DEER VALLEY ESTATES PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NO. 2020120352

ANTIOCH, CALIFORNIA

LSA

January 2021

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ANTIOCH
CALIFORNIA

DATE: January 29, 2021

TO: State Clearinghouse
1400 10th Street, Suite 222
Sacramento, CA 95814
(916) 445-0613

FROM: City of Antioch

SUBJECT: Deer Valley Estates Project
Notice of Availability of a Draft Environmental Impact Report
SCH No. 2020120352

LEAD AGENCY: City of Antioch
Community Development Department
Contact: Zoe Merideth, Associate Planner
P.O. Box 5007
Antioch, CA 94531-5007
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PROJECT APPLICANT: Blue Mountain Communities
707 Aldridge Avenue
Vacaville, CA 95688

Notice is hereby given that the City of Antioch, as the Lead Agency, has prepared a Draft Environmental Impact Report (EIR) for the proposed Deer Valley Estates Project (proposed project).

PROJECT LOCATION: The approximately 37.56-acre project site consists of two parcels of undeveloped land located at 6100 Deer Valley Road in the southern portion of the City of Antioch, Contra Costa County. The City of Antioch is bordered to the north by the San Joaquin River Delta; to the east by the City of Brentwood and the City of Oakley; to the west by the City of Pittsburg and unincorporated portions of Contra Costa County; and to the south by unincorporated portions of Contra Costa County (see Figure 1).

The project site is located within the Sand Creek Focus Area of the General Plan, which is generally bounded by existing residential neighborhoods to the north, Black Diamond Mines Regional Preserves to the west, the city limits to the south, and the City of Brentwood to the east. The Sand Creek Focus Area is intended to function as a large-scale planned community, providing needed housing and employment

opportunities. The project site is identified by Assessor's Parcel Number (APN) 055-071-026 and 057-022-013.

PROJECT SITE CHARACTERISTICS AND SURROUNDING LAND USES: The rectangular project site is generally flat, with gently rolling topography that slopes from east to west. Site elevations range from approximately 195 to 225 feet above mean sea level. The project site is currently vacant and generally consists of non-native annual grassland and ruderal vegetation. As shown in Figure 2, the project site is generally surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. To the north, the project site is bounded by a single-family residential neighborhood with one- to two-story homes. Further north are Prewett Ranch Drive and Deer Valley High School. The project site is bordered immediately to the east by the Aviano Farms Project, which is currently under construction with 533 residential units. Further east is the approved Vineyards at Sand Creek project, which is also under construction and consists of 641 residential units. To the south is Wellness Way and the Kaiser Medical Center, past which is Sand Creek Road. The project site is bound to the west by Deer Valley Road, across which is the site of The Ranch Project, which is a master planned residential community that was approved by City Council in July 2020 and could be under construction by 2023.

PROJECT BACKGROUND: On February 26, 2008, an Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project) was adopted by the Antioch City Council. The 2008 IS/MND evaluated the potential impacts associated with the development of 136 single-family residential units and an approximately 1.69-acre park on the project site. The 2008 Project included a rezoning of the project site from Study Zone (S) to the site's current zoning of Planned Development (P-D) and the adoption of the Master Development Plan. The P-D designation and associated standards allow implementation of the previously approved Master Development Plan, which is a previous iteration of the currently proposed project. The proposed project is the next phase of the entitlement process to allow development of residential uses on the site.

An Initial Study for the project, which is also available for review online, was prepared to evaluate the potential environmental impacts of the proposed project and to determine the appropriate level of additional environmental review. In accordance with the requirements outlined in Section 15168 of the CEQA Guidelines, the Initial Study was prepared to disclose the relevant impacts and mitigation measures covered in the 2008 IS/MND and discuss whether the project is within the parameters of the 2008 IS/MND. Based on the findings of the Initial Study, a Draft EIR was prepared for impacts that need further discussion and/or mitigation beyond that provided in the 2008 IS/MND. The Draft EIR includes an evaluation of impacts for the topic of transportation.

The City of Antioch General Plan Land Use Map designates the project site as Sand Creek Focus Area – Low Density Residential. The Low Density Residential designation is generally characterized by single-family homes in traditional subdivisions, which are generally located on gently rolling terrain. The zoning on the project site is the P-D district established as a part of the 2008 Project. The P-D district is intended to enable and encourage flexibility in the design and development of land so as to promote its most appropriate use.

PROJECT DESCRIPTION: The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements. The single-family residential units would range in size from approximately 2,252 square feet to approximately 3,445 square feet and would be located on individual lots that would be a minimum of 7,000 square feet. All of

the residential units would front onto internal streets within the project site, discussed below, and none would front onto either Deer Valley Road or Wellness Way.

Each of the residential lots on the project site would include private backyards that would be an average of 2,240 square feet in size. In total, the proposed project would provide approximately 15.2 acres (662,380 square feet) of common open space and private recreational space, including backyards. The proposed project would include multiple common open space areas for project residents, including an approximately 1.12-acre park, which would be located in the approximate center of the project site (as shown on Figure 3) and would include a dog park and a playground. An approximate total of 1.5 acres of the site would be improved with landscaping, including street trees and native grasses and an approximately 4- to 6-foot-wide trail that would run through the northwest and center portions of the site and connect the proposed park to Deer Valley Road. Access to the proposed trail would be provided by a tubular steel fence with an access gate in the northwest corner of the project site.

PROJECT ENTITLEMENTS AND APPROVALS: The proposed project would require the following discretionary entitlements from the City of Antioch:

- EIR Certification
- Adoption of Findings and Statement of Overriding Considerations
- Tentative Map Approval
- Final Development Plan
- Use Permit; and
- Design Review
- Grading and Building Permits

HAZARDOUS WASTE SITES: The proposed project is not located on any hazardous waste sites lists enumerated under Section 65965.5 of the Government Code.

SIGNIFICANT ANTICIPATED ENVIRONMENTAL EFFECTS: The Draft EIR provides an evaluation of potentially significant impacts of the proposed project and recommends mitigation measures (if necessary) to avoid or reduce impacts. The proposed project would result in a significant unavoidable impact related to transportation.

DOCUMENT AVAILABILITY: The Draft EIR is available for review online at: www.antiochca.gov/community-development-department/planning-division/environmental-documents/. In response to the ongoing COVID-19 pandemic, paper copies are available for review by pre-scheduled appointment only. If you'd like to make an appointment, or if you require additional assistance, please contact Zoe Merideth at zmerideth@antiochca.gov.

PUBLIC REVIEW TIMELINE: The 45-day public review period for the Draft EIR begins on January 29, 2021 and ends on March 15, 2021. The City must receive all comments within this time period. Written comments may also be submitted to the attention of Zoe Merideth, City of Antioch Community Development Department at the following:

City of Antioch
P.O. Box 5007
Antioch, California 94531-5007
Email: zmerideth@antiochca.gov

QUESTIONS: If you have any questions about this project, please contact Zoe Merideth, City of Antioch Community Development Department by phone at 925-779-7035 or by email at zmerideth@antiochca.gov.

Signature

January 29, 2021
Date

DEER VALLEY ESTATES PROJECT
ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NO. 2020120352

ANTIOCH, CALIFORNIA

Submitted to:

Zoe Merideth, Associate Planner
City of Antioch
200 H Street
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Project No. CAN2002

LSA

January 2021

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TABLE OF CONTENTS

FIGURES AND TABLES ii
LIST OF ABBREVIATIONS AND ACRONYMS iii
1.0 INTRODUCTION 1-1
1.1 PURPOSE OF THIS EIR 1-1
1.2 PROPOSED PROJECT 1-1
1.3 EIR PROCESS AND SCOPE 1-2
1.4 REPORT ORGANIZATION 1-3
2.0 SUMMARY 2-1
2.1 PROJECT UNDER REVIEW 2-1
2.2 PROJECT BACKGROUND 2-2
2.3 POTENTIAL AREAS OF CONTROVERSY 2-2
2.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES 2-2
2.5 SUMMARY TABLES 2-5
3.0 PROJECT DESCRIPTION 3-1
3.1 PROJECT SITE 3-1
3.2 PROJECT BACKGROUND 3-5
3.3 PROJECT OBJECTIVES 3-5
3.4 PROPOSED PROJECT 3-6
3.5 PERMITS AND APPROVALS 3-15
4.0 TRANSPORTATION 4-1
4.1 SETTING 4-2
4.2 IMPACTS AND MITIGATION MEASURES 4-11
5.0 OTHER CEQA CONSIDERATIONS 5-1
5.1 GROWTH INDUCEMENT 5-1
5.2 SIGNIFICANT IRREVERSIBLE CHANGES 5-2
5.3 EFFECTS FOUND NOT TO BE SIGNIFICANT 5-3
5.4 SIGNIFICANT UNAVOIDABLE IMPACTS 5-10
6.0 ALTERNATIVES 6-1
6.1 NO PROJECT ALTERNATIVE 6-3
6.2 SENIOR HOUSING ALTERNATIVE 6-4
6.3 LARGE LOT ALTERNATIVE 6-5
6.4 ALTERNATIVES CONSIDERED BUT NOT SELECTED FOR FURTHER ANALYSIS 6-6
6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE 6-6
7.0 REPORT PREPARATION 7-1
7.1 REPORT PREPARERS 7-1
7.2 REFERENCES 7-1

APPENDICES

A: NOTICE OF PREPARATION AND COMMENT LETTERS
B: INITIAL STUDY
C: VMT ANALYSIS MEMORANDUM

FIGURES AND TABLES

FIGURES

Figure 3-1: Project Location and Regional Vicinity 3-3
Figure 3-2: Aerial Photograph of the Project Site and Surrounding Land Uses 3-4
Figure 3-3: Conceptual Site Plan 3-9
Figure 3-4: Conceptual Building Elevations 3-10
Figure 3-5: Conceptual Renderings – Plan 1 3-11
Figure 3-6: Conceptual Renderings – Plan 2x 3-12
Figure 3-7: Conceptual Renderings – Plan 4 3-13

TABLES

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study 2-7
Table 2.B: Summary of Impacts and Mitigation Measures from the EIR 2-18
Table 3.A: Potential Permits and Approvals 3-15
Table 4.A: Vehicle Trip Generation Estimates 4-12
Table 4.B: Regional and Project VMT per Capita Comparison 4-14
Table 4.C: Cumulative Projects in the Vicinity of the Project Site 4-17

LIST OF ABBREVIATIONS AND ACRONYMS

2008 Project	Deer Valley Estates Master Development Plan Project
AB	Assembly Bill
ADA	Americans with Disabilities Act
APN	Assessor's Parcel Number
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BMPs	best management practices
Cal/OSHA	California Occupational Safety and Health Administration
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCCFD	Contra Costa County Fire Protection District
CCCWP	Contra Costa Clean Water Program
CCTA	Contra Costa Transportation Authority
CEQA	California Environmental Quality Act
CGP	Construction General Permit
City	City of Antioch
CMA	Congestion Management Agency
County	Contra Costa County
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRMP	Construction Risk Management Plan

DOSH	Division of Occupational Safety and Health
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
ESA	Environmental Site Assessment
GHG	greenhouse gas emissions
HOA	homeowner's association
HOV	high-occupancy vehicle
HVAC	heating, ventilation, and air conditioning
Interim Guidance	Interim Guidance for Sampling Former Agricultural Fields
IS/MND	Initial Study/Mitigated Negative Declaration
Kaiser Medical Center	Kaiser Permanente Antioch Medical Center
LOS	level of service
LTS	less than significant
MEP	Maximum Extent Practical
MLD	Most Likely Descendant
MMRP	Mitigation Monitoring and Reporting Program
MRP	Municipal Regional Permit
MTC	Metropolitan Transportation Commission
NEV	neighborhood electric vehicle
NOP	Notice of Preparation
NO_x	nitrogen oxide
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
OPR	Governor's Office of Planning and Research

P-D	Planned Development
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter
$PM_{2.5}$	particulate matter land than 2.5 microns in aerodynamic diameter
PPA	pedestrian priority area
Proposed project	Deer Valley Estates Project
ROG	reactive organic gasses
RTC	response to comments
RTIP	Regional Transportation Improvement Program
RWQCB	Regional Water Quality Control Board
S	Study Zone
SB	Senate Bill
SCS	Sustainable Communities Strategy
SR 4	State Route 4
SRA	State Responsibility Area
SU	significant unavoidable impact
TA	technical advisory
TDM	transportation demand management
UCMP	University of California Museum of Paleontology
UP	Union Pacific
USFWS	U.S. Fish and Wildlife Service
VMT	vehicle miles traveled

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1.0 INTRODUCTION

1.1 PURPOSE OF THIS EIR

In compliance with the California Environmental Quality Act (CEQA), this Environmental Impact Report (EIR) describes the potential environmental impacts of the proposed Deer Valley Estates Project (project) submitted by Blue Mountain Communities (the project sponsor). The City of Antioch (City) is the CEQA Lead Agency for environmental review.

This document is a project-level EIR, pursuant to CEQA Guidelines section 15161. The purpose of this EIR is to inform City decision-makers, responsible agencies, and the general public about the proposed project and the potential physical environmental consequences of project implementation, including planning considerations and construction and operational effects. The environmental impacts of the proposed project are analyzed in this EIR to the appropriate degree of specificity, in accordance with CEQA Guidelines Section 15146(a). This EIR also examines alternatives to the proposed project and recommends mitigation measures to reduce or avoid potentially significant physical environmental impacts, to the extent feasible. This EIR will be used as an informational document by the City's Planning Commission and City Council, responsible agencies, and the public in their review of the proposed project and associated approvals described below and in more detail in Chapter 3.0, Project Description.

1.2 PROPOSED PROJECT

The approximately 37.56-acre project site consists of two parcels of undeveloped land located at 6100 Deer Valley Road in the southern portion of the City of Antioch, Contra Costa County. The project site is bounded by single-family residential uses to the north, the under-construction Aviano Farms Project to the east, Wellness Way and the Kaiser Permanente Antioch Medical Center (Kaiser Medical Center) to the south, and Deer Valley Road to the west. The project site is currently vacant and generally consists of nonnative annual grassland and ruderal vegetation.

The proposed project would result in the subdivision of the project site to allow construction of a total of 121 single-family residential units and associated open space, roadway, and utility improvements. Each residential unit would either be one or two stories in height and include a two- or three-car garage. The units would range in size from approximately 2,252 square feet to approximately 3,445 square feet and would be located on individual lots that would be a minimum of 7,000 square feet.

In total, the proposed project would provide approximately 15.2 acres of common open space and private recreational space. Common open space would consist of a 1.12-acre park; approximately 1.5 acres of landscaping, including street trees and native grasses; and an approximately 4- to 6-foot-wide trail that would connect the proposed park to Deer Valley Road. Private recreational space would be provided within the fenced backyard of each residential unit.

Access to the project site would be provided at four points, including from Wellness Way to the south and from extensions of Piute Way, Mojave Way, and Oneida Way, all of which are existing

streets that currently have a terminus at the northern boundary of the project site. Interior streets would provide vehicular access to each of the proposed residential units.

Discretionary actions by the City that would be necessary for project approval include certification of the EIR and adoption of Findings and Statement of Overriding Considerations, Tentative Map approval, Final Development Plan approval, a Use Permit, and Design Review. Refer to Chapter 3.0, Project Description, for a complete description of the proposed project's location, context, background, and objectives, details of the proposed project itself, and a summary of required approvals and entitlements.

1.3 EIR PROCESS AND SCOPE

The City circulated a Notice of Preparation (NOP) notifying responsible agencies and interested parties that an EIR would be prepared for the proposed project and indicated the environmental topics anticipated to be addressed in the EIR. An Initial Study was circulated with the NOP. The NOP and Initial Study were published on December 16, 2020, and were submitted to the Governor's Office of Planning and Research State Clearinghouse and mailed to public agencies, organizations, and individuals likely to be interested in the potential impacts of the proposed project. The 30-day public comment period ended on January 15, 2021. A total of three written comments on the NOP were received by the City and were considered during preparation of this EIR. Copies of the NOP and comment letters received are included in Appendix A.

Based on the preliminary analysis provided in the Initial Study (Appendix B), consultation with City staff, and review of the comments received during the scoping process, the topic of transportation is the only topic studied in further detail in Chapter 4.0, Transportation, of this EIR.

It has been determined that the following potential environmental effects of the proposed project would be less than significant or have no impact; therefore, these topics are not further studied in this EIR: aesthetics, agriculture and forestry 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, tribal cultural resources, utilities and service systems, and wildfire. Each of these topic areas is addressed in the Initial Study (Appendix B). Chapter 5.0, Other CEQA Considerations, of this EIR provides a summary of the analysis and conclusions for each environmental topic evaluated in the Initial Study and not further addressed in this EIR. Given that many topic areas were scoped out and only one topic area is evaluated in detail in this EIR, the document may also be referred to as a focused EIR.

On February 26, 2008, an Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project) was adopted by the Antioch City Council. The 2008 IS/MND evaluated the potential impacts associated with the development of 136 single-family residential units and an approximately 1.69-acre park on the project site. The 2008 Project included a rezoning of the project site from Study Zone (S) to the site's

current zoning of Planned Development (P-D) and the approval of a Master Development Plan.[1] The analysis provided in this EIR and the Initial Study tier from the 2008 IS/MND for the proposed 2008 Project, as appropriate. Please refer to Chapter 3.0, Project Description, for a more detailed discussion of the 2008 Project and 2008 IS/MND.

The Draft EIR will be circulated for a period of 45 days, from January 29, 2021 to March 15, 2021. Following the close of the EIR comment period, the City will prepare a Response to Comments (RTC) Document to respond to all substantive comments on the Draft EIR. The RTC Document will also identify any changes or additions to the Draft EIR as a result of comments received, if required. The Draft EIR and RTC Document together will constitute the Final EIR, which will be considered for certification by the Planning Commission and City Council during consideration of the proposed project.

1.4 REPORT ORGANIZATION

This EIR is organized into the following chapters:

- **Chapter 1.0 Introduction:** Discusses the overall EIR purpose, provides a summary of the proposed project, describes the EIR scope, and summarizes the organization of the EIR.

- **Chapter 2.0 Summary:** Provides a summary of the impacts that would result from implementation of the proposed project, describes mitigation measures recommended to reduce or avoid significant environmental impacts, and describes the alternatives to the proposed project.

- **Chapter 3.0 Project Description:** Provides a description of the project site, project background, project objectives, proposed project, and uses of this EIR.

- **Chapter 4.0 Transportation:** Describes the following for the topic of transportation: existing conditions (setting), summary of impacts and required mitigation measures identified in the 2008 IS/MND prepared for a previous version of the proposed project, potential environmental impacts of the proposed project and their level of significance, and mitigation measures recommended to reduce or avoid identified potential impacts of the proposed project. Potential cumulative impacts are also addressed. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The significance of each potential impact is categorized before and after implementation of any recommended mitigation measure(s).

- **Chapter 5.0 Other CEQA Considerations:** Provides an analysis of effects found not to be significant, including the Initial Study findings, growth-inducing impacts, unavoidable significant environmental impacts, and significant irreversible changes.

[1] City of Antioch. 2007. *Deer Valley Estates Master Plan Initial Study/Mitigated Negative Declaration*. Prepared by LSA Associates, Inc. December.

- **Chapter 6.0 Alternatives:** Provides an evaluation of two alternative(s) to the proposed project in addition to the CEQA-required No Project alternative.

- **Chapter 7.0 Report Preparation:** Identifies the preparers of the EIR and references used.

- **Appendices:** The appendices contain the NOP and comment letters (Appendix A), the Initial Study (Appendix B), and the VMT Analysis Memorandum (Appendix C). All appendices are available for review on the City's website at: www.antiochca.gov/community-development-department/planning-division/environmental-documents/

2.0 SUMMARY

This chapter provides an overview of the proposed project and findings identified in this EIR, prepared pursuant to CEQA, including a discussion of alternatives and cumulative project impacts.

2.1 PROJECT UNDER REVIEW

This EIR has been prepared to evaluate the potential environmental consequences of implementation (i.e., construction and operation) of the proposed project submitted by the project sponsor. The approximately 37.56-acre project site consists of two parcels of undeveloped land located at 6100 Deer Valley Road in the southern portion of the City of Antioch, Contra Costa County. The project site is currently bounded by single-family residential uses to the north, the under-construction Aviano Farms Project to the east, Wellness Way and the Kaiser Permanente Antioch Medical Center (Kaiser Medical Center) to the south, and Deer Valley Road to the west.

The proposed project would result in the subdivision of the project site to allow construction of a total of 121 single-family residential units, each of which would either be one or two stories in height and include a two- or three-car garage. The single-family residential units would range in size from approximately 2,252 square feet to approximately 3,445 square feet and would be located on individual lots that would be a minimum of 7,000 square feet. All of the residential units would front to internal streets within the project site.

All of the single-family residential units on the project site would have a minimum setback of 20 feet for both the front yard and the garage, and a minimum of 10 feet where the side yard abuts a street. Single-story units would include a minimum setback of 5 feet for side yards adjacent to other residential units; two-story units would include a minimum 10-foot setback. Units that would be adjacent to Deer Valley Road and Wellness Way would have a minimum rear yard setback of 30 feet, while all other units would have a minimum rear yard setback of 25 feet.

Each of the residential lots on the project site would include private backyards that would be an average of 2,240 square feet in size. In total, the proposed project would provide approximately 15.2 acres of common open space and private recreational space, including backyards. An approximately 1.12-acre park would be located at the center of the site and would include a dog park and playground. An approximate total of 1.5 acres of the site would be improved with landscaping including street trees and native grasses. An approximately 4- to 6-foot-wide trail would run through the northwest and center portions of the site and connect the proposed park to Deer Valley Road.

Access to the project site would be provided at four points, including from Wellness Way to the south and from extensions of Piute Way, Mojave Way, and Oneida Way, all of which are existing streets that currently have a terminus at the northern boundary of the project site. Interior streets would provide vehicular access to each of the proposed residential units. As noted above, each of the residential units would include either a two- or three-car parking garage, for a total of 267 parking spaces. An additional 232 guest parking spaces would be provided on the internal streets for a total capacity of 495 parking spaces on the project site.

Discretionary actions by the City that would be necessary for project approval include certification of the EIR and adoption of Findings and Statement of Overriding Considerations, Tentative Map approval, Final Development Plan approval, a Use Permit, and Design Review. Issuance of a Grading Permit and Building Permit would also be required. Refer to Chapter 3.0, Project Description, for a complete description of the proposed project's location, context, background, and objectives, details of the proposed project itself, and a summary of required approvals and entitlements.

2.2 PROJECT BACKGROUND

On February 26, 2008, an Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project) was adopted by the Antioch City Council. The 2008 IS/MND evaluated the potential impacts associated with the development of 136 single-family residential units and an approximately 1.69-acre park on the project site. The 2008 Project included a rezoning of the project site from Study Zone (S) to the site's current zoning of Planned Development (P-D) and the approval of a Master Development Plan.[1] The P-D designation and associated standards allow implementation of the previously approved Master Development Plan, which is a previous iteration of the currently proposed project. The proposed project is the next phase of the entitlement process to allow development of residential uses on the site.

The analysis of the proposed project provided in this EIR and the Initial Study (Appendix B) tier from the 2008 IS/MND, as appropriate. Refer to Section 3.2 in Chapter 3.0, Project Description, for a complete description of the relevant project background, including the 2008 Project and 2008 IS/MND.

2.3 POTENTIAL AREAS OF CONTROVERSY

Three commenters submitted written responses to the Notice of Preparation (NOP). The NOP and comments received are included in Appendix A. Comments in response to the NOP generally identified the following areas of potential concern:

- Surface and groundwater quality;
- Compliance with Assembly Bill 52 (AB 52); and
- Stormwater conditions of approval and drainage fees.

2.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in the Initial Study (included in Appendix B) and Chapter 4.0, Transportation, of this EIR.

[1] City of Antioch. 2007. *Deer Valley Estates Master Plan Initial Study/Mitigated Negative Declaration*. Prepared by LSA Associates, Inc. December.

2.4.1 Findings of the Initial Study

The Initial Study for the proposed project is included in Appendix B to this EIR. The Initial Study identified the following: (1) no impacts; (2) less-than-significant impacts; (3) less-than-significant impacts with implementation of mitigation measures (or modified mitigation measures) identified in the 2008 IS/MND; or (4) less-than-significant impacts with implementation of new mitigation measures that have been agreed to by the project sponsor related to the following environmental issues:

- Aesthetics
- Agriculture and Forestry 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
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The proposed project would be required to comply with all applicable mitigation measures, as modified and identified in the 2008 Project Mitigation Monitoring and Reporting Program (MMRP), which was prepared for the 2008 IS/MND. Applicable mitigation measures identified in the Initial Study are provided in Table 2.A, at the end of this chapter. For a complete description of potential impacts identified in the Initial Study, please refer to the specific discussion within each topical section of the Initial Study, included as Appendix B to this EIR. Chapter 5.0, Other CEQA Considerations, also includes a summary of the findings for each topic not discussed in the EIR.

The Initial Study identified transportation as the potential impact requiring more detailed evaluation, which is further evaluated in Chapter 4.0, Transportation, of this EIR.

2.4.2 Significant Impacts

Under CEQA, a significant impact on the environment is defined as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.” As discussed in more detail in Chapter 5.0 of this EIR, impacts in the following areas would be potentially significant without the implementation of mitigation measures, but would be reduced to a less than significant level if the mitigation measures recommended in this report are implemented:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise

Impacts related to agriculture and forestry resources, energy, greenhouse gas emissions, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, utilities and service systems, and wildfire would be less than significant, and no mitigation measures would be required.

2.4.3 Significant and Unavoidable Impacts

The proposed project would result in a significant and unavoidable impact related to transportation. Specifically, the proposed project would exceed the applicable vehicle miles traveled (VMT) threshold of significance, and no feasible mitigation measures are available to reduce this impact to a less-than-significant level. Refer to Chapter 4.0, Transportation, of this EIR for additional discussion.

2.4.4 Cumulative Impacts

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the *State CEQA Guidelines* requires that an EIR evaluate potential environmental impacts that are individually limited but cumulatively significant. These impacts can result from the proposed project when combined with other past, present, or reasonably foreseeable future projects. As described in Section 4.0 of this EIR, the cumulative impacts analysis in this Draft EIR is based on information provided by the City on currently planned, approved, or proposed projects and regional projections for the area. The proposed project would result in a significant and unavoidable impact under the cumulative condition to transportation. Specifically, the proposed project, in combination with cumulative projects, would exceed the existing VMT thresholds of significance.

2.4.5 Alternatives to the Project

In accordance with CEQA and the *State CEQA Guidelines* (Section 15126.6), an EIR must describe a reasonable range of alternatives to the project, or to the location of the project, that could attain most of the project's basic objectives, while avoiding or substantially lessening any of the significantly adverse environmental effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. CEQA states that an EIR should not consider alternatives "whose effect cannot be ascertained and whose implementation is remote and speculative."

The following three alternatives to the proposed project are discussed and analyzed in Chapter 6.0 of this EIR:

- **No Project Alternative.** Under the No Project alternative, the project site would continue to be undeveloped. No modifications to existing site access, easements, or infrastructure would occur.

- **Senior Housing Alternative.** Under the Senior Housing alternative, total development on the project site would be the same as the proposed project (i.e., 121 residential units ranging in size from approximately 2,252 square feet to approximately 3,445 square feet in size) but the new residential units would be age-restricted and available to residents age 55 and above.

- **Large Lot Alternative.** Under the Large Lot alternative, the project site would be developed with large-lot single-family residential uses. This alternative assumes that lot sizes on the project site would be an average of 18,000 square feet and would not exceed 20,000 square feet per lot, for a maximum of 57 lots/residential units on the project site.

Each alternative is compared to the proposed project and discussed in terms of its various mitigating or adverse effects on the environment. Analysis of the alternatives focuses on those topics for which adverse impacts would result from the proposed project. The Large Lot Development alternative is considered to be the environmentally superior alternative.

2.5 SUMMARY TABLES

Information in Table 2.A, Summary of Impacts and Mitigation Measures from the Initial Study, summarizes the recommended mitigation measures for each environmental topic in the Initial Study. Information in Table 2.B, Summary of Impacts and Mitigation Measures from the EIR, has been organized to correspond with environmental issues discussed in Chapter 4.0, Transportation, of this EIR. Tables 2.A and 2.B are arranged in four columns: (1) impacts; (2) level of significance without mitigation; (3) mitigation measures; and (4) level of significance with mitigation. Levels of significance are categorized as follows:

LTS	Less Than Significant
S	Significant
SU	Significant and Unavoidable

For a complete description of potential impacts and recommended mitigation measures, please refer to the specific topical discussions in Chapter 4.0, Transportation, and the Initial Study.

