September 2018.

Emissions modeling for construction showed that the most intensive year of construction of the proposed development would result in GHG emission of 792.24 $MTCO_2e$/yr. Neither the City nor BAAQMD has adopted a threshold of significance for construction-related emissions. In order to provide a meaningful analysis of GHG emissions, the emissions from the most intensive year of construction have been added to the annual operational emissions.

As noted previously, the BAAQMD threshold of significance for project-level operational GHG emissions is 1,100 $MTCO_2e$/yr or 4.6 $MTCO_2e$/yr per service population (population + employees). According to the CalEEMod results, the proposed project would result in total annual GHG emissions as shown in Table 7 below, including the maximum annual expected construction emissions.

As discussed in Chapter XIII, Population and Housing, of this IS/MND, per the City's Housing Element, the City of Antioch had an average household size of 3.15 persons per household.[12] Consequently, the proposed project could provide housing for up to approximately 1,241 people (394 proposed households X 3.15 persons per household = 1,241 new residents). Based on the total annual GHG emissions shown in the table above, including maximum annual construction emissions, and a total service population of 1,241 residents, the proposed project would result in annual per service population emissions of approximately 2.37 $MTCO_2e$/yr (2,939.53 $MTCO_2e$/yr / 1,241 residents = 2.37 $MTCO_2e$/yr-resident). Thus, implementation of the proposed project would result in

[12] City of Antioch. *Housing Element* [pg. 2-9]. Adopted April 14, 2015.

emissions below the applicable 4.6 $MTCO_2e$/yr per service population threshold of significance, and the proposed project would not be expected to have a significant impact related to GHG emissions.

Table 7
Maximum Unmitigated Project GHG Emissions

	Annual GHG Emissions
Construction-Related GHG Emissions:	792.45 ($MTCO_2e$/yr)
Operational GHG Emissions	2,147.08 ($MTCO_2e$/yr)
Area	36.56 ($MTCO_2e$/yr)
Energy	346.55 ($MTCO_2e$/yr)
Mobile	1,624.11 ($MTCO_2e$/yr)
Solid Waste	91,15 ($MTCO_2e$/yr)
Water	48.71 ($MTCO_2e$/yr)
Total Annual GHG Emissions	**2,939.53 ($MTCO_2e$/yr)**
Total Annual GHG Emissions Per Service Population*	**2.37 $MTCO_2e$/SP/yr**
BAAQMD Threshold	4.6 $MTCO_2e$/SP/yr
Exceeds Threshold?	**NO**

* Service population for the project calculated to be 1,241 residents based on average household size for the City of Antioch.

Source: CalEEMod, September 2018.

The City's CAPs were established to ensure the City's compliance with the statewide GHG reduction goals required by Assembly Bill (AB) 32. The CAPs included emissions reduction targets for the City, as well as reduction strategies, but did not specify project-level emissions thresholds. Although the City's CAPs did not establish project-level thresholds to assess a project's compliance with AB 32, the BAAQMD adopted thresholds are designed to assess a project's compliance with AB 32 and statewide reduction goals. Therefore, if GHG emissions relating to implementation of a project are below the BAAQMD's thresholds of significance, the project would be considered in compliance with the goals of the City's CAPs. As discussed above, the proposed project would result in GHG emissions in compliance with BAAQMD's thresholds. As a result, the proposed project would be considered in compliance with the GHG emissions reductions required by the City's CAPs to meet the State's AB 32 GHG reduction requirements.

In addition to the estimated GHG emissions meeting BAAQMD thresholds for AB 32, the design of the project would be consistent with several reduction strategies from the City's CAPs. For instance, the proposed project would include pedestrian facilities that would encourage alternative modes of transportations, in compliance with Transportation Strategy T7. Furthermore, since the adoption of CAPs, the California Building Code has been updated twice, including updates to the CALGreen code and the California Building Energy Efficiency Standards. The updates to the California Building Code require that new commercial and residential structures be built with energy and water efficiencies equal to or in excess of the efficiencies required by the CAPs' Green Building and Energy Strategies. Considering the project's compliance with BAAQMD thresholds as well as the

project's compliance with various reduction strategies within the City's CAPs, the proposed project would be considered consistent with the City's CAPs.

Based on the above, the proposed project would not be considered to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs; and impacts would be considered ***less than significant***.

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

Discussion

a. Residential land uses are not typically associated with the routine transport, use, disposal, or generation of substantial amounts of hazardous materials. Future residents may use common household cleaning products, fertilizers, and herbicides on-site, any of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions. Due to the regulations governing use of such products and the amount utilized on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a ***less-than-significant*** impact would occur.

b. The following discussion provides an analysis of potential hazards and hazardous materials associated with upset or accident conditions related to the proposed construction activities and existing on-site conditions.

Construction Activities

Construction activities associated with the proposed project would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete, paints, and adhesives. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction. However, the project contractor would be required to comply with all California Health and Safety Codes and local City ordinances regulating the handling, storage, and transportation of hazardous and toxic materials.

Existing On-Site Hazardous Materials

A Phase I Environmental Site Assessment (ESA) and Vapor Encroachment Screening (VES) was prepared for the proposed project by Rincon Consultants, Inc. for the purpose of identifying potential recognized environmental conditions (RECs) associated with the project site (see Appendix D).[13] The Phase I ESA and VES included a survey of the site and a review of historical documentation, aerial photography, regulatory agency files, and environmental site radius reports. Historical sources reviewed as part of the Phase I ESA indicate that the project site was developed with orchards from at least 1937 to 1984, and the orchards appeared to have been cleared by 1993. In addition, as of 1998, the site was developed with up to seven structures. However, by 2006, the site appears to have been cleared and graded, and has since remained vacant and undeveloped.

Per the Phase I ESA, features such as stressed vegetation, septic systems, wells, above-ground storage tanks (ASTs), and underground storage tanks (USTs) were not identified on the site. While the site was previously developed with up to seven structures, which could have contained asbestos or lead-based paint, any asbestos or lead in surface soil from the structures would have been mixed with surrounding soils as a result of subsequent grading on the site and, as a result, diluted. Thus, the former structures were not determined to be a potential REC. In addition, the VES conducted as part of the Phase I ESA did not identify any vapor encroachment conditions associated with the project site due to contaminated soils and/or groundwater.

However, the Phase I ESA noted that former on-site storage/debris areas were located on the northern portion of the project site from at least 1982 to 1993. Per Rincon Consultants, Inc., the contents of the material previously stored on the site are unknown. In addition, the project site contains fill that was previously imported to the project site by KB Homes from an adjacent subdivision, likely the existing subdivision located to the west of the site, and subsequently spread throughout the site and compacted. The subdivision to the west of the

[13] Rincon Consultants, Inc. *Phase I Environmental Site Assessment & Vapor Encroachment Screening, Proposed Antioch Apartments Site, Antioch, California.* February 15, 2018.

project site was used for agricultural purposes from 1937 to 1998 and, thus, the imported soil has the potential to be impacted with organochlorine pesticides (OCPs) and metals.

Based on the above, potential RECs associated with the proposed project site were limited to the following: soil contamination due to prior application of pesticides and arsenic associated with agricultural uses; former on-site storage/debris areas; and soil contamination due to imported fill material from an adjacent property that was formerly used for agricultural purposes. The Phase I ESA recommended further evaluation of the potential RECs. Thus, a Phase II ESA was prepared in April 6, 2018 by Rincon Consultants, Inc. to evaluate each potential REC.[14]

As part of the Phase II ESA, on March 12, 2018, Rincon Consultants, Inc. conducted 18 soil borings throughout the project site and collected a total of 54 soil samples. The soil borings were conducted to a depth of four feet below grade. Of the 54 samples, 36 samples were analyzed for OCPs and California Title 22 (CAM 17) metals. In addition, 24 of the 36 samples were also analyzed for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs). The 24 samples were collected from former storage/debris areas within the northern portion of the site. The remaining 18 soil samples were not analyzed for contaminants and were placed on hold at a laboratory.

Laboratory results were compared to the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Residential Environmental Screening Levels (ESLs). Metals were additionally compared to established regional background levels. Per the Phase II ESA, arsenic was found at levels exceeding Residential ESLs, but under the general background concentration of 11 mg/kg for arsenic in California soil. Select metals, TPH-d and TPH-o, PCBs, and OCPs, were detected on-site at levels that do not exceed Residential ESLs. VOCs and TPH-g were not detected above the applicable method detection limits (MDLs). Thus, based on the results of the Phase II ESA, the potential RECs identified in the Phase I ESA do not constitute hazards to future development of the project site with residential uses, and additional investigations of on-site soil conditions are not required.

Conclusion

Construction activities would be required to adhere to all relevant guidelines and ordinances regulating the handling, storage, and transportation of hazardous materials. In addition, based on the results of the Phase I and Phase II ESAs, existing hazardous materials, including contaminated soils, are not anticipated to occur on the project site. Thus, the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment, and a ***less-than-significant*** impact would occur.

[14] Rincon Consultants, Inc. *Phase II Environmental Site Assessment, Proposed Antioch Apartments Site, Antioch, California.* April 6, 2018.

c. The proposed project site is not located within a quarter mile of any existing or proposed schools. The nearest school is Orchard Park Elementary School, located approximately 0.83-mile east of the site. Furthermore, as discussed above, hazardous materials would not be emitted during construction or operation of the proposed project. Therefore, the proposed project would have ***no impact*** related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

d. Per the Phase I ESA, the proposed project site is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[15] Therefore, the project would not create a significant hazard to the public or the environment associated with such, and ***no impact*** would occur.

e. The nearest airport to the site is the Byron Airport, located approximately 13.25 miles southeast of the site. As such, the project site is not located within two miles of any public airports or private airstrips, and does not fall within an airport land use plan area. Therefore, ***no impact*** related to a safety hazard for people residing or working in the project area related to such would occur.

f. In 1996, the City of Antioch approved an Emergency Plan that addresses 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. The plan outlines the general authority, organization, and response actions for City of Antioch staff when disasters happen. Implementation of the proposed project would not result in any substantial modifications to the existing roadway system and, thus, would not physically interfere with the Emergency Plan, particularly with identified emergency routes. Furthermore, the proposed project would not include land uses or operations that could impair implementation of the plan. Therefore, would not interfere with an emergency evacuation or response plan, and a ***less-than-significant*** impact would occur.

g. Issues related to wildfire hazards are discussed in Section XX, Wildfire, of this Initial Study. As noted therein, according to the City of Antioch General Plan EIR, the areas of the City most susceptible to wildland fire hazards exist within the southern, unincorporated portions of the General Plan study area.[16] The project site is surrounded by existing development to the north, west, and south, and is located within a developed urban area within the City. Thus, the potential for wildland fires to reach the project site would be relatively limited. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the proposed project site is not located within a Very High Fire Hazard Severity Zone.[17] Therefore, the proposed project

[15] Rincon Consultants, Inc. *Phase I Environmental Site Assessment & Vapor Encroachment Screening, Proposed Antioch Apartments Site, Antioch, California.* February 15, 2018.
[16] City of Antioch. *General Plan Update EIR* [page 4.6-9]. July 2003.
[17] California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.

would not expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires, and a ***less-than-significant*** impact would occur.

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

Discussion

a. The following discussion provides a summary of the proposed project's potential to violate water quality standards/waste discharge requirements or otherwise degrade water quality during construction and operation.