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Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
3.1 AESTHETICS			
Project construction would result in new sources of glare that would adversely affect daytime views in the area.	S	**2008 IS/MND Mitigation Measure AES-1:** Outdoor lighting shall be designed to minimize glare and spillover to surrounding properties. The proposed project shall incorporate non-mirrored glass to minimize daylight glare.	LTS
3.2 AGRICULTURE AND FORESTRY RESOURCES			
There are no significant impacts to agriculture and forestry resources.			
3.3 AIR QUALITY			
Construction of the proposed project would generate air pollutant emissions that could violate air quality standards.	S	**2008 IS/MND Modified Mitigation Measure AIR-1:** In order to meet the Bay Area Air Quality Management District (BAAQMD) fugitive dust threshold, the following BAAQMD Basic Construction Mitigation Measures shall be implemented: ● All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. ● All haul trucks transporting soil, sand, or other loose material off-site shall be covered. ● All visible mud or dirt tracked-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. ● All vehicle speeds on unpaved roads shall be limited to 15 mph. ● All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. ● Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. ● Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. ● All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. ● A publicly visible sign shall be posted with the telephone number and person to contact at the City of Antioch regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.	LTS
Construction of the proposed project would expose sensitive receptors to substantial pollutant concentrations.	S	**Mitigation Measure AIR-2:** During construction of the proposed project, the project contractor shall ensure all off-road diesel-powered construction equipment of 50 horsepower or more used for the project construction at a minimum meets the California Air Resources Board (CARB) Tier 2 emissions standards or equivalent equipped with Level 3 diesel particulate filters equipped with Level 3 diesel particulate filters.	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
3.4 BIOLOGICAL RESOURCES			
Project construction could result in substantial adverse impacts to vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog, and California tiger salamander.	S	**2008 IS/MND Modified Mitigation Measure BIO-1a:** Prior to issuance of grading or construction permits for the proposed project, a qualified biologist shall conduct protocol level surveys to determine the presence or absence of vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog, and California tiger salamander on the project site. These surveys shall be conducted in consultation with the appropriate regulatory agencies to determine under what conditions surveys could occur. Some protocol level surveys may take up to two years to conduct. If these species are determined to be absent from the site, no further mitigation would be required. If suitable conditions do not exist for protocol level surveys prior to grading or construction activities, these species must be assumed present on the project site.	LTS
	S	**2008 IS/MND Mitigation Measure BIO-1b:** If vernal pool fairy shrimp and/or vernal pool tadpole shrimp are identified on the project site, or are assumed present due to the absence of protocol level surveys, the seasonal wetland located on the site shall be avoided. If the seasonal wetland is avoided, all development shall be setback at least 250-feet from the edges of the wetland. Siltation fencing should be erected between the wetland and the development area.	LTS
	S	**2008 IS/MND Modified Mitigation Measure BIO-1c:** If vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog or California tiger salamander are identified on the project site, or are assumed present due to the absence of protocol level surveys, and avoidance is not feasible, the project applicant shall mitigate for the loss of habitat. Authorized take permits may be required by the U.S. Fish and Wildlife Service (USFWS) for incidental take of individuals that may be present. If avoidance of the seasonal wetland is not feasible, the project applicant shall purchase lands at an approved off-site mitigation bank or other lands approved by the applicable resources agencies and the City of Antioch (e.g., in fee-title or through conservation easement). Mitigation would be required at a replacement to loss ratio of 2:1 and a creation to loss ratio of 1:1 (a total mitigation ratio of 3:1) for vernal pool fairy shrimp and/or vernal pool tadpole shrimp (these are standard mitigation ratios accepted by the USFWS for impacts to these species). The project applicant shall preserve 0.74 acres of known vernal pool fairy shrimp and/or vernal pool tadpole shrimp habitat and create another 0.37 acres of suitable habitat for each species, as applicable. These acreages are based on an estimated 0.37 acres of seasonal wetland habitat located on the project site; verification of the correct acreage is required by Mitigation Measure BIO-5a. The Elsie Gridley Multi-Species Conservation Bank includes Antioch within its service area and offers preservation habitat for $140,000 per acre, and creation habitat for $165,000 per acre. Loss of California red-legged frog or California tiger salamander habitat should be mitigated at a 1:1 mitigation to loss ratio (38 acres) at a suitable site that is known to support a breeding population. Because the project site supports low value California tiger salamander habitat, purchasing high quality, known breeding habitat would duly compensate for the loss of	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
		low quality habitat, especially if the site acquired is either in fee-title or via a conservation easement that preserves and enhances breeding and estivation habitat or preserves and enhances suitable estivation habitat adjacent to a known, protected breeding site. Enhancement shall include a controlled grazing regime, limited public access, fencing, or other appropriate measure. The Elsie Gridley Multi-Species Conservation Bank offers California tiger salamander habitat for $8,500 per acre. These 38 acres may also accommodate the potential loss of burrowing owl and San Joaquin kit fox habitat, as applicable.	
Project construction could result in substantial adverse impacts to burrowing owls.	S	**2008 IS/MND Mitigation Measure BIO-2a:** Protocol level burrowing owl surveys shall be conducted during the height of the breeding season (April 15 to July 15) to determine the number of both individuals and breeding pairs present on the site. Preconstruction surveys shall also be conducted for burrowing owls prior to site preparation, grading, and construction. All surveys shall conform to the survey protocol established by the California Burrowing Owl Consortium. Preconstruction surveys shall be conducted no more than 30 days prior to the initiation of construction activities and at 30-day intervals if construction activities have not been initiated in an area.	LTS
	S	**2008 IS/MND Mitigation Measure BIO-2b:** For grading and construction activities occurring during the non-breeding season (September 1 through January 31), burrowing owls may be evicted from the entire construction area using passive relocation techniques. One-way doors shall be installed in all suitable burrows (approximately 4 inches in diameter), left in place for a minimum of 48 hours, and monitored daily to evaluate the exclusion of owls from burrows and to maintain the one-way doors in good repair. Burrows shall then be excavated, using hand tools. Sections of flexible plastic pipe shall also be inserted into burrows during excavation to maintain an escape route for any animals inside the burrow. Once excavation is completed and no owls remain on-site, burrows shall be refilled to prevent reoccupation, or the entire site shall be disced and managed until construction activities begin.	LTS
	S	**2008 IS/MND Mitigation Measure BIO-2c:** For grading and construction activities occurring during the breeding season (February 1 through August 31), a 75-meter (250-foot) radius circular buffer shall be erected around each active burrow and a qualified biologist shall monitor construction activities to ensure effectiveness of the buffer area for breeding activities. Construction-related activity (e.g., site grading, staking, surveying) shall not occur within the exclusion zone until the burrows are confirmed to be unoccupied and/or juveniles from the nest are foraging independently and capable of independent survival. Only biologists familiar with burrowing owl behavior shall be permitted to determine whether juveniles are capable of independent survival. Once the burrows are unoccupied or the young are capable of independent survival, passive relocation techniques (as described above in Mitigation Measure BIO-2a) shall be implemented to evict the owls from the burrows. Burrows shall be excavated, using hand tools, and re-filled to prevent reoccupation prior to allowing construction within the exclusion zone, or the site	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
		shall be disced. Sections of flexible plastic pipe shall also be inserted into burrows during excavation to maintain an escape route for any animals inside the burrow. Due to the density of the burrowing owl population on the project site, it is possible that construction activities may not be able to avoid active burrows; in this case, construction activities shall not be permitted during the breeding season.	
	S	**2008 IS/MND Mitigation Measure BIO-2d:** Removal of burrowing owls at the project site shall conform to the requirements of CDFG's Staff Report on Burrowing Owl Mitigation. This shall entail establishing 6.5 acres of suitable habitat for each individual or pair of burrowing owls displaced from the project site. This may be accomplished through the purchase of credits at an established mitigation bank approved for this species or preservation of grassland habitat (through conservation easement, fee-title, or other applicable measure) at another suitable location within eastern Contra Costa County that currently supports a burrowing owl population. Habitat used for burrowing owl mitigation may also accommodate the potential loss of estivation habitat for California tiger salamander and San Joaquin kit fox habitat, as applicable.	LTS
Project construction could result in substantial adverse impacts to San Joaquin kit fox.	S	**2008 IS/MND Mitigation Measure BIO-3a:** Pre-construction surveys for kit fox dens shall be conducted by a qualified biologist no less than 14 days or more than 30 days prior to any grading or construction activities on the project site. If an active den is detected within (or immediately adjacent to) the construction area, the USFWS shall be immediately contacted to determine the best course of action. If no kit fox activity is detected, a written report shall be submitted to the USFWS within 5 days of survey completion.	LTS
	S	**2008 IS/MND Mitigation Measure BIO-3b:** If active dens are identified within (or immediately adjacent to) the construction area, the project applicant shall follow the USFWS's Standardized Recommendations for Protection of the Kit Fox Prior to or During Ground Disturbance throughout the construction period. Specific measures are detailed in the Biological Evaluation prepared for the project site (see Appendix A).	LTS
	S	**2008 IS/MND Mitigation Measure BIO-3c:** If active dens are identified within (or immediately adjacent to) the construction area, the project applicant shall mitigate for the loss of San Joaquin Kit Fox habitat at a mitigation to loss ratio of 1:1 (38 acres). These 38 acres may also accommodate the potential loss of estivation habitat for California tiger salamander and burrowing owl habitat, as applicable.	LTS
Mismanagement of off-site mitigation lands would result in the loss of habitat for special status species.	S	**2008 IS/MND Mitigation Measure BIO-4:** If mitigation lands are purchased through conservation easements or in fee-title, the project applicant shall implement the Resource Management Plan prepared for the proposed project.	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
Project construction would result in the removal of suitable habitat for Swainson's hawk, Loggerhead shrike, and white-tailed kite.	S	**Mitigation Measure BIO-5:** The proposed project shall avoid any construction activities that result in vegetation removal, including grading and other ground-disturbing activities, during the bird nesting season (February 1 through August 31). If construction activities are scheduled during the nesting season, the project applicant shall retain a qualified biologist to conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey shall be conducted no more than 14 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.	LTS
3.5 CULTURAL RESOURCES			
Project construction activities could cause a substantial adverse change in the significance of an archaeological resource.	S	**2008 IS/MND Mitigation Measure CULT-1:** If deposits of prehistoric or historic archeological materials are encountered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archeologist shall be contacted to assess the deposit finds and make recommendations. While deposits of prehistoric or historic archeological materials should be avoided by project activities, if the deposits cannot be avoided, they shall be evaluated for their California Register eligibility. If the deposits are not eligible for the California Register, avoidance is not necessary. If the deposits are eligible for the California Register, they shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the evaluating archaeologist and CEQA Guidelines Section 15126.4 (b)(3)(C), which requires implementation of a data recovery plan and avoidance of human remains. Upon completion of the archaeologist's assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the discovered archaeological materials. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center (NWIC).	LTS
Project construction activities could disturb human remains, including those interred outside of formal cemeteries.	S	**2008 IS/MND Mitigation Measure CULT-3:** If human remains are encountered, work within 25 feet of the discovery shall be redirected and the Contra Costa County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
		Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center.	
3.6 ENERGY			
There are no significant impacts to energy.			
3.7 GEOLOGY AND SOILS			
Project construction activities could cause seismic-related ground failure.	S	**2008 IS/MND Mitigation Measure GEO-1:** Project design and construction shall be in conformance with, or exceed, current best standards for earthquake resistant construction in accordance with the California Building Code (Seismic Zone 4), applicable local codes, and in accordance with the generally accepted standards of geotechnical practice for seismic design in Northern California. In addition, project design shall follow the recommendations of a site-specific design level geotechnical investigation report to be prepared by a Certified Engineering Geologist or Geotechnical Engineer. The City Engineer shall approve all final design and engineering plans.	LTS
Project construction activities could result in caving at excavations and trenches and differential settlement.	S	**2008 IS/MND Mitigation Measure GEO-2:** The applicant shall ensure that the requirements for worker health and safety as specified by the California Division of Occupational Safety and Health (DOSH) (which acts to protect workers from safety hazards through its California OSHA (Cal/OSHA)) are implemented. In particular, due to the caving proclivity of the soil types of the project site, shoring requirements for workers dealing with work in excavations, as specified in the California Code of Regulations, Title 8, Section 1540 et. al., Excavations, shall be observed. This article applies to all open excavations made in the earth's surface (including trenches).	LTS
	S	**2008 IS/MND Mitigation Measure GEO-3:** The applicant shall incorporate all recommendations of a final site-specific design-level geotechnical investigation as prepared by a licensed Geotechnical Engineer and approved by the City of Antioch into all development plans submitted for the project, including recommendations for grading, placement of fill materials, pretreatment of expansive soils, and avoidance of settlement and/or differential settlement of infrastructure and buildings.	LTS
Project construction activities could disturb unique paleontological resources.	S	**2008 IS/MND Mitigation Measure CULT-2:** If paleontological resources are encountered during site preparation or grading activities, all work within 25 feet of the discovery shall be redirected until a qualified paleontologist has assessed the discoveries and made recommendations. If the paleontological resources are found to be significant, adverse effects to such resources shall be avoided by project activities. If project activities cannot avoid the resources, the adverse effects shall be mitigated. Mitigation shall include data recovery and analysis, preparation of a final report, and the formal transmission or delivery of any fossil material recovered to a paleontological repository, such as the University of California Museum of	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
		Paleontology (UCMP). Upon completion of project activities, a final report documenting methods and findings of the mitigation shall be prepared and submitted to the project applicant, the City of Antioch, and a suitable paleontological repository.	
3.8 GREENHOUSE GAS EMISSIONS			
There are no significant impacts to greenhouse gas emissions.			
3.9 HAZARDS AND HAZARDOUS MATERIALS			
Project construction activities could release hazardous materials into the environment.	S	**200 IS/MND Mitigation Measure HAZ-1:** Prior to the issuance of grading or construction permits for the project site, a qualified environmental professional shall conduct an environmental investigation at the project site in accordance with California Department of Toxic Substances Control (DTSC) Interim Guidance for Sampling Former Agricultural Fields (Interim Guidance). As specified in the Interim Guidance, any detected organic compounds or metals above naturally-occurring concentrations must be evaluated in a risk assessment, and additional remedial action such as soils removal may be required, depending on the results of the environmental investigation and risk assessment. The investigation report and certification that required further actions have been completed shall be submitted to the City of Antioch for review and approval.	LTS
Project construction activities could expose construction workers and the public to hazardous materials, including from nearby pipelines.	S	**2008 IS/MND Mitigation Measure HAZ-2:** Prior to the issuance of grading or construction permits for the project site, a Construction Risk Management Plan (CRMP) should be prepared to address potential hazardous material issues during construction of the project. The CRMP should include any available data from sampling conducted for the project, including the sampling specified in Mitigation Measure HAZ-1. The CRMP shall include provisions to protect construction workers and the nearby public from health risks from pipeline hazards and potential historic releases associated with oil and natural gas production in the project vicinity. The CRMP shall incorporate Best Practices defined by the Common Ground Alliance to protect construction worker safety and prevent accidental releases from oil and natural gas pipelines. The CRMP shall also require site inspections during initial grading activities at the site; provide procedures to be undertaken in the event that previously unreported petroleum contamination or subsurface hazards are discovered during construction; incorporate construction safety measures for excavation and other construction activities; establish detailed procedures for the safe storage, stockpiling, use, and disposal of hazardous materials at the project site; provide emergency response procedures; and designate personnel responsible for implementation of the CRMP. The CRMP shall be submitted to the City of Antioch for review and approval.	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
3.10 HYDROLOGY AND WATER QUALITY			
Project construction activities could result in pollutants being released into surface waters.	S	**2008 IS/MND Mitigation Measure HYD-1a:** The project proponent shall prepare a SWPPP designed to reduce potential impacts to surface water quality through the project construction period. The SWPPP must be maintained on-site and made available to City inspectors and/or Regional Water Quality Control Board (RWQCB) staff upon request. The SWPPP shall include specific and detailed BMPs designed to mitigate construction-related pollutants. At minimum, BMPs shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain. An important component of the stormwater quality protection effort is the knowledge of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP. The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, which must include both dry and wet weather inspections. RWQCB and /or City personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented. BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control; that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions. The City of Antioch Community Development Department shall review and approve the SWPPP prior to approval of the grading plan.	LTS
	S	**2008 IS/MND Mitigation Measure HYD-1b:** The project applicant shall design Best Management Practices into the project to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
		of the completed development, and to detain and treat 75 percent of the runoff from a major storm event. The design team for the development project shall review and incorporate as many concepts as practicable from Start at the Source, Design Guidance Manual for Stormwater Quality Protection.	
Project operation could result in the release of pollutants into the City's storm drain system.	S	**2008 IS/MND Mitigation Measure HYD-2:** The City of Antioch Community Development Department shall review and approve the design-level stormwater control plan prior to approval of the grading plan. If it is determined by the City that the stormwater control plan for the proposed project does not include adequate measures to treat runoff to the maximum extent practicable in compliance with the County NPDES permit, then the applicant shall work closely with the City to revise the stormwater control plan so the Maximum Extent Practical (MEP) requirement is achieved.	LTS
Project implementation could result in a lack of capacity in the City's storm drain system.	S	**2008 IS/MND Mitigation Measure HYD-3:** As a condition of approval of the final grading and drainage plans for the project, the project applicant shall demonstrate through detailed hydraulic analysis that implementation of the proposed drainage plans will not create potential hydromodification impacts downstream by implementing the following: ● The project applicant's licensed professional engineer shall work cooperatively with the City of Antioch and the RWQCB to incorporate BMPs into the final drainage plan that will result in a post-project runoff curve (i.e., storm water flow/duration graphs) that closely resembles the pre-project curve; ● Include drainage components that are designed in compliance with City of Antioch standards. The grading and drainage plans shall be reviewed for compliance with these requirements by the City of Antioch; and ● The project applicant shall establish a self-perpetuating drainage system maintenance program (to be managed by a homeowners association or similar entity) that includes annual inspections of detention basins, sedimentation basins, drainage ditches, swales, and drainage inlets. Any accumulation of sediment or other debris shall be promptly removed and necessary maintenance to insure continued efficient operation shall be performed.	LTS
Project implementation could result in off-site flooding impacts.	S	**2008 IS/MND Mitigation Measure HYD-4:** The project applicant's licensed professional engineer shall analyze the potential for the project to contribute to downstream flooding impacts. The final drainage plan shall include a design that, when implemented, would not increase peak flows or exacerbate downstream flooding. Properly implemented hydrograph modification mitigation (required under Mitigation Measure HYD-3) will also mitigate the potential for impacting downstream flooding impacts.	LTS
Project implementation would contribute to the degradation of regional drainage infrastructure.	S	**2008 IS/MND Mitigation Measure HYD-5:** As required by Ordinance 90-74, the applicant shall contribute to the construction and maintenance of regional drainage infrastructure by paying applicable fees associated with the amount of new impervious cover proposed by the project.	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
3.11 LAND USE AND PLANNING			
There are no significant impacts to land use and planning.			
3.12 MINERAL RESOURCES			
There are no significant impacts to mineral resources.			
3.13 NOISE			
Project construction activities could generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of established standards.	S	**2008 IS/MND Modified Mitigation Measure Noise-1a:** The project contractor ensure that all construction related activities are restricted to the hours of 7:00 a.m. to 6:00 p.m. on weekdays, within 300 feet of occupied dwelling spaces between 8:00 a.m. and 5:00 p.m. on weekends, and between 9:00 a.m. and 5:00 p.m. on weekends and holidays, irrespective of the distance from the occupied dwelling.	LTS
	S	**2008 IS/MND Mitigation Measure NOI-1b:** During all project site excavation and on-site grading, the construction contractor shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.	LTS
	S	**2008 IS/MND Mitigation Measure NOI-1c:** The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.	LTS
	S	**2008 IS/MND Mitigation Measure NOI-1d:** The construction contractor shall locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.	LTS
	S	**2008 IS/MND Mitigation Measure NOI-1e:** The construction contractor shall use temporary noise attenuation fences at least 6 feet in height to protect all sensitive receptors along the project site's northern property line that are not currently protected by a sound wall of at least 6 feet in height. Noise attenuation fencing shall consist of a solid, continuous fence (with no horizontal or vertical gaps) at least 6 feet in height and of equivalent mass as that of solid wood fencing boards (e.g., made of plywood of at least ¾ inch thickness).	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the Initial Study

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
Project implementation could expose residents to excessive noise levels.	S	**2008 IS/MND Mitigation Measure Noise-2a:** A sound wall a minimum of 6 feet in height (measured above the finished roadway elevation) shall be constructed along the project property line bordering Deer Valley Road. The sound wall must be constructed without gaps (including at the bottom) and must be at least 1 inch thick and have equivalent mass to that of solid wood fencing boards.	LTS
	S	**2008 IS/MND Mitigation Measure Noise-2b:** A sound wall a minimum of 6 feet in height (measured above the finished roadway elevation) shall also be constructed along the project property line bordering Wellness Way. The sound wall must be constructed without gaps (including at the bottom) and must be at least 1 inch thick and have equivalent mass to that of solid wood fencing boards.	LTS
3.15 POPULATION AND HOUSING			
There are no significant impacts to population and housing.			
3.15 PUBLIC SERVICES			
There are no significant impacts to public services.			
3.16 RECREATION			
There are no significant impacts to recreation.			
3.17 TRANSPORTATION			
Impacts to transportation would be potentially significant and are addressed in Table 2.B of this EIR.			
3.18 TRIBAL CULTURAL RESOURCES			
There are no significant impacts to tribal cultural resources.			
3.19 UTILITIES AND SERVICE SYSTEMS			
There are no significant impacts to utilities and service systems.			
3.20 WILDFIRE			
There are no significant impacts to wildfire.			

Source: LSA (2020).

Table 2.B: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
4.0 TRANSPORTATION			
Impact TRA-1: The proposed project would exceed applicable VMT thresholds of significance.	S	There are no feasible mitigation measures to reduce this impact to a less than significant level.	SU
Impact TRA-2: The proposed project, in combination with cumulative projects, would exceed the existing VMT thresholds of significance.	S	There are no feasible mitigation measures to reduce this impact to a less than significant level.	SU

Source: LSA (2020).

3.0 PROJECT DESCRIPTION

This chapter describes the proposed project submitted by the project sponsor and evaluated in this EIR. A description of the proposed project's location, context, background, and objectives is followed by details of the proposed project itself and a summary of required approvals and entitlements.

3.1 PROJECT SITE

The following describes the geographic context of the proposed project site and provides a brief overview of the existing land uses within and in the vicinity of the site.

3.1.1 Project Location

The approximately 37.56-acre project site consists of two parcels of undeveloped land located at 6100 Deer Valley Road in the southern portion of Antioch, Contra Costa County (Assessor's Parcel Numbers [APNs] 055-071-026 and 057-022-013). The project site is bounded by single-family residential uses to the north, the under-construction Aviano Farms Project[1] to the east, Wellness Way and the Kaiser Permanente Antioch Medical Center (Kaiser Medical Center) to the south, and Deer Valley Road to the west.

Regional vehicular access to the project site is provided by State Route 4 (SR-4), which is located both east and north of the site; the nearest access is located on Lone Tree Way, approximately 2.6 miles to the east of the site. Bus stops along Deer Valley Road, including adjacent to Kaiser Medical Center and at its intersection with Prewett Ranch Drive, provide transit service to the project site. Figure 3-1 shows the regional and local context of the project site. Figure 3-2 depicts an aerial photograph of the project site and surrounding land uses.

3.1.2 Existing Conditions

The rectangular project site is generally flat, with gently rolling topography that slopes from east to west. Site elevations range from approximately 195 to 225 feet above mean sea level. The project site is currently vacant and generally consists of nonnative annual grassland and ruderal vegetation.

There are a number of existing utility easements on the project site that generally run along the northern border and through the center of the project site. Specifically, a buried petroleum pipeline runs in a north-south direction through the approximate center of the site and continues west along the site's northern boundary within a 25-foot-wide easement. Additional easements on the project site include 10- to 16-foot-wide easements in this area for pipelines and telephones lines, and a 25-foot storm drain easement along the eastern boundary.

[1] The Aviano Farms Project, which was approved by the Antioch City Council on September 8, 2015, consists of approximately 553 one- to two-story single-family detached homes.

3.1.3 Regulatory Setting

The City of Antioch (City) General Plan Land Use Map designates the project site as Sand Creek Focus Area—Low Density Residential.[2] The Low Density Residential designation is generally characterized by single-family homes in traditional subdivisions, which are generally located on gently rolling terrain.

The Sand Creek Focus Area overlay sets policy direction for the 2,712-acre Sand Creek Focus Area, which is generally bounded by existing residential neighborhoods to the north, Black Diamond Mines Regional Preserve to the west, the city limits to the south, and Brentwood to the east. The Sand Creek Focus Area is intended to function as a large-scale planned community, providing needed housing and employment opportunities.[3] The project site is zoned Planned Development (P-D).[4] The P-D district is intended to enable and encourage flexibility in the design and development of land so as to promote its most appropriate use.

3.1.4 Surrounding Land Uses

As shown in Figures 3-1 and 3-2, the project site is located in the southern portion of Antioch and is generally surrounded by existing and under-construction residential uses, vacant land, and healthcare uses.

- **North of the Project Site.** To the north, the project site is bounded by a single-family residential neighborhood with one- to two-story homes. Further north are Prewett Ranch Drive, Deer Valley High School, and the Lone Tree Way Corridor, which consists of a mix of commercial, residential, and public uses.
- **East of the Project Site.** The project site is bordered immediately to the east by the Aviano Farms Project, which is currently under construction with 533 residential units. Occupancy of the Aviano Farms Project is set to begin by the end of 2020.[5] Further east is the approved Vineyards at Sand Creek Project, which is also under construction and consists of 641 residential units.
- **South of the Project Site.** To the south is Wellness Way and the Kaiser Medical Center, past which is Sand Creek Road. Further south, land uses largely consist of undeveloped land or rural residential uses. The southern city limits are located approximately 1.2 miles south of the project site.
- **West of the Project Site.** The project site is bound to the west by Deer Valley Road, across which is the site of The Ranch Project, which is a master-planned residential community that was approved by the City Council in July 2020 and could be under construction by 2023. The Ranch Project will consist of 1,177 one- to two-story residential units; 5 acres of commercial, office, and retail space; 3 acres of public services facilities, and approximately 22.5 acres of public parks and landscaped areas. It is anticipated that initial occupancy of the first phase of The Ranch Project would begin in fall 2023.[6]

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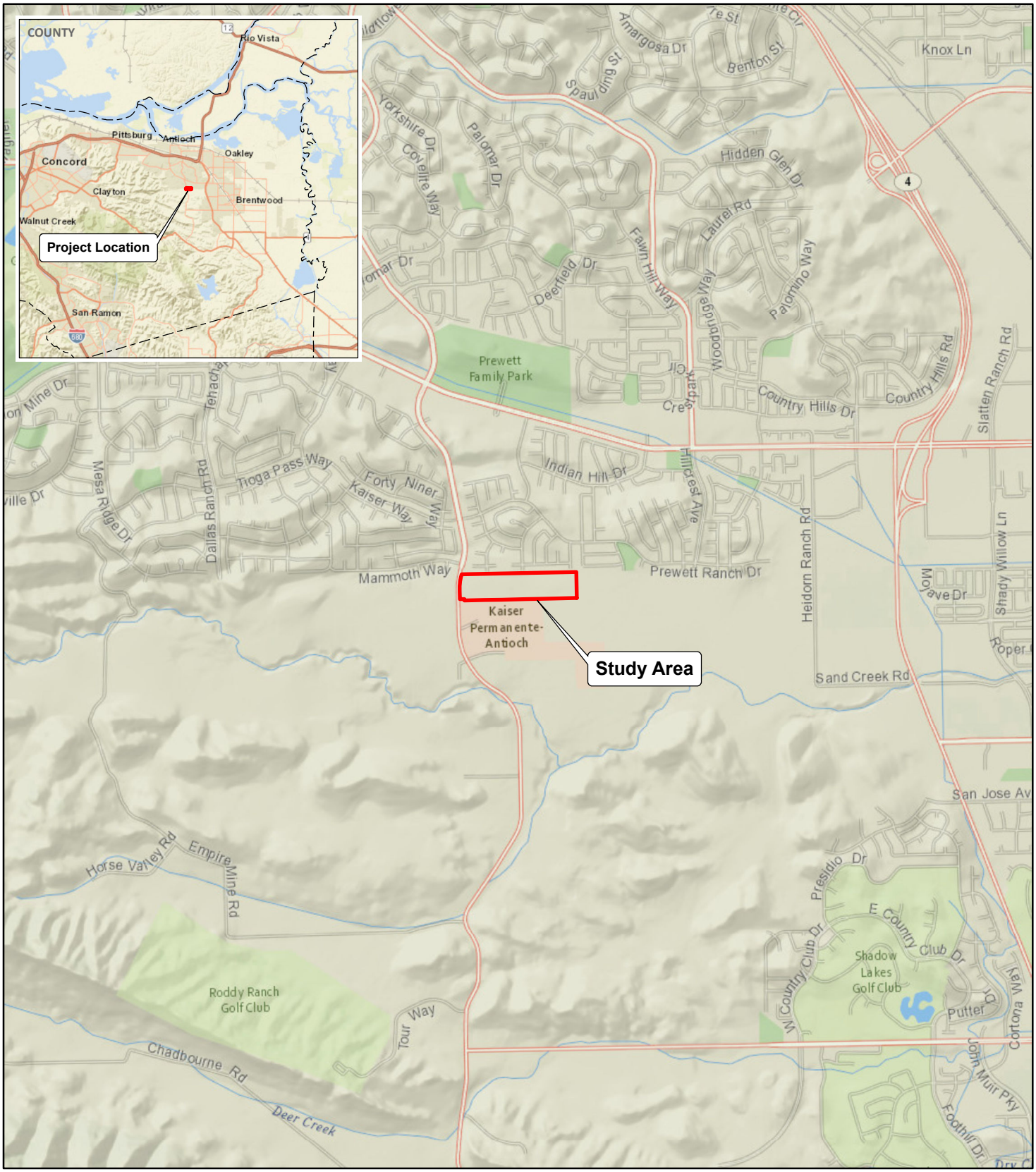
2 City of Antioch. 2020. Interactive Zoning Map & Information. Website: www.antiochca.gov/community-development-department/planning-division (accessed August 2020).

3 City of Antioch. 2003. *General Plan*. November 24.

4 City of Antioch. 2020, op. cit.

5 Denova Homes. 2020. Stella at Aviano. Website: www.denovahomes.com/new-homes/ca/antioch/stella-at-aviano/5618 (accessed August 2020).

6 City of Antioch. 2020. *Draft Environmental Impact Report, The Ranch Project.* State Clearinghouse Number 2019060012. Prepared by FirstCarbon Solutions. March 20.



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FIGURE 3-1

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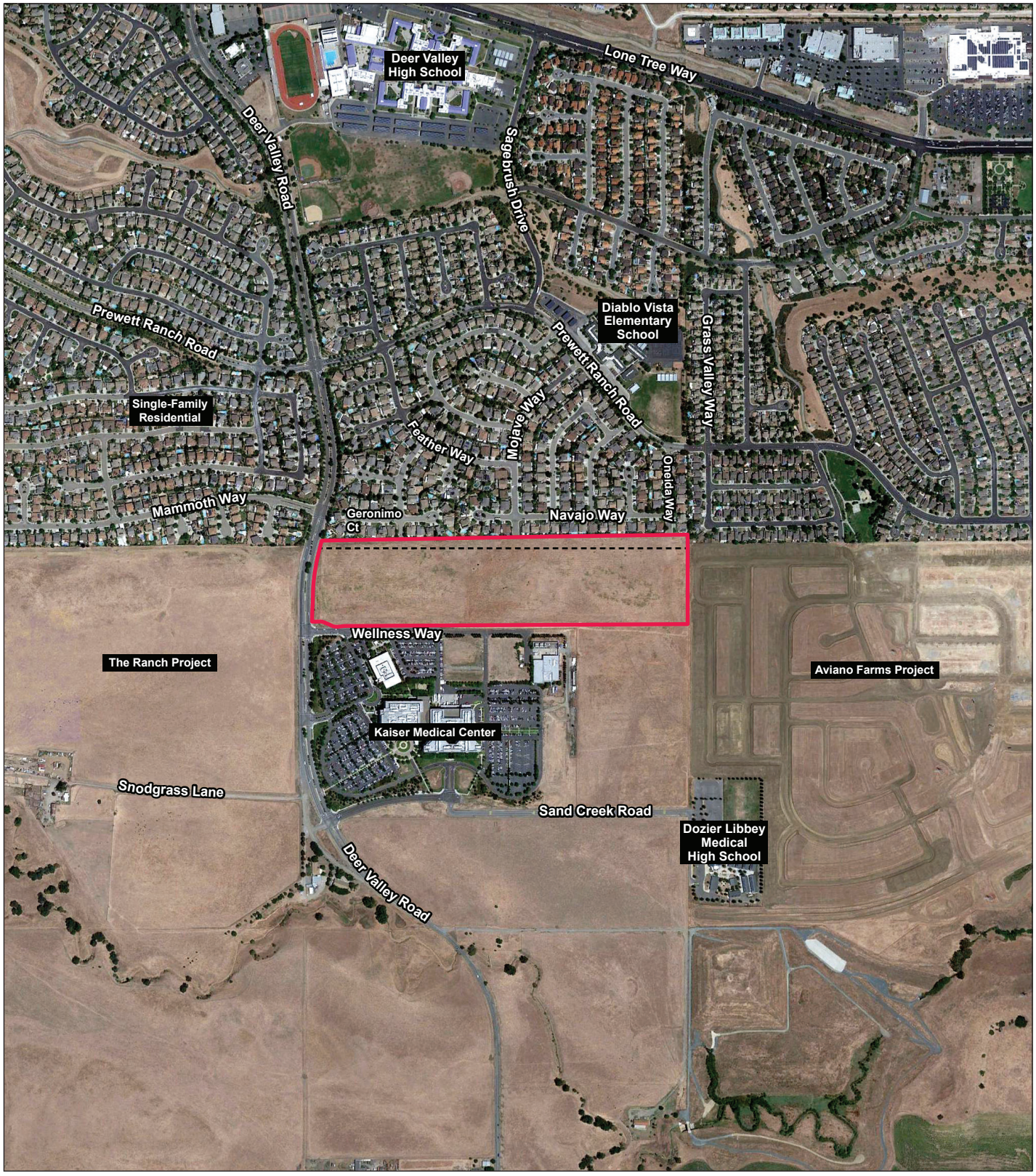
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SOURCE: National Geographic (c) 2018; Esri World Street Map (c) 2018.

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Deer Valley Estates Project EIR

Project Location and Regional Vicinity



LSA

FIGURE 3-2

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Project Site

Parcel Boundary

Deer Valley Estates Project EIR

Aerial Photograph of the Project Site and Surrounding Land Uses

SOURCES: Google Earth, 6/19/19; LSA, 2020.

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3.2 PROJECT BACKGROUND

On February 26, 2008, an Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project) was adopted by the Antioch City Council. The 2008 IS/MND evaluated the potential impacts associated with the development of 136 single-family residential units and an approximately 1.69-acre park on the project site. The 2008 Project included a rezoning of the project site from Study Zone (S) to the site's current zoning of P-D and the approval of a Master Development Plan.[7] The P-D designation and associated standards allow implementation of the previously approved Master Development Plan, which is a previous iteration of the currently proposed project. The proposed project is the next phase of the entitlement process to allow development of residential uses on the site.

Per *State CEQA Guidelines* Section 15152, "where an EIR [or negative declaration] has been prepared and certified [or adopted] for a program … consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program … should limit the EIR … on the later project to effects which: (1) were not examined as significant effects on the environment in the prior EIR; or (2) are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means." The analysis provided in this EIR and Initial Study (Appendix B) tiers from the 2008 IS/MND, as appropriate. The Mitigation Monitoring and Reporting Program (MMRP) prepared for the 2008 IS/MND is included as Appendix A to the Initial Study. The MMRP lists each of the mitigation measures identified in the 2008 IS/MND, as well as any modifications required for the proposed project identified in the Initial Study. Also refer to Chapter 2.0, Summary, of this EIR, which identifies the mitigation measures included in the Initial Study.

3.3 PROJECT OBJECTIVES

As provided by the project sponsor, the objectives of the proposed project are to:

- Develop a project consistent with the Sand Creek Focus Area of the General Plan that incorporates market-acceptable design features and promotes an attractive, well-maintained community.

- Establish a well-planned community that is family friendly or could accommodate senior residents and that incorporates the natural, historic, and physical elements of the land and the surrounding uses.

- Design a land use plan with uses complementary to existing neighborhoods and in symmetry with the larger Antioch community.

- Provide housing opportunities responsive to the needs of Antioch, the region and market conditions, to serve a range of family incomes and household types.

- Contribute to the City of Antioch's economic and social viability by creating a community that creates jobs and attracts investment and positive attention.

[7] City of Antioch. 2007. *Deer Valley Estates Master Plan Initial Study/Mitigated Negative Declaration*. Prepared by LSA Associates, Inc. December.

- Provide work force housing adjacent to Deer Valley Road and next to Kaiser Permanente Antioch Medical Center enhancing the attractiveness of the community to health care workers.

- Implement the County's Growth Management Program by providing for urban development within the Urban Limit Line. Preserving open space by relieving sprawl pressure and acting as an infill development placing new homes on parcels surrounded by existing development on three sides and adjacent to existing homes.

- Provide a land use plan and density that results in an adequate tax base, which at project build-out generates financial resources to pay for public services and infrastructure without financial burden to existing residents.

- Establish a land use and circulation system that promotes convenient mobility, while limiting circulation thru existing communities, and provides safe, accessible, pedestrian access to medical facilities next door.

- Provide a pedestrian-friendly community and comprehensive infrastructure system, including parks, open space, trails, stormwater quality facilities, public services, roadways, and utilities infrastructure sized to serve the proposed project and properties to the north complementing the existing Citywide infrastructure and ensures funding for the on-going maintenance needs of such infrastructure.

- Help the City of Antioch provide its fair share of housing, and help alleviate a regional housing shortage, by providing a mix of housing types and sizes, some moderately affordable, and which can meet the needs of a variety of different and growing household sizes.

- Provide housing near major transportation and regional trails connections, with increased land use intensities near regional transportation connections.

3.4 PROPOSED PROJECT

The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements. Individual components of the proposed project are discussed below.

3.4.1 Building Program

As previously discussed, the proposed project would result in the subdivision of the project site to allow construction of a total of 121 single-family residential units, each of which would either be one or two stories in height and include a two- or three-car garage. The single-family residential units would range in size from approximately 2,252 square feet to approximately 3,445 square feet and would be located on individual lots that would be a minimum of 7,000 square feet. All of the residential units would front to internal streets within the project site, discussed below, and none would front to either Deer Valley Road or Wellness Way. The proposed project would include six different plan types, each of which would have three different architectural styles: contemporary ranch, modern prairie, and mid-century modern. The layout and size of each residence would vary based on the plan type but would range from three bedrooms and two bathrooms in the smallest

plan type to five bedrooms and four bathrooms in the largest. The proposed project would have an overall density of 3.2 dwelling units per net acre.

All of the single-family residential units on the project site would have a minimum setback of 20 feet for both the front yard and the garage, and a minimum of 10 feet where the side yard abuts a street. Single-story units would include a minimum setback of 5 feet for side yards adjacent to other residential units; two-story units would include a minimum 10-foot setback. Units that would be adjacent to Deer Valley Road and Wellness Way would have a minimum rear yard setback of 30 feet, while all other units would have a minimum rear yard setback of 25 feet. Figure 3-3 shows the conceptual site plan for the proposed project. Typical building elevations representing the residential units are shown in Figure 3-4, and typical renderings are shown in Figures 3-5 through 3-7.

3.4.2 Open Space and Landscaping

Each of the residential lots on the project site would include private backyards that would be an average of 2,240 square feet in size. In total, the proposed project would provide approximately 15.2 acres (662,380 square feet) of common open space and private recreational space, including backyards. The proposed project would include multiple common open space areas for project residents, including an approximately 1.12-acre park, which would be located in the approximate center of the project site (as shown on Figure 3-3) and would include a dog park and a playground. An approximate total of 1.5 acres of the site would be improved with landscaping, including street trees and native grasses and an approximately 4- to 6-foot-wide trail that would run through the northwest and center portions of the site and connect the proposed park to Deer Valley Road. Access to the proposed trail would be provided by a tubular steel fence with an access gate in the northwest corner of the project site.

Finally, the proposed project would include a landscaped detention basin, as further described below, which would be approximately 1.51 acres in size. A total of approximately 298 trees would be planted as part of the proposed project. The proposed park and common landscaped areas would be maintained by a homeowners association (HOA).

3.4.3 Access, Circulation, and Parking

As shown on Figure 2-3, access to the project site would be provided at four points, including from Wellness Way to the south and from extensions of Piute Way, Mojave Way, and Oneida Way, all of which are existing streets that currently have a terminus at the northern boundary of the project site. Interior streets would provide vehicular access to each of the proposed residential units. As noted above, each of the residential units would include either a two- or three-car parking garage, for a total of 267 parking spaces. An additional 232 guest parking spaces would be provided on the internal streets for a total capacity of 495 parking spaces on the project site.

3.4.4 Utilities and Infrastructure

The project site is located in a developed area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure. Existing and proposed utility connections are discussed below.

3.4.4.1 Water

Water service to the project site is provided by the City. The proposed project would include the installation of new 8- and 12-inch water lines on the site that would connect to the existing 12-inch mains located within Wellness Way, Mojave Way, and Oneida Way.

3.4.4.2 Wastewater

The City maintains existing sanitary sewer lines within the vicinity of the project site, including a 10-inch line within the existing portion of Oneida Way adjacent to the northeast corner of the project site. New 8-inch lines would be installed throughout the project site and would tie into the existing 10-inch line.

3.4.4.3 Stormwater

As previously noted, the project site is currently undeveloped and covered in nonnative grassland, and therefore does not contain any impervious surfaces. Stormwater infrastructure on the project site currently consists of two 72-inch stormwater mains that run north-south through the project site near the eastern border. Additionally, a 36-inch stormwater main runs through Wellness Way, which ties into the 72-inch mains.

Upon construction of the proposed project, approximately 48 percent (18 acres) of the project site would be covered with impervious surfaces, and the remaining 52 percent (19.5 acres) would be covered by pervious surfaces, consisting of the park and landscaped areas. As previously noted, the proposed project would include approximately 1.51 acres of bioretention space on the project site that would be used for stormwater control. The proposed project would include catch basins and storm drains throughout the project site that would connect to the bioretention basin and existing stormwater facilities.

3.4.4.4 Electricity and Gas

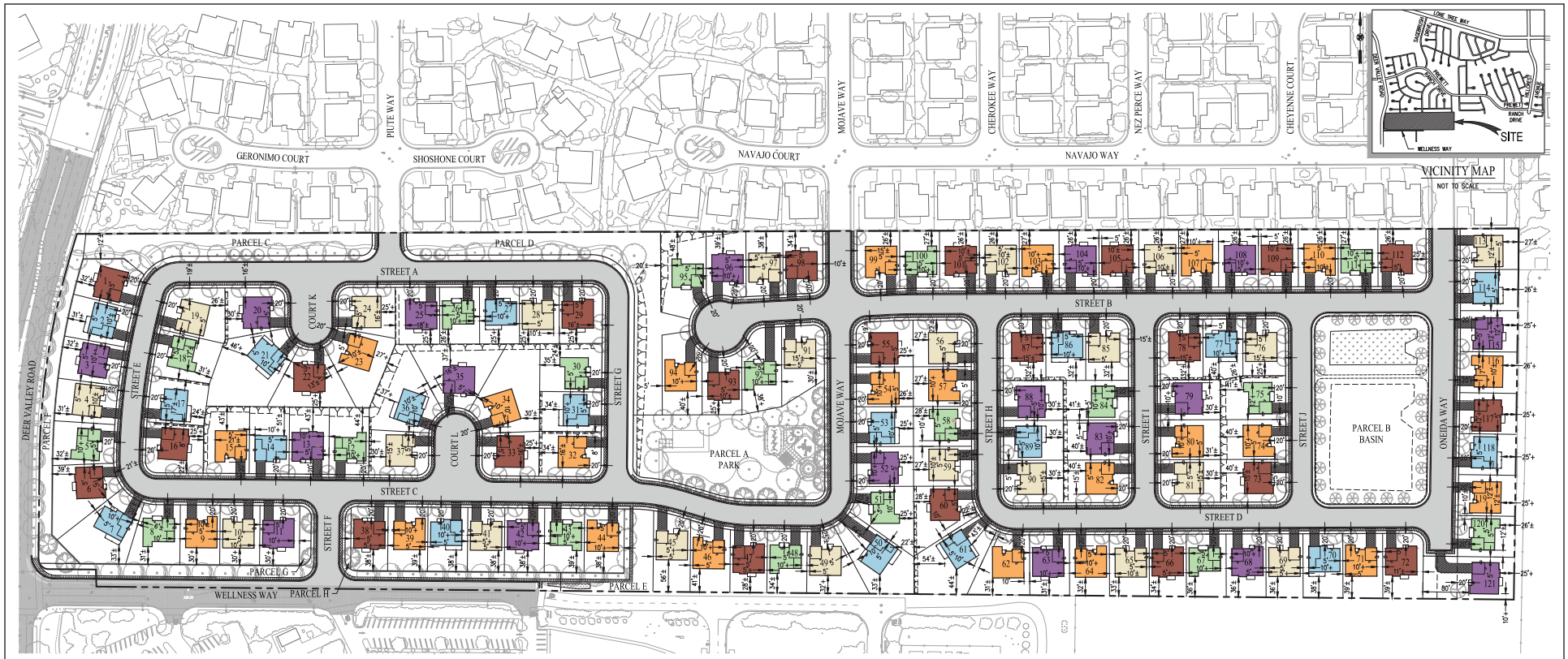
Electricity and gas service is provided to the project site by Pacific Gas & Electric. The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the project site, which could include the lines within Deer Valley Road, Wellness Way, Piute Way, Mojave Way, or Oneida Way.

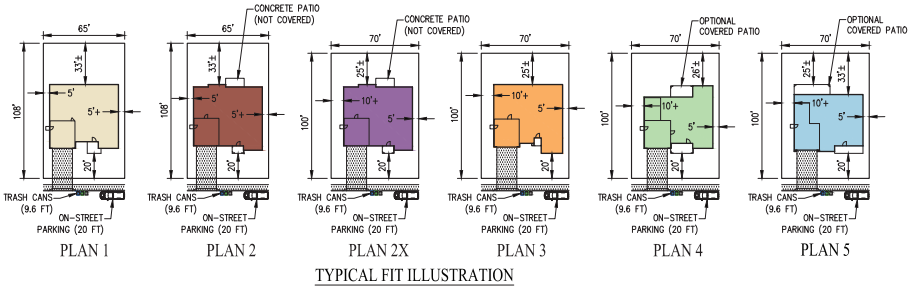
3.4.4.5 Soundwall

The proposed project would include a 6-foot precast soundwall that would be located along the northern property line, the western property line, and half of the southern property line.

3.4.5 Construction

Cut and fill from project grading would be balanced on site. It is anticipated that the maximum depth of excavation for building pads would be approximately 17 feet and that the maximum depth of utility trenching would be approximately 25 feet. Construction of the proposed project is anticipated to begin in fall 2021. Construction would occur over two phases, with 63 units in the first phase and 58 units in the second phase, and each phase lasting approximately 1 year. Initial occupancy would occur in approximately fall 2022, and the final phase of construction is expected to be completed in fall 2023.


GERONIMO COURT
SHOSHONE COURT
NAVAJO COURT
NAVAJO WAY
PILUTE WAY
MOJAVE WAY
CHEROKEE WAY
NEZ PERCE WAY
CHEYENNE COURT
DEER VALLEY ROAD
PARCEL C
PARCEL D
PARCEL F
PARCEL G
PARCEL H
PARCEL E
PARCEL A
PARK
PARCEL B
BASIN
STREET A
STREET B
STREET C
STREET D
STREET E
STREET F
STREET G
STREET H
STREET I
STREET J
COURT K
COURT L
ONEIDA WAY
WELLNESS WAY
VICINITY MAP
NOT TO SCALE
SITE
LONE TREE WAY
RANCH DRIVE



TYPICAL FIT ILLUSTRATION

SUBDIVISION 9518

PLAN	# OF LOTS	% OF TOTAL
1	22	18%
2	22	18%
2X	18	15%
3	23	19%
4	18	15%
5	18	15%
TOTAL	121	100%

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FIGURE 3-3

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Deer Valley Estates Project EIR
Conceptual Site Plan

SOURCE: CBG Civil Engineering, May 2020.

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PLAN 1A
CONTEMPORARY RANCH



PLAN 2B
MODERN PRAIRIE



PLAN 2XC
MID-CENTURY MODERN



PLAN 3C
MID-CENTURY MODERN



PLAN 4A
CONTEMPORARY RANCH



PLAN 5B
MODERN PRAIRIE

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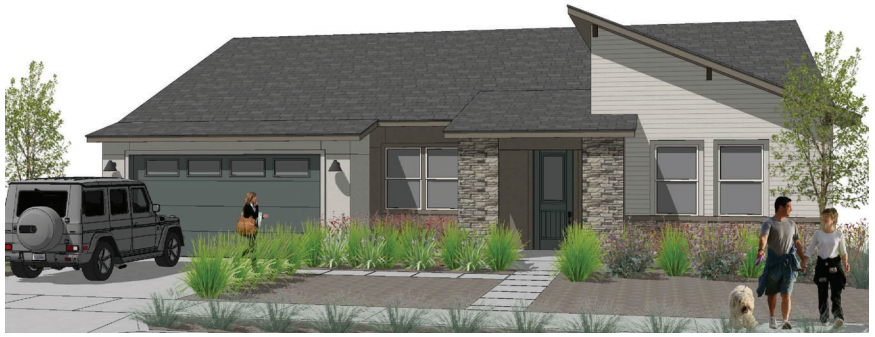
FIGURE 3-4

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Deer Valley Estates Project EIR
Conceptual Building Elevations

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 1A
CONTEMPORARY RANCH



PLAN 1B
MODERN PRAIRIE



PLAN 1C
MID-CENTURY MODERN

LSA

FIGURE 3-5

Deer Valley Estates Project EIR
Conceptual Renderings - Plan 1

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 2XA
CONTEMPORARY RANCH



PLAN 2XB
MODERN PRAIRIE



PLAN 2XC
MID-CENTURY MODERN

LSA

FIGURE 3-6

Deer Valley Estates Project EIR
Conceptual Renderings - Plan 2X

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 4A
CONTEMPORARY RANCH



PLAN 4B
MODERN PRAIRIE



PLAN 4C
MID-CENTURY MODERN

LSA

FIGURE 3-7

Deer Valley Estates Project EIR
Conceptual Renderings - Plan 4

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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3.5 PERMITS AND APPROVALS

While the City is the CEQA Lead Agency for the proposed project, other agencies also either have discretionary authority related to the proposed project and approvals or serve as a responsible and/or trustee agency in connection to the proposed project. A list of these agencies and potential permits and approvals that may be required is provided in Table 3.A.

Table 3.A: Potential Permits and Approvals

Lead Agency	Permits/Approvals
City of Antioch	● Environmental Review ● Adoption of Findings and Statement of Overriding Considerations ● Tentative Map Approval ● Final Development Plan ● Use Permit ● Design Review ● Grading Permit ● Building Permit
Other Agencies	
Contra Costa County Fire Protection District	● Review/approve fire truck access and site fire flow design
California Department of Conservation	● Approve oil well abandonment

Source: LSA (2020).

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4.0 TRANSPORTATION

This chapter contains an analysis of the topic of transportation, which was identified as a potentially significant environmental impact in the Notice of Preparation (NOP) and Initial Study prepared for the proposed project. Copies of the NOP and Initial Study are included in Appendices A and B, respectively, in this EIR. Preliminary analysis provided in the Initial Study determined that development of the proposed project would not result in any new or substantially more severe impacts beyond those identified in the Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project) for the following environmental topics: aesthetics, agriculture and forestry 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, public services, recreation, tribal cultural resources, utilities and service systems, and wildfire. Consequently, these issues are not examined in this EIR and are briefly addressed in Chapter 5.0, Other CEQA Considerations. Also refer to Chapter 2.0, Summary, which identifies the impacts and mitigation measures addressed in the Initial Study. These measures will be incorporated in the MMRP that would be adopted by the City if the EIR is certified.

This chapter describes the environmental setting of the project site as it relates to transportation, the potential impacts resulting from implementation of the proposed project, and the mitigation measures recommended, as necessary, to reduce impacts of the proposed project. The evaluation of transportation issues in this chapter comprises two primary parts: (1) Setting; and (2) Impacts and Mitigation Measures. An overview of the general organization and the information provided in these two parts is provided below:

- **Setting.** The Setting section for transportation generally provides a description of the applicable physical setting (e.g., existing traffic conditions) for the project site and its surroundings in Antioch. An overview of regulatory considerations that are applicable to transportation is also provided.

- **Impacts and Mitigation Measures.** The Impacts and Mitigation Measures section for transportation presents a discussion of the potential impacts that could result from implementation of the proposed project. The section begins with the criteria of significance, which are the thresholds used to determine whether an impact is potentially significant. The latter part of this section presents the potential impacts from the proposed project and mitigation measures, if necessary. As previously discussed in Chapter 3.0, Project Description, the analysis makes reference to, and tiers from, the 2008 IS/MND, where appropriate. The potential impacts of the proposed project are organized into separate categories based on the listed criteria. Cumulative impacts are also addressed.

Impacts are numbered and shown in bold type, and the corresponding mitigation measures (if any) are numbered and indented. Impacts and mitigation measures are numbered consecutively and begin with an acronymic or abbreviated reference to the impact section (e.g., TRA). Impacts are also categorized by type of impact, as follows: Less Than Significant (LTS), Significant (S), and Significant and Unavoidable (SU).

4.1 SETTING

This section describes the existing transportation conditions within the project study area. The applicable regulatory framework is also described.

4.1.1 Existing Transportation and Circulation System

This section describes the existing transportation conditions, including the roadway network, transit service, bicycle facilities, and pedestrian facilities, within the study area.

4.1.1.1 Roadway Network

The following section describes the existing roadway network in the study area, which includes any intersection at the proposed project that would add 50 or more peak-hour trips, or where the City has recommended evaluation of the intersection.

Deer Valley Road. Deer Valley Road is designated as an Arterial in the City's General Plan. Between Lone Tree Way and Mammoth Way, Deer Valley Road is a four-lane, divided Arterial with a raised median. However, between Mammoth Way and Wellness Way, it narrows to three lanes, as there is only one lane in the southbound direction. There are Class II bicycle lanes in both directions of this segment. There is no provision for on-street parking.

Lone Tree Way. Lone Tree Way is designated as an Arterial in the City's General Plan. Between Deer Valley Road and Canada Valley Road, Lone Tree Way is a six-lane, divided Arterial with a raised median. There are bike routes in both directions of this segment, except for the section between Fairside Way—Heidorn Ranch Road and Canada Valley Road, where a bike lane exists in the eastbound direction of the segment. There is no provision for on-street parking throughout the segment of Lone Tree Way within the study area.

Prewett Ranch Drive. Prewett Ranch Drive is designated as a Major Collector in the City's General Plan. Between Deer Valley Road and Oneida Way, Prewett Ranch Drive is a two-lane, divided Major Collector with a raised median. There are bike lanes in both directions of this segment. There is no provision for on-street parking.

Wellness Way. Wellness Way has no designation in the City's General Plan. Between Deer Valley Road and Street F—Kaiser Permanente Driveway, Wellness Way is a three-lane, undivided road. There is a bike lane in the eastbound direction of this segment. There are no bicycle facilities in the westbound direction of this segment. There is no provision for on-street parking.

Piute Way. Piute Way is designated as a Local Street in the City's General Plan. Within the study area, Piute Way is a two-lane, undivided Local Street. There are no bicycle facilities in the westbound direction of this segment. There is provision for on-street parking on both sides of this segment.

Mojave Way. Mojave Way is designated as a Local Street in the City's General Plan. Within the study area, Mojave Way is a two-lane, undivided Local Street. There are no bicycle facilities in the

westbound direction of this segment. There is provision for on-street parking on both sides of this segment.

Oneida Way Oneida Way is designated as a Local Street in the City's General Plan. Within the study area, Oneida Way is a two-lane, undivided Local Street. There are no bicycle facilities in the westbound direction of this segment. There is provision for on-street parking on both sides of this segment.

Sagebrush Drive. Sagebrush Drive is designated as a Local Street in the City's General Plan. Between Lone Tree Way and Prewett Ranch Drive, Sagebrush Drive is a two-lane, undivided Local Street. There are Class II bicycle lanes in both directions of the segment between Lone Tree Way and Indian Hill Drive, with no provision for on-street parking. However, for the segment between Indian Hill Drive and Prewett Ranch Drive, there are no bike facilities, but there is provision for on-street parking.

Hillcrest Avenue. Hillcrest Avenue is designated as an Arterial in the City's General Plan. Between Country Hills Drive and Prewett Ranch Drive, Hillcrest Avenue is a four-lane, divided Arterial with a raised median. There are Class II bicycle lanes in both directions of this segment. There is no provision for on-street parking.

Vista Grande Drive. Vista Grande Drive is designated as a Local Street in the City's General Plan. Between Catanzaro Way and Lone Tree Way, Vista Grande Drive is a two-lane, undivided Local Street, while between Lone Tree Way and Deerspring Way, it is a two-lane, divided Local Street with a raised median. There are Class II bicycle lanes in both directions of this segment. There is no provision for on-street parking.

Fairside Way. Fairside Way is designated as a Local Street in the City's General Plan. Between Vista Grande Drive and Lone Tree Way, Fairside Way is a two-lane, undivided Local Street. There are no bicycle facilities in both directions of this segment. There is provision for on-street parking.

Heidorn Ranch Road. Heidorn Ranch Road is designated as an Arterial in the City's General Plan. Between Lone Tree Way and Lone Tree Plaza Drive, Heidorn Ranch Road is a four-lane, divided Arterial with a raised median. There are Class II bicycle lanes in both directions of this segment. There is no provision for on-street parking.

Canada Valley Road. In the City's General Plan, the segment of Canada Valley Road north of the intersection with Lone Tree Way is designated as a Major Collector, while the segment to the south of the intersection is within the jurisdiction of the City of Brentwood. Between Country Hills Drive and Lone Tree Way, Canada Valley Road is a four-lane, divided Major Collector with a raised median, There are bicycle lanes in both directions for this segment. There is no provision for on-street parking throughout the segment of Canada Valley Road.

4.1.1.2 Transit

Tri Delta Transit operates 15 local bus routes from Monday to Friday and 5 routes on weekends and holidays, serving Antioch, Pittsburg, Brentwood, Oakley, and Bay Point, with limited service in

Concord and Martinez. Tri Delta Transit provides service in Eastern Contra Costa County, connecting passengers to Bay Area Rapid Transit (BART), schools, hospitals, parks, shopping centers, and other points of interest. Five routes operate within the vicinity of the project site, with Routes 379, 388, and 392 stopping along project frontage on Deer Valley Road and Routes 380 and 384 stopping on Lone Tree Way. There is a bus stop near the project site, adjacent to the Kaiser Permanente Antioch Medical Center (Kaiser Medical Center) on Deer Valley Road.

In addition to the regular local bus routes, Tri Delta Transit also provides local door-to-door paratransit transportation for individuals with disabilities and individuals who are 65 years of age or older. The paratransit transportation is limited to Tri Delta Transit's service area in Eastern Contra Costa County.

4.1.1.3 Bicycle Network

According to the Contra Costa Countywide Bicycle and Pedestrian Plan, adopted in July 2018, bikeway facilities within the County have four distinct classifications. They are as follows:

- Class I bikeways are shared-use paths that provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Class I bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and desirable commuter routes.

- Class II bikeways are bike lanes or buffered bike lanes that provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Buffered bike lanes increase separation through painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).

- Class III bikeways are bike routes or bicycle boulevards that provide enhanced mixed-traffic conditions for bicyclists through signage, sharrow striping, and/or traffic-calming treatments, and provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards further enhance bike routes by encouraging slower speeds and discouraging nonlocal vehicle traffic using traffic diverters, chicanes, traffic circles, and speed tables.

- Class IV bikeways are protected bikeways that are set aside for the exclusive use of bicycles. These are physically separated from vehicle traffic. Separated bikeways were adopted by the California Department of Transportation (Caltrans) in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

As described above, bicycle facilities within the study area generally consist of Class II bikeways. The majority of the bicycle network within Antioch consists of Class II bikeways. However, two major Class I bikeways are located within Antioch: the Mokelumne Trail, which generally runs east-west through Antioch, and the Marsh Creek Trail, which generally runs north-south through Antioch. Class II bikeways are proposed for Deer Valley Road south of the project site up to Sand Creek Road.

4.1.1.4 Pedestrian Network

Pedestrian facilities within the vicinity of the project site include sidewalks located along Deer Valley Road, the south side of Wellness Way, Piute Way, Mojave Way, and Oneida Way. The proposed project would include new pedestrian facilities along the internal streets within the project site, as well as the proposed pedestrian path connecting Deer Valley Road to the proposed park.

In addition, the Mokelumne Trail is located within the vicinity of the project along Lone Tree Way. It is linked to the Delta de Anza Trail for a 5.62-mile loop that passes through or near several schools, community parks, and a Park & Ride, in addition to providing access to Contra Loma Regional Park and Black Diamond Mines Regional Preserve.

The Contra Costa Transportation Authority (CCTA) has identified areas where pedestrian improvements are most needed and, consequently, where funding should be prioritized. These Pedestrian Priority Areas (PPAs) are identified using several criteria including high residential/employment density, within 1/2 mile of a major transit stop, within 1/4 mile of a public school, etc. Within the vicinity of the proposed project, there are multiple PPAs that are within 1/4 mile of public schools, including Deer Valley High School to the north and Dozier-Libbey Medical High School to the southeast. Other PPAs in Antioch that meet the criteria for high residential/employment density or proximity to a major transit stop are generally located in the northern portion of Antioch, including along the SR 4 corridor.

4.1.1.5 Analysis Scope and Methodology

Up until July 1, 2020, level of service (LOS) was the primary study metric for disclosing transportation impacts for projects within Antioch. However, SB 743 required the Office of Planning and Research (OPR) to establish a new metric for identifying and mitigating transportation impacts within the California Environmental Quality Act (CEQA) in an effort to meet the State's goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through more active transportation. OPR identified vehicle miles traveled (VMT) as the required transportation metric, and beginning July 1, 2020, VMT (not LOS) is the legally required threshold for transportation impacts pursuant to CEQA.

The City has not adopted VMT analysis guidelines or thresholds. Therefore, the VMT analysis for the proposed project has been prepared consistent with the OPR Technical Advisory (TA) dated December 2018.[1] As recommended by the OPR TA, project VMT per capita has been compared with the regional VMT per capita to determine VMT impacts. Additionally, the OPR TA recommends that a region be identified that would typically include the majority of the trips from a project. Therefore, for purposes of this analysis, Contra Costa County (County) has been considered as the region.

VMT per person (or per capita) is a measurement of the amount and distance that a resident, employee, or visitor drives, accounting for the number of passengers within a vehicle. Many interdependent factors affect the amount and distance a person might drive. In particular, the built environment affects how many places a person can access within a given distance, time, and cost,

[1] Governor's Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA.* December.

using different ways of travels (e.g., private vehicle, public transit, bicycling, walking, etc.). Typically, low-density development located at great distances from other land uses and in areas with few options for ways of travel provides less access than a location with high density, mix of land uses, and numerous ways of travel. Therefore, low-density development without a diverse mix of land uses and a lack of transportation options typically generates more VMT compared to a similarly sized development located in an area with a greater mix of uses and transportation options. Additionally, land uses that reflect a more balanced jobs-housing ratio result in lower per capita VMT. The adoption of VMT as the new CEQA transportation metric is intended to encourage more complimentary infill developments in areas traditionally dominated by one single land use (e.g., a residential project in an area dominated by office buildings), which could potentially reduce VMT.

4.1.1.6 Regulatory Framework

The following federal, State, regional, County of Contra Costa and local transportation plans, policies, and regulations guide transportation planning in Antioch.

Federal Regulations. This section summarizes applicable federal regulations guiding transportation planning in Antioch.

Americans with Disabilities Act. The Americans with Disabilities Act (ADA) of 1990 provides comprehensive rights and protections to individuals with disabilities. The goal of the ADA is to assure equality of opportunity, full participation, independent living, and economic self-sufficiency for people with disabilities. To implement this goal, the United States Access Board, an independent federal agency created in 1973 to ensure accessibility for people with disabilities, has created accessibility guidelines for public rights-of-way. While these guidelines have not been formally adopted, they have been widely followed by jurisdictions and agencies nationwide in the last decade. The guidelines, last revised in July 2011, address various issues, including roadway design practices, slope and terrain issues, and pedestrian access to streets, sidewalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way. These guidelines would apply to proposed roadways in the study area.

State Regulations. This section summarizes applicable State regulations guiding transportation planning in Antioch.

California Department of Transportation. Caltrans is responsible for planning, design, construction, and maintenance of all interstate freeways and State routes. Caltrans sets design standards for State roadways that may be used by local governments. Caltrans requirements are described in its Guide for Preparation of Traffic Impact Studies,[2] which covers the information needed for Caltrans to review the impacts to State highway facilities; including freeway segments, on- and off-ramps, and signalized intersections.

Senate Bill 375. As a means to achieve the statewide emission reduction goals set by Assembly Bill (AB) 32 (The California Global Warming Solutions Act of 2006), Senate Bill (SB) 375 (The Sustainable Communities and Climate Protection Act of 2008) directs the California Air

[2] California Department of Transportation (Caltrans). 2002. *Guide for the Preparation of Traffic Impact Studies*. December.

Resources Board (CARB) to set regional targets for reducing GHG emissions from cars and light trucks. Using the template provided by the State's Regional Blueprint program to accomplish this goal, SB 375 seeks to align transportation and land use planning to reduce VMT through modified land use patterns. There are five basic directives of the bill: (1) creation of regional targets for GHG emissions reduction tied to land use; (2) a requirement that regional planning agencies create a Sustainable Communities Strategy (SCS) to meet those targets (or an Alternative Planning Strategy if the strategies in the SCS would not each the target set by CARB); (3) a requirement that regional transportation funding decisions be consistent with the SCS; (4) a requirement that the Regional Housing Needs Allocation numbers for municipal general plan housing element updates must conform to the SCS; and (5) CEQA exemptions and streamlining for projects that conform to the SCS. The implementation mechanism for SB 375 that applies to land use in Antioch is Plan Bay Area.

Senate Bill 743. SB 743 (CEQA section 21099(b)(1)) requires that OPR develop revisions to the *State CEQA Guidelines* establishing criteria for determining the significance of transportation impacts of projects that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." CEQA section 21099(b)(2) states that upon certification of the revised guidelines for determining transportation impacts pursuant to CEQA section 21099(b)(1), automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA.

In January 2016, OPR published for public review and comment a Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA recommending that transportation impacts for projects be measured using a VMT metric.[3] In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package, including the section implementing SB 743 (section 15064.3). OPR developed a TA on Evaluating Transportation Impacts in CEQA, which contains OPR's technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures.[4]

Regional Regulations. This section summarizes applicable regional regulations guiding transportation planning in Antioch.

Metropolitan Transportation Commission. The Metropolitan Transportation Commission (MTC) is responsible for planning, coordinating, and financing transportation projects in the nine-county Bay Area. The local agencies that constitute these nine counties help the MTC prioritize projects based on need, feasibility, and conformance with federal and local transportation policies. In addition to coordinating with local agencies, MTC distributes State and federal funding through the Regional Transportation Improvement Program (RTIP).

Plan Bay Area. Plan Bay Area 2040 is a State-mandated, integrated long-range transportation and land use plan. As required by SB 375, all metropolitan regions in California must complete

[3] OPR. 2016. *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, Implementing Senate Bill 743 (Steinberg, 2013)*. January 20.

[4] OPR. 2018, op. cit.

an SCS as part of a Regional Transportation Plan. This strategy integrates transportation, land use, and housing to meet greenhouse gas reduction targets set by CARB. The plan meets those requirements. In addition, the plan sets a roadmap for future transportation investments and identifies what it would take to accommodate expected growth. The plan neither funds specific transportation projects nor changes local land use policies.

In the Bay Area, the MTC and the Association of Bay Area Governments adopted the latest plan in 2017. To meet the GHG reduction targets, the plan identifies priority development areas. The agencies estimate approximately 77 percent of housing and 55 percent of job growth will occur in the priority development areas between 2010 and 2040. The project site is not located within a priority development area.

Contra Costa Transportation Authority. CCTA is the Congestion Management Agency (CMA) for Contra Costa County. CCTA implements the East County Action Plan for Routes of Regional Significance, which sets forth performance objectives for Routes of Regional Significance. State Route 4 (SR-4), Balfour Road, Deer Valley Road, Hillcrest Avenue, Lone Tree Way, and Sand Creek Road/Dallas Ranch Road are Routes of Regional Significance within the project study area.

The East County Action Plan for Routes of Regional Significance establishes a Multimodal Transportation Service Objective for SR-4:

- A Delay Index of less than 2.5 (<2.5)
- High-occupancy vehicle (HOV) usage greater than 600 vehicles per lane per peak hour in peak direction (>600 vehicles/land/peak hour).

Local Regulations. This section summarizes applicable City regulations guiding transportation planning in the city.

City of Antioch General Plan. The City of Antioch General Plan sets forth the following objectives and policies relevant to transportation:

- **Objective 7.3.1:** Provide adequate roadway capacity to meet the roadway performance standards set forth in the Growth Management Element.
    - **Policy 7.3.2a**: Facilitate meeting the roadway performance standards set forth in the Growth Management Element and improving traffic flow on arterial roadways.
        - Work with the Union Pacific (UP) and BNSF railroads to construct grade separations along the tracks at Somersville Road, Hillcrest Avenue, “A” Street, the proposed Viera Road extension, and the proposed Phillips Lane extension.
        - Promote the design of roadways to optimize safe traffic flow within established roadway configurations by minimizing driveways and intersections, uncontrolled access to adjacent parcels, on-street parking, and frequent stops to the extent consistent with the character of adjacent land uses.

- Provide adequate capacity at intersections to accommodate future traffic volumes by installing intersection traffic improvements and traffic control devices, as needed, as development occurs.
- Facilitate the synchronization of traffic signals.
- Where needed, provide acceleration and deceleration lanes for commercial access drives.
- Provide for reciprocal access and parking agreements between adjacent land uses, thereby facilitating off-street vehicular movement between adjacent commercial and other nonresidential uses.
- Encourage regional goods movement to remain on area freeways and other appropriate routes.

- **Policy 7.3.2b:** Design and reconfigure collector and local roadways to improve circulation within and connections to residential and commercial areas.
  - Implement appropriate measures to mitigate speeding and other traffic impacts in residential areas.
  - Implement roadway patterns that limit through traffic on local residential streets.
- **Policy 7.3.2c**: Require the design of new developments to focus through traffic onto arterial streets.
- **Policy 7.3.2d:** Where feasible, design arterial roadways, including routes of regional significance, to provide better service than the minimum standards set forth in Measure C and the Growth Management Element. Thus, where feasible, the City will strive to maintain a "High D" level of service (v/c [volume-to-capacity ratio] = 0.85 to 0.89) within regional commercial areas and at intersections within 1,000 feet of a freeway interchange. The City will also strive where feasible to maintain low-range "D" (v/c = 0.80 to 0.84) in all other areas of the City, including freeway interchanges.
- **Policy 7.3.2e:** Establish Assessment Districts in areas that will require major roadway infrastructure improvements that will benefit only that area of the City, and thereby facilitate the up-front construction of needed roadways.
- **Policy 7.3.2f**: Design street intersections to ensure the safe passage of through traffic and accommodate anticipated turning movements. Implement intersection improvements consistent with the following lane geometrics, unless traffic analyses indicate the need for additional turn lanes.
- **Policy 7.3.2h**: Require traffic impact studies for all new developments that propose to increase the approved density or intensity of development or are projected to generate

50 peak-hour trips or more at any intersection of Circulation Element roadways. The purpose of these studies is to demonstrate the following:

- The existing roadway system, along with roads to be improved by the proposed project, can meet the performance standards set forth in Sections 3.4.1 and 3.4.2 of the Growth Management Element.
- Required findings of consistency with the provisions of the Growth Management Element can be made.

  - **Policy 7.3.2l:** Locate driveways on corner parcels as far away from the intersection as is possible.
  - **Policy 7.3.2n**: Use raised medians as a method for achieving one or more of the following objectives: access control, separation of opposing traffic flows, left-turn storage, aesthetic improvement, and/or pedestrian refuge.
  - **Policy 7.3.2p**: Where a series of traffic signals are provided along a route, facilitate the coordination of traffic signals to optimize traffic progression on a given route. Traffic signalization should emphasize facilitating access from neighborhood areas onto the City's primary roadway network, and should work to discourage through traffic from using local streets.
  - **Policy 7.3.2x:** Require new development to construct all on-site roadways, including Circulation Element routes, and provide a fair share contribution for needed off-site improvements needed to maintain the roadway performance standards set forth in the Growth Management Element. Contributions for off-site improvements may be in the form of fees and/or physical improvements, as determined by the City Engineer. Costs associated with mitigating off-site traffic impacts should be allocated on the basis of trip generation, and should have provisions for lower rates for income-restricted lower income housing projects needed to meet the quantified objectives of the General Plan Housing Element.

- **Objective 7.4.1:** Maintenance of safe, convenient, and continuous networks of pedestrian sidewalks, pathways, and bicycle facilities serving both experienced and casual bicyclists to facilitate bicycling and walking as alternatives to the automobile.

  - **Policy 7.4.2a:** Design new residential neighborhoods to provide safe pedestrian and bicycle access to schools, parks, and neighborhood commercial facilities.
  - **Policy 7.4.2c:** Provide street lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area and that contributes to vehicular, pedestrian, and bicycle safety.
  - **Policy 7.4.2d:** Maintain roadway designs that maintain mobility and accessibility for bicyclists and pedestrians.

- **Policy 7.4.2l:** Require the construction of attractive walkways in new residential, commercial, office, and industrial developments, including provision of shading for pedestrian paths.

- **Policy 7.4.2o:** Pave walks and pedestrian pathways with a hard, all-weather surface that is easy to walk on. Walks and curbs should accommodate pedestrians with disabilities. Walks within open space areas should have specially paved surface.

4.2 IMPACTS AND MITIGATION MEASURES

This section analyzes the potential of the proposed project to result in impacts on the transportation network. Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment.[5] The "environment" means the physical conditions that exist in the area including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. These criteria of significance are based on the *State CEQA Guidelines* and applicable City or County of Contra Costa (County) policies. In determining whether a project's impacts are significant, an EIR ordinarily compares those impacts with existing environmental conditions which are referred as the "baseline" for the impact analysis. This EIR compares the potential environmental impact of the proposed project with the baseline environmental conditions in existence at the time that the Notice of Preparation (NOP) was published, on December 16, 2020.

As previously discussed in Chapter 3.0, Project Description, the analysis below makes reference to, and tiers from, the 2008 IS/MND, where appropriate. The findings related to transportation as identified in the 2008 IS/MND are presented prior to the project impact analysis. The latter part of this section presents the impacts associated with implementation of the proposed project and identifies mitigation measures, as appropriate.

4.2.1 Significance Criteria

The proposed project would result in a significant impact related to transportation if it would:

- Conflict with an applicable plan, ordinance, or policy, including the congestion management program, addressing all components of the circulation system;

- Exceed an applicable VMT threshold of significance;

- Substantially increase hazards due to a design feature or incompatible uses; or

- Result in inadequate emergency access.

[5] Public Resources Code Section 21068.

4.2.2 2008 IS/MND Impacts

The 2008 IS/MND determined that the 2008 Project would have significant impacts related to an increase in traffic that would be substantial in relation to the existing traffic load and capacity of the street system. In particular, the 2008 Project would exacerbate vehicle queues at the Deer Valley Road/Lone Tree Way and Deer Valley Road/Prewett Ranch Drive intersections. The 2008 IS/MND identified Mitigation Measures TRANS-1 and TRANS-2, which require restriping and the extension of turn lanes, to reduce these impacts to less-than-significant levels. As noted in Section 4.1.1.5, CEQA no longer considers automobile delay (including roadway segment LOS) to be an environmental impact, and these mitigation measures are no longer applicable.

The 2008 IS/MND determined that the proposed project would not result in the construction of buildings that would be sufficiently high enough or configured in a way that would affect air traffic patterns, would not create hazardous design features, would provide adequate emergency access, would provide adequate parking, and would not create demand that could not be accommodate by pedestrian, bicycle, and transit service facilities.

4.2.3 Project Impacts

This section analyzes potential project-specific and cumulative impacts to the transportation and circulation network in the study area. As discussed in Chapter 3.0, Project Description, the proposed project would include the construction of 121 residential units. Each of the residential units would include either a two- or three-car parking garage, for a total of 267 parking spaces. An additional 232 guest parking spaces would be provided on the internal streets for a total capacity of 495 parking spaces on the project site. Access to the project site would be provided at four points, including from Wellness Way to the south and from extensions of Piute Way, Mojave Way, and Oneida Way, all of which are existing streets that currently have a terminus at the northern boundary of the project site. Interior streets would provide vehicular access to each of the proposed residential units.

The trip generation for the proposed project was developed using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition) for Land Use 210 (Single-Family Detached Housing). The trip generation for the proposed project is summarized in Table 4.B. As shown in Table 4.B, application of the vehicle trip generation rates, assumption, and trip reductions would result in 90 new trips (23 inbound and 67 outbound) during the AM peak hour and 120 new trips (75 inbound and 45 outbound) during the PM peak hour.

Table 4.A: Vehicle Trip Generation Estimates

Land Use	Size	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Trips/Unit*	1 DU	0.19	0.55	0.74	0.62	0.37	0.99	9.44
Trip Generation	121 DU	23	67	90	75	45	120	1,142

Source: LSA Associates, Inc. (2020)
* Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 210—Single-Family Detached Housing; Setting/Location—General Urban/Suburban.
DU = Dwelling Unit
ITE = Institute of Transportation Engineers

4.2.3.1 Conflicts with Applicable Plans, Ordinances, or Policies

As described above, Policy 7.3.2h of the City's General Plan requires traffic impact studies for all new developments that propose to increase the approved density or intensity of development or are projected to generate 50 peak-hour trips or more at any intersection for roadways identified in the City's General Plan Circulation Element. As shown in Table 4.A, the proposed project would generate more than 50 peak-hour trips during both the AM and PM peak hours, and therefore a traffic impact study has been prepared for the proposed project.[6] As previously described, LOS can no longer be used to determine whether or not a project would result in significant impacts on the environment. Therefore, because a traffic impact study has been prepared, the proposed project would not conflict with Policy 7.3.2h of the City's General Plan.

As described above, the 2008 IS/MND determined that the 2008 Project would not result in demand for pedestrian, bicycle, or transit facilities that could not be accommodated by existing facilities. The proposed project would include fewer residential units than were contemplated in the 2008 IS/MND and therefore would generate reduced demand for pedestrian, bicycle, or transit facilities as compared to the 2008 Project. In addition, similarly to the 2008 Project, the proposed project would include new sidewalks throughout the project site, as well as a new pedestrian pathway connecting the proposed park to the sidewalks along Deer Valley Road, and would not include the removal of any pedestrian or bicycle facilities. Therefore, the proposed project would not result in any new or substantially more severe impacts beyond those identified in the 2008 IS/MND, and this impact would be less than significant.

4.2.3.2 Vehicle Miles Traveled

As previously described, the City does not have its own VMT analysis guidelines and therefore uses a threshold of 15 percent below the region's existing VMT per capita for residential projects as recommended in OPR's TA.

The CCTA's Countywide Travel Demand Model was used to estimate both regional and project VMT. A travel demand model is a transportation planning analytical tool that utilizes land use information, travel behavior, and other transportation-related data to forecast various traffic statistics such as trip generation, trip distribution and trip length. Vehicle miles traveled per person (or per capita) is a measurement of the amount and distance that a resident, employee, or visitor drives accounting for the number of passengers within a vehicle. Many interdependent factors affect the amount and distance a person might drive. In particular, the built environment affects how many places a person can access within a given distance, time, and cost, using different ways of travel (e.g., private vehicle, public transit, bicycling, walking, etc.). Therefore, VMT is influenced by the land use type of the proposed project, the location of the project site, and surrounding land uses and transit options as opposed to the overall size of the development.

The CCTA's Countywide Travel Demand Model's 2020 scenario and socioeconomic data have been used for the purposes of this analysis. Table 4.B shows the existing daily average VMT per capita for residents within the region (Contra Costa County), the daily average VMT per capita for the

6 LSA Associates, Inc. (LSA). 2021. *Deer Valley Estates Project Transportation Analysis*. January 19.

proposed project, and the percent difference between these two values. A summary of the VMT analysis is provided in Appendix C.[7]

Table 4.B: Regional and Project VMT per Capita Comparison

Analysis Scenario	Regional VMT (Contra Costa County)	Project VMT	Difference
Existing (2020)	16.75	22.19	+32.48%

Source: Contra Costa Transportation Authority (CCTA) Countywide Travel Demand Model (2020).
VMT = Vehicle Miles Traveled

As shown in Table 4.B, the estimated average daily VMT per capita for residential land uses within the region is 16.75. The estimated daily VMT per capita for the proposed project is 22.19, approximately 32.48 percent higher than the regional VMT. As described above, VMT is measurement of the amount and distance a person drives based on the location and land use type of a project. Therefore, any residential use on the project site would be anticipated to have the same per capita VMT.

The threshold of significance for determining VMT impacts is a 15 percent decrease compared to the region's existing VMT. A 15 percent reduction of the regional VMT would be 14.24.[8] Therefore, the proposed project's VMT per capita of 22.19 is approximately 55.82 percent above the threshold of significance of 14.24 VMT per capita.

Impact TRA-1: The proposed project would exceed applicable VMT thresholds of significance. (S)

The estimated VMT does not account for the implementation of a potential transportation demand management (TDM) plan, which could be used to reduce the project VMT. A TDM plan would need to achieve a minimum of 55.82 percent reduction in VMT to reduce the project impacts to less-than-significant levels.

The range of effectiveness for VMT reductions is based on information included in the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures report (CAPCOA report).[9] The quantification methods provided in the CAPCOA report are based on an extensive literature review. The CAPCOA report identifies the global maximum reduction for all VMT as 75 percent for projects in urban areas, 40 percent for compact infill projects, 20 percent for suburban center projects (or suburban with a neighborhood electric vehicle (NEV) network), and 15 percent for suburban projects. The proposed project most closely resembles a suburban center

[7] External trips, which are those that either originate from or are destined to areas outside of the model area (i.e., Contra Costa County), were not included. The CCTA's Travel Demand Model does not include external stations that could be used to determine trip length. Additionally, external trips are available as total vehicle trips and not by trip purpose. Therefore, due to the limitations of the CCTA's Travel Demand Model, external VMT was not included in the calculation of Regional and Project VMT.

[8] A 15 percent reduction from 16.75 is 14.24.

[9] California Air Pollution Control Officers Association (CAPCOA). 2010. *Quantifying Greenhouse Gas Mitigation Measures*. August. Website: www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf (accessed July 24, 2020).

project, which is characterized by dispersed, low-density, automobile-dependent land use patterns centered around a historic downtown that has become surrounded by its region's suburban growth pattern. Therefore, an aggressive TDM plan for the proposed project would be expected to achieve a maximum reduction in per capita VMT of 20 percent. A 20 percent reduction would result in 17.75 daily VMT per capita for the proposed project. Therefore, even with the implementation of an aggressive TDM plan, the proposed project's VMT would be 24.64 percent above the threshold of significance of 14.24 VMT per capita.

Based on the above, there are no feasible or realistic mitigation measures currently available that would reduce this impact to a less-than-significant level. Therefore, this impact would be significant and unavoidable. **(SU)**

4.2.3.3 Design Hazards

For purposes of CEQA, hazards refer to engineering aspects of a project (e.g., speed, turning movements, complex designs, substantial distance between street crossings, or sight lines) that may cause a greater risk of collisions that result in serious or fatal physical injury than a typical project. This analysis focuses on hazards that could reasonably stem from the project itself, beyond collisions that may result from aforementioned non-engineering aspects or the transportation system as a whole.

As described above, the 2008 IS/MND determined that the 2008 Project would have a less-than-significant impact related to transportation-related design features or incompatible uses. Specifically, the 2008 IS/MND determined that adequate vehicular access would be provided by Wellness Way from the west and Oneida Way from the north. The proposed project would include the same access from Wellness Way and Oneida Way as the 2008 Project but would also include access from Piute Way and Mojave Way, both of which are also located to the north. Both Piute Way and Mojave Way are substantially similar to Oneida Way.

While the proposed project would include new changes to the roadway network at the project limits, the changes would not include any design features that could cause potentially hazardous conditions. Oneida Way, Mojave Way, and Piute Way all currently dead-end into the project site. Additionally, the size and dimensions of each of these intersections would be required to meet the City's design standards and therefore would not create any obstructions at intersections that could result in new design hazards. Therefore, the proposed project would result in improved access for residents of the project site and residents in the adjacent neighborhoods. Therefore, the proposed project would not result in any new or substantially more severe impacts beyond those identified in the 2008 IS/MND that would result from implementation of the proposed project.

4.2.3.4 Emergency Access

As described above, the 2008 IS/MND determined that the 2008 Project would have a less-than-significant impact related to emergency access. The 2008 IS/MND determined that the access points to the project site would be adequate and that the internal roads would be constructed to the standards of the Contra Costa County Fire Protection District (CCCFPD).

As noted above, the proposed project would include the same access points as the 2008 Project but would also add two new access points. Therefore, the proposed project would provide better emergency access compared to the 2008 Project. Although there would be a general increase in vehicle traffic from the proposed project, the proposed project would not inhibit emergency access to the project site or materially affect emergency vehicle response out of the station. Development of the project site and associated increases in vehicles, pedestrians, and bicycle travel would not substantially affect emergency vehicle response times or access to other buildings or land uses in the area or to hospitals. Therefore, the proposed project would not result in any new or substantially more severe impacts beyond those identified in the 2008 IS/MND that would result from implementation of the proposed project.

4.2.4 Cumulative Impacts

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

The methodology used for assessing cumulative impacts typically varies depending on the specific topic being analyzed. CEQA requires that cumulative impacts be discussed using either a list of past, present, and probable future projects producing related or cumulative impacts, or a summary of projections contained in an adopted local, regional, or Statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect.