Construction

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

The State Water Resources Control Board (SWRCB) regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in a land disturbance of one or more acres. The City's National Pollutant Discharge Elimination System (NPDES) permit requires applicants to show proof of coverage under the State's General Construction Permit prior to receipt of any construction permits. The State's General Construction Permit requires a Storm Water Pollution Prevention Plan (SWPPP) to be prepared for the site. A SWPPP describes Best Management Practices (BMPs) to control or minimize pollutants from entering stormwater and must address both grading/erosion impacts and non-point source pollution impacts of the development project. Because the proposed project would disturb greater than one acre of land, the proposed project would be subject to the requirements of the State's General Construction Permit.

Operation

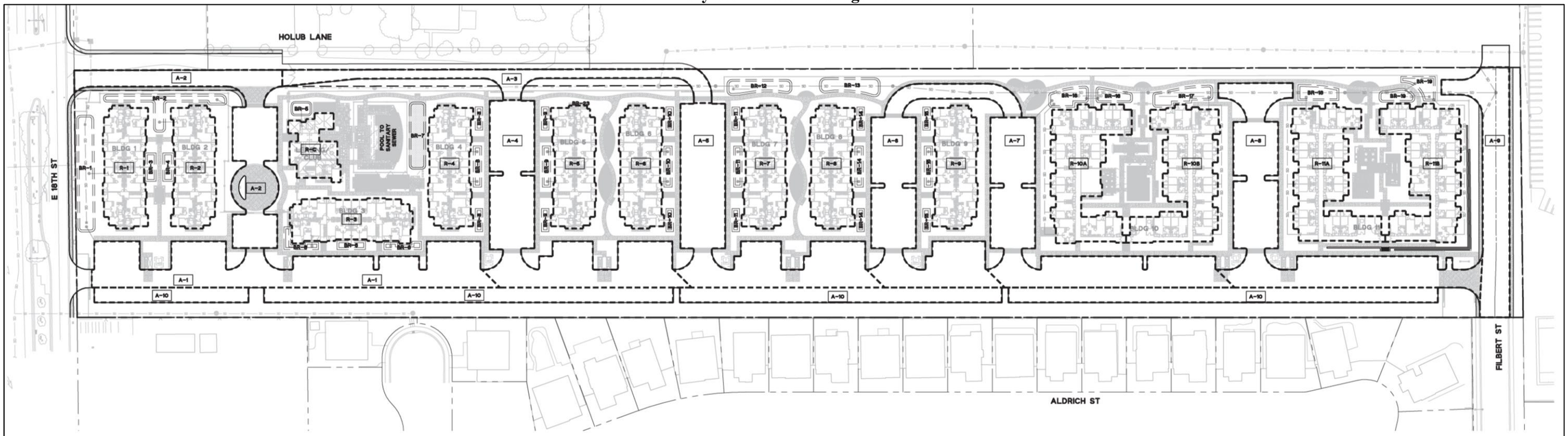
The proposed residential uses would not involve operations typically associated with the generation or discharge of polluted water. Thus, typical operations on the project site would not violate any water quality standards or waste discharge requirements, nor degrade water quality. However, addition of the impervious surfaces on the site would result in the generation of urban runoff, which could contain pollutants if the runoff comes into contact with vehicle fluids on parking surfaces and/or landscape fertilizers and herbicides. All municipalities within Contra Costa County (and the County itself) are required to develop more restrictive surface water control standards for new development projects as part of the renewal of the Countywide NPDES permit.

The City of Antioch has adopted the County C.3 Stormwater Standards, which require new development and redevelopment projects that create or alter 10,000 or more square feet of impervious area to contain and treat all stormwater runoff from the project site. Thus, the proposed project would be subject to the requirements of the SWRCB and the Regional Water Quality Control Board (RWQCB), including the C.3 Standards, which are included in the City's NPDES General Permit. Compliance with such requirements would ensure that impacts to water quality standards or waste discharge requirements would not occur during operation of the proposed project.

The Stormwater Management Plan (SWMP) prepared for the proposed project conforms with the most recent Contra Costa Clean Water Program Stormwater C.3 Guidebook and verifies that the proposed project would comply with all City stormwater requirements. In compliance with the C.3 Guidebook, the proposed project would divide the site into 24 drainage management areas (DMAs) (see Figure 13).

Runoff within each DMA would be captured by a series of new inlets and flow, by way of new underground storm drain piping, to a bio-retention basin within the DMA. The bio-retention basins would remove pollutants primarily by filtering runoff slowly through an active layer of soil. Treated runoff would be captured by a perforated underdrain, which would route flows to the City's existing stormwater main located in East 18th Street.

Figure 13
Preliminary Stormwater Management Plan

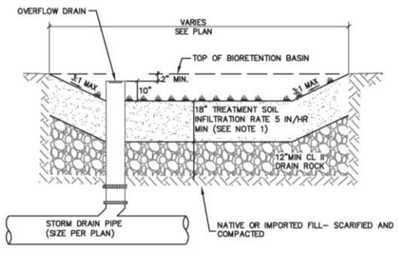


TREATMENT & FLOW CONTROL SUMMARY								
DMA ID	DMA (SF)	IMPERVIOUS SURFACE	CONTROL WATER QUANTITY VOLUME [1]		LID TYPE	LID ID	UNDERGROUND DETENTION	
			REQUIRED (CF)	PROVIDED (CF)			PIPE REQUIRED Y/N	PIPE VOLUME (CF)
A-1	24,580	Asphalt	1,285	1,895	Bioretention	BR-1	No	-
A-2	17,612	Asphalt	920	1,583	Bioretention	BR-2	No	-
A-3 [3]	9,120	Asphalt	9,120 [4]	9,120 [5]	Self-Treating	-	No	-
A-4	24,015	Asphalt	1,255	1,410	Bioretention	BR-7	No	-
A-5	24,000	Asphalt	1,254	1,106	Bioretention	BR-12	Yes	148
A-6	22,317	Asphalt	1,166	1,181	Bioretention	BR-13	No	-
A-7	22,770	Asphalt	1,190	1,434	Bioretention	BR-16	No	-
A-8	26,118	Asphalt	1,365	870	Bioretention	BR-17	Yes	495
A-9	13,715	Asphalt	717	1,125	Bioretention	BR-19	No	-
A-10 [3]	35,306	Asphalt	35,306 [4]	35,306 [5]	Self-Treating	-	No	-
R-1 [2]	8,918	Roof	466	961	Bioretention	BR-1/BR-3	No	-
R-2 [2]	8,918	Roof	466	1,014	Bioretention	BR-2/BR-4	No	-
R-3	8,918	Roof	466	805	Bioretention	BR-6	No	-
R-4	8,918	Roof	466	727	Bioretention	BR-8	No	-
R-5	8,918	Roof	466	727	Bioretention	BR-9	No	-
R-6	8,918	Roof	466	727	Bioretention	BR-10	No	-
R-7	8,918	Roof	466	727	Bioretention	BR-11	No	-
R-8	8,918	Roof	466	727	Bioretention	BR-14	No	-
R-9	8,918	Roof	466	727	Bioretention	BR-15	No	-
R-10A [2]	13,843	Roof	723	244	Bioretention	BR-16	Yes	479
R-10B	14,200	Roof	742	473	Bioretention	BR-17	Yes	269
R-11A	14,200	Roof	742	760	Bioretention	BR-18	No	-
R-11B [2]	13,843	Roof	723	408	Bioretention	BR-19	Yes	315
R-C	4,604	Roof	241	368	Bioretention	BR-5	No	-

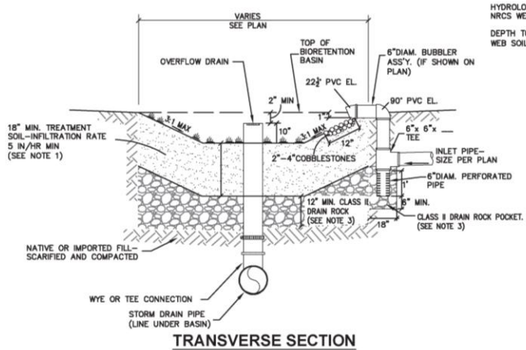
1) 0.07 FT2/FT2 & 0.058 FT3/FT2 METHOD USED FOR LID SIZING AND DIMENSION. 0.901 RAIN FACTOR - BASINS EXCEED 4% TREATMENT AREA EXCESS WATER STORED IN UNDERGROUND DETENTION. METERED FLOW DESIGN WILL BE PROVIDED IN FINAL DESIGN
2) UTILIZES EXCESS CAPACITY OF AN ADJACENT OVERSIZED BASIN
3) 1:1 RATIO OF IMPERVIOUS AREA TO PERVIOUS AREA
4) LANDSCAPE AREA REQUIRED
5) LANDSCAPE AREA PROVIDED

NOTES

1. TREATMENT SOIL MIX SHALL MEET REQUIREMENTS AS SPECIFIED IN THE CONTRA COSTA CLEAN WATER PROGRAM C.3 STORMWATER GUIDEBOOK, STORMWATER QUALITY REQUIREMENTS FOR DEVELOPMENT APPLICATIONS, DATED 2017 IN APPENDIX B.
2. THE BIOTREATMENT SOIL MIX USED IN ALL BIORETENTION AREAS SHALL COMPLY WITH THE SPECIFICATIONS PROPOSED BY BASMAA AND ACCEPTED BY WATER BOARD STAFF. USE OF THE STANDARD SOIL MIX IS STRONGLY RECOMMENDED. SEE THE CCCWP C.3 WEB PAGES FOR A LIST OF SUPPLIERS. THESE SUPPLIERS HAVE SUBMITTED SAMPLE DATA TO CCCWP.
3. PERMEABLE DRAIN ROCK SHALL BE CLASS II, PER CALTRANS STANDARD SECTION 68-2.02F. THE MATERIAL SHALL BE WASHED AND FREE FROM CLAY OR ORGANIC MATERIAL.



LONGITUDINAL SECTION



TRANSVERSE SECTION

PERVIOUS & IMPERVIOUS IMPROVEMENTS

TOTAL SITE: 646,913 SF

EXISTING IMPERVIOUS: 0 SF
EXISTING PERVIOUS: 646,913 SF

PROPOSED IMPERVIOUS: 443,543 SF
PROPOSED PERVIOUS: 203,370 SF

IMPERVIOUS AREA CREATED/REPLACED: 443,543 SF

PERCENT INCREASE OF IMPERVIOUS: 100%

HYDROLOGIC SOIL GROUP (HSG), PER NRCS WEB SOIL SURVEY: HSG A

DEPTH TO GROUNDWATER, PER NRCS WEB SOIL SURVEY: >200CM (>6.5')

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- X-X DRAINAGE MANAGEMENT AREA (DMA)
- BIORETENTION AREA
- BR-# BIORETENTION BASIN NO.
- STORM DRAIN LINE
- EX. STORM DRAIN LINE
- DRAINAGE SLOPE
- EX. MAJOR CONTOURS
- EX. MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS

C3 STORMWATER TREATMENT AND DETENTION

PER THE CONTRA COSTA CLEAN WATER PROGRAM (CCCWP) C3 REQUIREMENTS, THIS SPECIFIC PROJECT SITE (3530-3560 EAST 18TH STREET) WILL REQUIRE 100% LID (LOW IMPACT DEVELOPMENT) TREATMENT MEASURES. LID DESIGN WILL UTILIZE BIORETENTION FACILITIES AND SELF-RETAINING AREAS AS NEEDED. PER TABLE 3-5 IN THE CCCWP STORMWATER C3 GUIDEBOOK, REQUIRED TREATMENT AREA FOR BIORETENTION FACILITIES IS 0.04 SF OF IMP (INTEGRATED MANAGEMENT PRACTICE) FOOTPRINT PER SF OF IMPERVIOUS TRIBUTARY AREA (I.E. 4% METHOD).

ADDITIONAL INFORMATION, INCLUDING DETENTION CALCULATIONS, ARE INCLUDED IN THE STORMWATER CONTROL PLAN REPORT.