The cumulative context for land use development project effects is typically localized, within the immediate vicinity of the project site or at the neighborhood level. Cumulative development includes the projects listed in Table 4.C.

Table 4.C: Cumulative Projects in the Vicinity of the Project Site

Project	Jurisdiction	Address/APN	Land Use	Units	Status
Zeka Ranch SB 330	Antioch	APN: 075-132-009-016	SFR	338 DU	Accepted
Ducky's Car Wash	Antioch	NW corner of Lone Tree Way and Country Hills Drive	Car Wash	6.50 TSF	Under Review
Contra Costa ARC Daycare	Antioch	2175 Country Hills Drive	Adult/Children's Daycare	30.00 TSF	Under Construction
Deer Valley Business Park West	Antioch	NW Corner of Deer Valley Road and Country Hills Road	Business Park	10.97 TSF	ZA Approved
The Ranch—Phase 1	Antioch	6275 Deer Valley Road	SFR Retail	421 DU 54.00 TSF	City Council Approved
Albers Ranch	Antioch	APN: 057-042-006, 057-050-021	SFR	301 DU	Under Review
Creekside Vineyards at Sand Creek	Antioch	APN: 057-050-024	SFR	220 DU	Under Review
Aviano	Antioch	APN: 057-030-005, 057-050-022, 057-050-014	SFR	533 DU	Under Construction
Promenade Vineyards at Sand Creek	Antioch	3052 Heidorn Ranch Road	SFR	641 DU	Under Construction
Heidorn Village[1]	Antioch	NW corner of Heidorn Ranch Road and Prewett Park Drive	SFR	44 DU	Under Construction
Park Ridge[2]	Antioch	APN: 053-060-023, 053-072-016	SFR	408 DU	Phase 2 Under Construction
Laurel Ranch	Antioch	North of the future Laurel Road connection and west of the SR 4 eastbound ramps	SFR	187 DU	Approved
Shops at Lone Tree Village	Brentwood	SE of SR-4 and Lone Tree Way	Shopping Center	54.00 TSF	Under Construction
Orfanos	Brentwood	2800 Empire Avenue	SFR	160 DU	Approved
2700 Empire Avenue Project	Brentwood	2700 Empire Avenue	SFR	48 DU	Approved
Streets of Brentwood	Brentwood	North of Sand Creek Road and west of Shady Willow Lane	SFR Shopping Center	320 DU 32.00 TSF	Pending
Parkside Villas	Brentwood	1925 Apricot Way	SFR	37 DU	Under Construction

Source: City of Antioch (2019).
[1] A total of 44 units have been considered for the cumulative scenario.
[2] A total of 408 units have been considered for the cumulative scenario.
APN = Assessor's Parcel Number
DU = dwelling units
NW = northwest
SB = Senate Bill
SE = southeast
SFR = single-family residential
SR-4 = State Route 4
TSF = thousand square feet
ZA = Zoning Administrator

This following discusses potential cumulative impacts to the transportation and circulation network in the study area.

4.2.4.1 Conflicts with Applicable Plans, Ordinances or Policies

Future development would be required to comply with existing regulations, including General Plan policies and zoning regulations that have been prepared to minimize impacts related to transportation and circulation. The City, throughout the 2025 build out horizon, would implement the General Plan programs that require the City to annually update the Capital Improvement Program to reflect City and community priorities for physical projects related to transportation for all travel modes and biannually update data regarding travel patterns for all modes to measure circulation system efficiency (e.g., VMT per capita and traffic volumes) and safety (e.g., collision rates) standards, among others as listed above. For these reasons, the proposed project, in combination with cumulative projects, would have a less-than-significant cumulative impact with respect to conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

4.2.4.2 Vehicle Miles Traveled

Consistent with OPR's TA on Evaluating Transportation Impacts in CEQA,[10] a project's cumulative impacts are based on an assessment of whether the "incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probably future projects." A project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact.

The proposed project would exceed the existing VMT thresholds of significance. Therefore, the proposed project would also have a cumulatively considerable impact with respect to VMT.

Impact TRA-2: The proposed project, in combination with cumulative projects, would exceed the existing VMT thresholds of significance. (S)

Future buildout of the Sand Creek Focus area could create a built environment with a more diverse mix of uses and therefore result in a potential decrease in per capita VMT by reducing the distance required for residents of the proposed project to access services and places of employment. However, this efficient mix of uses cannot be guaranteed, as it would rely on future private development in the area. Therefore, the proposed project, in combination with cumulative projects, would have a significant unavoidable impact with respect to VMT. **(SU)**

4.2.4.3 Design Hazards

Overall, cumulative land use development and transportation projects would promote accessibility for people walking to and through the site by conforming to General Plan policies and zoning regulations and by adhering to planning principles that emphasize providing convenient connections and safe routes for people walking, bicycling, driving, and taking transit. Additionally, as with current practice, projects would be designed and reviewed by the City's Public Works Department, and the department would provide oversight engineering review to ensure that the proposed project is

[10] OPR. 2018, op. cit.

constructed according to City specifications. As a result, the cumulative projects would not generate activities that would increase hazards due to a design feature or incompatible use. For these reasons, the proposed project, in combination with cumulative projects, would have a less-than-significant cumulative impact with respect to hazardous design features or incompatible uses.

4.2.4.4 Emergency Access

Future development, as part of the City's project approval process, would be required to comply with existing regulations, including General Plan policies and zoning regulations that have been prepared to minimize impacts related to emergency access. The City, throughout the 2025 build out horizon, would implement the General Plan programs that require the City's continued coordination with CCCFPD to establish circulation standards, adopt an emergency response routes map, and equip all new traffic signals with preemptive traffic signal devices for emergency services. Furthermore, the implementation of the zoning regulations would help to minimize traffic congestion that could impact emergency access. For these reasons, the proposed project, in combination with cumulative projects, would have a less-than-significant cumulative impact with respect to emergency access.

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5.0 OTHER CEQA CONSIDERATIONS

As required by CEQA, this chapter discusses the following types of impacts that could result from implementation of the proposed project: growth inducement, significant irreversible changes, effects found not to be significant, and significant unavoidable effects.

5.1 GROWTH INDUCEMENT

A project is considered growth-inducing if it would directly or indirectly foster substantial economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are only sparsely developed or are underdeveloped. Typically, development projects on sites that are designated for development and surrounded by existing suburban uses are not considered adversely growth-inducing because growth in areas that already have development and infrastructure available to serve new development are generally considered environmentally beneficial.

Implementation of the proposed project would result in direct population growth within Antioch and specifically within the Sand Creek Focus Area through the construction of 121 dwelling units. As discussed in Section 4.14, Population and Housing, of the Initial Study (Appendix B), the proposed project could increase the local population by approximately 372 persons. This growth would account for approximately 3 percent of the population growth anticipated under the General Plan buildout of the Sand Creek Focus Area and evaluated in the Initial Study. Furthermore, this growth accounts for less than 1 percent of the projected and planned for growth within Antioch. As such, the proposed project would neither directly or indirectly lead to substantial or unforeseen economic or population growth, but would instead contribute to the anticipated local and regional housing supply.

Additionally, the project site is located immediately south of and adjacent to existing residential development and immediately north of the Kaiser Permanente Antioch Medical Center (Kaiser Medical Center); the Aviano Farms Project[1] is currently under construction to the east. The proposed project would not require the extension of utilities or roads into undeveloped areas that are not planned for the expansion of infrastructure or directly or indirectly lead to development of greenfield sites that are not planned for development. Due to the location of the project site, the presence of existing uses in the vicinity of the site, and consistency with proposed development within the Sand Creek Focus Area, development of the proposed project would not induce unplanned growth in the area. Therefore, the growth that would occur as a result of the proposed project would not be substantial or adverse.

[1] The Aviano Farms Project, which was approved by the Antioch City Council on September 8, 2015, consists of approximately 553 one- to two-story single-family detached homes.

5.2 SIGNIFICANT IRREVERSIBLE CHANGES

CEQA requires an assessment of whether the proposed project would result in significant irreversible changes to the physical environment. The *State CEQA Guidelines* discuss three categories of significant irreversible changes that should be considered. Each is addressed below.

5.2.1 Changes in Land Use Which Commit Future Generations

The project site is located within the Sand Creek Focus Area of Antioch and is generally surrounded by residential and medical uses. The approximately 37.56-acre project site is currently undeveloped; however, construction of the proposed project would occur on land that is designated for urban uses. Additionally, the proposed project would be consistent with existing zoning for the site, which is Planned Development (P-D). In the future, the site could be rezoned, in which case, at the end of the useful life of the proposed project, the use could change. Therefore, the proposed project would not commit future generations to a significant change in land use.

5.2.2 Irreversible Damage from Environmental Accidents

No significant environmental damage, such as accidental spills or explosion of a hazardous material, is anticipated to occur with development of the proposed project. As described in Section 4.9, Hazards and Hazardous Materials, of the Initial Study (Appendix B), the Phase I Environmental Site Assessment (ESA) prepared for the project site identified potential environmental concerns associated with the site's past agricultural uses, contamination from nearby or unmapped oil/natural gas wells in the vicinity, and potential damage to pipelines in the vicinity of the project site. However, the Initial Study determined that implementation of Mitigation Measures HAZ-1 and HAZ-2 would reduce this impact to a less-than-significant level through preconstruction environmental investigations for hazardous materials and the preparation of a Construction Risk Management Plan. No irreversible changes—such as those that might result from construction of a large-scale mining project, a hydroelectric dam project, or other institutional project—would result from development of the proposed project.

5.2.3 Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes increased energy consumption, conversion of agricultural lands, and lost access to mining reserves. As discussed in Section 4.2 of the Initial Study (Appendix B), the State Department of Conservation designates the site as "Farmland of Local Importance," which includes land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. However, the project site is not currently in agricultural production, and although it previously been used for seasonal cattle grazing, it has not been used for grazing for at least the last 2 years. Therefore, no existing agricultural lands would be converted to nonagricultural uses. In addition, as discussed in Section 4.12 of the Initial Study (Appendix B), the project site does not contain known mineral resources and does not serve as a mining reserve; thus, development of the proposed project would not result in the loss of access to mining reserves. Please refer to the Initial Study included in Appendix B for a discussion of impacts related to agricultural and mining resources.

Construction of the proposed project would require the use of energy, including energy produced from nonrenewable resources. Energy consumption would also occur during the operational period of the proposed project. The proposed project is expected to be relatively energy efficient and would incorporate green building measures in compliance with the latest California Green Building Standards Code (CALGreen) standard building measures for residential buildings and Title 24 requirements. As discussed in Section 4.6, Energy, of the Initial Study (Appendix B), the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Implementation of Modified Mitigation Measure AIR-1, as identified in Section 4.3, Air Quality, would increase energy efficiency on the site during project construction by restricting equipment idling times to 5 minutes or less and requiring construction workers to shut off idle equipment. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Therefore, the proposed project would not result in a significant impact associated with the consumption of nonrenewable resources.

5.3 EFFECTS FOUND NOT TO BE SIGNIFICANT

The environmental topic analyzed in Chapter 4.0, Transportation, represents the topic that was most likely to result in adverse impacts associated with development of the proposed project. As discussed in more detail in the Initial Study (Appendix B), the following topics are not addressed in this Environmental Impact Report (EIR) because impacts related to these topics either would not occur, would be less than significant, or would be less than significant with implementation of identified mitigation measures. The proposed project would be required to comply with all applicable mitigation measures, as modified and identified in the 2008 Project Mitigation Monitoring and Reporting Program (MMRP), which was prepared for the Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project). A summary of the conclusions provided in the Initial Study analysis for each of the topics scoped out of the EIR is provided below.

5.3.1 Aesthetics

The proposed project would consist of one- and two-story homes, which would blend in with surrounding development, including residential uses immediately to the north and the Kaiser Medical Center to the south and would not adversely affect important public view corridors within the vicinity of the project site, including Lone Tree Way, Hillcrest Avenue, and Deer Valley Road. As noted in the Initial Study, the project site is not located within the viewsheds of State Route 4 or Interstate 680, which are considered State scenic highways. The proposed project would be subject to the City of Antioch (City) design review process, which would ensure the proposed project complies with the City's objectives and policies related to project design. Indoor and exterior lighting included in the proposed project would generally blend in with surrounding development; however, implementation of Mitigation Measure AES-1, identified in the Initial Study, would be required to ensure that daytime glare associated with sun reflecting off of windows would result in a less-than-significant impact. Therefore, potential impacts related to scenic vistas, scenic resources, scenic regulations, and light and glare would be less than significant.

5.3.2 Agriculture and Forestry Resources

The project site is located within the P-D zoning district and is classified as "Farmland of Local Importance" by the State Department of Conservation.[1] Although the project site had previously been used for seasonal cattle grazing, it has not been used for grazing for at least the last 2 years. The project site is not used for agricultural production, nor does it support forestry resources. Therefore, there would be no impact to agricultural and forestry resources.

5.3.3 Air Quality

The proposed project would generally implement the applicable measures outlined in the Clean Air Plan, including Transportation Control Measures. Therefore, the project would not disrupt or hinder implementation of a control measure from the Clean Air Plan.

Construction emissions associated with the project would be less than significant for reactive organic gasses (ROG), nitrogen oxides (NO_x), and suspended particulate matter ($PM_{2.5}$ and PM_{10}) exhaust emissions and would not result in the generation of substantial emissions. The Bay Area Air Quality Management District (BAAQMD) requires the implementation of the BAAQMD Basic Construction Mitigation Measures (best management practices [BMPs]) to minimize construction fugitive dust impacts. With implementation of Modified Mitigation Measure AIR-1, identified in the Initial Study, construction of the proposed project would not substantially contribute to an air quality violation.

The primary emissions associated with the proposed project are regional in nature, meaning that air pollutants are rapidly dispersed on release or that, in the case of vehicle emissions associated with the project, emissions are released in other areas of the San Francisco Bay Area Air Basin. The daily and annual emissions associated with project operational trip generation, energy, and area sources would not exceed the significance criteria for daily ROG, nitrogen dioxide (NO_2), or PM_{10} or $PM_{2.5}$ emissions; therefore, the proposed project would not have a significant effect on regional air quality.

The proposed project site is located in an urban area in close proximity to existing residential uses that could be exposed to diesel emission exhaust during the construction period. Residential uses are located immediately adjacent to the northern and southern borders of the project site. To estimate the potential cancer risk from project construction equipment exhaust (including diesel particulate matter), a dispersion model was used to translate an emission rate from the source location to a concentration at the receptor location (i.e., a nearby residential land use). The results of the dispersion analysis indicate that the proposed project would exceed the newly applicable BAAQMD cancer risk threshold of 30.10 in one million. With implementation of Mitigation Measure AIR-2, identified in the Initial Study, construction of the proposed project would not exceed BAAQMD thresholds and would not expose nearby sensitive receptors to substantial pollutant concentrations.

[1] California Department of Conservation. 2016. California Important Farmland Finder (map). Website: maps.conservation.ca.gov/dlrp/ciff (accessed December 2020).

Implementation of the proposed project would not create objectionable odors affecting a substantial number of people or subject persons to objectionable odors.

Implementation of Modified Mitigation Measure AIR-1 and Mitigation Measure AIR-2 would ensure that potential impacts of the proposed project to air quality would be less than significant.

5.3.4 Biological Resources

The project site is currently vacant and generally consists of nonnative annual grassland and ruderal vegetation; however, the project site provides suitable habitat for the vernal pool tadpole and fairy shrimp, California tiger salamander, burrowing owl, and San Joaquin kit fox and may now provide suitable habitat for the following five special-status species: California red-legged frog, Swainson's hawk, loggerhead shrike, white-tailed kite, and American badger. Mitigation Measures BIO-1a through BIO-3c from the Initial Study would be required to reduce potential impacts to the vernal pool fairy and tadpole shrimp, California tiger salamander, California red-legged frog, burrowing owl, San Joaquin kit fox, and American badger to a less than significant level. In addition, Mitigation Measure BIO-5 from the Initial Study would ensure that impacts to the Swainson's hawk, loggerhead shrike, and white-tailed kite would be reduced to a less-than-significant level. The project site does not contain any riparian habitat, federally protected wetlands, or significant wildlife movement corridors, nor would the proposed project require the removal of trees on the project site. Furthermore, the proposed project is not subject to any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan. Therefore, potential impacts related to biological resources would be less than significant.

5.3.5 Cultural Resources

The project site does not contain any known historical resources. However, the proposed project could result in potentially significant impacts related to the potential accidental discovery of archaeological resources or human remains during site preparation activities. With implementation of Mitigation Measures CULT-1 and CULT-3, identified in the Initial Study, these impacts would be reduced to a less-than-significant level. Mitigation Measures CULT-1 and CULT-3 would ensure that potential impacts to previously unknown archaeological resources or human remains would be less than significant.

5.3.6 Energy

Energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources, and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level and because the proposed project's total impact to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the 2019 Integrated Energy Policy Report. Additionally, the proposed project would be constructed to CALGreen standards, which would help to reduce energy and natural gas consumption. The proposed project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and not result in any irreversible or irretrievable commitments of energy. Therefore, potential impacts related to energy use would be less than significant.

5.3.7 Geology and Soils

The Initial Study determined that no Alquist-Priolo Earthquake Fault Zones have been mapped within the project site. Additionally, the Initial Study determined that implementation of Mitigation Measure GEO-1, which requires the project design to comply with the California Building Code, would ensure that potential impacts related to strong seismic ground shaking and seismic-related ground failure, including liquefaction or landsliding, would be less than significant. The Initial Study also determined that the project site would be susceptible to erosion based on the presence of Capay and Altamont clay. Implementation of Mitigation Measure HYD-3, which requires a detailed hydraulic analysis that shows that the proposed project would not create potential hydromodification impacts such as soil erosion, would reduce this impact to a less than significant level. Additionally, implementation of Mitigation Measures GEO-2 and GEO-3 identified in the Initial Study, which require the implementation of shoring requirements for workers dealing with work in excavations and the incorporation of all recommendations in a final site-specific design-level geotechnical investigation, would ensure that impacts related to unstable soils would remain less than significant. Implementation of Mitigation Measure CULT-2 would ensure that potential impacts of the proposed project to paleontological resources would be less than significant. Therefore, impacts related to geology and soils would be less than significant.

5.3.8 Greenhouse Gas Emissions

The proposed project would generate greenhouse gas emissions (GHGs) during both the construction and operation periods. Implementation of Mitigation Measure AIR-1 would reduce construction period GHG emissions to a less-than-significant level by reducing the amount of construction vehicle idling and by requiring the use of properly maintained equipment. The proposed project would develop 121 residential units, which would provide residence for approximately 372 people. The proposed project would not result in the addition of any new employees; therefore, the total service population (residents plus employees) would be 372 people. As such, the proposed project's GHG emissions would result in a GHG efficiency of 3.6 metric tons of CO_2 equivalents (CO_2e) per service population, which would be below the 4.1 metric tons of operation-period CO_2e per service population threshold established by the BAAQMD. Additionally, the proposed project would generally be consistent with actions identified in the City of Antioch Climate Action and Resilience Plan. Therefore, impacts related to GHG emissions would be less than significant.

5.3.9 Hazards and Hazardous Materials

The Initial Study determined that the single-family residential uses and park included in the proposed project would not include the routine transport, use, or disposal of significant quantities of hazardous materials. The Phase I ESA prepared for the project site identified potential environmental concerns associated with the site's past agricultural uses, contamination from nearby or unmapped oil/natural gas wells in the vicinity, and potential damage to pipelines in the vicinity of the project site. Implementation of Mitigation Measures HAZ-1 and HAZ-2 would reduce this impact to a less-than-significant level through preconstruction environmental investigations for hazardous materials and the preparation of a Construction Risk Management Plan. The project site is not located on a site included on a list of hazardous materials sites, nor is it located within an airport land use plan or two miles of any airport. The proposed project would not substantially alter any

adjacent roadways and therefore would not be expected to impair the function of nearby evacuation routes. The project site is not located within an area mapped as containing a wildland fire hazard and is surrounded by existing and planned development, further reducing the site's proximity to undeveloped wildland areas. Therefore, impacts related to hazards and hazardous materials would be less than significant.

5.3.10 Hydrology and Water Quality

The proposed project would involve construction activities that would disturb over 1 acre of soil, and therefore would be required to comply with the National Pollutant Discharge Elimination System (NPDES), General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit [CGP]). The proposed project would also be required to comply with Provision C.3 of the Municipal Regional Permit (MRP) and the Contra Costa Clean Water Program (CCCWP) Stormwater C.3 Guidebook. The proposed project would include new storm water infrastructure on the project site and connect to existing storm water facilities under Oneida Way; however, it could not be determined whether or not the proposed BMPs included in the proposed project would be sufficient to address all of the applicable requirements for the NPDES permit. Implementation of Mitigation Measures HYD-1 and HYD-2, identified in the Initial Study, would ensure any potential impacts to water quality and discharge would be less than significant.

The proposed project could cause hydromodification impacts in the vicinity of the project site by increasing the rate and volume of runoff. In addition, the preliminary drainage plans do not include explicit calculations or descriptions as to how it would be ensured that downstream flooding problems would not be exacerbated. Implementation of Mitigation Measures HYD-3, HYD-4, and HYD-5, identified in the Initial Study, which require a detailed hydraulic analysis, preparation and implementation of a drainage plan, and the payment of impact fees for increased impervious surfaces, would ensure that these impacts would be reduced to a less-than-significant level.

The project site does not overlie a specified groundwater recharge area and would not include the use of any local groundwater supplies or reduce groundwater recharge. The proposed project would not place structures in flood hazard zones or existing waterways. Therefore, impacts related to hydrology and water quality would be less than significant.

5.3.11 Land Use and Planning

The Initial Study determined that the proposed project would not create any physical barriers to travel in the vicinity of the project site. The proposed project would include the development of single-family residential uses on an undeveloped site surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. The proposed project would include new connections to Piute Way, Mojave Way, and Oneida Way and therefore would increase opportunities for vehicular and pedestrian access in the area. Therefore, the proposed project would not physically divide an established community.

The Initial Study determined that the proposed project would be consistent with the General Plan as it would include a density of approximately 3.2 dwelling units per net acre, where the maximum is 4 dwelling units per acre for the Low Density Residential designation. The project site is located within the P-D zoning district, which is intended to encourage a wider variety of densities, product types,

and setbacks than would otherwise be possible under conventional residential zoning. The proposed project would be consistent with the development standards in the P-D district, including the maximum density and maximum number of units, minimum lot size, landscape and open space requirements, architectural guidelines, maximum building heights, and lot coverage. As noted throughout the Initial Study and this EIR, the proposed project would generally not conflict with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, impacts related to land use and planning for CEQA purposes would be less than significant.

5.3.12 Mineral Resources

The project site located within the outer margins of the Brentwood oil field. However, given the marginal economic viability of the Brentwood oil field, development of the site would not result in the loss of availability of a known mineral resource of value. The project site also contains two wells that are no longer in use but are not abandoned to current California Department of Conservation Division of Oil, Gas, and Geothermal Resources requirements. However, the project sponsor would be required to bring the abandonment of these wells into compliance as a part of the proposed project. Therefore, impacts related to mineral resources would be less than significant.

5.3.13 Noise

Implementation of the proposed project would include construction activities that would result in a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the proposed project. Implementation of Modified Mitigation Measure NOISE-1a and Mitigation Measures NOISE-1b through 1e, identified in the Initial Study, would reduce construction-period noise impacts to a less-than-significant level.

The proposed project would generate long-term noise impacts from traffic noise sources and heating, ventilation, and air conditioning (HVAC) equipment. Implementation of Mitigation Measures NOISE-2a and NOISE-2b, which require the construction of a sound wall around the project site, would ensure that noise impacts associated with traffic on adjacent roadways would be less than significant.

The potential impact of groundborne vibration is considered less than significant. The proposed project would not expose people residing or working in the project area to excessive noise levels caused by nearby airports. Therefore, impacts related to noise would be less than significant.

5.3.14 Population and Housing

The proposed project would not result in substantial unplanned for growth in the area, as the project would contribute to the overall number of housing units as contemplated under the General Plan buildout of the Sand Creek Focus Area, which includes residential among its allowable uses. Based on the City's current average household size of 3.07 persons,[1] the proposed project would increase the City's population by 372 persons. This growth would account for approximately 3

[1] United States Census Bureau. 2020. American Community Survey. Table B25010. Website: data.census.gov/cedsci (accessed October 2020).

percent of the population growth anticipated under the General Plan buildout of the Sand Creek Focus Area and less than 1 percent of the projected and planned for growth within Antioch. The proposed project would not include the removal of any existing residential uses and therefore would not require the construction of replacement housing elsewhere. Therefore, impacts related to population and housing would be less than significant.

5.3.15 Public Services

The Initial Study determined that that the Contra Costa County Fire Protection District (CCCFPD) would provide adequate service to the project site, as written verification from CCCFPD is required prior to the approval of discretionary permits. In addition, the Initial Study determined that the payment of the fire protection fee would ensure that any impacts related to fire protection would be less than significant.

Because the proposed project would represent less than 1 percent of the overall projected growth for Antioch, new police protection facilities would not be required to serve the site. In addition, the Initial Study determined that the payment of the police impact fee and annexation of the project site into Community Facilities District No. 2018-02 (Police Protection), which requires residents to pay a special tax to fund police protection services including maintenance or upkeep of facilities, would ensure that any impacts related to police protection would be less than significant.

The proposed project would be subject to the payment of development impact fees, which under Senate Bill 50 are deemed to be full and complete mitigation for the generation of new students. The proposed project would include private and public open space and contribute development impact fees that would address infrastructure and service needs and would not result in substantial deterioration of parks or other public facilities. Therefore, the proposed project's impacts to public services would be less than significant.

5.3.16 Recreation

Each lot in the proposed project would include a private backyard and a front landscaped area. In addition, a total of 1.5 acres of landscaped area, a 1.12-acre park, and an approximately 4- to 6-foot-wide trail would be developed. Therefore, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration could result. Impacts associated with the development of these facilities can all be mitigated to a less than significant level with the recommended mitigation measures. Therefore, the proposed project's impacts on recreational facilities would be less than significant.

5.3.17 Tribal Cultural Resources

No known tribal cultural resources, as defined by Public Resources Code Sections 5020.1(k) and 5024.1, are located within or in the immediate vicinity of the site. As noted above, potential impacts to potential tribal cultural resources would be reduced to a less than significant level with implementation of Mitigation Measures CULT-1 through CULT-3 identified in the Initial Study.

Assembly Bill (AB) 52 states that prior to the release of an EIR for public review, a lead agency must provide the opportunity to consult with local tribes. The City sent letters to tribes historically

affiliated with the project site on September 1, 2020, to give potential interested representatives the opportunity to consult with the City and provide any specialized knowledge of the project site. As described previously, the City received an email from Ms. Gould of the Confederated Villages of Lisjan on November 3, 2020, requesting additional information about the proposed project. However, no specific requests for consultation have been made to date; therefore, the City considers the consultation period to be closed. Given that no requests for consultation were received or additional information as to the presence of known tribal cultural resources in the area was provided by tribal representatives, it is concluded that, with implementation of Mitigation Measures CULT-1 through CULT-3 identified in the Initial Study, impacts to tribal resources would be less than significant.

5.3.18 Utilities and Service Systems

The Initial Study determined that the proposed project would be adequately served by wastewater, water, and storm water facilities and that existing water entitlements and solid waste capacity would be sufficient. Therefore, impacts to utilities and service systems would be less than significant.

5.3.19 Wildfire

The project site is not located within a State Responsibility Area (SRA) for fire protection and is not located within a very high fire hazard severity zone. Therefore, the proposed project would have no impact related to wildfire.

5.4 SIGNIFICANT UNAVOIDABLE IMPACTS

The proposed project would result in a significant and unavoidable impact related to transportation. Specifically, the proposed project would exceed the applicable vehicle miles traveled (VMT) threshold of significance, and no feasible mitigation measures are available to reduce this impact to a less than significant level. Refer to Chapter 4.0, Transportation, of this EIR for additional discussion.

6.0 ALTERNATIVES

In accordance with CEQA and the CEQA Guidelines (Section 15126.6), an EIR must describe a reasonable range of alternatives to the project, or to the location of the project, that could attain most of the project's basic objectives while avoiding or substantially lessening any of the significantly adverse environmental effects of the project. An EIR does not need to consider every conceivable alternative to a project; rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

As an EIR identifies ways to mitigate or avoid significant effects that a project may have on the environment, the discussion of alternatives should focus on alternatives to the project or its location that are capable of avoiding or substantially lessening significant effects of the project. The EIR needs to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project, the significant effects of the alternative should be discussed, but in less detail than the significant effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. CEQA states that an EIR should not consider alternatives "whose effect cannot be ascertained and whose implementation is remote and speculative."

As described in more detail in Chapter 3.0, Project Description, the proposed project would involve the construction of 121 single-family residential units on the project site. As provided by the project sponsor, the objectives of the proposed project are to:

- Develop a project consistent with the Sand Creek Focus Area of the General Plan that incorporates market-acceptable design features and promotes an attractive, well-maintained community.

- Establish a well-planned community that is family friendly or could accommodate senior residents and that incorporates the natural, historic, and physical elements of the land and the surrounding uses.

- Design a land use plan with uses complementary to existing neighborhoods and in symmetry with the larger Antioch community.

- Provide housing opportunities responsive to the needs of Antioch, the region and market conditions, to serve a range of family incomes and household types.

- Contribute to the City of Antioch's economic and social viability by creating a community that creates jobs and attracts investment and positive attention.

- Provide work force housing adjacent to Deer Valley Road and next to Kaiser Permanente Antioch Medical Center enhancing the attractiveness of the community to health care workers.

- Implement the County's Growth Management Program by providing for urban development within the Urban Limit Line. Preserving open space by relieving sprawl pressure and acting as an infill development placing new homes on parcels surrounded by existing development on three sides and adjacent to existing homes.

- Provide a land use plan and density that results in an adequate tax base, which at project build-out generates financial resources to pay for public services and infrastructure without financial burden to existing residents.

- Establish a land use and circulation system that promotes convenient mobility, while limiting circulation thru existing communities, and provides safe, accessible, pedestrian access to medical facilities next door.

- Provide a pedestrian-friendly community and comprehensive infrastructure system, including parks, open space, trails, stormwater quality facilities, public services, roadways, and utilities infrastructure sized to serve the proposed project and properties to the north complementing the existing Citywide infrastructure and ensures funding for the on-going maintenance needs of such infrastructure.

- Help the City of Antioch provide its fair share of housing, and help alleviate a regional housing shortage, by providing a mix of housing types and sizes, some moderately affordable, and which can meet the needs of a variety of different and growing household sizes.

- Provide housing near major transportation and regional trails connections, with increased land use intensities near regional transportation connections.

The potential environmental effects of implementing the proposed project are analyzed in Chapter 4.0, Transportation. The proposed project has been described and analyzed in the previous chapters and in the Initial Study (included as Appendix B), with an emphasis on evaluating significant impacts resulting from the project and identifying mitigation measures to avoid or reduce these impacts to a less-than-significant level. It should be noted that aside from the significant unavoidable impact related to vehicle miles traveled (VMT), all of the impacts identified for the proposed project can be mitigated to a less-than-significant level with implementation of the recommended mitigation measures.

The three alternatives to the proposed project that are discussed and evaluated in this chapter are the following:

- **No Project Alternative.** Under the No Project alternative, the project site would continue to be undeveloped. No modifications to existing site access, easements, or infrastructure would occur.

- **Senior Housing Alternative.** Under the Senior Housing alternative, total development on the project site would be the same as the proposed project (i.e., 121 residential units ranging in size from approximately 2,252 square feet to approximately 3,445 square feet in size) but the new residential units would be age-restricted and available to residents age 55 and above.

- **Large Lot Alternative.** Under the Large Lot alternative, the project site would be developed with large-lot single-family residential uses. This alternative assumes that lot sizes on the project site would be an average of 18,000 square feet and would not exceed 20,000 square feet per lot, for a maximum of 57 lots/residential units on the project site.

These alternatives represent a reasonable range of potential alternatives to the proposed project in light of the objective of reducing the significant unavoidable impact identified in this EIR. Several other potential alternatives were also considered, as discussed later in this chapter; however, none of these alternatives would substantially reduce or avoid the environmental impacts of the proposed project and/or would not meet many of the basic project objectives. These alternatives were therefore ultimately not selected for further analysis.

The purpose of this discussion of alternatives to the proposed project is to enable decision-makers to evaluate the project by considering how alternatives to the project as proposed might reduce or avoid the project's impacts on the physical environment. The analysis in this chapter provides both a quantitative and qualitative evaluation of the environmental impacts that could be associated with each alternative and compares those potential impacts to those identified for the proposed project as described in Chapter 4.0, Transportation, of this EIR.

If City decision-makers were to decide to move forward with any of the development alternatives as identified in this chapter, additional site planning and design work and analysis would be required for the environmental impacts associated with the alternative, and specific mitigation measures for each potentially significant impact would need to be developed and considered.

6.1 NO PROJECT ALTERNATIVE

The following provides a description of the No Project alternative and its anticipated environmental impacts. The emphasis of the analysis is on comparing the anticipated environmental impacts of the No Project alternative to the environmental impacts associated with the proposed project. The discussion includes a determination of whether or not the No Project alternative would reduce, eliminate, or create new significant environmental impacts and would or would not meet the objectives of the project.

6.1.1 Principal Characteristics

The No Project alternative assumes that the proposed project would not be developed and that the project site would generally remain in its current condition. The project site would remain vacant and no modifications to existing site access, easements, or infrastructure would occur.

6.1.2 Analysis of the No Project Alternative

Implementation of the No Project alternative would not result in any increases in automobile, transit, bicycle, or pedestrian travel to or from the project site. Therefore, compared to the less-than-significant impacts of the proposed project, there would be no impact related to conflicts with applicable transportation-related plans, policies, and ordinances; design hazards; and emergency access. The significant and unavoidable impact related to VMT would not occur. However, the No Project alternative would also not achieve any of the objectives of the proposed project.

6.2 SENIOR HOUSING ALTERNATIVE

The following provides a description of the Senior Housing alternative and its anticipated environmental impacts. The emphasis of the analysis is on comparing the anticipated environmental impacts of the Senior Housing alternative to the environmental impacts associated with the proposed project. The discussion includes a determination of whether or not the Senior Housing alternative would reduce, eliminate, or create new significant environmental impacts and would or would not meet the objectives of the project.

6.2.1 Principal Characteristics

The Senior Housing alternative assumes that the proposed project would be developed with age-restricted units that would be available to residents ages 55 and above. This alternative assumes that lot sizes would be roughly the same as those included in the proposed project; therefore, a total of 121 units would be provided and the project would continue to include the proposed parking and landscaping amenities. Similar to the proposed project, the Senior Housing alternative would include units that would range in size from approximately 2,252 square feet to approximately 3,445 square feet. The Senior Housing alternative would not include any modifications to the site access, floor plans, or setbacks compared to the proposed project.

6.2.2 Analysis of the Senior Housing Alternative

The Senior Housing alternative would achieve most of the project objectives, although some to a lesser extent than the proposed project. In particular, objectives related to providing a project that would be consistent with applicable land use plans, consistency with existing neighborhoods, a pedestrian-friendly community, providing housing near major transportation and regional trails connections and creating a community that could accommodate senior residents would be achieved. However, objectives related to providing housing that serves a range of family incomes and household types and providing a mix of housing types and sizes would not be achieved to the same extent as the proposed project as the site would only be developed with age-restricted units. In addition, the goal of providing workforce housing adjacent to Deer Valley Road and next to the Kaiser Medical Center would not be achieved.

The Senior Housing alternative would require implementation of the same mitigation measures as those required for the proposed project (identified in Table 2.A in Chapter 2.0, Summary, of this EIR and as further detailed in Appendix B, Initial Study). The Senior Housing alternative would include a similar level of development intensity and the same number of units on the project site as compared to the proposed project and would therefore include similar construction activities and similar operations associated with residential development of the project site.

Data supports that residents of an age-restricted senior housing development typically have a lower rate of vehicle ownership, and therefore could generate fewer daily VMT per capita. However, the project site is not located in a transit-rich or amenity-rich area that would support relying solely on alternative transit. Additionally, the Senior Housing alternative would consist of single-family detached housing with ample parking available to residents, and therefore would not realize the VMT reductions that would be associated with an attached single-family or higher density age-restricted community. These communities typically include managed shuttle programs for use by

residents, therefore reducing the need for a car. Therefore, the VMT for the Senior Housing alternative would be the same as under the proposed project (22.19 daily VMT per capita). The estimated average daily VMT per capita for residential uses in the region is 16.75, which would make the threshold of significance 14.24. Similar to the proposed project, an aggressive Transportation Demand Management (TDM) plan would be expected to achieve a maximum reduction in per capita VMT of 20 percent, resulting in a daily per capita VMT of 17.75. Therefore, the Senior Housing alternative would continue to have a significant and unavoidable impact related to VMT.

6.3 LARGE LOT ALTERNATIVE

The following provides a description of the Large Lot alternative and its anticipated environmental impacts. The emphasis of the analysis is on comparing the anticipated environmental impacts of the Large Lot alternative to the environmental impacts associated with the proposed project. The discussion includes a determination of whether or not the Large Lot alternative would reduce, eliminate, or create new significant environmental impacts and would or would not meet the objectives of the project.

6.3.1 Principal Characteristics

Under the Large Lot alternative, the project site would be developed with large-lot single-family residential uses. This alternative assumes that lot sizes on the project site would be an average of 18,000 square feet and would not exceed 20,000 square feet per lot, for a maximum of 57 lots/residential units on the project site. The Large Lot alternative would include a smaller park and a smaller landscaped area as compared to the proposed project, while units would increase in size from a maximum of approximately 3,445 square feet to a maximum of approximately 4,000 square feet. Minor modifications to the site access and setbacks would be required.

6.3.2 Analysis of the Large Lot Alternative

The Large Lot alternative would achieve most of the project objectives, although to a lesser extent than the proposed project. In particular, objectives related to providing a project that would be consistent with land use plans, consistency with existing neighborhoods, a pedestrian-friendly community, providing housing near major transportation and regional trails connections and creating a community that is family friendly would be achieved. However, objectives related to providing housing that serves a range of family incomes and household types, providing workforce housing, contributing to the City's economic and social viability, and providing a mix of housing types and sizes would not be achieved to the same extent as the proposed project as the site would be developed with fewer residential units that would be larger than those included in the proposed project.