Each bio-retention basin would include an overflow inlet which would route excess runoff entering the basin to flow directly to the City's stormwater system during large storm events. Each bio-retention basin would be sized to meet or exceed the minimum volume requirements necessary to adequately handle all runoff from the proposed impervious surfaces and landscaping.

Based on the above, the proposed project would comply with the requirements of the SWRCB and the RWQCB, and would meet or exceed C.3 Standards. Therefore, during operation, the project would comply with all relevant water quality standards and waste discharge requirements, and would not degrade water quality.

Conclusion

Based on the SWMP prepared for the proposed project, the project would comply with all applicable regulations during operation, does not involve uses associated with the generation or discharge of polluted water, and would be designed to adequately treat stormwater runoff from the site prior to discharge. However, disturbance of the on-site soils during construction activities could result in a ***potentially significant*** with regard to violation of water quality standards and degradation of water quality should adequate BMPs not be incorporated during construction in accordance with SWRCB regulations.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

X-1. *Prior to issuance of grading permits, the contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP). The developer shall file the Notice of Intent (NOI) and associated fee to the SWRCB. The SWPPP shall serve as the framework for identification, assignment, and implementation of BMPs. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable. The SWPPP shall be submitted to the Director of Public Works/City Engineer for review and approval and shall remain on the project site during all phases of construction. Following implementation of the SWPPP, the contractor shall subsequently demonstrate the SWPPP's effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable.*

b,e. The City of Antioch currently does not rely on groundwater for water supplies.[18] Therefore, any water demand associated with the proposed project would not result in a depletion of groundwater in the project area. It should be noted that the project would develop portions of the site with impervious surfaces, which could impede groundwater recharge. However, the site is not located near a river, creek, or other body of water where recharge typically occurs. Therefore, the proposed project would not substantially deplete groundwater

[18] City of Antioch. *2015 Urban Water Management Plan* [pg. 6-12]. May 2016.

supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, and would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Thus, a ***less-than-significant*** impact would occur.

ci-iii. Development of the proposed project would result in an increase in impervious surfaces on the project site, which would alter the existing drainage pattern of the site. However, as discussed above, the project is required to comply with C.3 Standards and is proposed to include appropriate site design measures, source controls, and hydraulically-sized stormwater treatment measures to limit the rate and amount of stormwater runoff leaving the site.

As discussed above, runoff from the impervious areas of the site would be collected and conveyed to the proposed bio-retention basins. Per the SWMP prepared for the project, the bio-retention facilities would be designed to exceed the minimum volume needed to treat and control runoff from all proposed impervious surfaces. It should be noted that typically, projects creating or replacing an acre or more of impervious area must provide flow control such that post-project runoff does not exceed estimated pre-project rates and durations. However, because the site is located within a catchment that ultimately drains to a flow-controlled reservoir, the project is exempt from such C.3 hydromodification requirements.[19] Nonetheless, the capacity of the City's existing stormwater drainage infrastructure would not be exceeded, and alterations to such infrastructure would not be needed.

In order to ensure that the proposed project's stormwater treatment facilities remain adequate, long-term maintenance would be required. Routine maintenance of the facilities is necessary to ensure that infiltration of water is unobstructed, erosion is prevented, and soils are held together by biologically active plant roots. Proper operation and maintenance of the stormwater management facilities would be the sole responsibility of the property owner. The project applicant would be required to prepare and submit, for the City's review, an acceptable Stormwater Control Operation and Maintenance Plan prior to completion of construction. With implementation of such a plan, the bio-retention facilities would continue to properly manage runoff long after completion of construction activities.

In conclusion, the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in erosion, siltation, or flooding on- or off-site, 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. Consequently, the proposed project would result in a ***less-than-significant*** impact.

civ. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map number 06013C0144G, the project site is located within Zone X. FEMA defines Zone

[19] Contra Costa Clean Water Program. *Stormwater C.3. Guidebook, Stormwater Quality Requirements for Development Applications* [pg. 9]. May 17, 2017.

X as an area not within a 100-year or 500-year floodplain. The Contra Loma Dam is the closest dam to the project site, located approximately 3.85 miles southwest of the site. The citywide inundation map for the failure of Contra Loma Dam and Dike No. 2 (Figure 4.7-3 of the General Plan EIR) indicates that the project site is located outside of the areas that would be impacted by dam failure. It should be noted that, according to the General Plan EIR, dam failure would be an unlikely event.[20] As a result, the project would not impede or redirect flood flows, and a ***less-than-significant*** impact would result.

d. Tsunamis are defined as sea waves created by undersea fault movement, whereas a seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir. The project area is located over 50 miles from the Pacific Ocean and tsunamis typically affect coastlines and areas up to one-quarter mile inland. Due to the project's distance from the coast, the project site would not be exposed to flooding risks associated with tsunamis. Seiches do not pose a risk to the proposed project, as the project site is not located adjacent to a large closed body of water. Furthermore, as noted above, the project site is not located within a flood hazard zone. Based on the above, the proposed project would not pose a risk related to the release of pollutants due to project inundation due to flooding, tsunami, or seiche, and ***no impact*** would occur.

[20] City of Antioch. *General Plan Update EIR* [pg. 4.7-4]. July 2003.

XI. LAND USE AND PLANNING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	✖	☐
b. Cause a significant environmental impact due to a conflict with any land use plans, policies, or regulation adopted for the purpose of avoiding or mitigating on environmental effect?	☐	☐	✖	☐

Discussion

a. A project risks dividing an established community if the project would introduce infrastructure or alter land use so as to change the land use conditions in the surrounding community, or isolate an existing land use. The proposed project site does not contain existing housing or other development, and the proposed project would be consistent with the surrounding uses. The proposed project would not alter the existing general development trends in the area or isolate an existing land use. As such, the proposed project would not physically divide an established community and a ***less-than-significant*** impact would occur.

b. According to the Antioch General Plan, the proposed project site is located within the Eastern Waterfront Employment Focus Area and is designated High Density Residential. The site is zoned PBC. While the proposed multi-family apartment complex would be consistent with the site's current General Plan land use designation, a rezone would be required to change the site's zoning from PBC to R-25 with a Senior Housing Overlay. The R-25 zoning designation allows for multi-family residential development at densities between 20 and 25 dwelling units per gross developable acre. Per the City's Municipal Code, higher densities may be allowed within the R-25 zoning district where measurable community benefit is to be derived, such as the provision of senior housing or low to moderate income housing units. It should be noted that according to Section 9-5.3803 of the Antioch Municipal Code, multi-family development at densities of 20 units/acre or greater within R-25 zoning districts requires approval of a Use Permit. Furthermore, per Section 9-5.207 of the Municipal Code, all new development within the City is subject to Design Review approval.

Because the proposed project would include 178 units of senior housing and would be included in a Senior Housing Overlay District, with approval of a Use Permit, the proposed densities would be compatible with the R-25 zoning district. Given that the current PBC zoning district does not allow for residential development, the proposed Rezone to R-25 would bring the site's zoning into conformance with the site's current High Density Residential General Plan land use designation.

As discussed throughout this IS/MND, the proposed project would essentially serve as an extension of the existing residential development located to the west of the site. Therefore, should the City of Antioch City Council approve the requested Rezone, Use Permit, and

Design Review, the project would not cause a significant environmental impact due to a conflict with any land use plans, policies, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Furthermore, this IS/MND does not identify any significant impacts which cannot be mitigated to less-than-significant levels. As a result, the proposed project would not conflict with applicable land use plans, policies, regulations, or surrounding uses and a ***less-than-significant*** impact would occur.

XII. MINERAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	✖
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	✖

Discussion

a,b. According to the City of Antioch's General Plan EIR, areas identified in the General Plan for new development do not contain known mineral resources that would be of value to the region or residents of the State.[21] Therefore, ***no impact*** to mineral resources would occur as a result of development of the project.

[21] City of Antioch. *General Plan Update EIR* [pg. 5-9]. July 2003.

XIII. NOISE. *Would the project result in:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	✖	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	✖	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	✖

Discussion

a. The following discussion is based on an Environmental Noise and Vibration Assessment prepared for the proposed project by Bollard Acoustical Consultants, Inc. (BAC) (see Appendix E).[22] The report analyzed traffic noise level increases at the project site and at existing sensitive receptors in comparison to the City's exterior and interior noise level standards. In addition, a discussion of construction noise associated with the proposed project is provided.

Sensitive Noise Receptors

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

Existing Noise Environment

The existing ambient noise environment at the project site is primarily defined by traffic on East 18th Street, SR 160, and the SR 160 southbound ramp. To quantify the existing ambient noise environment at the project site, BAC conducted continuous (24-hour) noise level measurements at two locations on the project site on August 15, 2018 (see Figure 14).

[22] Bollard Acoustical Consultants, Inc. *Environmental Noise and Vibration Assessment, East 18th Street Apartments.* September 5, 2018.

Figure 14
Noise Measurement Sites

The results of the measurements are summarized in Table 8, presented in terms of day-night average (L_{dn}) noise levels, average hourly (L_{eq}) noise levels, and maximum (L_{max}) noise levels. All noise level values are in decibels (dB).

Table 8
Summary of Long-Term Ambient Noise Monitoring Results

Site	L_{dn}, dB	Average Measured Hourly Noise Levels (dB)					
		Daytime (7 AM to 10 PM)			Nighttime (10 PM to 7 AM)		
		L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
1	61	54	52	70	54	50	68
2	68	69	51	68	56	51	64

Source: Bollard Acoustical Consultants, Inc., 2018.

Upon analysis of the collected noise level data at Site 2, BAC noted the occurrence of anomalous loud events that influenced measured Lmax noise levels between 7:00 and 8:00 PM. During all other hours, measured maximum noise levels at Site 2 ranged from 56 dB to 73 dB, while measured maximum noise levels between 7:00 and 8:00 PM hours were 93 dB and 98 dB, respectively. The measured maximum noise levels during this period significantly contributed to elevated L_{eq} noise levels, which resulted in an artificially high L_{dn} calculation of 68 dB. After correction for the anomalous data, the day-night average noise level for Site 2 was calculated to be approximately 62 dB L_{dn}.

As shown in Table 8, the existing ambient noise levels at the project site currently exceed the City's 60 dB L_{dn} exterior traffic noise level standard for residential land uses, including the re-calculated L_{dn} value for Site 2.

Project Construction Noise

During the construction of the proposed project, heavy equipment would be used for grading, excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the project site would vary depending on the proximity of construction activities to that point. Standard construction equipment, such as graders, backhoes, loaders, and trucks, would be used on-site.

The range of maximum noise levels for various types of construction equipment at a distance of 50 feet is depicted in **Error! Reference source not found.**. The noise values r epresent maximum noise generation, or full- power operation of the equipment. As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources.

The nearest existing noise-sensitive receptors to the project site include the single-family residential subdivision located to the west of the site and scattered residential development located to the east of the site. The nearest residences are located approximately 25 feet from

on-site areas where construction activities would occur. As shown in Table 9**Error! Reference source not found.**, construction activities typically generate noise levels ranging from approximately 75 to 90 dB L_{max} at a reference distance of 50 feet from the construction activities. The noise levels from construction operations decrease at a rate of approximately 6 dB per doubling of distance from the source. Thus, worst-case maximum construction noise levels would range from approximately 81 to 96 dB L_{max} at the nearest residences. Accordingly, construction noise could exceed the City's 60 dB exterior noise level threshold at the nearest existing receptor.

Table 9
Typical Construction Equipment Noise

Type of Equipment	Maximum Noise Level at 50 feet (dB L_{max})
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jackhammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller	74
Saw	76
Truck	88

Source: Bollard Acoustical Consultants, Inc., 2018.