The Large Lot alternative would require implementation of the same mitigation measures as those required for the proposed project (identified in Table 2.A in Chapter 2.0, Summary, of this EIR and as further detailed in Appendix B, Initial Study) as the Large Lot alternative would also include development of the site with residential uses and associated improvements. However, construction-related impacts would be slightly reduced given that construction activities on the project site would be reduced with fewer residential units, as compared to the proposed project.

As described in Section 4.0, Transportation, VMT is calculated based on the land use and location of a proposed project and largely depends on the surrounding land uses as opposed to the overall level of development or number of units. Any residential use located on the project site that is not accompanied by a significant increase in transit availability would be expected to have the same VMT as it would not result in a reduction of the distance residents would need to travel for goods or services or change in the mode of travel. The VMT for the Large Lot alternative is the same as under the proposed project (22.19 daily VMT per capita). The estimated average daily VMT per capita for residential uses in the region is 16.75, which would make the threshold of significance 14.24.[1] Similar to the proposed project, an aggressive Transportation Demand Management (TDM) plan would be expected to achieve a maximum reduction in per capita VMT of 20 percent, resulting in a daily per capita VMT of 17.75.[2] Therefore, the Large Lot alternative would continue to have a significant and unavoidable impact related to VMT.

6.4 ALTERNATIVES CONSIDERED BUT NOT SELECTED FOR FURTHER ANALYSIS

The following provides a description of various potential alternatives that were identified and considered, and the reasons why they were ultimately not selected for further evaluation in this EIR.

- **Off-Site Locations**. Although relocation of the proposed project to an area with low VMT could avoid or reduce the less-than-significant VMT impact of the project, an alternative location was not considered for analysis because the project sponsor does not own or would not feasibly otherwise be able to gain control of a suitable vacant site within the city. Therefore, such an alternative was ultimately not selected for further analysis in the EIR.

- **Mixed-Use Alternative/Employment-Use-Only Alternative.** Although a mixed-use or employment-only use alternative could result in a VMT decrease due to a more efficient mix of uses on the project site and in the region, such alternatives would require a General Plan Amendment, which would not be required for the proposed project as it is consistent with the land use designation for the project site. In addition, these alternatives would be inconsistent with the Master Plan and Planned Development zoning district adopted as part of the approved 2008 Project and would require a rezone. Finally, such alternatives would not meet the basic project objectives of providing a project consistent with existing land use plans and policies.

- **High Density/Attached Senior Housing Alternative.** Although a high density or attached senior housing alternative with managed transportation programs could result in a VMT decrease due to an increased use of alternative transportation, such an alternative would be inconsistent with the Master Plan and Planned Development zoning district adopted as part of the approved 2008 Project and would require a rezone.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Based on the above analysis, the No Project alternative would have the fewest impacts and would be the environmental superior alternative. Under CEQA, if the No Project alternative is the

[1] A 15 percent reduction from 16.75 is 14.24.
[2] A 20 percent reduction from 22.19 is 17.75.

environmentally superior alternative, the EIR must identify an environmentally superior alternative from among the other alternatives (CEQA Guidelines, Section 15126.6(e)(2)). While the No Project alternative would be environmentally superior in the technical sense in that contribution to the aforementioned impacts would not occur, it would also fail to achieve any of the project's objectives.

As discussed above, the Large Lot alternative would slightly reduce some of the potentially significant impacts of the proposed project, although not to less-than-significant levels that would preclude the need for mitigation. Therefore, the Large Lot alternative is considered the environmentally superior alternative. However, the significant unavoidable impact related to VMT would not be reduced or avoided with this alternative and this alternative would not fully achieve some of the basic project objectives related to providing housing that serves a range of family incomes and household types, providing workforce housing, contributing to the City's economic and social viability, and providing a mix of housing types and sizes.

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7.0 REPORT PREPARATION

7.1 REPORT PREPARERS

7.1.1 City of Antioch

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Zoe Merideth, Associate Planner

7.1.2 LSA Associates, Inc.

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Ambarish Mukherjee, PE, AICP, Principal/Transportation
Patty Linder, Graphics Manager
Jennette Bosseler, Senior Editor/Word Processor
Dennis Taylor, Editor

7.2 REFERENCES

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APPENDIX A

NOTICE OF PREPARATION AND COMMENT LETTERS

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ANTIOCH
CALIFORNIA

DATE: December 16, 2020

TO: State Clearinghouse
1400 10th Street, Suite 222
Sacramento, CA 95814
(916) 445-0613

FROM: City of Antioch

SUBJECT: Deer Valley Estates Project
Notice of Preparation of a Draft Environmental Impact Report

LEAD AGENCY: City of Antioch
Community Development Department
Contact: Zoe Merideth, Associate Planner
P.O. Box 5007
Antioch, CA 94531-5007
(925) 779-6122
zmerideth@antiochca.gov

PROJECT APPLICANT: Blue Mountain Communities
707 Aldridge Avenue
Vacaville, CA 95688

Notice is hereby given that the City of Antioch will be the Lead Agency and will prepare a Focused Environmental Impact Report (EIR) for the proposed Deer Valley Estates Project (proposed project). An Initial Study has been prepared along with this Notice of Preparation (NOP), which scopes out all but one environmental topic from further review. The focused EIR will address potential physical environmental effects of the project related to transportation, as outlined in the California Environmental Quality Act (CEQA). We are requesting comments on the scope of topics addressed in this EIR.

Please provide comments on the scope of the EIR to Zoe Merideth, Associate Planner, at the address listed above. Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but not later than **5:00 p.m. January 15, 2021**. In your response, please identify a contact person in your agency for future correspondence.

The Initial Study and NOP are available online at: https://www.antiochca.gov/community-development-department/planning-division/environmental-documents/

INTRODUCTION: The purpose of an EIR is to inform decision-makers and the general public of the environmental effects of a proposed project. The EIR process is intended to provide environmental information sufficient to evaluate a proposed project and its potential to cause significant effects on the environment; examine methods of reducing adverse environmental impacts; and consider alternatives to the proposed project. The Deer Valley Estates Project EIR will be prepared and processed in accordance with CEQA and the CEQA Guidelines. The EIR will generally include the following:

- Description of the proposed project;
- Description of the existing environmental setting for the topic of transportation, potential environmental impacts of the project, and mitigation measures;
- Description of cumulative impacts; and
- Alternatives to the proposed project.

PROJECT LOCATION: The approximately 37.56-acre project site consists of two parcels of undeveloped land located at 6100 Deer Valley Road in the southern portion of the City of Antioch, Contra Costa County. The City of Antioch is bordered to the north by the San Joaquin River Delta; to the east by the City of Brentwood and the City of Oakley; to the west by the City of Pittsburg and unincorporated portions of Contra Costa County; and to the south by unincorporated portions of Contra Costa County (see Figure 1).

The project site is located within the Sand Creek Focus Area of the General Plan, which is generally bounded by existing residential neighborhoods to the north, Black Diamond Mines Regional Preserves to the west, the city limits to the south, and the City of Brentwood to the east. The Sand Creek Focus Area is intended to function as a large-scale planned community, providing needed housing and employment opportunities. The project site is identified by Assessor's Parcel Number (APN) 055-071-026 and 057-022-013.

PROJECT SITE CHARACTERISTICS AND SURROUNDING LAND USES: The rectangular project site is generally flat, with gently rolling topography that slopes from east to west. Site elevations range from approximately 195 to 225 feet above mean sea level. The project site is currently vacant and generally consists of non-native annual grassland and ruderal vegetation. As shown in Figure 2, the project site is generally surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. To the north, the project site is bounded by a single-family residential neighborhood with one- to two-story homes. Further north are Prewett Ranch Drive and Deer Valley High School. The project site is bordered immediately to the east by the Aviano Farms Project, which is currently under construction with 533 residential units. Further east is the approved Vineyards at Sand Creek project, which is also under construction and consists of 641 residential units. To the south is Wellness Way and the Kaiser Medical Center, past which is Sand Creek Road. The project site is bound to the west by Deer Valley Road, across which is the site of The Ranch Project, which is a master planned residential community that was approved by City Council in July 2020 and could be under construction by 2023.

PROJECT BACKGROUND: On February 26, 2008, an Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project) was adopted by the Antioch City Council. The 2008 IS/MND evaluated the potential impacts associated with the development of 136 single-family residential units and an approximately 1.69-acre park on the

project site. The 2008 Project included a rezoning of the project site from Study Zone (S) to the site's current zoning of Planned Development (P-D) and the adoption of the Master Development Plan.

An Initial Study for the project, which is available for review online (as listed above), has been prepared to evaluate the potential environmental impacts of the proposed project and determined what level of additional environmental review is appropriate. Per CEQA Guidelines Section 15152, "where an EIR [or negative declaration] has been prepared and certified [or adopted] for a program… consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program… should limit the EIR… on the later project to effects which: (1) were not examined as significant effects on the environment in the prior EIR; or (2) are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means." The analysis provided in this Initial Study tiers from the 2008 IS/MND, as appropriate.

In accordance with the requirements outlined in Section 15168 of the CEQA Guidelines, the Initial Study has been prepared to disclose the relevant impacts and mitigation measures covered in the 2008 IS/MND and discuss whether the project is within the parameters of the 2008 IS/MND. Based on the findings of the Initial Study, a focused EIR will be prepared for impacts that need further discussion and/or mitigation beyond that provided in the 2008 IS/MND.

The City of Antioch General Plan Land Use Map designates the project site as Sand Creek Focus Area – Low Density Residential. The Low Density Residential designation is generally characterized by single-family homes in traditional subdivisions, which are generally located on gently rolling terrain. The zoning on the project site is the P-D district established as a part of the 2008 Project. The P-D district is intended to enable and encourage flexibility in the design and development of land so as to promote its most appropriate use.

PROJECT DESCRIPTION: The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements. The single-family residential units would range in size from approximately 2,252 square feet to approximately 3,445 square feet and would be located on individual lots that would be a minimum of 7,000 square feet. All of the residential units would front onto internal streets within the project site, discussed below, and none would front onto either Deer Valley Road or Wellness Way.

Each of the residential lots on the project site would include private backyards that would be an average of 2,240 square feet in size. In total, the proposed project would provide approximately 15.2 acres (662,380 square feet) of private open space, including backyards. The proposed project would include multiple common open space areas for project residents, including an approximately 1.12-acre park, which would be located in the approximate center of the project site (as shown on Figure 3) and would include a dog park and a playground. An approximate total of 1.5 acres of the site would be improved with landscaping, including street trees and native grasses and an approximately 4- to 6-foot-wide trail that would run through the northwest and center portions of the site and connect the proposed park to Deer Valley Road. Access to the proposed trail would be provided by a tubular steel fence with an access gate in the northwest corner of the project site.

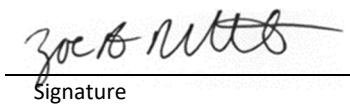
PROJECT ENTITLEMENTS AND APPROVALS: The proposed project would require the following discretionary entitlements from the City of Antioch:

- Tentative Map Approval
- Final Development Plan
- Use Permit; and
- Design Review

PROBABLE ENVIRONMENTAL EFFECTS: The City has reviewed the proposed project application and has determined that an EIR should be prepared for the proposed project because it may have a significant effect on the environment. The City has concluded that the EIR should address potential project-related impacts to transportation and circulation. The EIR will include a discussion of the existing setting, thresholds of significance, evaluation of potential impacts, and if necessary, feasible mitigation measures to reduce or eliminate potentially significant impacts.

ALTERNATIVES: Based on the significance conclusions determined in the focused EIR, alternatives to the proposed project will be analyzed to reduce identified impacts. Section 15126.G(e) of the CEQA Guidelines requires the evaluation of a No Project Alternative. Other alternatives may be considered during preparation of the EIR and will comply with the CEQA Guidelines, which call for a "range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

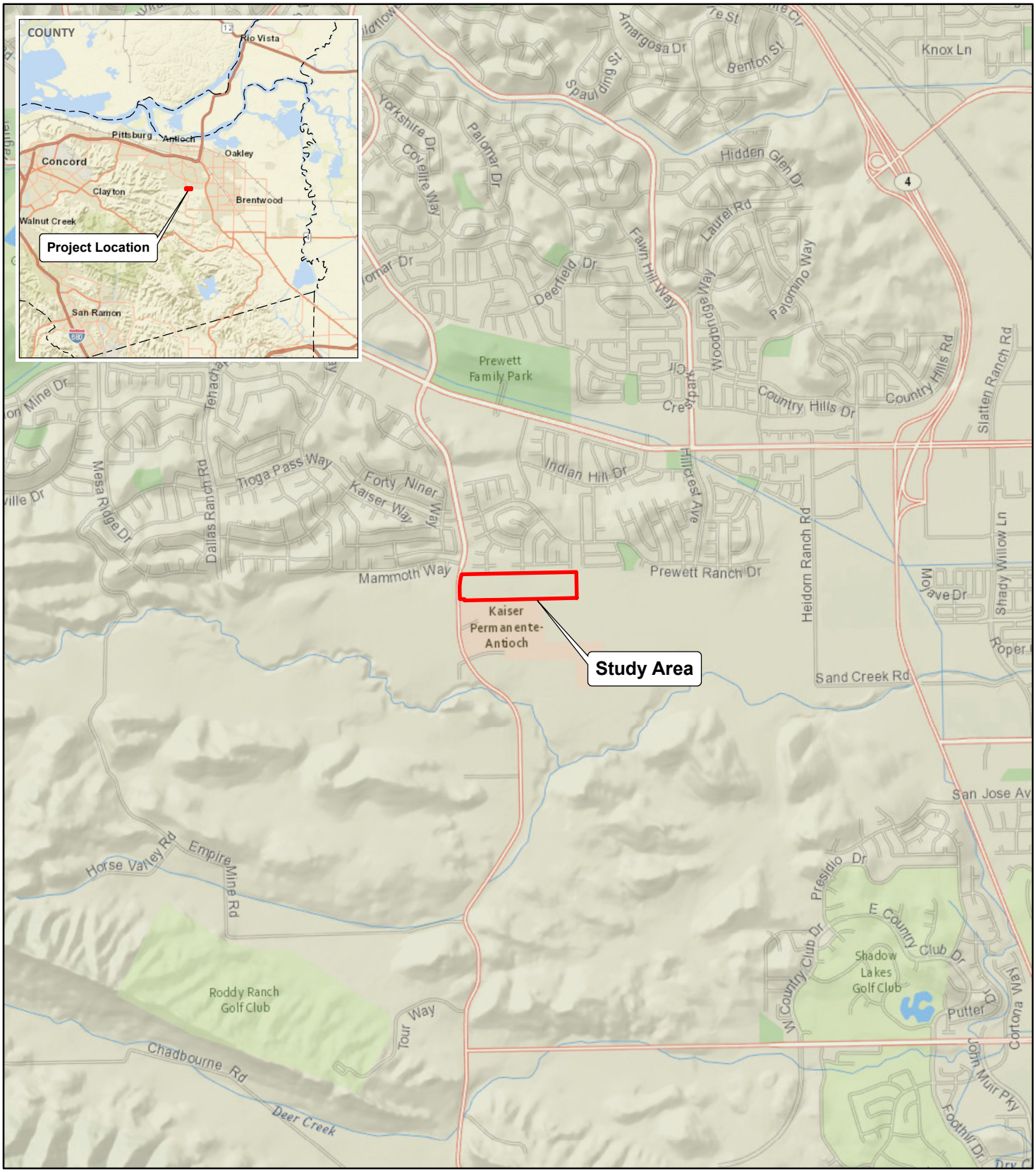
EIR PROCESS: Following the close of the NOP comment period, a draft focused EIR will be prepared that will consider all NOP comments. In accordance with CEQA Guidelines Section 15105(a), the draft focused EIR will be released for public review and comment for a required 45-day review period. Following the close of the 45-day public review period, the City will prepare a final EIR, which will include responses to all substantive comments received on the draft focused EIR. The draft focused EIR and final EIR will be considered by the Planning Commission and City Council in making the decision to certify the EIR and approve or deny the project.



Signature

December 16, 2020

Date



LSA

FIGURE 1

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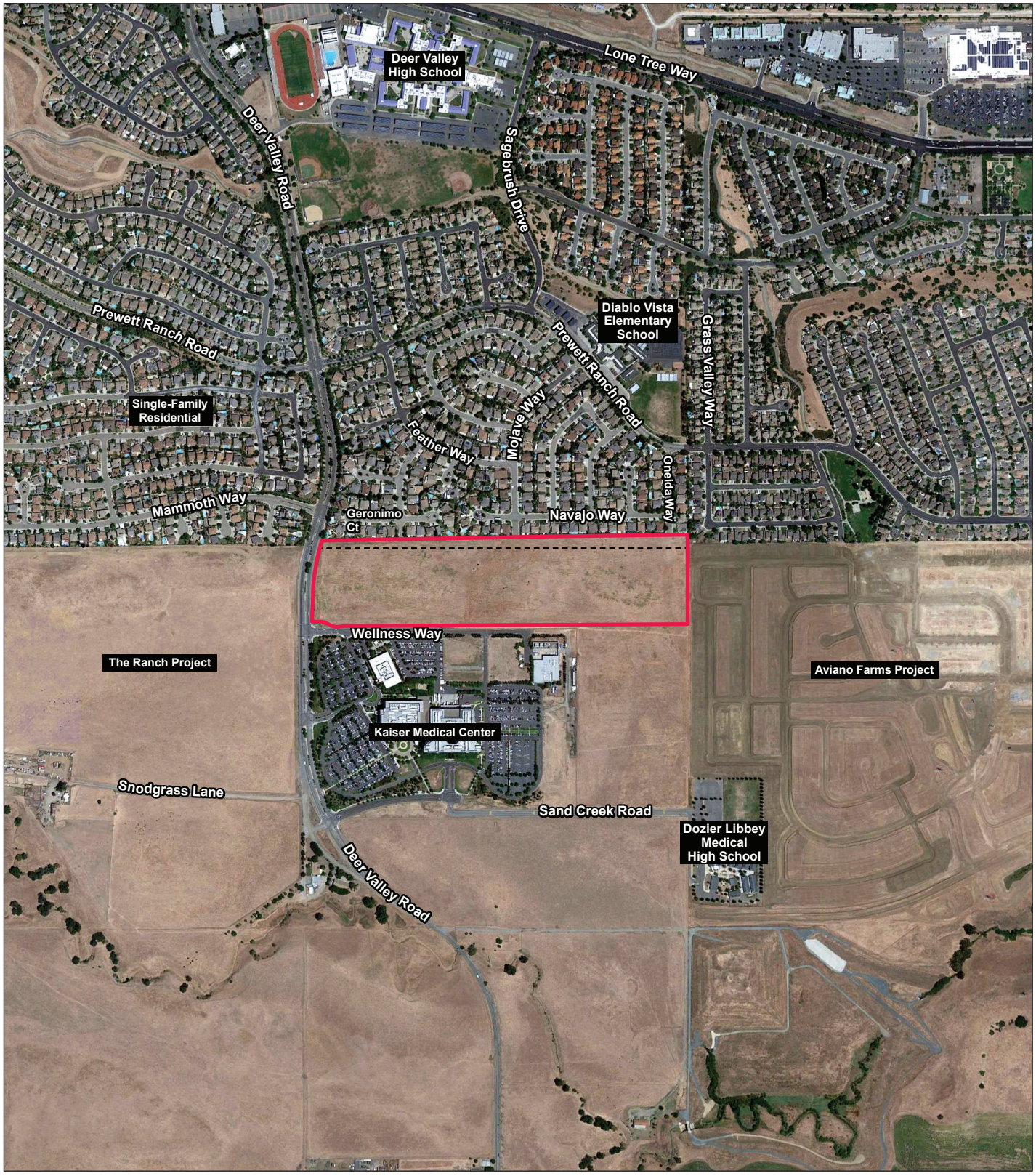
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SOURCE: National Geographic (c) 2018; Esri World Street Map (c) 2018.

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Deer Valley Estates Project NOP

Project Location and Regional Vicinity



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FIGURE 2

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Project Site

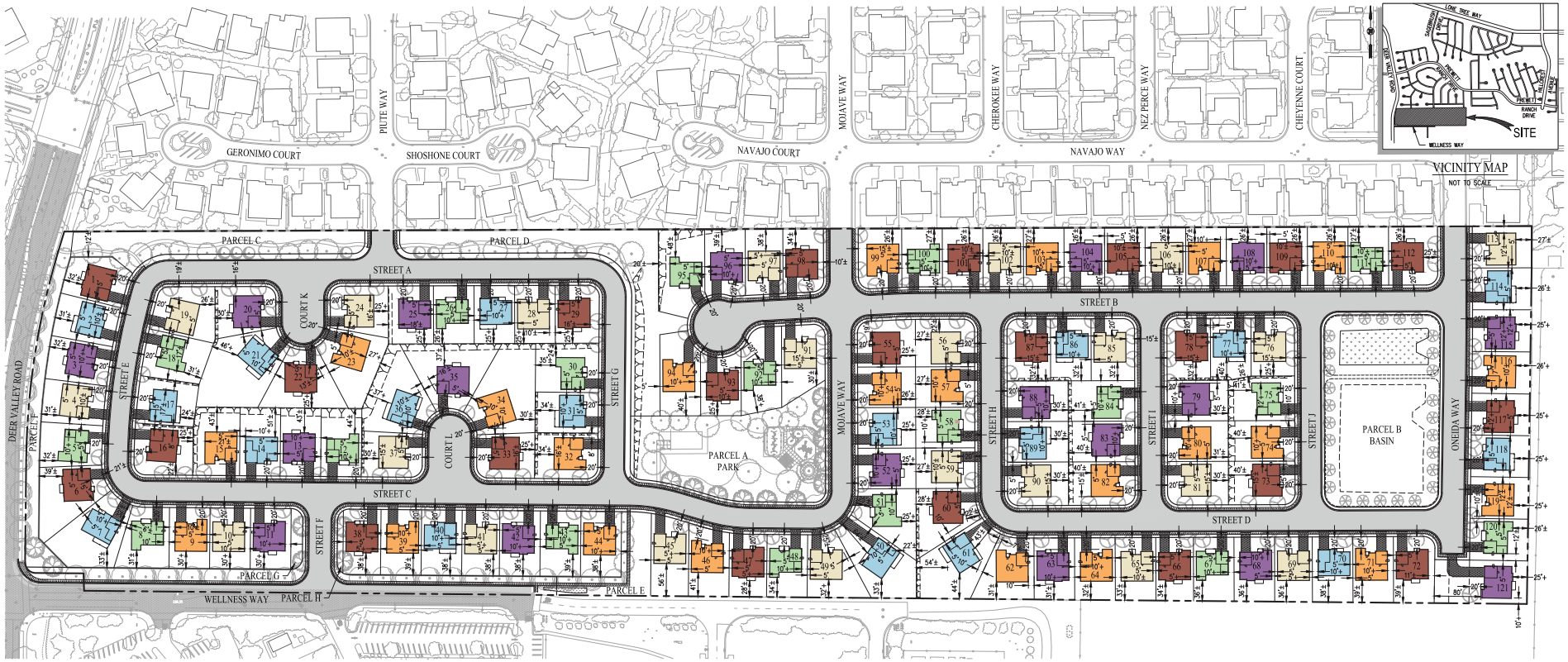
Parcel Boundary

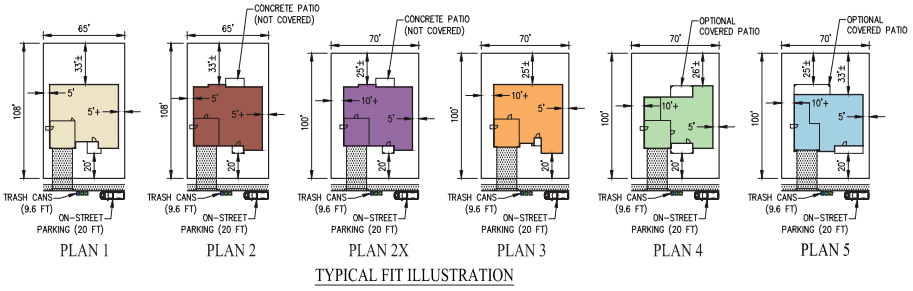
Deer Valley Estates Project NOP

Aerial Photograph of the Project Site and Surrounding Land Uses

SOURCES: Google Earth, 6/19/19; LSA, 2020.

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TYPICAL FIT ILLUSTRATION

SUBDIVISION 9518

PLAN	# OF LOTS	% OF TOTAL
1	22	18%
2	22	18%
2X	18	15%
3	23	19%
4	18	15%
5	18	15%
TOTAL	121	100%

LSA

FIGURE 3

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Deer Valley Estates Project NOP
Conceptual Site Plan

SOURCE: CBG Civil Engineering, May 2020.

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STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

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(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

December 21, 2020

Zoe Merideth, Associate Planner
City of Antioch
P.O. Box 5007
Antioch, CA 94531-5007

Re: 2020120352, Deer Valley Estates Project, Contra Costa County

Dear Ms. Merideth:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

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COMMUNITY DEVELOPMENT

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

nahc@nahc.ca.gov

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,



Nancy Gonzalez-Lopez
Cultural Resources Analyst

cc: State Clearinghouse

From:	Merideth, Zoe
To:	Matthew Wiswell
Cc:	Theresa Wallace
Subject:	FW: Comments by FCD - Deer Valley Estates SD - Antioch - NOP DEIR and IS
Date:	Thursday, January 14, 2021 4:11:09 PM
Attachments:	image001.jpg image002.png image004.png image003.png CommentsConditions - SD 9518 Deer Valley Estates 6100 Deer Valley Rd.msg 2021-0112 - DA 130 Fee - SD 9518 - Deer Valley Estates.pdf

Zoe Merideth
Associate Planner

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City of Antioch | P.O. Box 5007, Antioch, CA 94531-5007

From: Bradley Olazo <Bradley.Olazo@pw.cccounty.us>
Sent: Thursday, January 14, 2021 3:34 PM
To: Merideth, Zoe <zmerideth@antiochca.gov>
Cc: Michelle Cordis <michelle.cordis@pw.cccounty.us>; Joe Smithonic <Joe.Smithonic@pw.cccounty.us>; Jeff Carlton <jeff.carlton@pw.cccounty.us>; Lau, Vicky <vlau@antiochca.gov>; cyanez@bluemountaininc.com; csz@zcproperties.com
Subject: Comments by FCD - Deer Valley Estates SD - Antioch - NOP DEIR and IS

Hello Zoe,

The FC District received the Notice of Preparation of a Draft Environmental Impact Report and Availability of an Initial Study for the Deer Valley Estates Subdivision project (SD 9518) located at 6100 Deer Valley Road in the city of Antioch. We've previously commented on this project, most recently in our attached e-mail sent on August 8th, 2020. We have the following comments on the project and the CEQA documents:

Recommended Conditions of Approval

1. Prior to the city recording the final map, the developer must pay the Drainage Area 130 (DA 130) fees to the City.
2. The developer/developer's engineer shall provide a drainage study to the City verifying the adequacy of the downstream drainage system.

General Comments

-

Updated DA 130 Fees

3. This project is located within DA 130, for which a drainage fee is due in accordance with Flood Control Ordinance Number 2007-06. By ordinance, all building permits or subdivision maps filed in this area are subject to the provisions of the drainage fee ordinance. Effective January 1, 2021, the current fee in this drainage area is $0.82 per square foot of newly created impervious surface.

   We have updated the fee amount due since our last comments. The DA 130 Fee is now estimated to be **$534,937 at the 2021 rates** based on the Vesting Tentative Map dated May 4, 2020, and prepared by CBG Inc. Please see the attached calculation sheet. Parcels 1-121 were charged at the Single-Family Subdivision rate, Parcels A, C, D, and E-H were charged for 46,653 sq-ft of impervious surface based off the assumption that these parcels will be roughly 35% impervious, and Parcel B was not charged fees at this time, as this area will be used as a detention basin site. The drainage area fee for this project should be collected by the city prior to recording the final map.

Repeated comments from our previous e-mail

4. The FC District is not the approving local agency for this project as defined by the Subdivision Map Act. As a special district,

the District has an independent authority to collect drainage fees that is not restricted by the Subdivision Map Act. The District reviews the drainage fee rate every year the ordinance is in effect, and adjusts the rate annually on January 1 to account for inflation. The drainage fee rate does not vest at the time of tentative map approval. The drainage fees due and payable will be based on the fee in effect at the time of fee collection.

5. We recommend that the City condition the developer to design and construct storm drain facilities to adequately collect and convey stormwater entering or originating within the development to the nearest adequate man-made drainage facility or natural watercourse, without diversion of the watershed.

6. The preliminary grading and utility plan we previously reviewed indicates that the project will drain offsite into existing twin 84-inch storm drains. Our records indicate these pipes ultimately drain into Upper Sand Creek Detention Basin located south east of the project site that the FC District owns and maintains. The developer should be required to submit hydrology and hydraulic calculations to the City that prove the adequacy of the in-tract drainage system and the downstream drainage system. We defer review of the local drainage to the City. However, the FC District is available to provide technical review under our Fee-for-Service program.

7. We recommend all detention basins be designed with an emergency spillway to provide controlled overflow relief for large storm events and be required to have an Operations and Maintenance Manual.

8. The applicant should be required to comply with the current National Pollutant Discharge Elimination System (NPDES) requirements under the City Stormwater Management and Discharge Control Ordinances and the C.3 Guidebook. We support the State's goal of providing best management practices to achieve the permanent reduction or elimination of stormwater pollutants and downstream erosion from new development. The FC District is available to provide technical assistance for meeting these requirements under our Fee-for-Service program.

Comments on the Initial Study (IS) dated December 2020, and prepared by LSA Associates, Inc.

9. Section 4.1: Hydrology and Water Quality, pg. 4-42: We recommend that when a drainage study is prepared that verifies the adequacy of the downstream drainage system, it be included in subsequent CEQA documents as an appendix.
10. Section 4.19: Utilities and Service Systems: We recommend that future CEQA documents include a map that verifies the location and capacity of all existing onsite and offsite stormwater facilities onsite.

Let me know if you have questions.

Thanks,

Bradley Olazo | **Engineering Technician**
Contra Costa County Public Works: Flood Control & Water Conservation District
255 Glacier Drive, Martinez, CA 94553
p: 925.313.2308 | e: Bradley.Olazo@pw.cccounty.us | cccpublicworks.org

Summary of Drainage Fees

Development #: Sub 9518 Deer Valley Estates
APN: 055-071-026, 057-022-013
Drainage Area: 130

Date: 12-Jan-21
Ordinance: 2007-6

	Building			Subdivision		
	Unit Price	QTY	Amount	Unit Price	QTY	Amount
Commercial/Industrial/Downtown	$ 33,718		$ -	$ 36,219		$ -
Office (Medium)	28,897		-	32,292		-
Office (Light)	24,182		-	27,257		-
	-					
Multifamily Residences	**Building**			**Subdivision**		
	Unit Price	QTY	Amount	Unit Price	QTY	Amount
Less than 2,500 square ft of land	$ 26,568		$ -	$ 26,568		$ -
2,500-2,999 (square feet per unit)	1,574		-	1,574		-
3,000-3,999	1,804		-	1,804		-
4,000-4,999	2,099		-	2,099		-
5,000-5,999	2,403		-	2,403		-
6,000-6,999	2,698		-	2,698		-
7,000-7,999	2,985		-	2,985		-
8,000 +	3,132		-	3,132		-
Single Family Residential	**Building**			**Subdivision**		
	Unit Price	QTY	Amount	Unit Price	QTY	Amount
4,000-4,999 (square feet per unit)	$ 2,206		$ -	$ 3,534		$ -
5,000-5,999	2,304		-	3,682		-
6,000-6,999	2,403		-	3,829		-
7,000-7,999	2,501		-	3,977	81	322,137
8,000-9,999	2,649		-	4,190	27	113,130
10,000-13,999	2,944		-	4,617	11	50,787
14,000-19,999	3,436		-	5,314	2	10,628
20,000-29,999	4,248		-	6,371		-
30,000-39,999	5,273		-	7,610		-
40,000 +	6,322		-	8,766		-

(Amount Below is part of total.)

	Sqr Ft.	Unit Price	Amount
Area of impervious surface to account for:	46653	0.82	**$ 38,255**

TOTAL: **$534,937**

Calculate DA 130 fee if checked. ☐

Mark box to add mitigation fee. ***n/a***

Comments:

This fee estimate is based off the Vesting Tentative Map prepared by CBG and dated May 4, 2020. Parcels 1-121 were charged at the Single-Family Subdivision rate, Parcels A, C, D, and E-H were charged for 46,653 sq-ft based off the assumption that these parcels will be roughly 35% impervious, and Parcel B was not charged fees at this time, as this area will be used as a detention basin site.
No fees have been previously paid for these parcels in the past.

Lot Closure

LOT #	(square feet)				
1	7,855	35	12,953	69	7,267
2	7,695	36	12,876	70	7,886
3	7,695	37	7,973	71	7,910
4	7,695	38	7,328	72	8,038
5	7,844	39	7,910	73	8,539
6	10,721	40	7,910	74	8,050
7	11,972	41	7,345	75	8,715
8	8,396	42	7,910	76	7,414
9	7,350	43	7,910	77	7,350
10	7,350	44	7,910	78	7,939
11	7,350	45	8,810	79	7,350
12	8,260	46	8,249	80	7,350
13	8,260	47	7,044	81	7,789
14	8,260	48	7,560	82	8,539
15	9,443	49	8,914	83	8,050
16	8,649	50	11,623	84	8,050
17	7,932	51	9,135	85	7,939
18	8,457	52	7,000	86	7,490
19	8,964	53	7,000	87	7,939
20	8,425	54	7,000	88	7,350
21	15,589	55	7,948	89	7,350
22	10,422	56	8,278	90	7,789
23	10,471	57	7,140	91	9,354
24	7,974	58	7,140	92	10,143
25	7,800	59	7,140	93	7,284
26	7,000	60	9,440	94	9,604
27	7,000	61	12,725	95	11,315
28	7,000	62	9,139	96	7,979
29	7,494	63	7,420	97	7,352
30	9,229	64	7,517	98	7,605
31	7,630	65	7,580	99	7,637
32	8,525	66	7,097	100	7,074
33	7,578	67	7,704		
34	14,794	68	7,765		

Total Area (ft^2): 838,912

Total Area (Acres): 19.259

Comments:

AREA (SF)	QTY
<2,500	-
2,500-2,999	-
3,000-3,999	-
4,000-4,999	-
5,000-5,999	-
6,000-6,999	-
7,000-7,999	61
8,000-9,999	27
10,000-13,999	10
14,000-19,999	2
20,000-29,999	-
30,000-39,999	-
40,000 +	-

Subdivision Total: 994,466 ft^2

Lot Closure

LOT #	(square feet)				
101	7,070	135	-	169	-
102	7,070	136	-	170	-
103	7,070	137	-	171	-
104	7,070	138	-	172	-
105	7,070	139	-	173	-
106	7,070	140	-	174	-
107	7,070	141	-	175	-
108	7,070	142	-	176	-
109	7,070	143	-	177	-
110	7,070	144	-	178	-
111	7,070	145	-	179	-
112	7,836	146	-	180	-
113	7,364	147	-	181	-
114	7,328	148	-	182	-
115	7,276	149	-	183	-
116	7,234	150	-	184	-
117	7,200	151	-	185	-
118	7,200	152	-	186	-
119	7,200	153	-	187	-
120	7,200	154	-	188	-
121	11,946	155	-	189	-
122	-	156	-	190	-
123	-	157	-	191	-
124	-	158	-	192	-
125	-	159	-	193	-
126	-	160	-	194	-
127	-	161	-	195	-
128	-	162	-	196	-
129	-	163	-	197	-
130	-	164	-	198	-
131	-	165	-	199	-
132	-	166	-	200	-
133	-	167	-		
134	-	168	-		

Total Area (ft^2): 155,554

Total Area (Acres): 3.571

Comments:

AREA (SF)	QTY
<2,500	-
2,500-2,999	-
3,000-3,999	-
4,000-4,999	-
5,000-5,999	-
6,000-6,999	-
7,000-7,999	20
8,000-9,999	-
10,000-13,999	1
14,000-19,999	-
20,000-29,999	-
30,000-39,999	-
40,000 +	-

Subdivision Total: 994,466 ft^2

19 January 2021

Zoe Merideth
City of Antioch
P.O. Box 5007
Antioch, CA 94531

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, DEER VALLEY ESTATES PROJECT, SCH#2020120352, CONTRA COSTA COUNTY

Pursuant to the State Clearinghouse's 18 December 2020 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the Deer Valley Estates Project, located in Contra Costa County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of

Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Total Maximum Daily Load – Planning and Assessment

To minimize sediment movement that could trigger algal blooms, the Central Valley Water Board recommends the project activities occur outside of the timeframe of June through September.

Portions of the Delta Waterways within the project area are currently on the Clean Water Act Section 303(d) List of Impaired Waters due to chlorpyrifos, DDT (dichlorodiphenyltrichloroethane), diazinon, electrical conductivity, Group A pesticides, invasive species, mercury, PCBs (polychlorinated biphenyls), and toxicity. Central Valley Water Board staff recommends referencing the most current 303(d) list and requirements contained in existing TMDLs for the Delta (western portion) within the Environmental Impact Report, discussing any potential short- and long-term effects of these pollutants from project activities or program level impacts, and discussing mitigation measures and/or best management practices to reduce potential effects.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:

https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-0335 or Angela.Nguyen-Tan@waterboards.ca.gov.



Angela Nguyen-Tan
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

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APPENDIX B

INITIAL STUDY

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DEER VALLEY ESTATES PROJECT
INITIAL STUDY

ANTIOCH, CALIFORNIA

LSA

December 2020

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DEER VALLEY ESTATES PROJECT
INITIAL STUDY

ANTIOCH, CALIFORNIA

Submitted to:

Zoe Merideth, Associate Planner
City of Antioch
200 H Street
Antioch, California 94509

Prepared by:

LSA
157 Park Place
Pt. Richmond, California 94801
510.236.6810

Project No. CAN2002

LSA

December 2020

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TABLE OF CONTENTS

FIGURES AND TABLES ii
LIST OF ABBREVIATIONS AND ACRONYMS iii
1.0 PROJECT INFORMATION 1-1
2.0 PROJECT DESCRIPTION 2-1
2.1 Project Site 2-1
2.2 Proposed Project 2-3
2.3 Project Approvals 2-6
3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED 3-1
3.1 Determination 3-1
4.0 CEQA ENVIRONMENTAL CHECKLIST 4-1
4.1 Aesthetics 4-1
4.2 Agriculture and Forestry Resources 4-3
4.3 Air Quality 4-6
4.4 Biological Resources 4-19
4.5 Cultural Resources 4-24
4.6 Energy 4-26
4.7 Geology and Soils 4-30
4.8 Greenhouse Gas Emissions 4-33
4.9 Hazards and Hazardous Materials 4-38
4.10 Hydrology and Water Quality 4-41
4.11 Land Use and Planning 4-44
4.12 Mineral Resources 4-45
4.13 Noise 4-46
4.14 Population and Housing 4-57
4.15 Public Services 4-58
4.16 Recreation 4-60
4.17 Transportation 4-61
4.18 Tribal Cultural Resources 4-64
4.19 Utilities and Service Systems 4-66
4.20 Wildfire 4-68
4.21 Mandatory Findings of Significance 4-70
5.0 LIST OF PREPARERS 5-1
6.0 REFERENCES 6-3

APPENDICES

A: 2008 IS/MND MMRP
B: CALEEMOD OUTPUT SHEETS
C: HEALTH RISK ASSESSMENT DATA
D: BIOLOGICAL RESOURCES ASSESSMENT
E: JURISDICTIONAL DELINEATION
F: CULTURAL RESOURCES REPORT
G: NOISE MEASUREMENT SHEETS

FIGURES AND TABLES

FIGURES

Figure 2-1: Project Location and Regional Vicinity 2-7
Figure 2-2: Aerial Photograph and Surrounding Land Uses 2-8
Figure 2-3: Conceptual Site Plan 2-9
Figure 2-4: Conceptual Building Elevations 2-10
Figure 2-5: Conceptual Renderings – Plan 1-C 2-11
Figure 2-6: Conceptual Renderings – Plan 2X-C 2-12
Figure 2-7: Conceptual Renderings – Plan 4-C 2-13
Figure 4-1: Noise Monitoring Locations 4-51

TABLES

Table 2.A: Potential Permits and Approvals 2-6
Table 4.A: Project Construction Emissions in Pounds Per Day 4-11
Table 4.B: Project Operational Emissions 4-14
Table 4.C: Unmitigated Inhalation Health Risks from Project Construction to Off-Site Receptors 4-16
Table 4.D: Mitigated Inhalation Health Risks from Project Construction to Off-Site Receptors 4-17
Table 4.E: Estimated Annual Energy Use of Proposed Project 4-27
Table 4.F: GHG Emissions (Metric Tons Per Year) 4-35
Table 4.G: Long-Term and Short-Term Ambient Noise Level Measurements 4-50
Table 4.H: Typical Construction Equipment Noise Levels 4-53
Table 4.I: HVAC Noise Assessment 4-55
Table 4.J: Vibration Source Amplitudes for Construction Equipment 4-56
Table 4.K: Existing (2020) Conditions VMT 4-62
Table 4.L: Cumulative (2040) Conditions VMT 4-62

LIST OF ABBREVIATIONS AND ACRONYMS

2008 IS/MND	Initial Study/Mitigated Negative Declaration (February 26, 2008)
2008 Project	Deer Valley Estates Master Development Plan Project
µg/m^3	micrograms per cubic meter
APN	Assessor's Parcel Number
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practices
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CARB	California Air Resources Board
CARP	City of Antioch Climate Action and Resilience Plan
CBC	California Building Code
CCCFPD	Contra Costa County Fire Protection District
CCCWP	Contra Costa Clean Water Program
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	Methane
City	City of Antioch
Clean Air Plan	BAAQMD 2017 Clean Air Plan
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	Carbon dioxide
CO_2e	CO_2 equivalents
dB	decibel

dBA	A-weighted (sound level) decibels
FTA	Federal Transit Administration
GHG	Greenhouse gas
GSAs	groundwater sustainability agencies
GWh	gigawatt hours
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
HOA	homeowners association
HVAC	heating, ventilation, and air condition
in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
Kaiser Medical Center	Kaiser Permanente Antioch Medical Center
kWh	kilowatt hours
L_{dn}	day-night average level
L_{eq}	equivalent continuous sound level
L_{max}	Maximum instantaneous noise level
LOS	Level of Service
MEI	maximally exposed individual
mgd	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
mpg	miles per gallon
MRP	Central Valley Regional Water Quality Control Board Municipal Regional Permit
N_2O	Nitrous oxide
NAHC	Native American Heritage Commission

NO_2	nitrogen dioxide
NO_x	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
P-D	Planned Development (Zoning)
Pb	lead
PFCs	Perfluorocarbons
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
POTWs	publicly owned treatment works
PPV	peak particle velocity
project	Deer Valley Estates Project
Regional Water Board	Central Valley Regional Water Quality Control Board
RMS	root-mean-square
ROG	Reactive organic gases
WWTP	wastewater treatment plant
S	Study Zone (Zoning)
SB	Senate Bill
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SO_2	sulfur dioxide
SR 4	State Route 4
SRA	State responsibility area
TACs	toxic air contaminants

TIA	Transportation Impact Analysis
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
VdB	vibration velocity in decibels
VMT	vehicle miles traveled
ZE	zero emission

1.0 PROJECT INFORMATION

1. **Project Title:**

   Deer Valley Estates Project

2. **Lead Agency Name and Address:**

   City of Antioch
   200 H Street
   Antioch, CA 94509

3. **Contact Person and Email Address:**

   Zoe Merideth, Associate Planner
   zmerideth@antiochca.gov

4. **Project Location:**

   6100 Deer Valley Road
   Antioch, Contra Costa County
   Assessor's Parcel Numbers (APN): 055-071-026, 057-022-013

5. **Project Sponsor's Name and Address:**

   Blue Mountain Communities
   707 Aldridge Avenue
   Vacaville, CA 95688

6. **General Plan Designation:**

   Sand Creek Focus Area – Low Density Residential

7. **Zoning:**

   Planned Development (P-D)

8. **Description of Project:**

   The proposed project involves the construction of 121 new single-family homes and associated open space, roadway, and utility improvements. Please refer to Section 2.0, Project Description, for a complete description of the proposed project.

9. **Surrounding Land Uses and Setting:**

   The project site is generally surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. Please refer to Section 2.0, Project Description, for a complete description of the surrounding land uses and setting.

10. **Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):**

    Contra Costa Fire Protection District, California Department of Conservation

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

The Native American Heritage Commission (NAHC) in West Sacramento was provided with information about the proposed project and was requested to provide a list of tribes eligible to consult with the City, pursuant to Public Resources Code Section 21080.3.1. On September 1, 2020, the City sent letters to these tribes via certified mail notifying them of the proposed project. Per Public Resources Code, Section 21080.3.1(d), a request for consultation must be submitted within 30 days of the receipt the letter. Two letters, submitted to the Confederated Villages of Lisjan and the Canyon Mutsun Band of Costanoan, were returned as undeliverable and unable to be forwarded with a stamp stating "unclaimed." The City attempted to contact the tribal representatives via email on October 2 and October 21, 2020. On November 3, 2020, Ms. Gould, representative of the Confederated Villages of Lisjan, responded to the City's email and requested additional information regarding the proposed project but did not request to initiate consultation. The City did not receive a response from Ms. Sayers, the listed representative for the Canyon Mutsun Band of Costanoan.

2.0 PROJECT DESCRIPTION

The following describes the proposed Deer Valley Estates Project (project) that is the subject of this Initial Study prepared pursuant to the California Environmental Quality Act (CEQA). The proposed project would result in the construction of 121 new single-family homes on the project site. The City of Antioch (City) is the Lead Agency for review of the proposed project under CEQA.

2.1 PROJECT SITE

The following section describes the project location, existing site conditions, surrounding land uses, and regulatory setting.

2.1.1 Project Location

The approximately 37.56-acre project site consists of two parcels of undeveloped land located at 6100 Deer Valley Road in the southern portion of the City of Antioch, Contra Costa County (Assessor's Parcel Number [APN] 055-071-026 and 057-022-013). The project site is bounded by single-family residential uses to the north, the under construction Aviano Farms Project[1] to the east, Wellness Way and the Kaiser Permanente Antioch Medical Center (Kaiser Medical Center) to the south, and Deer Valley Road to the west.

Regional vehicular access to the project site is provided by State Route 4 (SR 4), which is located both east and north of the project site; the nearest access is located on Lone Tree Way, approximately 2.6 miles to the east of the site. Bus stops along Deer Valley Road, including adjacent to Kaiser Medical Center and at its intersection with Prewett Ranch Drive, provide transit service to the project site. Figure 2-1 shows the regional and local context of the project site. Figure 2-2 depicts an aerial photograph of the project site and surrounding land uses.

2.1.2 Existing Conditions

The rectangular project site is generally flat, with gently rolling topography that slopes from east to west. Site elevations range from approximately 195 to 225 feet above mean sea level. The project site is currently vacant and generally consists of non-native annual grassland and ruderal vegetation.

There are a number of existing utility easements on the project site which generally run along the northern border and through the center of the project site. Specifically, a buried petroleum pipeline runs in a north-south direction through the approximate center of the site and continues west along the site's northern boundary within a 25-foot-wide easement. Additional easements on the project site include 10- to 16-foot-wide easements in this area for pipelines and telephones lines, and a 25-foot storm drain easement along the eastern boundary.

[1] The Aviano Farms Project, which was approved by the Antioch City Council on September 8, 2015, consists of approximately 553 one- to two-story single-family detached homes.

2.1.3 Surrounding Land Uses

As shown in Figure 2-2, the project site is generally surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. To the north, the project site is bounded by a single-family residential neighborhood with one- to two-story homes. Further north are Prewett Ranch Drive and Deer Valley High School. The project site is bordered immediately to the east by the Aviano Farms Project, which is currently under construction with 533 residential units. Further east is the approved Vineyards at Sand Creek project, which is also under construction and consists of 641 residential units. To the south is Wellness Way and the Kaiser Medical Center, past which is Sand Creek Road. The project site is bound to the west by Deer Valley Road, across which is the site of The Ranch Project, which is a master planned residential community that was approved by City Council in July 2020 and could be under construction by 2023. The Ranch Project will consist of 1,177 one- to two-story residential units, 5 acres of commercial, office, and retail space, 3 acres of public services facilities, and approximately 22.5 acres of public parks and landscaped areas. It is anticipated that initial occupancy of the first phase of The Ranch Project would begin in Fall 2023,[2] and occupancy of the Aviano Farms Project is set to begin by the end of 2020.[3]

2.1.4 Circulation and Access

The project site is currently vacant and no interior vehicular access is available. However, Deer Valley Road provides access to the eastern edge of the project site, and Wellness Way provides access to the southern edge.

2.1.5 Project Background and Regulatory Setting

On February 26, 2008, an Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project) was adopted by the Antioch City Council. The 2008 IS/MND evaluated the potential impacts associated with the development of 136 single-family residential units and an approximately 1.69-acre park on the project site. The 2008 Project included a rezoning of the project site from Study Zone (S) to the site's current zoning of P-D and the approval of a Master Development Plan.[4]

Per CEQA Guidelines Section 15152, "where an EIR [or negative declaration] has been prepared and certified [or adopted] for a program… consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program… should limit the EIR… on the later project to effects which: (1) were not examined as significant effects on the environment in the prior EIR; or (2) are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means." The analysis provided in this Initial Study tiers from the 2008 IS/MND, as appropriate. The Mitigation Monitoring and Reporting Program (MMRP) prepared for the 2008 IS/MND is included as Appendix A. The MMRP

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2 Antioch, City of. 2020a. *Draft Environmental Impact Report, The Ranch Project.* State Clearinghouse Number 2019060012. Prepared by FirstCarbon Solutions. March 20.

3 Denova Homes. 2020. Stella at Aviano. Website: www.denovahomes.com/new-homes/ca/antioch/stella-at-aviano/5618 (accessed August 2020).

4 Antioch, City of. 2007. *Deer Valley Estates Master Plan Initial Study/Mitigated Negative Declaration*. Prepared by LSA Associates, Inc. December.

lists each of the mitigation measures identified by the 2008 IS/MND, as well as any modifications required for the proposed project identified in this Initial Study.

The City of Antioch General Plan Land Use Map designates the project site as Sand Creek Focus Area – Low Density Residential.[5] The Low Density Residential designation is generally characterized by single-family homes in traditional subdivisions, which are generally located on gently rolling terrain.

The Sand Creek Focus Area overlay sets policy direction for the 2,712-acre Sand Creek Focus Area, which is generally bounded by existing residential neighborhoods to the north, Black Diamond Mines Regional Preserves to the west, the city limits to the south, and the City of Brentwood to the east. The Sand Creek Focus Area is intended to function as a large-scale planned community, providing needed housing and employment opportunities. [6] The zoning on the project site is the P-D district established as a part of the 2008 Project.[7] The P-D district is intended to enable and encourage flexibility in the design and development of land so as to promote its most appropriate use.

2.2 PROPOSED PROJECT

The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements. Individual components of the proposed project are discussed below.

2.2.1 Building Program

As previously discussed, the proposed project would result in the subdivision of the project site to allow construction of a total of 121 single-family residential units, each of which would either be one or two stories and include a two- or three-car garage. The single-family residential units would range in size from approximately 2,252 square feet to approximately 3,445 square feet and would be located on individual lots that would be a minimum of 7,000 square feet. All of the residential units would front to internal streets within the project site, discussed below, and none would front to either Deer Valley Road or Wellness Way.

The proposed project would include six different plan types, each of which would have three different architectural styles: contemporary ranch, modern prairie, and mid-century modern. The layout and size of each residence would vary based on the plan type, but would range from three bedrooms and two bathrooms in the smallest plan type to five bedrooms and four bathrooms in the largest. The proposed project would have an overall density of 3.2 dwelling units per acre.

All of the single-family residential units on the project site would have a minimum setback of 20 feet for both the front yard and the garage, and a minimum of 10 feet where the side yard abuts a street. Single-story units would include a minimum setback of 5 feet for side yards adjacent to other residential units, which two-story units would include a minimum 10-foot setback. Units that would

5 Antioch, City of. 2020b. Interactive Zoning Map & Information. Website: www.antiochca.gov/community-development-department/planning-division (accessed August 2020).
6 Antioch, City of. 2003. *City of Antioch General Plan*. November 24.
7 Antioch, City of. 2020b, op. cit.

be adjacent to Deer Valley Road and Wellness Way would have a minimum rear yard setback of 30 feet, while all other units would have a minimum rear yard setback of 25 feet.

Figure 2-3 shows the conceptual site plan for the proposed project. Typical building elevations representing the residential units are shown in Figure 2-4, and typical renderings are shown in Figures 2-5 through 2-7.

2.2.2 Open Space and Landscaping

Each of the residential lots on the project site would include private backyards that would be an average of 2,240 square feet in size. In total, the proposed project would provide approximately 15.2 acres (662,380 square feet) of private open space, including backyards.

The proposed project would include multiple common open space areas for project residents, including an approximately 1.12-acre park, which would be located in the approximate center of the project site (as shown on Figure 2-3) and would include a dog park and a playground. An approximate total of 1.5 acres of the site would be improved with landscaping, including street trees and native grasses and an approximately 4- to 6-foot-wide trail that would run through the northwest and center portions of the site and connect the proposed park to Deer Valley Road. Access to the proposed trail would be provided by a tubular steel fence with an access gate in the northwest corner of the project site.

Finally, the proposed project would include a landscaped detention basin, as further described below, which would be approximately 1.51 acres in size. A total of approximately 298 trees would be planted as part of the proposed project. The proposed park and common landscaped areas would be maintained by a homeowners association (HOA).

2.2.3 Access, Circulation, and Parking

As shown on Figure 2-3, access to the project site would be provided at four points, including from Wellness Way to the south and from extensions of Piute Way, Mojave Way, and Oneida Way, all of which are existing streets that currently have a terminus at the northern boundary of the project site. Interior streets would provide vehicular access to each of the proposed residential units. As noted above, each of the residential units would include either a two- or three-car parking garage, for a total of 267 parking spaces. An additional 232 guest parking spaces would be provided on the internal streets for a total capacity of 495 parking spaces on the project site.

2.2.4 Utilities and Infrastructure

The project site is located in a developed area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure. Existing and proposed utility connections are discussed below.

2.2.4.1 Water

Water service to the project site is provided by the City. The proposed project would include the installation of new 8- and 12-inch water lines on the site that would connect to the existing 12-inch mains located within Wellness Way, Mojave Way, and Oneida Way.

2.2.4.2 Wastewater

The City maintains existing sanitary sewer lines within the vicinity of the project site, including a 10-inch line within the existing portion of Oneida Way adjacent to the northeast corner of the project site. New 8-inch lines would be installed throughout the project site and would tie into the existing 10-inch line.

2.2.4.3 Stormwater

As previously noted, the project site is currently undeveloped and covered in non-native grassland, and therefore does not contain any impervious surfaces. Stormwater infrastructure on the project site currently consists of two 72-inch stormwater mains that run north-south through the project site near the eastern border. Additionally, a 36-inch stormwater main runs through Wellness Way, which ties into the 72-inch mains.

Upon construction of the proposed project, approximately 48 percent (18 acres) of the project site would be covered with impervious surfaces, and the remaining 52 percent (19.5 acres) would be covered by pervious surfaces, consisting of the park and landscaped areas. As previously noted, the proposed project would include approximately 1.51 acres of bioretention space on the project site that would be used for stormwater control. The proposed project would include catch basins and storm drains throughout the project site which would connect to the bioretention basin and existing stormwater facilities.

2.2.4.4 Electricity and Gas

Electricity and gas service is provided to the project site by Pacific Gas & Electric. The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the project site, which could include the lines within Deer Valley Road, Wellness Way, Piute Way, Mojave Way, or Oneida Way.

2.2.4.5 Soundwall

The proposed project would include a 6-foot precast soundwall that be located along the northern, western, and half of the southern property line.

2.2.5 Construction

Cut and fill from project grading would be balanced on-site. It is anticipated that the maximum depth of excavation for building pads would be approximately 17 feet and the maximum depth of utility trenching would be approximately 25 feet. Construction of the proposed project is anticipated to begin in Fall 2021 and would occur over two phases, consisting of 63 units in the first phase and 58 units in the second phase, and each lasting approximately one year. Initial occupancy would occur in approximately Fall 2022, and the final phase of construction is expected to be completed in Fall 2023.

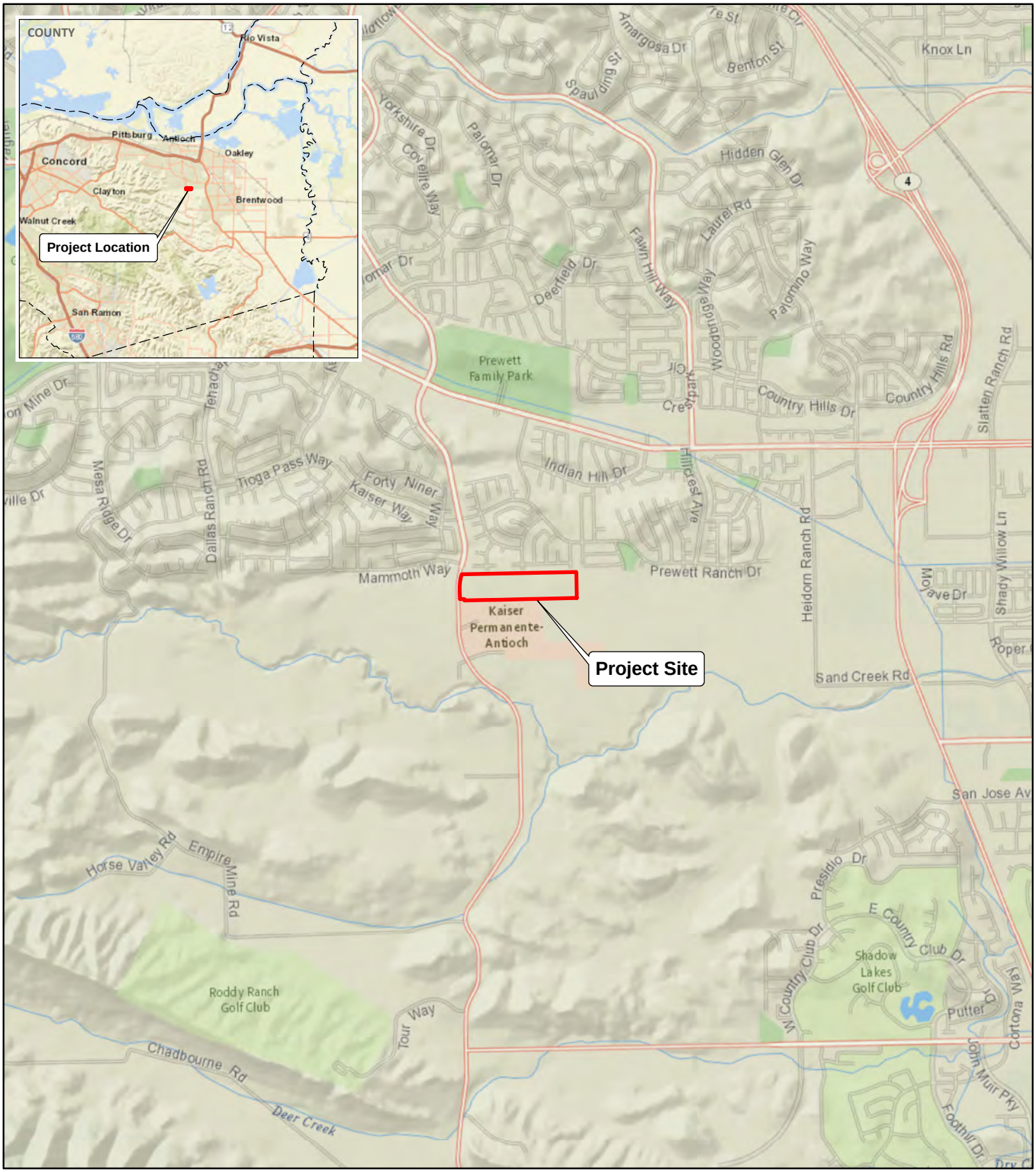
2.3 PROJECT APPROVALS

While the City is the CEQA Lead Agency for the proposed project, other agencies also have discretionary authority related to the project and approvals, or serve as a responsible and/or trustee agency in connection to the proposed project. A list of these agencies and potential permits and approvals that may be required is provided in Table 2.A.

Table 2.A: Potential Permits and Approvals

Lead Agency	Permits/Approvals
City of Antioch	● Environmental Review ● Tentative Map Approval ● Final Development Plan ● Use Permit ● Design Review
Other Agencies	
Contra Costa County Fire Protection District	● Review/Approve fire truck access and site fire flow design
California Department of Conservation	● Approve oil well abandonment

Source: LSA (2020).



LSA

FIGURE 2-1

N

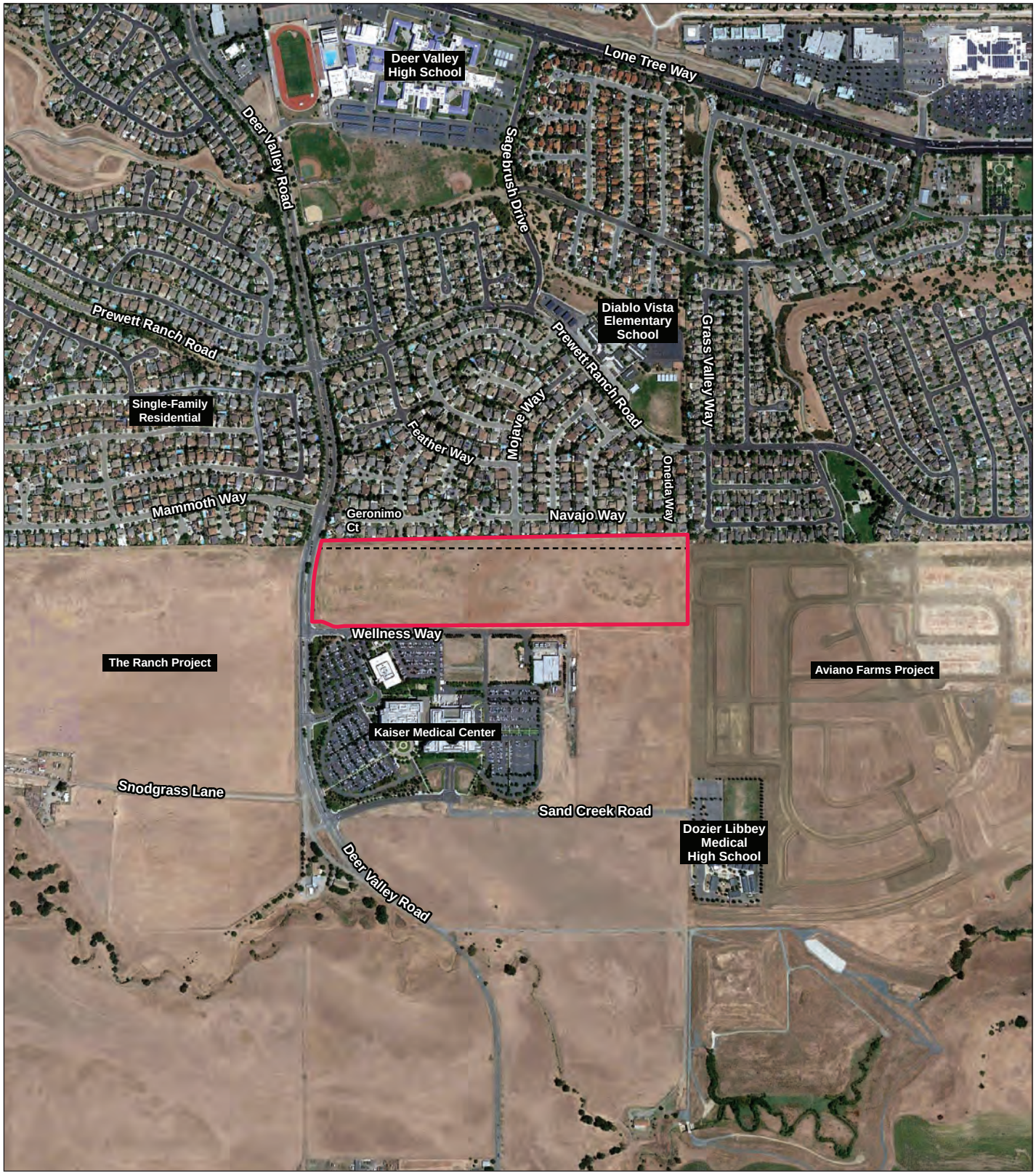
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SOURCE: National Geographic (c) 2018; Esri World Street Map (c) 2018.

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Deer Valley Estates Project

Project Location and Regional Vicinity



LSA

FIGURE 2-2

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Project Site

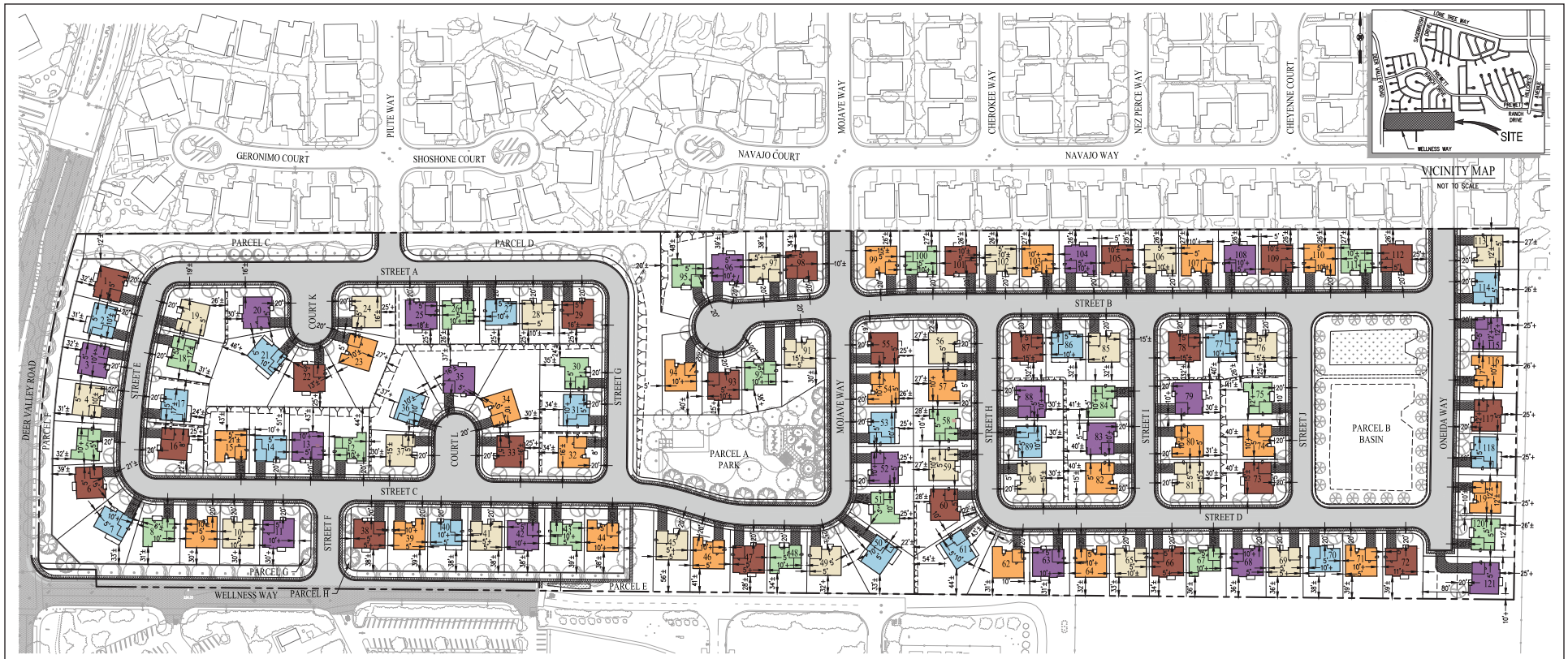
Parcel Boundary

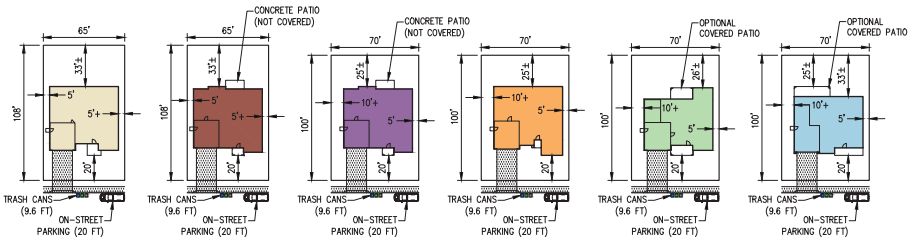
Deer Valley Estates Project

Aerial Photograph of the Project Site and Surrounding Land Uses

SOURCES: Google Earth, 6/19/19; LSA, 2020.

P:\CAN2002 Deer Valley Estates\PRODUCTS\Figures\Figure 2-2.ai (10/27/2020)





TYPICAL FIT ILLUSTRATION

SUBDIVISION 9518

PLAN	# OF LOTS	% OF TOTAL
1	22	18%
2	22	18%
2X	18	15%
3	23	19%
4	18	15%
5	18	15%
TOTAL	121	100%

LSA

FIGURE 2-3

0 160 320
FEET

N

Deer Valley Estates Project
Conceptual Site Plan

SOURCE: CBG Civil Engineering, May 2020.

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PLAN 1A
CONTEMPORARY RANCH



PLAN 2B
MODERN PRAIRIE



PLAN 2XC
MID-CENTURY MODERN



PLAN 3C
MID-CENTURY MODERN



PLAN 4A
CONTEMPORARY RANCH



PLAN 5B
MODERN PRAIRIE

LSA

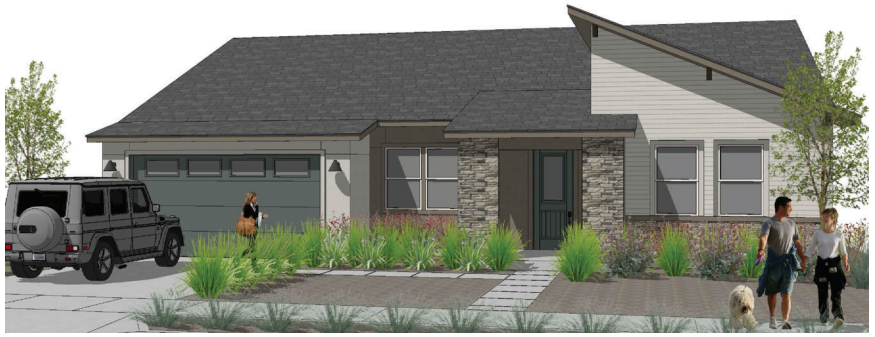
FIGURE 2-4

0 6 12
FEET

Deer Valley Estates Project
Conceptual Building Elevations

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 1A
CONTEMPORARY RANCH



PLAN 1B
MODERN PRAIRIE



PLAN 1C
MID-CENTURY MODERN

LSA

FIGURE 2-5

Deer Valley Estates Project
Conceptual Renderings - Plan 1

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 2XA
CONTEMPORARY RANCH



PLAN 2XB
MODERN PRAIRIE



PLAN 2XC
MID-CENTURY MODERN

LSA

FIGURE 2-6

Deer Valley Estates Project
Conceptual Renderings - Plan 2X

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 4A
CONTEMPORARY RANCH



PLAN 4B
MODERN PRAIRIE



PLAN 4C
MID-CENTURY MODERN

LSA

FIGURE 2-7

Deer Valley Estates Project
Conceptual Renderings - Plan 4

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist in Chapter 3.0.

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

3.1 DETERMINATION

On the basis of this initial evaluation:

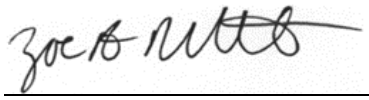
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ 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 project proponent. 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" impact 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

December 16, 2020
Date

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4.0 CEQA ENVIRONMENTAL CHECKLIST

4.1 AESTHETICS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Except as provided in Public Resources Code Section 21099, would the project:				
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 a 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?	☐	☐	☐	☒

a. Would the project have a substantial effect on a scenic vista? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would not adversely affect important public view corridors within the vicinity of the project site, including Lone Tree Way, Hillcrest Avenue, and Deer Valley Road as the one- and two-story homes would blend in with surrounding development including residential uses immediately to the north and the Kaiser Medical Facility to the south. The 2008 IS/MND determined that views from existing residences immediately north of the project site would be obstructed by the proposed project, but that these views are not from public spaces. The proposed project is located on the same site at the 2008 Project and would not include buildings higher than those included in the 2008 Project. In addition, the proposed project would include fewer residential units than the 2008 Project. Therefore, similar to the 2008 Project, the proposed project would have a less-than-significant impact on scenic vistas and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ***(No New Impact)***

The 2008 IS/MND determined that the project site would not be visible from the closest State scenic highways, which are portions of SR 24 and Interstate 680 (I-680). There are no new State scenic highways within the vicinity of the project site.[8] Therefore, similar to the 2008 Project, the proposed

[8] California Department of Transportation. 2020. *Scenic Highways*. Website: dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways (accessed September 2020).

project would have no impact on scenic resources within State scenic highways and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a 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? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would be subject to design review, which utilizes the General Plan's design policies when evaluating building and landscape design. Building permits are not issued until design approval has been obtained, which ensures that development projects comply with the City's objectives and policies related to project design. The proposed project would also be subject to design review. Therefore, similar to the 2008 Project, the proposed project would have a less-than-significant impact on regulations governing scenic quality and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(No New Impact)***

The 2008 IS/MND determined that indoor and exterior lighting included in the 2008 Project would generally blend in with surrounding development, but that there would be a potentially significant impact related to daytime glare due to sun reflecting off of windows. However, the 2008 IS/MND identified Mitigation Measure AES-1, which is described in the MMRP for the 2008 IS/MND (included as Appendix A), to reduce this impact to a less-than-significant level. The proposed project would be located on the same site as the 2008 Project and would include a similar level of lighting and new windows, although slightly less than the 2008 Project. Therefore, implementation of Mitigation Measures AES-1 would be required to ensure this impact would be less than significant. With implementation of Mitigation Measure AES-1, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
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 result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? ***(No New Impact)***

The 2008 IS/MND determined that there would be no impact to agricultural resources with development of the 2008 project. Similar to the 2008 Project, the proposed project would not include or otherwise adversely affect agricultural uses. The project site is located in an urban area and is designated as "Farmland of Local Importance" by the California State Department of Conservation. Farmland of Local Importance is defined by the Department of Conservation's Farmland Mapping and Monitoring Program as land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.

Past uses at the site have included orchards and possibly hay cultivation. The project site is not currently in agricultural production and had previously been used for seasonal cattle grazing for more than 30 years, though it has not been used for grazing for at least the last two years. Conditions on the project site remain essentially unchanged since 2008. Therefore, similar to the 2008 Project, the proposed project would have no impact related to the conversion of agricultural resources and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(No New Impact)***

As part of the 2008 Project, the project site was rezoned from S, Study District, to its current zoning of P-D, Planned Development, to allow development of residential uses. As stated in Section 4.2.a, conditions at the project site generally remain unchanged since 2008, and the site is not under a Williamson Act contract. Therefore, similar to the 2008 Project, the proposed project would not conflict with the existing zoning for agricultural use or a Williamson Act contract and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? ***(No New Impact)***

Impacts to forestry resources were not considered in the 2008 IS/MND, as the CEQA Guidelines did not require evaluation of this topic at that time. However, as previously described, the currently undeveloped project site consists of non-native annual grassland and ruderal vegetation and site conditions have remained essentially unchanged since 2008. Additionally, the site is zoned as P-D to allow residential development and is not zoned as forest or timberland. Therefore, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest or timberland and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? ***(No New Impact)***

Refer to Section 4.2.c. The proposed project would not result in the loss of or conversion of forestland to non-forest uses and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? ***(No New Impact)***

Refer to Sections 4.2.a and 4.2.c. The proposed project would not involve changes in the existing environment that could result in the conversion of farmland or forestland and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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?	☐	☐	☐	☒

The project site is located in the City of Antioch and is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen substantially. In Antioch, and the rest of the air basin, exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Within the BAAQMD, ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10}, $PM_{2.5}$), and lead (Pb) have been set by both the State of California and the federal government. The State has also set standards for sulfate and visibility. The BAAQMD is under State non-attainment status for ozone and particulate matter standards. The BAAQMD is classified as non-attainment for the federal ozone 8-hour standard and non-attainment for the federal $PM_{2.5}$ 24-hour standard.