Project Operational Noise

As noted previously, the existing noise environment in the project area is primarily defined by traffic noise. As discussed in Section XVII, Transportation, of this IS/MND, the proposed project would result in increased traffic volumes on local roadways. Thus, the proposed project could cause an increase in traffic noise levels in the project area.

Future Traffic Noise Levels at Project Site

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA Model) was used with future (Cumulative Plus Project) traffic data obtained from the Traffic Impact Analysis prepared for the proposed project to predict traffic noise levels from East 18th Street and the SR 160 southbound ramp at the proposed residential uses. Future traffic volumes on the SR 160 mainline were conservatively estimated by increasing

the existing traffic volume by a factor of 1.5 to account for regional growth in the next 20 years. The FHWA Model inputs and results are included in the appendix to the Environmental Noise and Vibration Assessment. The predicted future traffic noise levels at the noise-sensitive locations on the project site are shown in Table 10 below.

Table 10
Exterior Traffic Noise Levels at Project Site

Roadway	Building	Location	Distance (ft)	Offset (dB)*	L_{dn}, dB
East 18th Street	1	Common outdoor area	430	-7	48
		First-floor facades	80		66
		Upper-floor facades	80	+3	69
SR 160	2s	Common outdoor area	810		59
		First-floor facades	490		63
		Upper-floor facades	490	+3	66
SR 160 Southbound Ramps	2	Common outdoor area	475		56
		First-floor facades	375		57
		Upper-floor facades	375	+3	60

* A +3 dB offset was applied to the upper-floor facades due to reduced ground absorption at elevated floor levels. In addition, a -7 dB offset was applied to predicted future East 18th Street traffic noise levels at the common outdoor area (pool/tot lot) to account for the shielding provided by proposed intervening buildings.

Source: Bollard Acoustical Consultants, Inc., 2018.

A +3 dB offset was applied to the upper-floor facades to account for reduced ground absorption of traffic noise at elevated floor levels. In addition, the predicted future East 18th Street traffic noise levels at the common outdoor area of the proposed project were conservatively adjusted by -7 dB to account for shielding that would be provided by proposed intervening buildings. The shielding offset was not applied to SR 160 or SR 160 southbound ramp traffic noise levels at the common outdoor area.

As indicated in Table 10, the proposed common use area of the proposed project would be exposed to a future (Cumulative Plus Project) East 18th Street traffic noise level of 48 dB L_{dn}. Future SR 160 and SR 160 southbound ramp noise levels at the common outdoor area would be 59 and 56 dB L_{dn}, respectively. The combined future traffic noise level exposure at the common use area was calculated to be 61 dB L_{dn}, which would exceed the City's 60 dB L_{dn} exterior noise level threshold. Thus, a potentially significant impact related to could occur related to exposure of future on-site residents to excess traffic noise. It should be noted that in the event that the vacant property to the east of the project site is developed, traffic noise levels at the project site would be reduced due to shielding provided by buildings associated with such development.

The worst-case interior traffic noise exposure at the proposed development would occur within the residences proposed closest to East 18th Street, SR 160, and the SR 160 southbound ramp. As shown in Table 10, the predicted L_{dn} values at the first-floor facades of the residences nearest to such roadways would range from 57 to 66 dB L_{dn}. Due to reduced ground absorption at elevated positions, upper-level traffic noise levels from the roadways could range from 60 to 69 dB L_{dn}. However, taking into consideration the

combined traffic noise exposure from the modeled roadways, future traffic noise levels could be slightly higher at the exteriors of the proposed buildings.

Standard residential construction such as stucco siding, STC (Sound Transmission Class)-27 windows, door weather-stripping, exterior wall insulation, and composition plywood roofs, results in an exterior to interior noise reduction of at least 25 dB with windows closed and approximately 15 dB with windows open. Per the Environmental Noise and Vibration Assessment, accounting for the combined roadway noise exposure at the project site, standard residential construction would likely be sufficient to reduce interior noise levels at the proposed residential units to below the City's applicable 45 dB L_{dn} interior noise level standard. However, in order to provide a sufficient margin of safety in meeting the City's standard, additional noise reduction features would be required for the proposed project. In the absence of such features, a potentially significant impact could occur related to interior noise levels at the proposed residences.

Future Traffic Noise Levels at Existing Sensitive Receptors

As noted above, the proposed project would result in increased traffic volumes on the local roadway network. As part of the Environmental Noise and Vibration Assessment, increases in traffic noise on local roadway segments were estimated using the FHWA Model and traffic data obtained from the Traffic Impact Analysis prepared for the project for Existing, Existing Plus Project, Cumulative, and Cumulative Plus Project conditions. The FHWA Model inputs are provided in the appendix to the Environmental Noise and Vibration Assessment and the results are summarized below in Table 11 and Table 12.

Per the Environmental Noise and Vibration Assessment, using criteria developed by the Federal Interagency Commission on Noise (FICON), the proposed project would result in a substantial increase in ambient noise levels under the following circumstances:

- Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in roadway noise levels is considered significant;
- Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in roadway noise levels is considered significant; and
- Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in roadway noise levels is considered significant.

As shown in Table 11 and Table 12, traffic noise increases occurring under Existing Plus Project or Cumulative Plus Project conditions would be 0.5 dB or less. It should be noted that initial modeling of existing traffic noise levels at Holub Lane south of East 18th Street only included traffic associated with Drive-In Way/Holub Lane and did not account for traffic noise from SR 160. Because the existing noise along Holub Lane is primarily defined by SR 160 traffic noise, the reported noise levels for the segment were adjusted to reflect the measured ambient noise levels at the eastern project site boundary.

Table 11
Traffic Noise Levels at Local Roadway Segments – Existing Plus Project Conditions

Roadway	Segment	Traffic Noise Level at 100 feet from Roadway Centerline			
		Existing (dB, L_{dn})	Existing Plus Project (dB, L_{dn})	Change (dB)	Substantial Increase?
East 18th Street	West of Viera Avenue	63.8	63.9	0.1	No
East 18th Street	Viera Avenue to Phillips Lane	63.4	63.6	0.2	No
East 18th Street	Phillips Lane to Holub Lane	63.2	63.3	0.1	No
East 18th Street	Holub Lane to SR 160 SB Ramps	63.1	63.6	0.5	No
East 18th Street	SR 160 SB Ramps to NB Ramps	64.8	65.1	0.3	No
East 18th Street	East of SR 160 NB Ramps	67.0	67.1	0.1	No
Viera Avenue	North of East 18th Street	51.0	51.2	0.2	No
Viera Avenue	South of East 18th Street	49.8	50.0	0.2	No
Phillips Lane	South of East 18th Street	50.3	50.6	0.3	No
Holub Lane	South of East 18th Street	60.6	60.9	0.3	No
Drive-In Lane	North of East 18th Street	48.7	48.7	0.0	No
SR 160 SB Ramps	South of East 18th Street	64.6	64.7	0.1	No
SR 160 NB Ramps	South of East 18th Street	66.8	67.0	0.2	No

Note: Existing and Existing Plus Project traffic noise levels for Holub Lane are adjusted based on measured ambient noise levels at Site 1.

Source: Bollard Acoustical Consultants, Inc., 2018.

Table 12
Traffic Noise Levels at Local Roadway Segments – Cumulative Plus Project Conditions

Roadway	Segment	Traffic Noise Level at 100 feet from Roadway Centerline			
		Cumulative (dB, L_{dn})	Cumulative Plus Project (dB, L_{dn})	Change (dB)	Substantial Increase?
East 18th Street	West of Viera Avenue	64.9	65.0	0.1	No
East 18th Street	Viera Avenue to Phillips Lane	64.0	64.2	0.2	No
East 18th Street	Phillips Lane to Holub Lane	64.6	64.7	0.1	No
East 18th Street	Holub Lane to SR 160 SB Ramps	64.5	64.8	0.3	No
East 18th Street	SR 160 SB Ramps to NB Ramps	65.8	66.0	0.2	No
East 18th Street	East of SR 160 NB Ramps	68.3	68.4	0.1	No
Viera Avenue	North of East 18th Street	53.6	53.7	0.1	No
Viera Avenue	South of East 18th Street	55.6	55.8	0.2	No
Phillips Lane	South of East 18th Street	53.5	53.7	0.2	No
Holub Lane	South of East 18th Street	60.6	60.9	0.3	No
Drive-In Lane	North of East 18th Street	48.7	48.7	0.0	No
SR 160 SB Ramps	South of East 18th Street	65.6	65.7	0.1	No
SR 160 NB Ramps	South of East 18th Street	68.6	68.6	0.0	No

Note: Existing and Existing Plus Project traffic noise levels for Holub Lane are adjusted based on measured ambient noise levels at Site 1.

Source: Bollard Acoustical Consultants, Inc., 2018.

Therefore, the proposed project would not result in a substantial increase in traffic noise or cause new exceedances of the City's 60 dB L_{dn} exterior noise level threshold at existing sensitive receptors in the project area. Thus, impacts related to traffic noise level increases at existing sensitive receptors would be less significant.

Conclusion

Based on the above, construction noise could exceed the City's 60 dB exterior noise level threshold at the nearest existing receptor. Construction noise is conditionally exempt from 7:00 AM to 6:00 PM, Monday through Friday, and from 9:00 AM to 5:00 PM on weekends and holidays per Section 5-17.04 of the City Zoning Ordinance. In addition, noise associated with construction activities would be temporary in nature, and would be anticipated to occur during normal daytime working hours. Nonetheless, given the proximity of the nearby residential buildings to the proposed construction activities, noise levels at nearby noise sensitive receptors would temporarily or periodically increase above existing levels without the project.

With regard to operations, traffic noise associated with the proposed project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of the standards established in the City's General Plan, or applicable standards of other agencies. However, noise levels at the proposed outdoor common area of the proposed project could exceed the City's 60 dB L_{dn} exterior noise level threshold for residential uses. In addition, interior noise levels at the proposed residential units could exceed the City's 45 dB L_{dn} interior noise level standard. Thus, a ***potentially significant*** impact could occur.

Mitigation Measure(s)
Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

XII-1. *During construction activities, the use of heavy construction equipment shall adhere to Sections 5-17.04 and 5-17.05 of the City's Municipal Code, which includes the following regulations:*

It is unlawful for any person to operate heavy construction equipment or otherwise be involved in construction activities during the hours specified below:

1) *On weekdays prior to 7:00 AM and after 6:00 PM.*
2) *On weekdays within 300 feet of occupied dwelling space, prior to 8:00 AM and after 5:00 PM.*
3) *On weekends and holidays, prior to 9:00 AM and after 5:00 PM, irrespective of the distance from the occupied dwelling.*

XII-2. *The project applicant shall ensure that all on-site construction activities occur pursuant to the criteria identified in Policy 11.6.2, Temporary*

Construction, of the City of Antioch General Plan. Such criteria include, but are not limited to, preparation of a construction-related noise mitigation plan. The construction-related noise mitigation plan shall be submitted to the Community Development Department for review and approval prior to issuance of grading permits for the project. Items included in the plan could contain, but would not be limited to, the following:

- *All equipment driven by internal combustion engines shall be equipped with mufflers which are in good working condition and appropriate for the equipment;*
- *The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where the technology exists;*
- *At all times during project grading and construction, stationary noise-generating equipment shall be located as far as practical from noise-sensitive receptors;*
- *Unnecessary idling of internal combustion engines shall be prohibited;*
- *Owners and occupants of residential and non-residential properties located with 300 feet of the construction site shall be notified of the construction schedule in writing; and*
- *The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and institute reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.*

XIII-3. *A solid noise barrier measuring a minimum of six feet in height relative to common use area elevation shall be constructed at the location identified in Figure 15 of this IS/MND. Suitable materials for the traffic noise barrier include masonry and precast concrete panels. The final design of the noise barrier shall be approved by the Community Development Department prior to building permit issuance.*

XIII-4. *Prior to building permit issuance, the construction drawings shall show the upgrade of standard windows to windows with an STC rating of 32 for select upper-floor windows of Buildings 1 and 2. The locations of the required window upgrades are shown in Figure 15 of this IS/MND. Upgrading of the windows shall be performed in accordance with the recommendations outlined in the Environmental Noise and Vibration Assessment performed specifically for the project by Bollard Acoustical Consultants, Inc. The final design of the window upgrades shall be approved by the Community Development Department prior to building permit issuance.*

Figure 15
Noise Barrier and Window Upgrade Locations

XIII-5. Prior to building permit issuance, the construction drawings for the project shall include a suitable form of forced-air mechanical ventilation for all proposed residential units, subject to approval by the Community Development Department, such that doors and windows may be kept closed at the occupant's discretion to control interior noise and achieve the City's 45 dB L_{dn} interior noise level threshold.

b. Vibration can be measured in terms of accelerationf, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV. Per the Environmental Noise and Vibration Assessment, a vibration level of 0.25 in/sec PPV is the level at which vibration becomes distinctly to strongly perceptible.

During project construction, heavy equipment would be used for grading, excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of construction. The nearest residence is located approximately 25 feet from construction activities that would occur on the project site. The range of vibration source levels for construction equipment commonly used in similar projects are shown in **Error! Reference source not found.**

Table 12
Vibration Levels for Various Construction Equipment

Equipment Type	Vibration Level at 25 feet (in/sec PPV)
Vibratory Roller	0.210
Loaded Truck	0.076
Excavator	0.051
Front Loader	0.035
Water Truck	0.001

Source: Bollard Acoustical Consultants, Inc., 2018.

Based on the vibration levels presented in the table above, construction-generated vibration levels associated with the proposed project are predicted to be less than the 0.25 in/sec PPV threshold at which vibration levels become distinctly perceptible. Therefore, the project would not result in the exposure of persons to or generation of excessive groundborne vibration levels at the project site. Additionally, construction activities would be temporary in nature and would be limited to normal daytime working hours in accordance with Section 5-17.04 of the City Zoning Ordinance. Therefore, a ***less-than-significant*** impact would occur related to exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. The nearest airport to the proposed project site is the Byron Airport, located approximately 13.25 miles southeast of the site. Given the substantial distance between the airport and the project site, noise levels resulting from aircraft at the nearest airport would be negligible at the proposed project site. Therefore, ***no impact*** would occur.

XIV. POPULATION AND HOUSING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	☐	☐	✖	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	✖

Discussion

a. The proposed project would include development of the 14.85-acre project site with a 394-unit multi-family apartment complex, thereby inducing population growth in the project area. Per the City's Housing Element, the City of Antioch had an average household size of 3.15 persons per household.[23] Consequently, the proposed project could provide housing for up to approximately 1,241 people (394 proposed households X 3.15 persons per household = 1,241 new residents).

The proposed project would be consistent with the project site's current General Plan land use designation. In addition, the project site is located within an urbanized area within the City of Antioch and is bordered by existing development to the north, west, and south. The project would not include extension of major infrastructure. Therefore, the proposed project would not result in more intensive population growth beyond what has been previously analyzed for the site, and a ***less than significant*** impact would occur.

b. The proposed project site is currently vacant, and does not include existing housing or other habitable structures. As such, the proposed project would not displace a substantial number of existing housing or people and would not necessitate the construction of replacement housing elsewhere. Therefore, ***no impact*** would occur.

[23] City of Antioch. *Housing Element* [pg. 2-9]. Adopted April 14, 2015.

XV. PUBLIC SERVICES. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	☐	☐	✖	☐
b. Police protection?	☐	☐	✖	☐
c. Schools?	☐	☐	✖	☐
d. Parks?	☐	☐	✖	☐
e. Other Public Facilities?	☐	☐	✖	☐

Discussion

a. Fire protection services for the project area are provided by the Contra Costa County Fire Protection District (CCCFPD). The CCCFPD is an "all-hazards" organization providing fire suppression, paramedic emergency medical services (EMS), technical rescue, water rescue, and fire prevention/investigation services to more than 600,000 residents across a 304 square mile coverage area. The CCCFPD operates 25 fire stations and responds to approximately 45,000 incidents annually. Four of the fire stations are located within the City of Antioch. Station 88 is located approximately three miles east of the project site.

Upon completion of the proposed residential development, the CCCFPD would provide fire protection services to the project site. The proposed project would be required to pay applicable fire protection fees per the City's Master Fee Schedule. In addition, the proposed residential buildings would be constructed in accordance with the fire protection requirements of the most recent California Fire Code. The CCCFPD and the City's Building Inspection Services Division would review the project building plans to ensure compliance with all code requirements. Therefore, the proposed project would have a ***less-than-significant*** impact related to the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts.

b. The Antioch Police Department (APD) currently provides police protection services to the proposed project site and the surrounding area. The Antioch PD operates out of the police headquarters at 300 L Street, and is currently staffed with 99 sworn and 33 non-sworn employees.[24] According to the Antioch General Plan EIR, population growth has created an increased demand for police-related services, and consequently a need for additional Antioch PD staff. The City of Antioch General Plan establishes a goal for the Antioch PD staffing ratio to be between 1.20 to 1.50 officers per 1,000 residents.[25] Per the City's

[24] City of Antioch. *About APD*. Available at: http:// www.antiochca.gov/police/about-apd/. Accessed September 2018.

[25] City of Antioch. *City of Antioch General Plan EIR [pg. 4.11-1]*. July 2003.

Housing Element, the City of Antioch had a population of 106,455 in 2014. Thus, the current Antioch PD staffing ratio is approximately 1.0 per 1,000 residents.

The proposed project would increase the demand for police protection services at the site. However, the project applicant would be required to pay Development Impact Fees for police facilities per Section 9-3.50 of the City Municipal Code, and the project site would be required to annex into a community facilities district (CFD) for financing police services. Therefore, the project would have a ***less-than-significant*** impact related to the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts.

c. School services in the City are provided by the Antioch Unified School District (AUSD). The proposed project would include the development of the project site with a 394-unit multi-family apartment complex and, thus, would increase demand for school facilities and services. Furthermore, the AUSD collects development fees for new residential projects on a per square foot basis. The development fees serve to offset school facility costs associated with serving new students. Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "[…] legislative or adjudicative act…involving …the planning, use, or development of real property" (Government Code 65996(b)). Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation." Because the project applicant would be required to pay development fees to the AUSD, the proposed project would result in a ***less-than-significant*** impact regarding an increase in demand for schools.

d,e. Standard 3.5.7.2 in the City of Antioch General Plan sets a standard of five acres of parks and open space per 1,000 residents.[26] The City of Antioch receives land for parks through land dedications or purchases funded through fee collection. In addition, per Section 9-5.706 of the City's Municipal Code, multi-family developments are required to provide 200 sf of private and common usable open space per unit. The proposed project would include the construction of 394 multi-family residential units, and, thus, would increase the total acreage of parks required to meet the City's performance standard. Per Section 9-5.706, the project would be required to provide a total of 1.81 acres of open space.

The proposed project would provide future residents with a 15-foot wide landscaped buffer along the length of the western site boundary. In addition, the northern portion of the project site would include a private pool and a 'tot lot' playground area. Throughout the site, each of the proposed buildings would be organized around a landscaped common area/courtyard. In total, approximately 4.19-acres of open space/common area would be provided for residents, including 3.72 acres of common usable open space and 0.47-acre of private open space associated with individual units. Overall, approximately 463 sf per unit of open space/common area would be provided on-site (182,516 sf / 394 dus = 463 sf/du), which exceeds the City's 200 sf per unit standard. Thus, the project would provide common useable open space, as well as private open space, for each unit consistent with the open space requirements established by Section 9-5.706 of the Municipal Code. In

[26] City of Antioch. *General Plan* [pg. 3-12]. Updated November 24, 2003.

addition, the project would be required to bay Development Impact Fees, which include a component for parks. Therefore, the proposed project would have a ***less-than-significant*** impact related to the need for new or physically altered parks or other public facilities, the construction of which could cause significant environmental impacts.

XVI. RECREATION. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	✖	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	✖	☐

Discussion

a,b. The proposed project would include the development of 394 residential units, and thus, would likely result in an increase in the use of existing neighborhood, regional, parks and/or other recreational facilities. While the project site is located approximately four miles northeast of Contra Loma Regional Park, nearby City parks such as Almondridge Park would be substantially more accessible to residents.

Furthermore, the proposed project would provide future residents with a 15-foot wide landscaped buffer along the length of the western site boundary. On-site recreational facilities would include a private pool and a 'tot lot' playground area, as well as landscaped common areas/courtyards associated with each of the proposed buildings. In total, approximately 4.19-acres of open space/common area would be provided for residents, including 3.72 acres of common usable open space and 0.47-acre of private open space associated with individual units. Thus, the project would exceed the open space requirements established by Section 9-5.706 of the Municipal Code.

Therefore, the increase in population associated with the proposed project would not be expected to result in substantial physical deterioration of any existing neighborhood or regional parks or other recreational facilities, and would not result in adverse physical effects related to the construction or expansion of new facilities. Thus, a ***less-than-significant*** impact would occur.

XVII. TRANSPORTATION. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, taking into account all modes of transportation, including transit, roadway, bicycle, and pedestrian facilities?	☐	✖	☐	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	✖	☐
c. Substantially increase hazards due to a geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	✖	☐
d. Result in inadequate emergency access?	☐	☐	✖	☐

Discussion

a. The following is based on a Traffic Impact Analysis (TIA) prepared for the proposed project by Hexagon Transportation Consultants, Inc. (see Appendix F).[27] The TIA evaluates the potential traffic impacts of the proposed project in accordance with the standards set forth by the City of Antioch, Contra Costa Transportation Authority (CCTA) Congestion Management Program (CMP), and the East County Action Plan (ECAP).