Based on the BAAQMD attainment status and ambient air quality monitoring data, ambient air quality in the vicinity of the project site has basically remained unchanged since approval of the 2008 IS/MND. However, the BAAQMD has made two key regulatory changes since the 2008 IS/MND was adopted. The updated Clean Air Plan was adopted in April 2017 and revised BAAQMD CEQA Guidelines were adopted in May 2017. These changes in the project circumstances, as well as changes to the proposed project itself, are discussed and evaluated in the following section.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan? ***(No New Impact)***

An air quality plan describes air pollution control strategies to be implemented by a city, county, or region classified as a non-attainment area. The main purpose of an air quality plan is to bring an area into compliance with the requirements of federal and State air quality standards. The 2008 IS/MND evaluated the 2008 Project's potential to conflict with or obstruct implementation of the Bay Area 2005 Ozone Strategy, which was the applicable clean air plan at the time. The 2008 IS/MND found that City of Antioch General Plan was consistent with the Bay Area 2005 Ozone Strategy and that the 2007 Project would be consistent with the land use designations identified in the General Plan, thus resulting in a less-than-significant impact related to consistency with the applicable clean air plan.

The BAAQMD's current clean air plan is the BAAQMD 2017 Clean Air Plan (Clean Air Plan),[9] which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines control strategies to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest heath risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project: (1) supports the goals of the Clean Air Plan; (2) includes applicable control measures from the Clean Air Plan; and (3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan. As discussed below, the proposed project would not conflict with or obstruct implementation of the Clean Air Plan.

Clean Air Plan Goals. The primary goals of the Bay Area Clean Air Plan are to: attain air quality standards; reduce population exposure and protect public health in the Bay Area; and reduce greenhouse gas emissions and protect climate.

The BAAQMD has established significance thresholds for project construction and operational impacts at a level at which the cumulative impact of exceeding these thresholds would have an adverse impact on the region's attainment of air quality standards. The health and hazards thresholds were established to help protect public health. As discussed in Section 4.3.b, below, implementation of the proposed project would result in less-than-significant operation-period emissions and, with implementation of Modified Mitigation Measure AIR-1, the project would result in less-than-significant construction-period emissions. Therefore, the project would not conflict with the Clean Air Plan goals.

Clean Air Plan Control Measures. The control strategies of the Clean Air Plan include measures in the following categories: Stationary Source Measures, Transportation Measures, Energy Measures, Building Measures, Agriculture Measures, Natural and Working Lands Measures, Waste Management Measures, Water Measures, and Super-Greenhouse Gas (GHG) Pollutants Measures. The proposed project's potential to conflict with each of these measures is discussed below.

[9] Bay Area Air Quality Management District. 2017. *Clean Air Plan*. April 19.

Stationary Source Control Measures. The Stationary Source Measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, cement kilns, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD's Permit and Inspection programs. Since the project would not include any stationary sources of emissions, the Stationary Source Measures of the Clean Air Plan are not applicable to the project.

Transportation Control Measures. The BAAQMD identifies Transportation Measures as part of the Clean Air Plan to decrease emissions of criteria pollutants, toxic air contaminants (TACs), and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. Vehicle miles traveled (VMT) per capita associated with the proposed project are anticipated to exceed average VMT per capita in both the City and Contra Costa County in 2020 and 2040. However, the proposed project would develop new residences that would locate residents near existing and under-construction residential uses, commercial, office, and retail space uses, and public parks, reducing the demand for travel by single occupancy vehicles. The proposed project would also provide pedestrian and bicyclist amenities, including sidewalks, shading, and landscaping which would also help to reduce the demand for travel by single occupancy vehicles, to the extent feasible. Therefore, the project would not substantially conflict with the BAAQMD's initiatives to reduce vehicle trips and vehicle miles traveled and would increase the use of alternate means of transportation.

Energy Control Measures. The Clean Air Plan also includes Energy Control Measures, which are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures apply to electrical utility providers and local government agencies (and not individual projects), the Energy Control Measures of the Clean Air Plan are not applicable to the project.

Building Control Measures. The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and policies. The proposed project would be required to comply with the latest California Green Building Standards Code (CALGreen) standards. Therefore, the Building Control Measures of the Clean Air Plan are not applicable to the project.

Agriculture Control Measures. The Agriculture Control Measures are designed to primarily reduce emissions of methane. Since the project does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable to the project.

Natural and Working Lands Control Measures. The Natural and Working Lands Control Measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to ordinances that promote urban-tree plantings. Since the

project does not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan are not applicable to the project.

Waste Management Control Measures. The Waste Management Measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the project would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The Water Control Measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the Water Control Measures are not applicable to the project.

Super GHG Control Measures. The Super-GHG Control Measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the Super-GHG Control Measures are not applicable to the project.

Clean Air Plan Implementation. As discussed above, the proposed project would generally implement the applicable measures outlined in the Clean Air Plan, including Transportation Control Measures. Therefore, the project would not disrupt or hinder implementation of a control measure from the Clean Air Plan. This impact would remain less than significant and the proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? ***(No New Impact)***

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants: CO, ozone (O_3), NO_2, SO_2, Pb, and suspended particulate matter (PM_{10}, and $PM_{2.5}$). These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. As identified above, the BAAQMD is under State non-attainment status for ozone, PM_{10}, and $PM_{2.5}$ standards. The Air Basin is also classified as non-attainment for both the federal ozone 8-hour standard and the federal $PM_{2.5}$ 24-hour standard.

Air quality standards for the proposed project are regulated by the BAAQMD CEQA Air Quality Guidelines. According to the BAAQMD CEQA Air Quality Guidelines, to meet air quality standards for operational-related criteria air pollutant and air precursor impacts, the project must not:

- Contribute to CO concentrations exceeding the State ambient air quality standards;
- Generate average daily construction emissions of reactive organic gases (ROG), nitrogen oxides (NO_x) or $PM_{2.5}$ greater than 54 pounds per day or PM_{10} exhaust emissions greater than 82 pounds per day; or
- Generate average operational emissions of ROG, NO_x or $PM_{2.5}$ of greater than 10 tons per year or 54 pounds per day or PM_{10} emissions greater than 15 tons per year or 82 pounds per day.

The following sections describe the proposed project's construction- and operation-related air quality impacts and CO impacts.

Construction Emissions. The 2008 IS/MND did not quantify construction emissions; however the 2008 IS/MND determined that construction period emissions would result from implementation of the 2008 Project. Construction activities are a source of organic gas emissions. Solvents in adhesives, non-water-based paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

In addition, the 2008 IS/MND found that construction dust would affect local air quality at various times during construction of the proposed project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed. Clearing, grading and earthmoving activities have a high potential to generate dust whenever soil moisture is low and particularly when the wind is blowing. The effects of construction activities would be increased dustfall and locally elevated levels of particulates downwind of construction activity. Construction dust has the potential to create a nuisance at nearby properties. In addition to nuisance effects, excess dustfall can increase maintenance and cleaning requirements and could adversely affect sensitive electronic devices. As such, the 2008 IS/MND identified Mitigation Measure AIR-1 to reduce construction impacts to a less-than-significant level.

Similar to the 2008 Project, during construction of the proposed project, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs, such as diesel exhaust particulate matter.

Site preparation and project construction would involve grading, paving, and other activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near

the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM_{10}). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, ROGs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the California Emissions Estimator Model (CalEEMod) version 2016.3.2, consistent with BAAQMD recommendations. Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, consisting of 63 units in the first phase and 58 units in the second phase, and each lasting approximately 1 year. Initial occupancy would occur in approximately Spring 2022, and the final phase of construction is expected to be completed in Spring 2023. Construction-related emissions are presented in Table 4.A. CalEEMod output sheets are included in Appendix B.

Table 4.A: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	NO_x	Exhaust PM_{10}	Fugitive Dust PM_{10}	Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Phase 1 Emissions	5.2	18.3	0.6	0.6	0.6	0.3
Phase 2 Emissions	4.9	18.2	0.6	0.6	0.6	0.3
BAAQMD Thresholds	54.0	54.0	82.0	BMP	54.0	BMP
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA (September 2020).
BMP = best management practices

As shown in Table 4.A, construction emissions associated with the project would be less than significant for ROG, NO_x, $PM_{2.5}$, and PM_{10} exhaust emissions. The BAAQMD requires the implementation of the BAAQMD Basic Construction Mitigation Measures (best management practices), to minimize construction fugitive dust impacts. These measures are similar to those identified in Mitigation Measure AIR-1 in the 2008 IS/MND, but are modified to conform to current best practices. These measures are currently required for all construction projects:

Modified Mitigation Measure AIR-1: In order to meet the BAAQMD fugitive dust threshold, the following BAAQMD Basic Construction Mitigation Measures shall be implemented:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt tracked-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.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the City of Antioch regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

With implementation of Modified Mitigation Measure AIR-1, the proposed project would not result in any new or more severe construction-period air quality impacts compared to those previously identified in the 2008 IS/MND.

Operational Emissions. The 2008 IS/MND did not quantify operational emissions; however the 2008 IS/MND determined that increase in long-term vehicular emissions generated by the 2008 Project are not anticipated to exceed the BAAQMD's operations threshold and would have a less than significant impact on local and regional air quality.

Long-term air pollutant emission impacts associated with the proposed project are those related to mobile sources (e.g., vehicle trips), energy sources (e.g., electricity and natural gas), and area sources (e.g., architectural coatings and the use of landscape maintenance equipment).

PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM_{10} occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles.

Energy source emissions result from activities in buildings for which electricity and natural gas are used. The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source. Major sources of energy demand include building mechanical systems, such as heating and air conditioning, lighting, and plug-in electronics, such as refrigerators or computers. Greater building or appliance efficiency reduces the amount of energy for a given activity and thus lowers the resultant emissions. The emission factor is determined by the fuel source, with cleaner energy sources, like renewable energy, producing fewer emissions than conventional sources.

Typically, area source emissions consist of direct sources of air emissions located at the project site, including architectural coatings and the use of landscape maintenance equipment. Area source emissions associated with the project would include emissions from the use of landscaping equipment and the use of consumer products.

Emissions estimates for operation of the project were calculated using CalEEMod. Model results are shown in Table 4.B. Trip generation rates for the project were based on the project's trip generation estimate, as identified in the Transportation Analysis Scope prepared for the proposed project.[10] Based on the Transportation Analysis Scope, the proposed project would generate approximately 1,142 average daily trips.

[10] LSA. 2020. *Scope of Work for the Deer Valley Estates Transportation Analysis*. October 26.

Table 4.B: Project Operational Emissions

	ROG	NO_x	PM_{10}	$PM_{2.5}$
Pounds Per Day				
Area Source Emissions	6.0	1.7	0.2	0.2
Energy Source Emissions	0.1	0.5	<0.1	<0.1
Mobile Source Emissions	1.7	6.5	5.8	1.6
Total Project Emissions	**7.7**	**8.7**	**6.0**	**1.8**
BAAQMD Thresholds	54.0	54.0	82.0	54.0
Exceed Threshold?	**No**	**No**	**No**	**No**
Tons Per Year				
Area Source Emissions	1.0	<0.1	<0.1	<0.1
Energy Source Emissions	<0.1	0.1	<0.1	<0.1
Mobile Source Emissions	0.3	1.2	1.0	0.3
Total Project Emissions	**1.3**	**1.3**	**1.0**	**0.3**
BAAQMD Thresholds	10.0	10.0	15.0	10.0
Exceed Threshold?	**No**	**No**	**No**	**No**

Source: LSA (September 2020).

The primary emissions associated with the project are regional in nature, meaning that air pollutants are rapidly dispersed on release or, in the case of vehicle emissions associated with the project; emissions are released in other areas of the Air Basin. The daily and annual emissions associated with project operational trip generation, energy, and area sources are identified in Table 4.B for ROG, NO_x, PM_{10}, and $PM_{2.5}$. The results shown in Table 4.B indicate the project would not exceed the significance criteria for daily ROG, NO_2, PM_{10} or $PM_{2.5}$ emissions; therefore, the proposed project would not have a significant effect on regional air quality and this impact would be less than significant. The proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

Localized CO Impacts. The 2008 IS/MND determined that the primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time caused by traffic flow conditions. As discussed in the 2008 IS/MND, typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. The 2008 IS/MND found that all intersections in the vicinity of the project site would operate at acceptable levels of service with implementation of mitigation measures identified in the transportation section. Therefore, the 2008 IS/MND determined that potential impacts related to CO emissions would be less than significant.

The 2017 BAAQMD CEQA Guidelines establishes a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the 2017 BAAQMD CEQA Guidelines, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.

- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the proposed project would not conflict with the applicable congestion management program established by the Contra Costa Transportation Authority. According to the Transportation Analysis Scope, the proposed project would generate approximately 90 AM peak hour trips and 120 PM peak hour trips; therefore, the project's contribution to peak hour traffic volumes at intersections in the vicinity of the project site would be well below 44,000 vehicles per hour. Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards and this impact would be less than significant. The proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

c. Would the project expose sensitive receptors to substantial pollutant concentrations? ***(New Mitigation Required)***

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one million, increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient $PM_{2.5}$ increase greater than 0.3 micrograms per cubic meter ($\mu g/m^3$).

A significant cumulative impact would occur if the project, in combination with other projects located within a 1,000-foot radius of the project site, would expose sensitive receptors to TACs resulting in an increased cancer risk greater than 100.0 in one million, an increased non-cancer risk of greater than 10.0 on the hazard index (chronic), or an ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ on an annual average basis. Impacts from substantial pollutant concentrations are discussed below.

Short-Term Exposure of Sensitive Receptors to Toxic Air Contaminants. The 2008 IS/MND found that construction of the proposed project may expose surrounding, sensitive land uses to short term emissions of airborne particulates and fugitive dust, as well as a small quantity of pollutants associated with the use of construction equipment (e.g., diesel-fueled vehicles and equipment). The 2008 IS/MND determined that since residential and medical/hospital uses are located near the site, sensitive receptors could be exposed to increased pollutant concentrations, especially during construction. The 2008 IS/MND identified implementation of Mitigation Measure AIR-1 to reduce construction period impacts to sensitive receptors to a less-than-significant level.

At the time the 2008 IS/MND was prepared there were no adopted thresholds for short-term exposure to TACs. Since that time the BAAQMD has adopted thresholds for short-term inhalation risks, which are shown in Table 4.C.

The proposed project site is located in an urban area in close proximity to existing residential uses that could be exposed to diesel emission exhaust during the construction period. Residential uses are located immediately adjacent to the northern and southern borders of the project site. To estimate the potential cancer risk from project construction equipment exhaust (including diesel particulate matter), a dispersion model was used to translate an emission rate from the source location to a concentration at the receptor location (i.e., a nearby residential land use). Dispersion modeling varies from a simpler, more conservative screening-level analysis to a more complex and refined detailed analysis. This refined assessment was conducted using The California Air Resources Board (CARB) exposure methodology, with the air dispersion modeling performed using the United States Environmental Protection Agency (USEPA) dispersion model AERMOD. The model provides a detailed estimate of exhaust concentrations based on site and source geometry, source emissions strength, distance from the source to the receptor, and site-specific meteorological data. Table 4.C, below, identifies the results of the analysis utilizing the standard Tier 2 construction equipment. Model snap shots of the sources are provided in Appendix C.

Table 4.C: Unmitigated Inhalation Health Risks from Project Construction to Off-Site Receptors

	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index	Acute Inhalation Hazard Index	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Maximally Exposed Individual	30.10	0.026	0.000	0.132
Threshold	**10.0**	**1.0**	**1.0**	**0.30**

Source: LSA (October 2020).
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
$\mu g/m^3$ = micrograms per cubic meter

As shown in Table 4.C, the risk associated with project construction at the maximally exposed individual (MEI) would be 30.10 in one million, which would exceed the BAAQMD cancer risk of 10 in one million, and would result in a potentially significant impact without mitigation. The total chronic hazard index would be 0.026, which would not exceed the threshold of 1.0. In addition, the total acute hazard index would be nominal (0.000), which would also not exceed the threshold of 1.0. The results of the analysis indicate that the total $PM_{2.5}$ concentration would be 0.132 $\mu g/m^3$, which would not exceed the BAAQMD significance threshold of 0.30 $\mu g/m^3$.

As previously described, the proposed project would include fewer residential units than the 2008 Project, and therefore less construction activity. However, because the BAAQMD has adopted new thresholds in the time since the 2008 IS/MND was adopted, and because the proposed project would exceed the newly applicable BAAQMD cancer risk threshold of 30.10 in one million, the proposed project would result in a new impact. Therefore, implementation of the following new

mitigation measure would be required to reduce pollutant concentrations during project construction.

Mitigation Measure AIR-2: During construction of the proposed project, the project contractor shall ensure all off-road diesel-powered construction equipment of 50 horsepower or more used for the project construction at a minimum meets the CARB Tier 2 emissions standards or equivalent equipped with Level 3 diesel particulate filters equipped with Level 3 diesel particulate filters.

Table 4.D identifies the results of the analysis with implementation of Mitigation Measure AIR-2.

As shown in Table 4.D, the mitigated cancer risk at the MEI would be 4.95 in one million, which would not exceed the BAAQMD cancer risk of 10.0 in one million. Therefore, with implementation of Mitigation Measure AIR-2, construction of the proposed project would not exceed BAAQMD thresholds and would not expose nearby sensitive receptors to substantial pollutant concentrations. Implementation of Mitigation Measure AIR-2 would ensure that the proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

Table 4.D: Mitigated Inhalation Health Risks from Project Construction to Off-Site Receptors

	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index	Acute Inhalation Hazard Index	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Maximally Exposed Individual	4.95	0.004	0.000	0.021
Threshold	**10.0**	**1.0**	**1.0**	**0.30**

Source: LSA (October 2020).
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
$\mu g/m^3$ = micrograms per cubic meter

Long-Term Exposure of Sensitive Receptors to Toxic Air Contaminants. As discussed in the 2008 IS/MND, long-term air pollution associated with the 2008 Project would be primarily vehicle related, and would not necessarily be concentrated in the vicinity of the project site. Based on the minimal amount of traffic that the 2008 Project would generate, the 2008 IS/MND found that long-term emissions would be less than significant. Similar to the 2008 Project, once the proposed project is constructed, the proposed project would not be a source of substantial emissions. Therefore, implementation of the proposed project would not result in new sources of TACs. Therefore, the project would not expose sensitive receptors to substantial levels of TACs and this impact would continue to be less than significant. Therefore, the proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? ***(No New Impact)***

As discussed in the 2008 IS/MND, as a typical residential development without any industrial land uses, the 2008 Project would not generate objectionable odors. In addition, the 2008 IS/MND found that the 2008 Project is not located downwind from any significant odor sources (e.g., landfills, sewage treatment plants) that could affect persons within the project site. Therefore, the 2008 IS/MND determined that implementation of the 2008 Project would not create objectionable odors affecting a substantial number of people or subject people to objectionable odors.

Similar to the 2008 Project, during project construction, some odors may be present due to diesel exhaust. However, these odors would be temporary and limited to the construction period. The proposed project would not include any activities or operations that would generate objectionable odors and once operational, the project would not be a source of odors. Therefore, objectionable odors affecting a substantial number of people would not occur as a result of the project. The proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

4.4 BIOLOGICAL RESOURCES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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 Game 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, regulations or by the California Department of Fish and Game or U.S. 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 native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
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 Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Unless otherwise noted, the following section is based on the Biological Resources Assessment (included in Appendix D)[11] and Jurisdictional Delineation (included in Appendix E)[12] prepared for the currently proposed project.

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(No New Impact)***

The 2008 IS/MND determined that the project site supported non-native grassland and approximately 0.37 acres of seasonal wetland habitats. The 2008 IS/MND determined that the following special-status species could be present at the project site: Vernal pool fairy shrimp (*Branchinecta lynchi*), Vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander

11 LSA. 2019. *Biological Resources Assessment, 1600 Deer Valley Road, Antioch, Contra Costa County*. January 24.

12 LSA. 2019. *CWA 404 Jurisdictional Delineation of 1600 Deer Valley Road, Antioch.* January 24.

(*Ambystoma californiense*), Burrowing owl (*Athene cunicularia*), and San Joaquin kit fox (*Vulpes macrotis mutica*). The 2008 IS/MND identified Mitigation Measures BIO-1a through 1-c, which require preconstruction surveys, avoidance of seasonal wetlands where feasible, and purchasing lands at a mitigation bank if avoidance is not feasible; Mitigation Measures BIO-2a through 2d, which requires protocol level preconstruction surveys for burrowing owls, implementation of passive relocation techniques, avoidance of burrows during construction activities, and removal of burrowing owls in accordance with the Staff Report on Burrowing Owl Mitigation; and Mitigation Measures BIO-3a through 3-c, which require pre-construction surveys for kit fox dens, implementing the United States Fish and Wildlife Service Standardized Recommendations for Protection of the Kit Fox Prior to or During Ground Disturbance, and purchasing lands at a mitigation bank if avoidance is not feasible; and Mitigation Measure BIO-4, which requires the implementation of a Resource Management Plan if mitigation lands are purchased.

The project site is currently vacant and generally consists of non-native annual grassland and ruderal vegetation. Site conditions are similar to those found in 2008, with the exception that approximately 0.37-acre of potential seasonal wetland habitats appear to be no longer present at the site. During the time of the survey conducted as part of the Biological Resources Assessment, the project site appeared to have been recently disked. Several common species of birds were observed flying over or in the vicinity of the project site and California ground squirrels (*Otospermophilus beecheyi*) and their characteristic burrows were present across the project site. Plant species observed on the site consist of common filaree (*Erodium cicutarium*), California burclover (*Medicago polymorpha*), shortpod mustard (*Hirschfeldia incana*), and gumplant (*Grindelia hirsutula*). A search of the California Natural Diversity Database indicated 25 special-status plant species and 19 special-status wildlife species within 5 miles of the project site.

Similar to the findings in the 2008 IS/MND, due to its disturbed nature, the site is unlikely to support any special-status plant species. Most of the special-status plant species in the area have very specific habitat needs (e.g., vernal pools, alkali, playa, thin rocky soil, brackish marshes) that are not present on the site. No special-status plant species are expected on the site due to the extensive disturbance that has occurred in the past, the isolated nature of the property, and the non-native, weedy plant cover that is current present. Therefore, there would be no impact to special-status plant species and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Of the 19 special-status wildlife species identified as potentially occurring within the project vicinity, the presence of 9 can be ruled out due to a lack of suitable habitat on or near the project site. The project site continues to provide suitable habitat for Vernal pool tadpole and fairy shrimp, California tiger salamander, Burrowing owl, and San Joaquin Kit Fox and may now provide suitable habitat for the following five special-status species: California red-legged frog (*Rana draytonii*), Swainson's hawk (*Buteo swainsoni*), Loggerhead shrike (*Lanius ludovicianus*), white-tailed kite (*Elanus leucurus*), and American badger (*Taxidea taxus*). As described in the Biological Resources Assessment, the American badger occurs in the same habitats as the burrowing owl and San Joaquin kit fox and California red-legged frog utilizes the same breeding habitat as the California tiger salamander. Therefore, Mitigation Measures BIO-1a through BIO-3c from the 2008 IS/MND, which are described above and in Appendix A, would continue to be applicable to the proposed project and would be

required to reduce potential impacts to Vernal pool fairy and tadpole shrimp, California tiger salamander, California red-legged frog, Burrowing owl, San Joaquin Kit Fox, and American badger to a less-than-significant level.

As described above, the project site provides suitable habitat for Swainson's hawk, Loggerhead shrike, and white-tailed kite, which were not identified in the 2008 IS/MND. Therefore, implementation of the proposed project could result in a new impact. Implementation of Mitigation Measure BIO-5, described below, would ensure this impact would be reduced to a less-than-significant level.

Mitigation Measure BIO-5: The proposed project shall avoid any construction activities that result in vegetation removal, including grading and other ground-disturbing activities, during the bird nesting season (February 1 through August 31). If construction activities are scheduled during the nesting season, the project applicant shall retain a qualified biologist to conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey shall be conducted no more than 14 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.

With implementation of Mitigation Measures BIO-1a through BIO-4 from the 2008 IS/MND (described in Appendix A) and Mitigation Measure BIO-5, the proposed project would not result in any new or more severe impacts compared to those previously analyzed in the 2008 IS/MND.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(No New Impact)***

The 2008 IS/MND determined that the project site does not support any riparian habitat or other sensitive natural community. The Biological Resources Assessment did not identify any new riparian habitats or sensitive natural communities on the project site. Therefore, this impact would remain less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project 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? ***(Reduced Impact)***

The 2008 IS/MND identified an approximately 0.37-acre potential seasonal wetland on the project site, and identified Mitigation Measure BIO-5a, which required a formal wetland delineation to be conducted for the project site. The potential wetland was based on standing water observed on the project site in 2003 and the presence of hydrophytic vegetation. The Jurisdictional Delineation prepared for the project site in December 2019 (during the wet season) determined that due to the lack of hydric soils and wetland hydrology at this site, no State or federally protected wetlands are present on the project site, despite the presence of wetland vegetation. Therefore, no impact would occur and this impact would be reduced compared to the 2008 Project.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(No New Impact)***

The project site is a vacant lot with a disked field situated within an urban/grassland setting, surrounded to the north and south by urban development, such as roads, buildings, and parking lots. The western side of the site is open grassland, and the property to the east is being graded at present. No significant wildlife movement corridors, such as stream channels or riparian corridors, occur at the site. Existing wildlife that currently move through the site are likely both rural and urban-adapted species that would likely continue to move through the site after project development. Additionally, implementation of Mitigation Measures BIO-1a through BIO-3c as identified in the 2008 IS/MND would further ensure that this impact would remain less than significant. Therefore, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Reduced Impact)***

The project site does not currently contain any mature trees, and therefore the proposed project would not include the removal of any trees or require the issuance of a tree removal permit. The 2008 IS/MND required planting of a minimum of 36 new trees to mitigate for the loss of 12 mature trees that were removed from the site in approximately 2007 (Mitigation Measure BIO-6); however, this mitigation measure is no longer applicable as the proposed project would no longer include the removal of any trees. Additionally, the proposed project would include the planting of approximately 298 new trees. Therefore, this impact would be reduced compared to the 2008 Project and no impact would occur.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(No New Impact)***

The project site is not located within the limits of any adopted conservation plan and therefore would not conflict with any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan. Therefore, there would be no impact and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.5 CULTURAL RESOURCES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Unless otherwise noted, the following analysis is based on the Cultural Resources Report (included as Appendix F) prepared for the currently proposed project.[13]

*a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? **(No New Impact)***

The 2008 IS/MND determined that the project site did not contain any historical resources. However, the 2008 IS/MND did identify potentially significant impacts related to the potential accidental discovery of archaeological resources or human remains during site preparation activities. However, with implementation of Mitigation Measures CULT-1 and CULT-3, these impacts would be reduced to a less-than-significant level. Conditions on the project site have not substantially changed since the preparation of the 2008 IS/MND. Therefore, the proposed project would not result in any substantial adverse changes to historical resources, but could adversely affect previously undiscovered archaeological resources and human remains. Therefore, Mitigation Measures CULT-1 and CULT-3 from the 2008 IS/MND would be required to ensure this impact would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

*b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? **(No New Impact)***

Refer to Section 4.5.a. Mitigation Measures CULT-1 and CULT-3 as identified in the 2008 IS/MND would be required to ensure this impact would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[13] LSA. 2019. *Cultural Resources Supplemental Report for APN 057-022-013, 1600 Deer Valley Road, Antioch, Contra Costa County, California.* January 28.

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries? ***(No New Impact)***

Refer to Section 4.5.a. Mitigation Measures CULT-1 and CULT-as identified in the 2008 IS/MND would be required to ensure this impact would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.6 ENERGY

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Result in a 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?	☐	☐	☐	☒

At the time the 2008 IS/MND was prepared, the CEQA Guidelines did not require the evaluation of energy resources in the preparation of MNDs. As such, the 2008 IS/MND did not evaluate potential energy impacts. The following analysis was prepared consistent with the significance criteria identified in Appendix G of the CEQA Guidelines to evaluate the impacts of project-related energy demand.

*a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? **(No New Impact)***

The proposed project would increase the demand for electricity, natural gas, and gasoline. The discussion and analysis provided below is based on data included in the CalEEMod output, which is included in Appendix B.

Construction-Period Energy Use. The anticipated construction schedule assumes that the proposed project would be built over 2 years. The proposed project would require grading, site preparation, and building activities during construction.

Construction of the proposed project would require energy for the manufacture and transportation of construction materials, preparation of the site for grading activities, and construction of the single-family homes. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. In order to increase energy efficiency on the site during project construction, equipment idling times would be restricted to 5 minutes or less and construction workers would be required to shut off idle equipment, as identified in Modified Mitigation Measure AIR-1. In addition, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Therefore, construction energy impacts would be less than significant. With implementation of Modified Mitigation Measure AIR-1, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Operational Energy Use. Energy use consumed by the proposed project would be associated with natural gas use, electricity consumption, and fuel used for vehicle trips associated with the project. Energy and natural gas consumption was estimated for the project using default energy intensities by building type in CalEEMod. In addition, the proposed buildings would be constructed to CALGreen standards, which was included in CalEEMod inputs. Electricity and natural gas usage estimates associated with the proposed project are shown in Table 4.E. In addition, the proposed project would result in energy usage associated with gasoline to fuel project-related trips. Based on the CalEEMod analysis, the proposed project would result in approximately 2,690,139 VMT per year.[14] The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.0 mpg in 2015.[15] Therefore, using the USEPA fuel economy estimates for 2015, the proposed project would result in the consumption of approximately 122,279 gallons of gasoline per year. Table 4.E, below, shows the estimated potential increased electricity and natural gas demand associated with the proposed project.

Table 4.E: Estimated Annual Energy Use of Proposed Project

Electricity Use (kWh per year)	Natural Gas Use (therms per year)	Gasoline (gallons per year)
958,068	18,557	122,279

Source: LSA (September 2020).

As shown in Table 4.E, the estimated potential increased electricity demand associated with the proposed project is 958,068 kilowatt hours (kWh) per year. In 2018, California consumed approximately 281,120 gigawatt hours (GWh) or 281,120,193,430 kWh.[16] Of this total, Contra Costa County consumed 16,668 GWh or 16,668,160,600 kWh.[17] Therefore, electricity demand associated with the proposed project would only be approximately 0.01 percent of Contra Costa County's total electricity demand.

The estimated potential increased natural gas demand associated with the proposed project is 18,557 therms per year, as shown in Table 4.E. In 2018, California consumed approximately 12,638 million therms or 12,638,157,740 therms, while Contra Costa County consumed approximately 440 million therms or approximately 440,030,822 therms.[18] Therefore, natural gas demand associated

14 It should be noted that a Transportation Impact Analysis (TIA) will be prepared as part of the EIR. The TIA and EIR may include a refined estimate of VMT; however, any variation in estimated VMT would not affect the analysis or conclusions related to energy as presented in this section.

15 U.S. Department of Transportation. 2017. "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." Website: www.bts.gov/archive/publications/national_transportation_statistics/table_04_23 (accessed September 2020).

16 California Energy Commission. 2018. Energy Consumption Data Management Service. Electricity Consumption by County. Website: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed September 2020).

17 Ibid.

18 California Energy Commission. 2018. Energy Consumption Data Management Service. Gas Consumption by County. Website: www.ecdms.energy.ca.gov/gasbycounty.aspx (accessed September 2020).

with the proposed project would be less than 0.01 percent of Contra Costa County's total natural gas demand.

In addition, the proposed project would result in energy usage associated with gasoline to fuel project-related trips. As shown above in Table 4.E, vehicle trips associated with the proposed project would consume approximately 122,279 gallons of gasoline per year. In 2015, vehicles in California consumed approximately 15.1 billion gallons of gasoline.[19] Therefore, gasoline demand generated by vehicle trips associated with the proposed project would be a minimal fraction of gasoline and diesel fuel consumption in California.

The proposed project would be constructed to CALGreen standards, which would help to reduce energy and natural gas consumption. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Construction and operation period impacts related to consumption of energy resources would be less than significant. Therefore, the proposed project would not result in any new or more severe impacts beyond those identified in the 2008 IS/MND.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? ***(No New Impact)***

In 2002, the Legislature passed Senate Bill (SB)1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission (ZE) vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The most recently adopted CEC energy report is the 2019 Integrated Energy Policy Report.[20] The 2019 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2019 Integrated Energy Policy Report covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary

[19] California Energy Commission. 2017. California Gasoline Data, Facts, and Statistics. Website: www.energy.ca.gov/almanac/transportation_data/gasoline (accessed September 2020).

[20] California Energy Commission. 2019. *2019 Integrated Energy Policy Report.* California Energy Commission. Docket # 19-IEPR-01.

transportation energy demand forecast, renewable gas (in response to SB 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the project's total impact to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the 2019 Integrated Energy Policy Report. Thus, as shown above, the project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and not result in any irreversible or irretrievable commitments of energy. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation and this impact would be less than significant. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.7 GEOLOGY AND SOILS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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 or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
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 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ii. Strong seismic ground shaking? iii. Seismic-related ground failure, including liquefaction? iv. Landslides? ***(No New Impact)***

The project site is not located within an Alquist-Priolo Earthquake Fault Zone[21] and therefore, similar to the 2008 Project, would not be subject to fault rupture. Similar to the 2008 Project, the proposed project would also be subject to strong seismic groundshaking. However, implementation of Mitigation Measure GEO-1 (described in Appendix A), which requires the project design to comply with the California Building Code (CBC), would ensure that this impact would remain less than significant.

[21] California Department of Conservation. 2020. *Earthquake Zones of Required Investigation.* Website: maps.conservation.ca.gov/cgs/EQZApp/app (accessed October 2020).

Soil liquefaction is primarily associated with saturated soil layers located close to the ground surface. During ground shaking, these soils lose strength and acquire "mobility" sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie relatively close to the ground surface. However, loose sands that contain a significant amount of fines (silt and clay) may also liquefy. The 2008 IS/MND determined that potential liquefaction hazards would be moderately low. However, new liquefaction maps published by the California Department of Conservation indicate the project site is located within a liquefaction zone.[22] As noted above, Mitigation Measure GEO-1 requires the project design to comply with the CBC. The CBC provides for stringent construction requirements on projects in areas of high seismic risk, including liquefaction zones. Therefore, with implementation of Mitigation Measure GEO-1 as identified in the 2008 IS/MND, this impact would remain less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project result in substantial soil erosion or the loss of topsoil? ***(No New Impact)***

The 2008 IS/MND determined that the project site would be susceptible to erosion based on the presence of Capay and Altamont clay. The 2008 IS/MND determined that implementation of Mitigation Measure HYD-3 (described in Appendix A), which requires a detailed hydraulic analysis that shows the proposed project would not create potential hydromodification impacts such as soil erosion, would reduce this impact to a less-than-significant level. As previously described, conditions on the project site are essentially unchanged since adoption of the 2008 IS/MND. Therefore, Mitigation Measure HYD-3 would continue to be required to ensure that impacts related to soil erosion would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? ***(No New Impact)***

The 2008 IS/MND identified a potentially significant impact related to caving at excavations and trenches, as well as the potential for differential settlement to cause damage to site structures. Mitigation Measures GEO-2 and GEO-3 (described in Appendix A), which requires the implementation of shoring requirements for workers dealing with work in excavations and the incorporation of all recommendations in a final site-specific design-level geotechnical investigation, would continue to be required to ensure impacts related to unstable soils would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[22] Ibid.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? ***(No New Impact)***

Refer to Section 4.7.c. Mitigation Measure GEO-3 (described in Appendix A) requires the project applicant to incorporate all recommendations of a final site-specific design-level geotechnical investigation, including for the pretreatment of expansive soils. Conditions on the project site have not changed such that the characteristics of the soil would be different. Therefore, implementation of Mitigation Measure GEO-3 would still be required to ensure potential impacts related to expansive soils would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? ***(No New Impact)***

Similar to the 2008 Project, the proposed project would connect to the City's wastewater infrastructure and would not require on-site treatment and disposal of wastewater. Therefore, there would be no impact and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***(No New Impact)***

The 2008 IS/MND determined that although no paleontological resources have been identified within the same geologic setting as the project site, there is a possibility that construction activities could impact previously unknown paleontological resources. The 2008 IS/MND identified Mitigation Measure CULT-2 (described in Appendix A) to reduce this impact to a less-than-significant level in the event that such resources are encountered during project construction activities. Implementation of Mitigation Measure CULT-2 would ensure this impact would remain less than significant; therefore, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.8 GREENHOUSE GAS EMISSIONS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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 gases?	☐	☐	☐	☒

At the time the 2008 IS/MND was prepared, the CEQA Guidelines did not require the evaluation of GHG emissions. In addition, no numeric significance thresholds had formally been adopted. Therefore, the following analysis was prepared consistent with the significance criteria identified in Appendix G of the CEQA Guidelines and CEQA Guidelines Section 15064.4 to evaluate the impacts of project-related GHG emissions based on the guidance in the BAAQMD 2017 CEQA Guidelines.[23]

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur Hexafluoride (SF_6).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. While manmade GHGs include naturally occurring GHGs such as CO_2, methane, and N_2O, some gases, like HFCs, PFCs, and SF_6 are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is

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

excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

*a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? **(No New Impact)***

This section describes the proposed project's construction- and operational-related GHG emissions and contribution to global climate change. The 2017 CEQA Guidelines do not address emission thresholds for construction; however, the BAAQMD encourages quantification and disclosure. Thus, construction emissions are discussed in this section.

Construction Activities. Construction activities associated with the proposed project would produce combustion emissions from various sources. During construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are encouraged to quantify and disclose GHG emissions that would occur during construction. Using CalEEMod, it is estimated that construction of the proposed project would generate approximately 379.9 metric tons of CO_2e during Phase 1 and 378.0 metric tons of CO_2e during Phase 2 of construction. Therefore, construction of the proposed project would generate a total of approximately 757.9 metric tons of CO_2e. Implementation of Modified Mitigation Measure AIR-1 would reduce GHG emissions by reducing the amount of construction vehicle idling and by requiring the use of properly maintained equipment. Therefore, construction-period GHG emission impacts would be less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Operational Emissions. Long-term GHG emissions are typically generated from mobile sources (e.g., cars, trucks and buses), area sources (e.g., maintenance activities and landscaping), indirect emissions from sources associated with energy consumption, waste sources (land filling and waste disposal), and water sources (water supply and conveyance, treatment, and distribution). Mobile-source GHG emissions would include project-generated vehicle trips to and from the project site. Area-source emissions would be associated with activities such as landscaping and maintenance on

the project site. Energy source emissions would be generated at off-site utility providers as a result of increased electricity demand generated by the project. Waste source emissions generated by the proposed project include energy generated by land filling and other methods of disposal related to transporting and managing project generated waste. In addition, water source emissions associated with the proposed project are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

Following guidance from the BAAQMD, GHG emissions were estimated using CalEEMod. Table 4.F shows the calculated GHG emissions for the proposed project. CalEEMod output sheets are included in Appendix B.