The TIA includes an analysis of the following study intersections in the project vicinity, each of which are intersections on a Route of Regional Significance per the ECAP (see Figure 16):

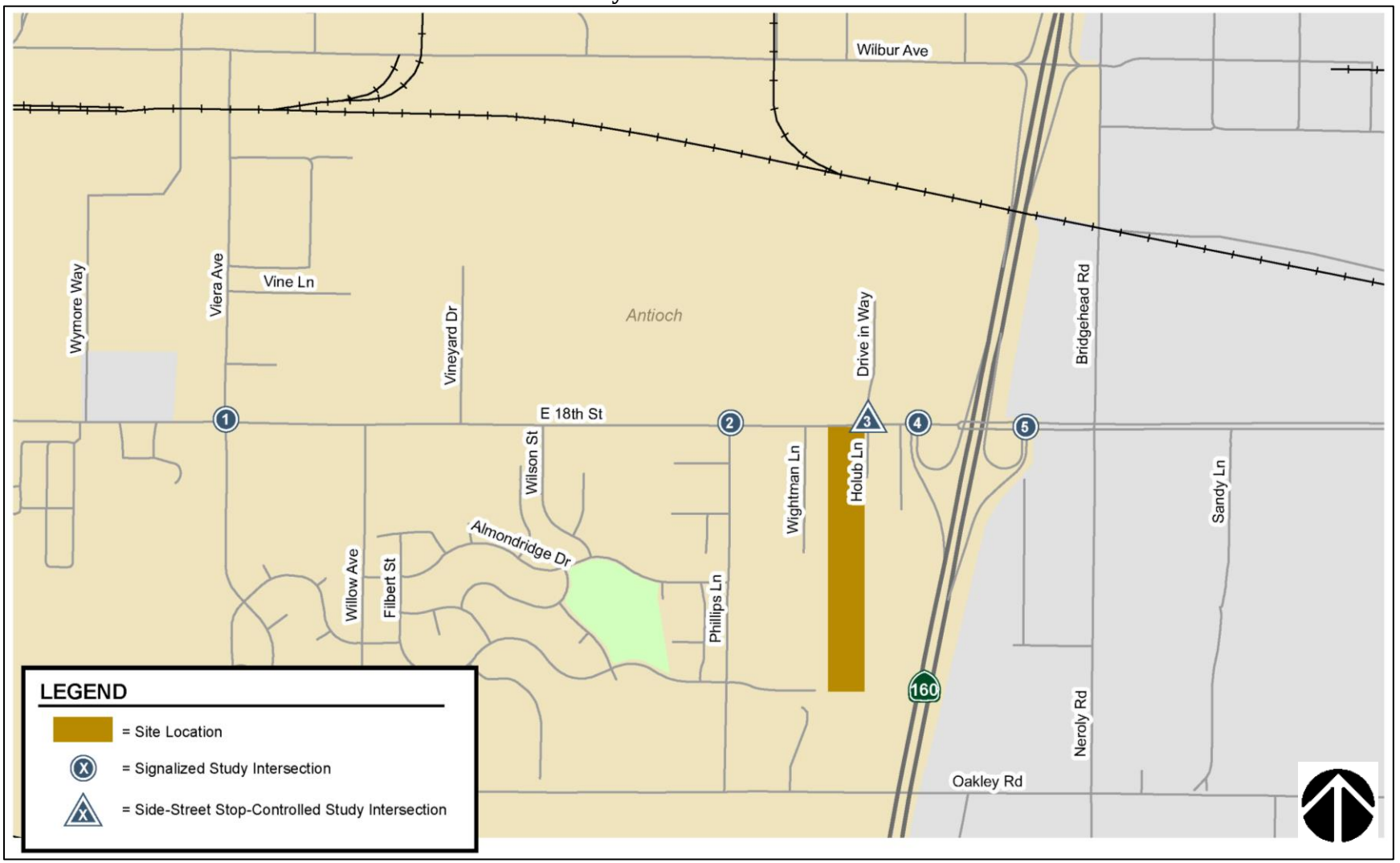
1. East 18th Street and Viera Avenue;
2. East 18th Street and Phillips Lane;
3. East 18th Street and Drive-In Way/Holub Lane (unsignalized);
4. East 18th Street and Southbound SR 160 Ramp; and
5. East 18th Street and Northbound SR 160 Ramp.

The operations of the study intersections were evaluated during the weekday AM (7:00 AM to 9:00 PM) and weekday PM (4:00 PM to 6:00 PM) peak hours under the following scenarios:

1. **Existing Conditions.** Existing traffic volumes at study intersections based on traffic counts conducted in May 2018 and assuming existing lane configurations.
2. **Existing Plus Project Conditions.** Existing Conditions plus vehicle traffic generated by the proposed project. The Existing Plus Project Conditions assume implementation of the proposed site access and internal circulation improvements.

[27] Hexagon Transportation Consultants, Inc. *3530-3560 E. 18th Street Residential Development.* April 4, 2019.

Figure 16
Study Intersection Locations



Source: Hexagon Transportation Consultants, Inc., 2019.

1. **Cumulative Conditions.** Cumulative traffic volumes at study intersections assuming growth through the year 2040, as anticipated per the CCTA travel demand forecast model.
2. **Cumulative Plus Project Conditions.** Cumulative Conditions plus vehicle traffic generated by the proposed project. The Cumulative Plus Project Conditions assume implementation of the proposed site access and internal circulation improvements.

It should be noted that Per CCTA's Technical Procedures, a freeway segment level of service analysis is required when a project adds 50 trips or greater to a freeway segment. Per the TIA, the proposed project would be expected to generate fewer than 50 trips on local freeway segments and, thus, freeway segments were not evaluated.

Method of Analysis

Traffic conditions at the study intersections were evaluated using level of service (LOS), a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays.

Signalized Intersections

The City of Antioch evaluates LOS at signalized intersections based on the 2010 Highway Capacity Manual (HCM) LOS methodology using Synchro software. The 2010 HCM method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. The City of Antioch LOS standard for signalized study intersections is mid-level LOS D or better (average delay of 50 seconds or less), except on routes of regional significance, where the standard is high-level LOS D or better (average delay of 55 seconds or less).

Because East 18th Street is considered a Route of Regional Significance per the CCTA, all of the signalized study intersections are subject to the high-level LOS D standard. According to the ECAP, the multi-modal transportation service objective (MTSO) for suburban arterial routes is to maintain LOS D or better at all signalized intersections. The correlation between average control delay, presented in seconds per vehicle (sec/veh), and LOS is shown in Table 13 below.

Unsignalized Intersections

Similar to signalized intersections, LOS at the unsignalized study intersection, East 18th Street and Drive-In Way/Holub Lane, was analyzed based on the 2010 HCM method using the Synchro software. The LOS reported for the East 18th Street and Drive-In Way/Holub Lane intersection was based on the average delay of the worst stop-controlled approach. The unsignalized study intersection is on a Route of Regional Significance and is therefore subject to the ECAP high-level LOS D standard (average delay of 35 seconds or less). The correlation between average control delay and LOS for unsignalized intersections is shown in Table 14.

Table 13
Signalized Intersection LOS Definitions

LOS	Description	Average Control Delay (sec/veh)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	Up to 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume to capacity (V/C). Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0

Source: Hexagon Transportation Consultants, Inc., 2019.

Table 14
Unsignalized Intersection LOS Definitions

LOS	Description	Average Control Delay (sec/veh)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	Greater than 50.0

Source: Hexagon Transportation Consultants, Inc., 2019.

Significance Criteria

According to the City of Antioch, for each of the study intersections, a potentially significant impact would occur if the proposed project would result in any of the following:

1. Degradation of the LOS at a signalized intersection on a Route of Regional Significance from an acceptable level (high-level LOS D or better [average delay of 50 seconds or less]) to an unacceptable level (LOS E or F);
2. Addition of traffic to a signalized intersection on a Route of Regional Significance that currently operates at an unacceptable level (LOS E or F);
3. Degradation of the LOS at an unsignalized intersection on a Route of Regional Significance from an acceptable level (high-level LOS D or better [average delay of 50 seconds or less]) to an unacceptable level (LOS E or F), and the intersection warrants a traffic signal based on the California Manual of Uniform Traffic Control Devices (CA MUTCD) Peak-Hour Signal Warrant (Warrant 3); or

4. Addition of traffic to an unsignalized intersection on a Route of Regional Significance that currently operates at an unacceptable level (LOS E or LOS F [average delay of 35 seconds or less]), and the intersection warrants a traffic signal based on the CA MUTCD Peak-Hour Signal Warrant (Warrant 3).

Trip Generation, Distribution, and Assignment

Trip generation for the proposed residential development was estimated based on trip generation data published in the Institute of Transportation Engineers' Trip Generation Manual, 10th Edition. Per the TIA, the proposed project would generate 1,865 daily trips, including 108 trips during the AM peak hour and 138 trips during the PM peak hour (see Table 15).

The project trip distribution pattern was estimated based on the existing traffic patterns in the project vicinity. As shown in Figure 17 below, most of the trips to/from the proposed project would use SR 160 to/from SR 4 or Main Street to and from origins/destinations east of SR 160. The peak-hour trips associated with the proposed project were added to the transportation network in accordance with the distribution patterns discussed above. Project trips would access the site through the stub extension of Drive-In Way/Holub Lane or via a stub extension of Filbert Street.

Cumulative Setting

Cumulative traffic volumes at the study intersections were estimated based on year 2040 traffic volumes from the County's travel demand forecast model. The County's travel demand forecast model includes the recently opened East Contra Costa Bay Area Rapid Transit (eBART) extension, which added 10 miles of eBART track from the Pittsburg/Bay Point BART Station to a new Antioch station at Hillcrest Avenue.

In addition, the model assumes the planned extension of Viera Avenue south to connect with Sunset Drive/Slatten Ranch Road. The new roadway would provide a connection between the project site and the SR 4/Hillcrest Avenue interchange and alter the distribution and assignment of project trips to the study intersections.

Existing Plus Project Conditions

In order to evaluate study intersection operations under Existing Plus Project Conditions, vehicle trips associated with the proposed project were added to existing traffic volumes. As shown in Table 16 below, each of the study intersections would continue to operate at an acceptable LOS (high-level LOS D or better) under Existing Plus Project Conditions. Thus, impacts under Existing Plus Project Conditions would be less than significant.

Table 15
Project Trip Generation Estimates

Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	In	Out	Total	Rate	In	Out	Total
Family Apartments	216 units	5.44	1,175	0.34	19	54	73	0.43	57	36	93
Senior Apartments	178 units	3.88	690	0.20	12	23	35	0.25	25	20	45
Total:			**1,865**		**31**	**77**	**108**		**82**	**56**	**138**

Note: Trips based on fitted curve equations for Multifamily Housing (Mid-Rise) (Land Use 221) and Senior Adult Housing-Attached (Land Use 252) in general urban/suburban areas contained in the ITE Trip Generation Manual, 10th Edition.

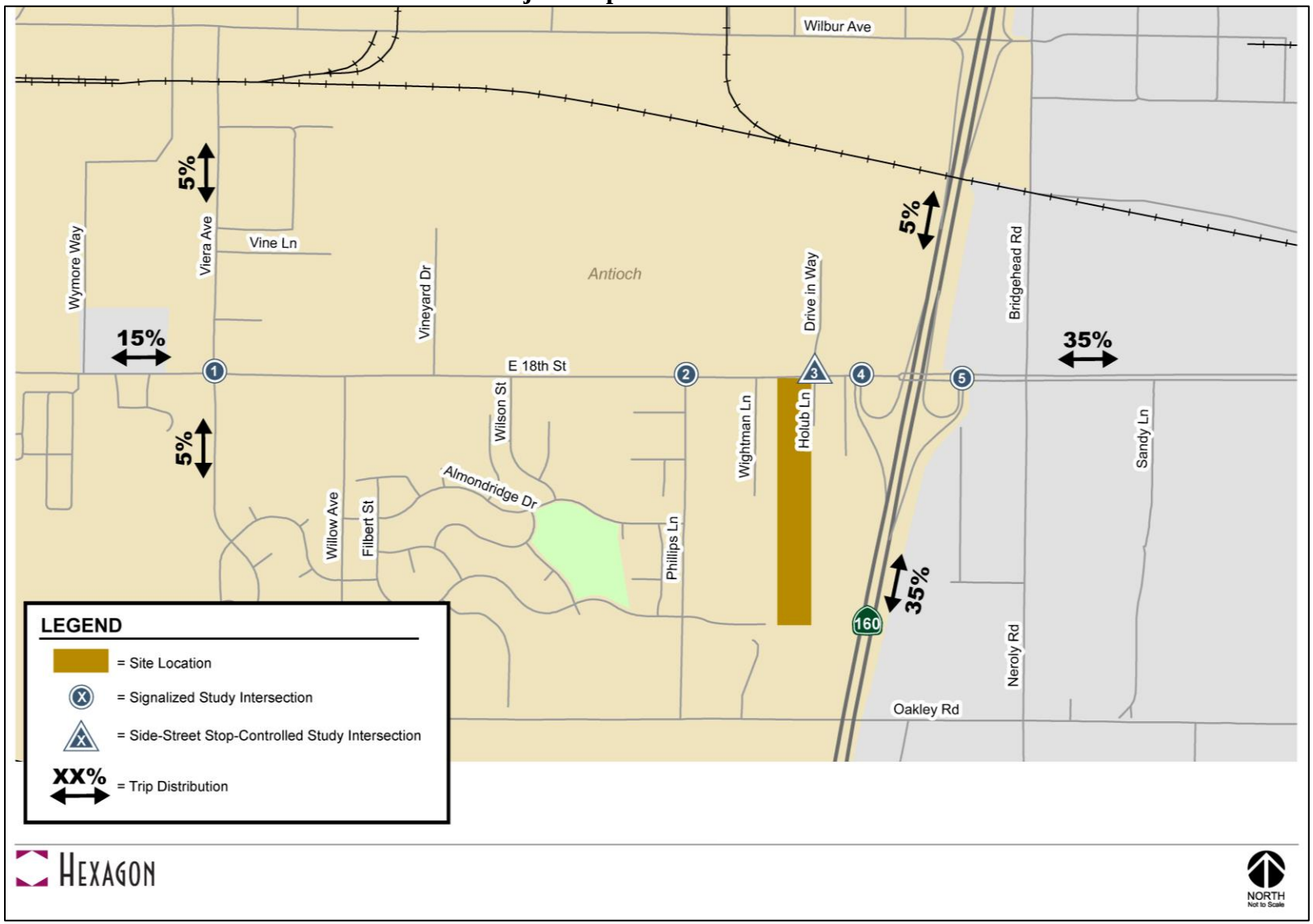
Source: Hexagon Transportation Consultants, Inc., 2019.

Table 16
Intersection LOS – Existing Plus Project Conditions

Intersection	Peak Hour	Control Type	Existing Conditions		Existing Plus Project Conditions	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1. East 18th Street and Viera Avenue	AM	Signal	7.9	A	8.0	A
	PM		7.6	A	7.8	A
2. East 18th Street and Phillips Lane	AM	Signal	5.9	A	5.9	A
	PM		5.5	A	5.5	A
3. East 18th Street and Drive-In Way/Holub Lane	AM	Two-Way Stop Control	13.1	B	12.3	B
	PM		9.7	A	12.9	B
4. East 18th Street and Southbound SR 160 Ramp	AM	Signal	15.4	B	15.9	B
	PM		13.2	B	13.3	B
5. East 18th Street and Northbound SR 160 Ramp	AM	Signal	8.5	A	8.6	A
	PM		11.3	B	11.4	B

Note: For Intersection #3, the average delay and LOS are reported for the worst approaches.
Source: Hexagon Transportation Consultants, Inc., 2019.

Figure 17
Project Trip Distribution



Source: Hexagon Transportation Consultants, Inc., 2019.

Cumulative Plus Project Conditions

In order to evaluate study intersection operations under Cumulative Plus Project Conditions, vehicle trips associated with the proposed project were added to the cumulative traffic volumes. As shown in Table 17 below, Intersections #1, #2, #3, and #5 would continue to operate at an acceptable LOS (high-level LOS D or better) under Cumulative Plus Project Conditions. However, the worst approach at Intersection #3 operates unacceptably (LOS F) under both AM and PM peak hours without the project, and the addition of project traffic would increase average delay by 51.9 seconds during the AM peak hour and 351.7 seconds during the PM Peak hour.

Given that the project would add traffic to an unsignalized intersection that is anticipated to operate unacceptably without the project, the applicable significance criteria is whether the intersection warrants a traffic signal based on the CA MUTCD Peak-Hour Signal Warrant (Warrant 3). The peak hour signal warrant considers the total volume of the major approach to Intersection #3 (East 18th Street) and the highest volume of the minor street approach (Holub Lane during the AM peak hour and Drive-In Way during the PM peak hour). Per the Transportation Impact Analysis, the PM peak hour traffic volumes under cumulative conditions warrant signalization, with or without the addition of traffic from the proposed project. It should be noted that during the PM peak hour, the governing minor street approach volume is on Drive-In Way, to which the proposed project would not contribute traffic.

Based on the above, project impacts to the East 18th Street and Drive-In Way/Holub Lane intersection (Intersection #3) under Cumulative Plus Project Conditions would be potentially significant.

Transit, Bicycle, and Pedestrian Facilities

The following section discusses the availability of transit, bicycle, and pedestrian facilities in the project area.

Transit Facilities

Eastern Contra Costa Transit Authority (Tri Delta Transit) provides transit service to the City of Antioch, as well as other nearby cities, including Oakley and Brentwood. The project area is currently served directly by three local bus routes, which provide service within 0.5-mile of the project site: Local Route 383, Local Route 391, and Local Route 393. Combined, the three routes provide service between the Brentwood Park & Ride, the Pittsburg/Bay Point BART Station, the Antioch BART Station, and the Tri Delta Transit Station.

The 2015 U.S. Census reports that bus trips comprise approximately 7.5 percent of the total commute mode share in the City of Antioch. Assuming the same mode split for the proposed project, the project would generate approximately eight transit trips during the AM peak commute hour and 10 transit trips during the PM peak commute hours.

Table 17
Intersection LOS – Cumulative Plus Project Conditions

Intersection	Peak Hour	Control Type	Cumulative Conditions		Cumulative Plus Project Conditions	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1. East 18th Street and Viera Avenue	AM	Signal	27.3	C	28.8	C
	PM		31.6	C	30.7	C
2. East 18th Street and Phillips Lane	AM	Signal	8.7	A	8.6	A
	PM		8.7	A	8.8	A
3. East 18th Street and Drive-In Way/Holub Lane	AM	Two-Way Stop Control	**89.9**	**F**	**141.8**	**F**
	PM		**618.2**	**F**	**969.9**	**F**
4. East 18th Street and Southbound SR 160 Ramp	AM	Signal	14.2	B	14.3	B
	PM		24.4	C	25.4	C
5. East 18th Street and Northbound SR 160 Ramp	AM	Signal	10.7	B	12.5	B
	PM		10.3	B	11.0	B

Notes:
- For Intersection #3, the average delay and LOS are reported for the worst approaches.
- **Bold** indicates an unacceptable LOS.

Source: Hexagon Transportation Consultants, Inc., 2019.

According to the Tri Delta Short Range Transit Plan, the capacity of the Tri Delta Transit bus fleet ranges between 44 and 56 seats per vehicle. Given that one to two bus trips occur in each direction on every route during commute hours and the estimated transit volume of project riders would be dispersed among the different routes, the project-generated riders would not exceed the carrying capacity of the existing bus service near the project site. Therefore, the project would not be considered to conflict with any transit plans or goals of the City, interfere with any existing bus routes, or remove or relocate any existing bus stops.

Bicycle and Pedestrian Facilities

Currently, bicycle lanes are present on portions of both sides of Viera Avenue between East 18th Street and Wilbur Avenue and the entire length of Phillips Lane. Although neither Filbert Street nor the other nearby residential streets have striped bike lanes, the low traffic volumes make such roadways conducive to bicycle traffic. Given that the project would not conflict with any existing or planned bicycle facilities, a less-than-significant impact would occur.

Pedestrian facilities in the study area consist of sidewalks along portions of East 18th Street and other nearby neighborhood roadways (e.g., Filbert Street and Phillips Lane) in the vicinity of the project. However, sidewalks are not provided along the project frontage at East 18th Street. The project would provide for new sidewalks along both sides of the proposed stub extension of Drive-In Way/Holub Lane and along the project frontage at East 18th Street. In addition, pedestrian walkways would be provided throughout the project site. Thus, the proposed project would improve the pedestrian network on-site and in the project area. Pedestrian travel to and from the project site would be aided by existing marked crosswalks with pedestrian signal heads and push buttons at all but one of the signalized study intersections, and a marked crosswalk along only the northern two-way stop-controlled approach at the unsignalized study intersection. Given that the project would not conflict with any planned pedestrian facilities and would incorporate pedestrian facilities, a less-than-significant impact would occur.

Based on the above, the proposed project would be consistent with the goals, objectives, and policies provided by the 2009 Contra Costa Countywide Bicycle and Pedestrian Plan.[28]

Conclusion

Based on the above, the proposed project would not cause any of the study intersections to exceed applicable City or CCTA minimum LOS standards under Existing Plus Project Conditions. In addition, the project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

However, under Cumulative Plus Project Conditions, the addition of traffic from the proposed project would worsen unacceptable operations at the East 18th Street and Drive-

[28] Contra Costa Transportation Authority. *2009 Contra Costa Countywide Bicycle and Pedestrian Plan.* Adopted October 2009.

In Way/Holub Lane intersection (Intersection #3). Therefore, the proposed project could conflict with a program, plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

The following mitigation measure would require the project applicant to provide a fair-share contribution towards signalization of the East 18th Street and Drive-In Way/Holub Lane intersection (Intersection #3). As shown in Table 18 below, signalization of the intersection would improve operations at the intersection to acceptable levels with and without the addition of project traffic. Thus, with implementation of the following mitigation measure, the cumulative impact identified at the Intersection #3 would be reduced to a *less-than-significant* level.

Table 18
Intersection LOS – Cumulative Plus Project Conditions (Mitigated)

Intersection	Peak Hour	Control Type	Cumulative Conditions		Cumulative Plus Project Conditions	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
3. East 18th Street and Drive-In Way/Holub Lane *(Unmitigated)*	AM	Two-Way Stop Control	**89.9**	**F**	**141.8**	**F**
	PM		**618.2**	**F**	**969.9**	**F**
3. East 18th Street and Drive-In Way/Holub Lane *(Mitigated)*	AM	Signal	9.8	A	10.5	B
	PM		12.0	B	13.4	B

Notes:
- The average delay and LOS for the unmitigated condition are reported for the worst approaches.
- **Bold** indicates an unacceptable LOS.

Source: Hexagon Transportation Consultants, Inc., 2019.

XVII-1. Prior to issuance of a certificate of occupancy for the proposed project, the project applicant shall construct, or pay the City of Antioch to construct, a traffic signal at the East 18th Street and Drive-In Way/Holub Lane intersection.

b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Per Section 15064.3, analysis of vehicle miles traveled (VMT) attributable to a project is the most appropriate measure of transportation impacts. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in Section 15064.3(b)(2) regarding roadway capacity, a project's effect on automobile delay does not constitute a significant environmental impact under CEQA. It should be noted that currently, the provisions of Section 15064.3 apply only prospectively; determination of impacts based on VTM is not required Statewide until July 1, 2020.

Per Section 15064.3(b)(3), a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. As noted previously, the project

area is currently served directly by three local bus routes, which provide service within 0.5-mile of the project site: Local Route 383, Local Route 391, and Local Route 393. Combined, the three routes provide service between the Brentwood Park & Ride, the Pittsburg/Bay Point BART Station, the Antioch BART Station, and the Tri Delta Transit Station. In addition, the site is located within close proximity to various commercial uses located northeast of the site across East 18th Street, including a drive-through restaurant, car wash, and gas station. Additional commercial uses are located further east of the site along East 18th Street. Almondridge Park, a public recreation area that includes a tennis court and various other amenities, is located approximately 0.2-mile west of the site along Almondridge Drive. The site's proximity to such uses would reduce VMT associated with the proposed residential apartments.

Furthermore, as noted above, the proposed project would provide for new sidewalks along both sides of the proposed stub extension of Drive-In Way/Holub Lane and along the project frontage at East 18th Street. In addition, pedestrian walkways would be provided throughout the project site. Thus, the proposed project would improve the pedestrian network on-site and in the project area.

Based on the above, the proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), and a ***less-than-significant*** impact would occur.

c,d. Site access was evaluated to determine the adequacy of the site's driveways with regard to traffic volume, delays, vehicle queues, geometric design, and corner sight distance. Per the TIA, delays and vehicle queues at the project access points would be minimal. Both proposed access driveways would have a width of 24 feet, which would meet the City's design standards. In addition, adequate sight distance would be provided at the project driveways. The project would provide one EVA at the northwestern site boundary along East 18th Street and two additional EVAs along the eastern site boundary at the terminus of the proposed parking aisles.

The primary site entrance at the proposed extension of Drive-In Way/Holub Lane would lead to a small parking area adjacent to the on-site leasing office. Beyond the leasing office/visitor parking area, the project would include an automated access gate with an associated call box. A second access gate would be located at the site's southern entrance adjacent to the proposed extension of Filbert Street. As part of the TIA, the proposed on-site circulation system was reviewed in accordance with the City of Antioch Municipal Code and generally accepted traffic engineering standards. Per Hexagon Transportation Consultants, Inc., the proposed site plan would provide vehicle traffic with adequate connectivity through the parking areas. While the proposed on-site parking areas would include three dead-end parking aisles, one of the aisles would terminate at a hammerhead turnaround and the remaining two aisles would terminate at an EVA with a manual gate connecting to the proposed extension of Holub Lane. Thus, sufficient emergency access would be provided to each of the proposed buildings. Overall, the proposed on-site circulation system would not create any traffic safety hazards.

Furthermore, the proposed project does not include changes to existing roadways or the introduction of any design features that would be considered hazardous. Final improvement plans for the proposed project would be subject to review by the Contra Costa County Fire Protection District (CCCFPD) to ensure that emergency vehicles are capable of responding to incidents at the site. In addition, project traffic would not cause queue lengths at study intersections to adversely affect intersection operations under Existing Plus Project or Cumulative Plus Project Conditions. As such, the project would not substantially increase hazards due to design features or incompatible uses, and emergency access to the site would be adequate. Therefore, the project would result in a ***less-than-significant*** impact.

XVIII. TRIBAL CULTURAL RESOURCES. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	☐	✖	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	✖	☐	☐

Discussion

a,b. As discussed in Section V, Cultural Resources, of this IS/MND, the proposed project site does not contain any existing permanent structures or any other known resources listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), and does not contain known resources that could be considered historic pursuant to the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. A search of the NAHC Sacred Lands File requested by Tom Origer & Associates as part of the Historic Resources Study prepared for the project site did not yield any information regarding the presence of Tribal Cultural Resources within the project site or the immediate area.

In compliance with Assembly Bill (AB) 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the Amah Mutsun Tribal Band of Mission San Juan Bautista, the Indian Canyon Mutsun Band of Costanoan, the Ohlone Indian Tribe, the Wilton Rancheria, and the Ione Band of Miwok Indians. The letters were distributed on September 12, 2018. Requests for consultation were not received within the mandatory 30-day response period.

Based on the above, known Tribal Cultural Resources do not exist within the proposed project site. Nevertheless, the possibility exists that construction of the proposed project could result in a substantial adverse change in the significance of a Tribal Cultural Resource if previously unknown cultural resources are uncovered during grading or other

ground-disturbing activities. Thus, a ***potentially significant*** impact to tribal cultural resources could occur.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

XVIII-1. Implement Mitigation Measures V-1, V-2, and V-3.

XIX. UTILITIES AND SERVICE SYSTEMS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	✖	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	✖	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	✖	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	✖	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	✖	☐

Discussion

a-c. Water supply, wastewater treatment, stormwater drainage, electric power, natural gas, and telecommunications facilities necessary to serve the proposed project are described in the following sections.

Water Supply

Principal sources of raw water supply to the City of Antioch are the Sacrament/San Joaquin Rivers Delta and the Contra Costa Canal, which are stored in the Antioch Municipal Reservoir. Domestic water and fire water supply for the proposed development would be provided by the City by way of new connections to the City's existing 16-inch water main located in East 18th Street. Per the City's 2015 Urban Water Management Plan (UWMP), adequate water supplies will be available to accommodate buildout of the City under normal year, single year, and multiple-dry year demand scenarios, accounting for mandatory measures included in the City's Water Shortage Contingency Plan. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded off-site water facilities, the construction or relocation of which could cause significant environmental effects, and sufficient water supplies would be available to serve

the proposed project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Wastewater Treatment

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). The Delta Diablo Sanitation District (DDSD) owns and operates the regional interceptors and WWTP. The project site is located within the Delta Diablo service area. The City of Antioch is responsible for the wastewater collection system from the project site to the designated DDSD regional wastewater conveyance facility. An EIR for the expansion of the wastewater treatment plant capacity to an average dry weather flow of 22.7 million gallons per day (mgd) was completed in April 1988. However, the current WWTP NPDES Permit limits average dry weather flow to 19.5 mgd.[29] The average daily flow influent to the treatment plant is 12.4 mgd.[30] Sewage flow to the plant does not fluctuate seasonally, as sewer and storm water systems are separate.[31] Funds for future plant expansion are collected by the City on behalf of DDSD from sewer connection fees.

The General Plan EIR bases anticipated wastewater demand on a generation rate of 220 gallons per day per residence. The proposed project would include the construction of 394 residential apartment units, and, thus, would be anticipated to generate approximately 78,800 gallons per day of wastewater. The wastewater generated by the project would be collected by an internal sewer system which would connect to the City's existing sewer line located at Holub Lane east of the site.

An increase of 78,800 gallons per day would not have a substantial impact on the available capacity of the WWTP. The project applicant would be required to pay sewer connection fees, which work to fund needed sewer system improvements. Because the project applicant would pay sewer connection fees, and adequate long-term wastewater treatment capacity is available to serve full build-out of the project, the project would not require or result in the relocation or construction of new or expanded off-site wastewater facilities, the construction or relocation of which could cause significant environmental effects. In addition, adequate wastewater treatment capacity is available to serve the project's projected demand in addition to the provider's existing commitments

Stormwater Drainage

The project site is currently undeveloped vacant land with ruderal vegetation. Completion of the proposed project would increase site runoff due to the introduction of impervious surfaces to the site. As discussed in further detail in Section IX, Hydrology and Water Quality, of this IS/MND, the SWMP for the proposed project conforms with the most

[29] San Francisco Bay Regional Water Quality Control Board. *Order No. R2-2014-0030, NPDES No. CA00.8547.* Adopted August 13, 2014.

[30] Delta Diablo. *Quick Facts*. Available at: https://www.deltadiablo.org/about-us/organization/quick-facts. Accessed March 2018.

[31] City of Antioch. *Antioch General Plan Update EIR* [pg. 4.12-2]. July 2003.

recent Contra Costa Clean Water Program Stormwater C.3 Guidebook and verifies that the proposed project would comply with all City stormwater requirements. In compliance with the C.3 Guidebook, the proposed project would include on-site bio-retention facilities sized to exceed the minimum volume requirement necessary to adequately manage all runoff from the proposed impervious surfaces. Because the proposed bio-retention facilities would be designed with adequate capacity to capture and treat runoff from proposed impervious surfaces, the proposed project would not generate runoff in excess of the City's existing stormwater system's capacity.

Electric Power, Natural Gas, and Telecommunications

The project site is located within a developed area of the City of Antioch and is situated within close proximity to existing electric power, natural gas, and telecommunications facilities. Thus, substantial expansion of such off-site utilities would not be required to serve the proposed residential development, and associated environmental effects would not occur.

Conclusion

Based on the above, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. In addition, sufficient water supplies would be available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years, and adequate wastewater treatment capacity is available to serve the project's projected demand in addition to the provider's existing commitments. Thus, a ***less-than-significant*** impact would occur.

d,e. Republic Services provides solid waste collection, disposal, recycling, and yard waste services to the City, including the project site. Solid waste and recyclables from the City are taken to the Contra Costa Transfer and Recovery Station in Martinez. Solid waste is transferred from the Transfer and Recovery Station to the Keller Canyon Landfill in Pittsburg. The Keller Canyon Landfill site is 1,399 acres, 244 of which comprise the actual current disposal acreage. The landfill is permitted to accept 3,500 tons of waste per day and has a total estimated permitted capacity of approximately 75 million cubic yards. As of March 31, 2016, the most recent date for which capacity information is available, the total remaining capacity of the landfill was 52.93 million cubic yards (approximately 71 percent of total capacity).[32] Due to the substantial amount of available capacity remaining at Keller Canyon Landfill, sufficient capacity would be available to accommodate the project's solid waste disposal needs. Therefore, a ***less-than-significant*** impact related to solid waste would occur as a result of the proposed project.

[32] SWT Engineering. *Joint Technical Document, Keller Canyon Landfill (SWIS NO. 07-AA-0032)* [pg. B.3-1]. May 2016.

XX. WILDFIRE. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	✖	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	✖	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	✖	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	✖	☐

Discussion

a-d. According to the CAL FIRE Fire and Resource Assessment Program, the proposed project site is not located within a Very High Fire Hazard Severity Zone.[33] In addition, the site is not located in or near a State Responsibility Area. Thus, the proposed project would not be expected to be subject to or result in substantial adverse effects related to wildfires, and a ***less-than-significant*** impact would occur.

[33] California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	✖	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	✖	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	✖	☐

Discussion

a. As discussed in Section IV, Biological Resources, of this IS/MND, implementation of the proposed project would have the potential to result in adverse effects to special-status plant and wildlife species. In addition, while unlikely, the project could result in impacts related to eliminating important examples of major periods of California history or prehistory associated with undiscovered archeological and/or paleontological resources during project construction. However, the proposed project would be required to comply with applicable City of Antioch General Plan and Municipal Code policies related to biological and cultural resources. In addition, this IS/MND includes mitigation measures that would reduce any potential impacts to less-than-significant levels. With implementation of the mitigation measures required by this IS/MND, as well as compliance with General Plan policies and all applicable sections of the Municipal Code, development of the proposed project would reduce any potential impacts associated with the following: 1) degrade the quality of the environment; 2) substantially reduce or impact the habitat of fish or wildlife species; 3) cause fish or wildlife populations to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history or prehistory. Therefore, a ***less-than-significant*** impact would occur.

b. The proposed project in conjunction with other development within the City of Antioch could incrementally contribute to cumulative impacts in the area. In particular, the project could result in emissions above the applicable threshold of significance for construction

related emissions of NO_X, potentially resulting in a cumulatively considerable contribution to the region's existing air quality conditions. However, a mitigation measure for the aforementioned potential impact identified for the proposed project in this IS/MND has been included that would reduce the potential impact to a less-than-significant level. As demonstrated in this IS/MND, all potential environmental impacts that could occur as a result of project implementation would be reduced to a less-than-significant level with implementation of project-specific mitigation measures and compliance with applicable General Plan policies. In addition, the proposed project is consistent with the site's current land use and zoning designations. When viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, development of the proposed project would result in a cumulatively considerable contribution to cumulative impacts in the City of Antioch, and the project's cumulative impact would be ***less than significant***.

c. As described in this IS/MND, implementation of the proposed project could result in temporary impacts related to air quality and excess noise levels. In addition, the project could expose humans to hazards relating to seismic ground shaking and unstable geologic units. However, the proposed project would be required to implement the project-specific mitigation measures within this IS/MND, as well as applicable policies of the City of Antioch General Plan, to reduce any potential direct or indirect impacts to human beings. With implementation of the identified mitigation measures, all project-specific impacts would be reduced to less-than-significant levels. Therefore, the proposed project's impact would be ***less than significant***.