Table 4.F: GHG Emissions (Metric Tons Per Year)

Emissions Source	Operational Emissions				
	CO_2	CH_4	N_2O	CO_2e	Percent of Total
Area Source Emissions	6.5	<0.1	<0.1	11.8	1
Energy Source Emissions	115.9	<0.1	<0.1	243.6	18
Mobile Source Emissions	492.2	<0.1	0.0	1,027.7	78
Waste Source Emissions	3.5	0.2	0.0	18.3	1
Water Source Emissions	6.0	0.1	<0.1	20.7	2
Total Project Annual Emissions				**1,322.1**	**-**
BAAQMD Threshold				**1,100**	-
Exceed?				**Yes**	**-**
Total Annual Service Population Emissions (Metric Tons/Year/Service Population)				**3.6**	-
Service Population Threshold				**4.6**	**-**
Exceed?				**No**	**-**

Source: LSA (September 2020).

The 2017 CEQA Guidelines include quantitative GHG thresholds of significance adopted by the BAAQMD for operational emissions. The numeric thresholds set by the BAAQMD were calculated to achieve the State's 2020 target for GHG emissions levels (and not the SB 32 specified target of 40 percent below the 1990 GHG emissions level). The proposed project would not be fully constructed and operational until 2023. Because the project would begin operations in the post-2020 timeframe, the 2020 efficiency target of 1,100 metric tons of CO_2e per year threshold and 4.6 metric tons of CO_2e per year per service population, which has been the threshold most recently applied to development projects, would not apply.

CARB has completed a Scoping Plan, which will be utilized by the BAAQMD to establish the 2030 GHG efficiency threshold. BAAQMD has yet to publish a quantified GHG efficiency threshold for the 2030 target. A scaled threshold consistent with State goals detailed in SB 32, Executive Order B-30-15, and Executive Order S-3-05 to reduce GHG emissions by 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050, respectively was developed for 2023. Though the BAAQMD has not published a quantified threshold beyond 2020, this assessment uses a threshold of 968 metric tons of CO_2e per year or 4.1 metric tons of CO_2e per capita service population (employees plus residents) per year, which was calculated for the buildout year of 2023 based on the GHG reduction goals of SB 32 and Executive Order B-30-15.

Therefore, the proposed project would not have a significant effect on the environment if it would meet one of the following criteria:

- Result in operational-related GHG emissions of less than 968 metric tons of CO_2e a year; or
- Result in operational-related GHG emissions of less than 4.1 metric tons of CO_2e per capita service population (employees plus residents) per year.

As shown in Table 4.F, the proposed project would generate approximately 1,322.1 metric tons of CO_2e per year which would exceed the numeric threshold of 968 metric tons CO_2e. The proposed project would develop 121 residential units, which would provide residence for approximately 372 people. The proposed project would not result in the addition of any new employees; therefore the total service population (residents plus employees) would be 372 people. As such, the project's GHG emissions would result in a GHG efficiency of 3.6 metric tons CO_2e per service population, which would be below the 4.1 metric tons of CO_2e per service population threshold. Therefore, operation of the proposed project would not generate significant GHG emissions that would have a significant effect on the environment and this impact would be less than significant. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ***(No New Impact)***

The City of Antioch Climate Action and Resilience Plan (CARP) was adopted on May 12, 2020. The purpose of the CARP is to begin preparing the Antioch community for hazards shocks such as drought, flood, and extreme heat that are expected to intensify in the future and to reduce the community's reliance on carbon-based energy sources. In addition, the CARP identifies GHG reduction strategies that work to reduce emissions associated with transportation, energy, waste, hazard preparedness, and community capacity building. The City of Antioch will be primarily responsible for implementation of the GHG reduction strategies. However, this analysis includes an evaluation of the proposed project's consistency with the goals of the GHG reduction strategies.

The goals of the transportation GHG reduction strategies are to reduce VMT in the Antioch community through encouraging transportation mode shift and reducing the emissions impact of VMT through vehicle electrification. The proposed project would develop new residences that would locate residents near existing and planned residential uses, commercial, office, and retail space uses, and public parks, reducing the demand for travel by single occupancy vehicles. The proposed project would also provide pedestrian and bicyclist amenities, including sidewalks, shading, and landscaping which would also help to reduce the demand for travel by single occupancy vehicles. Therefore, the project would be consistent with the transportation GHG reduction strategies to reduce VMT, to the extent that is feasible for single-family residential development in this location.

The goals of the energy GHG reduction strategies include increasing fuel switching from natural gas to electricity, increasing energy security by reducing energy demand, and reducing the impact of electricity use on GHG emissions. As described in Section 4.6, Energy, electricity demand associated

with the proposed project would only be approximately 0.01 percent of Contra Costa County's total electricity demand and natural gas demand associated with the proposed project would be less than 0.01 percent of Contra Costa County's total natural gas demand. The proposed project would be constructed to CALGreen standards, which would help to reduce energy and natural gas consumption. Therefore, the proposed project would be consistent with the goals of the energy GHG reduction strategies to reduce energy demand.

In addition, the goals of the waste GHG reduction strategies are to begin building the systems to transform Antioch into a low carbon, low waste community, contribute to a circular economy, and gather community engagement and support for a circular economy. The proposed project would be consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent. Therefore, the proposed project would be consistent with the goals of the waste GHG reduction Strategies.

The goals of the hazard preparedness GHG reduction strategies include ensuring that the Antioch population is prepared for the increasing likelihood of hazard occurrence, ensuring that Antioch's built environment is prepared for the increasing likelihood of hazard occurrence, and expanding community knowledge of effects of climate change and ensuring effectiveness emergency communication systems. In addition, the goals of the community capacity building GHG reduction strategies include strengthening Antioch's social and economic systems to promote resilience, removing barriers to economic, political, and social participation for low-income communities and communities of color, and expanding engagement between the City of Antioch and the Antioch community. Since these measures apply to the City of Antioch (and not individual projects), the hazard preparedness and community capacity building GHG reduction strategies are not applicable to the project.

As described above, the proposed project would generally be consistent with CARP GHG reductions strategies. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the GHG emissions. This impact would be less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.9 HAZARDS AND HAZARDOUS MATERIALS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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 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 2 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 a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ***(No New Impact)***

The 2008 IS/MND determined that the single-family residential uses and park included in the 2008 Project would not include the routine transport, use, or disposal of significant quantities of hazardous materials. The proposed project would include the same uses as the proposed project, and therefore this impact would remain less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ***(No New Impact)***

The 2008 IS/MND identified a potentially significant impact related to the potential for an accidental release of hazardous materials due to the site's past agricultural uses, contamination from nearby or unmapped oil/natural gas wells in the vicinity, and potential damage to pipelines in the vicinity of

the project site. However, the 2008 IS/MND determined that implementation of Mitigation Measures HAZ-1 and HAZ-2 (described in Appendix A) would reduce this impact to a less-than-significant level through pre-construction environmental investigations for hazardous materials and the preparation of a Construction Risk Management Plan. As previously described, conditions on the project site have not substantially changed since the adoption of the 2008 IS/MND. Therefore, with implementation of Mitigation Measures HAZ-1 and HAZ-2 as identified in the 2008 IS/MND, this impact would remain less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ***(No New Impact)***

The 2008 IS/MND determined that because the proposed project would not emit hazardous emissions of significant risk or handle significant quantities of hazardous materials, substances, or waste, there would be no significant impacts to existing or proposed school facilities. As described above, the proposed project would include the same uses as the proposed project and would also not include the transport, use, or storage of hazardous materials. Therefore, this impact would remain less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? ***(No New Impact)***

The 2008 IS/MND determined that the project site was not included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and that there were no sites in the vicinity that would be likely to significantly affect soil or groundwater at the project site. The project site is not currently listed on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[24] Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? ***(No New Impact)***

The 2008 IS/MND determined that the project site is not located within the vicinity of a public or private airport or within an airport land use plan. The proposed project would be located on the same site as the 2008 Project, and is not within the boundaries of any airport land use plans. Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[24] California Environmental Protection Agency. 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist (accessed October 2020).

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***(No New Impact)***

The 2008 IS/MND determined that the proposed project would not interfere with an emergency response plan as vehicle and pedestrian circulation would occur on facilities that have been designed and constructed in accordance with City of Antioch requirements. Similar to the 2008 Project, internal streets and sidewalks on the project site would be required to be designed in accordance with these requirements. As described in Section 4.17, Transportation, a transportation impact analysis (TIA) is being prepared for the proposed project that will evaluate the potential need for alteration of existing streets within the project area, in order to accommodate traffic generated by the proposed development. Any modifications identified in the TIA will be required to be consistent with the City's standards for street design, which would ensure that emergency access and evacuation routes are maintained. Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project was not within an area mapped as containing a wildland fire hazard. Additionally, undeveloped lands within the vicinity of the project site were planned for residential uses. Since adoption of the 2008 IS/MND, residential developments have been approved on parcels to the east and west of the project site, further reducing the site's proximity to undeveloped wildland areas. Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.10 HYDROLOGY AND WATER QUALITY

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater 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?	☐	☐	☐	☒

*a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? **(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would have a potentially significant impact related to water quality standards, as it could not be determined whether or not the proposed Best Management Practices (BMPs) included in the proposed project would be sufficient to address all of the applicable requirements for the National Pollutant Discharge Elimination System (NPDES) permit. Therefore, the 2008 IS/MND identified Mitigation Measures HYD-1 and HYD-2 (described in Appendix A) to ensure any potential impacts to water quality and discharge would be less than significant. The proposed project would include new stormwater infrastructure on the project site and connect to the same stormwater facilities as the 2008 Project. Since the adoption of the 2008 IS/MND, the Contra Costa Clean Water Program (CCCWP) has updated its Stormwater C.3 Guidebook. The project applicant has prepared a Stormwater Control Plan to ensure the proposed project would be consistent with the CCCWP C.3 Guidebook.[25] In addition, since the adoption of the 2008 IS/MND, the Central Valley Regional Water Quality Control Board (Regional Water Board)

[25] Carlson, Barbee & Gibson, Inc. 2020. *Preliminary Stormwater Control Plan, Deer Valley Estates Subdivision 9518, Antioch, California.* May 4.

adopted a new Municipal Regional Permit (MRP) in October 2010. However, the new MRP does not include the removal of any requirements that would have reduced any impacts or the inclusion of any new requirements that would lessen or increase any of the impacts related to water quality standards that were identified in the 2008 IS/MND. Therefore, to ensure these impacts would remain less-than-significant, implementation of Mitigation Measures HYD-1 and HYD-2 would continue to be required. With implementation of these measures, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ***(No New Impact)***

The 2008 IS/MND determined that the project site does not overlie a specified groundwater recharge area and would not include the use of any local groundwater supplies. The 2008 IS/MND determined that the 2008 Project would likely increase groundwater recharge on the project site as it would include vegetated swales that would offset the potential reduction in infiltration associated with the increase in impervious surfaces. Additionally, the import of water for irrigation of lawns and gardens may result in a net increase in aquifer recharge locally. Similar to the 2008 Project, the proposed project would include an approximately 1.51-acre bioretention basin that would be used for stormwater control and landscaping throughout the project site. Therefore, impacts related to groundwater supplies would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i. Result in substantial erosion or siltation on- or off-site; ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or 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? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project could cause hydromodification impacts in the vicinity of the project site by increasing the rate and volume of runoff. In addition, the preliminary drainage plans for the 2008 Project did not include explicit calculations or descriptions as to how it would be ensured that downstream flooding problems would not be exacerbated. Therefore, the 2008 IS/MND identified Mitigation Measures HYD-3, HYD-4, and HYD-5 (described in Appendix A), which require a detailed hydraulic analysis, preparation and implementation of a drainage plan, and the payment of impact fees for increased impervious surfaces, to ensure these impacts would be reduced to a less-than-significant level. Similar to the 2008 Project, the proposed project would also include an increase in impervious surfaces on the project site and could increase the rate and volume of surface runoff. Additionally, downstream flooding calculations or descriptions have not yet been prepared. Therefore, to ensure that this impact would be reduced to a less-than-significant level, implementation of Mitigation Measures HYD-3, HYD-4, and HYD-5 would continue to be required. With implementation of these mitigation measures, the proposed project would not result

in any new or substantially more severe impacts beyond those previously identified in the 2008 IS/MND.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? ***(No New Impact)***

The 2008 IS/MND determined that the project site was not located within a 100- or 500-year flood hazard zone, and was not within a mapped dam failure inundation area or near a large body of water susceptible to seiche or tsunami. The proposed project would be located on the same site as the 2008 Project and therefore would also not be located within a tsunami or seiche hazard zone. Additionally, the project site is also not located within a flood zone.[26] Therefore, the proposed project would not result in any new impacts related to flood hazards. In addition, Mitigation Measures HYD-3, HYD-4, and HYD-5 would further ensure that the proposed project would not release any pollutants during a severe flood event. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impact beyond those previously identified in the 2008 IS/MND.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? ***(No New Impact)***

The Sustainable Groundwater Management Act (SGMA) was enacted in September 2014, after the adoption of the 2008 IS/MND.[27] SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. SGMA requires the formation of local groundwater sustainability agencies (GSAs), which are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins. The project site is located within the San Joaquin Valley – East Contra Costa Groundwater Basin, which is identified as a medium-priority basin. A Groundwater Sustainability Plan is currently under development, and will be released for public review throughout 2020.[28] Regardless, as discussed previously, the proposed project would not use groundwater supplies or reduce groundwater recharge. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

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26 Federal Emergency Management Agency. 2009. FEMA Flood Map Service Center. Website: msc.fema.gov/portal/search?AddressQuery=6100%20Deer%20Valley%2C%20Antioch%2C%20CA (accessed October 2020). June 16.

27 California Department of Water Resources. 2019. SGMA Groundwater Management. Website: water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management (accessed August 9, 2019).

28 ECC GSA Working Group. 2020. Sustainable Groundwater Management. Website: www.eccc-irwm.org/about-sgma (accessed October 2020).

4.11 LAND USE AND PLANNING

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

*a. Would the project physically divide an established community? **(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would not create any physical barriers to travel in the vicinity of the project site. Similar to the 2008 Project, the proposed project would include the development of single-family residential uses on an undeveloped site surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. The proposed project would include new connections to Piute Way, Mojave Way, and Oneida Way, and therefore would increase opportunities for vehicular and pedestrian access in the area. Therefore, the proposed project would not physically divide an established community and this impact would be less than significant. No new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

*b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? **(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would be consistent with the General Plan as it would include a density of approximately 3.6 dwelling units per acre, where the maximum is 4 dwelling units per acre for the Low Density Residential designation. The 2008 Project also included a rezone of the project site to the P-D district. The intent of the P-D district is to encourage a wider variety of densities, product types and setbacks than would otherwise be possible under conventional residential zoning. The rezone set the development standards for the project site, including the maximum density and maximum number of units, minimum lot size, landscape and open space requirements, architectural guidelines, maximum building heights, and lot coverage, all of which conformed to the P-D district. The proposed project would include fewer residential uses than the 2008 Project, and therefore would also conform to the requirements of the P-D district. The proposed project would generally be consistent with applicable land use plans and policies and would not conflict with any such plan or policy adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.12 MINERAL RESOURCES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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?	☐	☐	☐	☒

*a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? **(No New Impact)***

The 2008 IS/MND determined that the 2008 project site is located within the outer margins of the Brentwood oil field. However, given the marginal economic viability of the Brentwood oil field, the 2008 IS/MND determined that development of the site would not result in the loss of availability of a known mineral resource of value. Similar to the 2008 Project, the Brentwood oil field continues to have marginal economic viability, and therefore the proposed project would also not result in the loss of availability of a known mineral resource. The project site also contains two wells that are no longer in use but are not abandoned to current California Department of Conservation Division of Oil, Gas, and Geothermal Resources requirements. However, the project applicant would be required to bring the abandonment of these wells into compliance as a part of the proposed project. The project site is also not designated as a locally-important resource recovery site in the City's General Plan. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

*b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? **(No New Impact)***

Refer to Section 4.12.a. The proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND, and no new mitigation would be required.

4.13 NOISE

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
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 2 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?	☐	☐	☐	☒

The following provides an overview of the characteristics of sound and the regulatory framework that applies to noise within the vicinity of the project site. The existing noise environment in and around the project site is also described.

Characteristics of Sound. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a ten-fold increase in acoustic energy, while 20 dB is 100 times more intense and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements which better represent how humans are more sensitive to sound at night. As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on dBA. L_{dn}, sometimes denoted as DNL, represents the time varying noise over a 24-hour period, with a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours).

L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours of 7:00 p.m. to 10:00 p.m.

Characteristics of Vibration. Vibration refers to groundborne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors where the motion may be discernible. However, without the effects associated with the shaking of a building, there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Building damage is not a factor for normal operation and construction activities with the occasional exception of blasting and pile driving during construction.

Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Impacts with groundborne vibration and noise from these sources are usually localized to areas within approximately 100 feet of the vibration source, although there are examples of groundborne vibration causing interference out to distances greater than 200 feet.[29] When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. For most projects, it is assumed that the roadway surface will be smooth enough that groundborne vibration from street traffic will not exceed the impact criteria; however, construction activities have the potential to result in groundborne vibration that could be perceptible and annoying. Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path usually will be greater than groundborne noise.

Ground-borne vibration has the potential to disturb people as well as damage buildings. Although it is very rare for groundborne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitudes to damage nearby buildings.[30] Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_V = 20 \log10 [V/Vref]$$

where LV is the velocity in decibels (VdB), "V" is the RMS velocity amplitude, and "Vref" is the reference velocity amplitude, or 1 x 10-6 inches per second (in/sec) used in the United States.

Regulatory Framework. The City addresses noise in Chapter 17 of Title 5 and Chapter 5 of Title 9 of the City's Municipal Code (Noise Ordinance), as follows.

29 Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment*. September.
30 Ibid.

Section 5-17.04, Heavy Construction Equipment Noise, of Chapter 17 in Title 5 proved the specific hours of operation for construction:

> (B) It shall be unlawful for any person to operate heavy construction equipment during the hours specified below:
>
> (1) On weekdays prior to 7:00 a.m. and after 6:00 p.m.
>
> (2) On weekdays within 300 feet of occupied dwelling space, prior to 8:00 a.m. and after 5:00 p.m.
>
> (3) On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwelling.

Section 9-5.1901, Noise Attenuation Requirements, of Chapter 5 in Title 9 provides the exterior noise limits to which a land use can generate noise:

> (A) Stationary noise sources. Uses adjacent to outdoor living areas (e.g., backyards for single-family homes and patios for multi-family units) and parks shall not cause an increase in background ambient noise which will exceed 60 CNEL.
>
> (B) Mobile noise sources.
>
> (4) Arterial and street traffic shall not cause an increase in background ambient noise which will exceed 60 CNEL.
>
> (5) Proposed outdoor residential living areas adjacent to the future expressway (State Route 4 Bypass) or to State Route 4, including BART or eBART development, may be allowed up to a maximum of 65 CNEL as approved by the city.
>
> (6) Existing outdoor residential living areas adjacent to the State Route 4 proposed widening, or to BART or eBART development, shall result in no significant increase (5 CNEL or greater) in existing noise levels.
>
> (C) Noise analysis. For new developments adjacent to the future bypass, applicants may be required to provide a noise and/or visual analysis conducted pursuant to the city's development and environmental review process as determined by staff during the project planning/entitlement phase.
>
> (D) Noise attenuation. The city may require noise attenuation measures be incorporated into a project to obtain compliance with this section. Measures outlined in the noise policies of the General Plan should be utilized to mitigate noise to the maximum feasible extent.
>
> (E) Flexible application. The city may allow up to 65 CNEL for residential projects adjacent to the future bypass or to State Route 4, BART or eBART if the applicant has demonstrated that noise attenuation down to 60 CNEL would result in significantly higher walls.

Because the City of Antioch does not have established vibration thresholds related to potential structural damage, vibration standards included in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment[31] are used in this analysis. The criteria for environmental impact from groundborne vibration are based on the maximum levels for a single event. FTA guidelines show that a vibration level of up to 0.5 inches per second (in/sec) in PPV is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction building vibration damage criterion is 0.2 in/sec in PPV.

Existing Noise Conditions. Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project site is located in an area with single-family homes, a hospital, and vacant land. The closest sensitive receptors are the existing single-family homes immediately to the north of the project site, single-family homes currently under construction immediately to the east, and the existing Kaiser Medical Center to the south, opposite Wellness Way. Other land uses within 500 feet of the proposed project site include The Ranch, an approved mixed-use development to the west opposite Deer Valley Road.

The ambient noise environment in the vicinity of the project site is affected by a variety of noise sources. While noise associated with aircraft flyovers and sporadic events such as trash pick-up activities occur in the project area, the major sources are traffic on the roadways surrounding the project site and operations at the hospital to the south. One long-term (24-hour) noise measurement (LT-1) was conducted September 16, 2020, through September 17, 2020, and three short-term noise measurements were recorded on September 16 and 17, 2020, in proximity to the project site to establish the existing ambient noise environment at the uses surrounding the project area. Noise measurement data collected during the noise measurements are summarized in Table 4.G. The noise measurements indicate that ambient noise in the project site vicinity ranges from approximately 49.6 dBA to 66.8 dBA CNEL. Noise from the adjacent roadways were reported as the primary noise sources. The location of all measurements is shown in Figure 4-1 and noise measurement sheets are provided in Appendix G.

31 Ibid.

Table 4.G: Long-Term and Short-Term Ambient Noise Level Measurements

Location	Measured Short-Term Noise Level (dBA L_{eq})	Daytime Noise Levels[1] (dBA L_{eq})	Evening Noise Levels[2] (dBA L_{eq})	Nighttime Noise Levels[3] (dBA L_{eq})	Average Daily Noise Level (dBA CNEL)
LT-1: Western side of project site approximately 80 feet east of Deer Valley Road centerline.	--	63.8 – 66.6	58.7 – 62.3	52.0 – 62.5	66.8
ST-1: Southern terminus of Oneida Way, on western sidewalk north of the project site.[4]	46.9	46.6 – 49.4	41.5-45.1	34.8 – 45.3	49.6
ST-2: Southeast portion of project site, north of Kaiser Permanente Antioch central utility plant[4]	57.9	58.4 – 61.2	53.3 – 56.9	46.6 – 57.1	61.4
ST-3: Northside of Wellness Way, east of first Kaiser Permanente Antioch driveway[4]	60.5	59.0 – 61.9	54.0 – 57.6	47.2 – 57.7	62.1

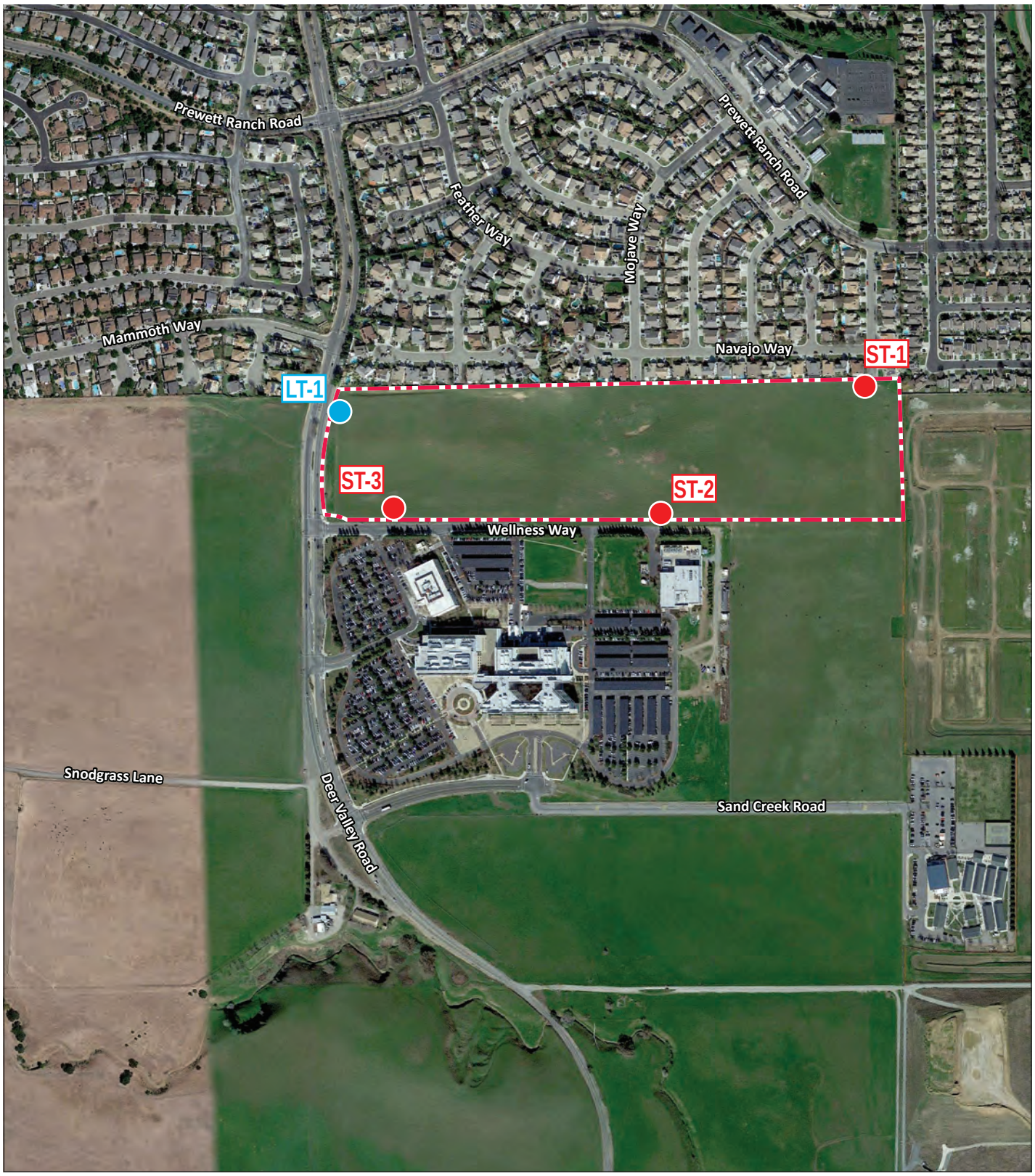
Source: Compiled by LSA. (September 16-17, 2020).
[1] Daytime Noise Levels = noise levels during the hours of 7:00 a.m. to 7:00 p.m.
[2] Evening Noise Levels = noise levels during the hours of 7:00 p.m. to 10:00 p.m.
[3] Nighttime Noise Levels = noise levels during the hours of 10:00 p.m. to 7:00 a.m.
[4] Hourly and Daily Noise levels at ST-1, ST-2, and ST-3 were estimated using the noise profile of the nearest long-term measurement location.

dBA = A-weighted decibels
CNEL = Community Noise Equivalent Level
L_{eq}=equivalent continuous sound level

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ***(No New Impact)***

Construction Noise Impacts. Implementation of the proposed project would include construction activities that would result in a substantial temporary increase in ambient noise levels in the vicinity of the project site.

The closest sensitive receptors would be the existing single-family homes located immediately south of the project site. Project construction would result in short-term noise impacts to these receptors. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from one day to several days depending on the phase of construction. Project construction would occur for approximately 24 months. These activities would be similar with the proposed project as compared to the 2008 Project. The level and types of noise impacts that would occur during construction are described below.



LSA

FIGURE 4-1

N

0 350 700

FEET

LT# Long-term Noise Monitoring Location (24 hours)

ST# Short-term Noise Monitoring Location (15 minutes)

Project Site

Deer Valley Estates Project

Noise Monitoring Locations

SOURCES: GOOGLE EARTH, 2/11/2020; LSA, 2020.

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Short-term noise impacts would occur during grading and site preparation activities. Table 4.H lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area, but would no longer occur once construction of the proposed project is complete.

Table 4.H: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 Feet[a]
Compressor	40	80
Cranes	16	85
Dozers	40	85
Drill Rig	20	84
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Generator	50	82
Man-lift	20	85
Rollers	20	85
Water Truck	40	84
Welder	40	73

Source: Roadway Construction Noise Model (Federal Highway Administration 2006).
Note: Noise levels reported in this table are rounded to the nearest whole number.
a. Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.
L_{max} = maximum instantaneous sound level

Two types of short-term noise impacts could occur during construction of the proposed project. The first type involves construction crew commutes and the transportation of construction equipment and materials to the site for the proposed project, which would incrementally increase noise levels on roads leading to the site. As shown in Table 4.H, there would be a relatively high single-event noise exposure potential at a maximum level of 85 dBA L_{max} with trucks passing at 50 feet.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on the project site. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 4.H lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. Average maximum noise levels range up to 85 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, including excavation and grading of the site, tends to generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers,

draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

As identified above, the project site is immediately adjacent to single-family homes to the north and west with the closest existing façade approximately 20 feet away. While construction noise levels have the potential to exceed 93 dBA L_{max} when construction activities occur near the property line, assuming a 6 dBA reduction for every doubling of distance, the average construction noise levels would be 63 dBA L_{max} based on a distance of 650 feet which is generally the center of the project site. This noise level would be higher than existing noise levels at the off-site residences. Construction noise is permitted by Section 5-17.04 of the City's Municipal Code.

As discussed above, construction noise could result in a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. The 2008 IS/MND identified potentially significant impacts associated with project construction, which would be reduced through implementation of Mitigation Measures NOISE-1a through NOISE-1e. Construction of the proposed project would result in similar short-term noise impacts as identified in the 2008 IS/MND. Implementation of Modified Mitigation Measure NOISE-1a, which is similar to Mitigation Measure NOISE-1a from the 2008 IS/MND, but modified to be consistent with the City's current Noise Ordinance, and Mitigation Measures NOISE-1b through 1e would reduce construction-period noise impacts to a less-than-significant level; therefore, the proposed project would also not result in any new or more significant construction-period noise impacts than were evaluated in the 2008 IS/MND.

Modified Mitigation Measure NOI-1a: The project contractor shall ensure that all construction related activities are restricted to the hours of 7:00 a.m. to 6:00 p.m. on weekdays, within 300 feet of occupied dwelling spaces between 8:00 a.m. and 5:00 p.m. on weekends, and between 9:00 a.m. and 5:00 p.m. on weekends and holidays, irrespective of the distance from the occupied dwelling.

Long-Term Off-Site Noise Impacts. The proposed project would generate long-term noise impacts from traffic noise sources and Heating, Ventilation, and Air Conditioning (HVAC) equipment, as discussed below.

Off-Site Traffic Noise Assessment. In order to assess the potential traffic impacts related to the proposed project, peak hour trips for the current project were compared to the analysis completed in the 2008 IS/MND. The 2008 IS/MND identified that the project would generate 137 PM peak hour project trips. Based on that small amount of traffic, a significant increase the ambient noise was not expected. Therefore, implementation of the 2008 IS/MND2008 Project would result in a less-than-significant impact for off-site sensitive receptors. Trip generation for the proposed project is estimated to be 120 PM peak hour trips, which would be fewer than the trips assumed in the 2008 IS/MND; therefore, the off-site traffic noise impact would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Off-Site Stationary Noise Assessment. Each proposed residence would have HVAC units at the ground floor level. The HVAC equipment could operate 24 hours per day and would generate noise levels of 66.6 dBA L_{eq} at 5 feet, based on historic reference measurements by LSA. Table 4.I shows the hourly noise level generated by HVAC units at the nearest property line. Assuming that the equipment operates for a period of 24 hours, the resulting daily noise level would be 59.0 dBA CNEL which is below the City's Municipal Code standard of 60 dBA CNEL. Therefore, noise level generated from on-site HVAC equipment would be less than significant.

Table 4.I: HVAC Noise Assessment

Land Use	Reference Noise Level[1] (dBA L_{eq})	Reference Distance (ft)	Distance (ft)	Distance Attenuation (dBA)	Noise Level (dBA L_{eq})
Residential	66.6	5	25	14.0	52.6

Source: LSA (2019).
[1] The reference noise level is associated with an HVAC unit generating a noise level of 66.6 dBA L_{eq} at a distance of 5 feet.

Land Use Compatibility. The 2008 IS/MND identified a potentially significant impact related to traffic noise impacts. However, with implementation of Mitigation Measures NOISE-2a and NOISE-2b, which require the construction of a sound wall around the project site, this impact would be less than significant. Consistent with the 2008 IS/MND, traffic noise on roadways adjacent to the project site, including Deer Valley Road and Wellness Way, could significantly impact residential land uses within the project site. As presented in Table 4.G, the noise measurements indicate that noise at the proposed project site is currently approaching 67 dBA CNEL. Because this noise level exceeds the City's standard of 60 dBA CNEL for sensitive uses affected by transportation uses, Mitigation Measures NOISE-2a and NOISE-2b would be required to ensure this impact would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2007 IS/MND would result from implementation of the proposed project.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? ***(No New Impact)***

Ground-borne vibration from construction activity has the potential to be high when activities occur near project boundaries but would be mostly low to moderate as activities are more central to the project site. While there is currently limited information regarding vibration source levels, the levels shown in Table 4.J are utilized in this analysis and are based on the FTA Manual.

Table 4.J: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV (in/sec) at 25 Feet
Hoe Ram	0.089
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Source: Transit Noise and Vibration Impact Assessment (FTA 2018).
FTA = Federal Transit Administration
in/sec = inches per second
PPV = peak particle velocity

The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary). The formula for vibration transmission is provided below.

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

As stated above, it would take a minimum of 0.2 in/sec PPV for damage to occur to a non-engineered timber and masonry building. The project site is bounded by immediately adjacent existing residential uses to the north and currently under construction residential uses to the east. The closest structures are approximately 20 feet from the project construction area limits. Utilizing the equation above, the operation of typical heavy construction equipment such as large bulldozers and jackhammers would generate groundborne vibration levels of 0.12 in/sec PPV which would not exceed the 0.2 in/sec PPV guideline that is considered safe for non-engineered timber and masonry buildings. Similar to the findings of the 2008 IS/MND, vibration impacts would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

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 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? ***(No New Impact)***

The project site is located approximately 14.9 miles northwest of the Byron Airport and 15.3 miles east of Buchanan Field Airport. The project site is not located within the vicinity of a private airstrip. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels related to private airstrips or public airports. The 2008 IS/MND determined that since the 2008 Project would not be located in an airport land use plan or within 2 miles of a public or public use airport, implementation of the 2008 Project would not expose persons within the project site to excessive noise levels. Therefore, consistent with the findings of the 2008 IS/MND, this impact would be less than significant and no new noise impacts from aircraft noise would occur. Therefore, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.14 POPULATION AND HOUSING

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

*a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? **(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would not result in substantial unplanned for growth in the area as the project would contribute to the overall number of housing units as contemplated under the General Plan buildout of the Sand Creek Focus Area, which includes residential uses among its allowable uses. The 2008 Project was estimated to increase the City's population by approximately 422 residents, based on an average household size of 3.1 persons. As described previously, the proposed project would include 15 fewer residential units than the 2008 Project. Based on the City's current average household size of 3.07 persons,[32] the proposed project would increase the City's population by 372 persons, or 50 fewer than the 2008 Project. The proposed project would not induce substantial unplanned population growth in the area or generate an increase in population growth beyond what was considered in the 2008 IS/MND. Therefore, this impact would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

*b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? **(No New Impact)***

Similar to the 2008 Project, the proposed project would not include the removal of any existing residential uses, and therefore would not require the construction of replacement housing elsewhere. Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[32] United States Census Bureau. 2020. American Community Survey. Table B25010. Website: data.census.gov/cedsci (accessed October 2020).

4.15 PUBLIC SERVICES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒

a. 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: i. Fire protection? ii. Police protection? iii. Schools? iv. Parks? v. Other public facilities? ***(No New Impact)***

Fire and Police Protection. The 2008 IS/MND determined that the Contra Costa County Fire Protection District (CCCFPD) would provide adequate service to the project site, as written verification from CCCFPD is required prior to the approval of discretionary permits. In addition, the 2008 IS/MND determined that the payment of the fire protection fee would ensure that any impacts related to fire protection would be less than significant.

The 2008 IS/MND identified Stations 82 and 88 that would serve the project site. These two stations would continue to serve the proposed project. Written verification from CCCFPD would continue to be required prior to discretionary approval of the proposed project. In addition, the project applicant would be required to pay the fire impact fee, which is current set at $951 per residential unit. With 121 units, the proposed project would pay a fire protection fee of $115,071. This fee is expected to cover the project's fair share of the cost of both potential new station construction and additional equipment that may be required. In addition, as previously noted, the proposed project would include 15 fewer residential units than the 2008 Project. Therefore, the proposed project would not result in the need for any new fire protection facilities.

The 2008 IS/MND determined that the 2008 Project would incrementally increase the demand for police protection services within the City, and that because the 2008 Project would represent less than one percent of the overall projected growth for the City, new facilities would not be required to serve the site. Since the adoption of the 2008 IS/MND, a new police substation has been constructed within the Antioch Community Center approximately 1 mile north of the project site. The project applicant would be required to pay a police impact fee set at $1,190 per residential unit.

With 121 units, the proposed project would pay a police impact fee of $287,980. Additionally, the City would require that the project site be annexed into Community Facilities District No. 2018-02 (Police Protection), established in October 2018, which requires residents to pay a special tax to fund police protection services including maintenance or upkeep of facilities. Therefore, because the proposed project would include 15 fewer residential units than the 2008 Project and police service facilities have since been expanded, the proposed project would not result in the need for any new police protection facilities. Therefore, physical impacts related to fire and police protection would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Schools. The 2008 IS/MND determined that the 2008 Project could generate up to 193 elementary school students, 73 middle school students, and 56 high school students, and that this increase could cause schools within the Antioch Unified School District to exceed their capacity. However, the 2008 IS/MND determined that payment of developer fees for school facilities would reduce this impact to a less-than-significant level, consistent with SB 50. As previously described, the proposed project would include 15 fewer residential units, and therefore would generate fewer school-aged children than the 2008 Project. In addition, the project applicant would continue to be required to pay developer fees for school facilities. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

Parks and Other Public Facilities. Please refer to Section 4.16, Recreation, of this Initial Study for a discussion of impacts related to parks and recreational facilities. The 2008 IS/MND determined that the roadways and sidewalks included In the 2008 Project would be owned and maintained by an HOA, which would avoid any increased burden on the City's Public Works Department. Similar to the 2008 Project, the proposed project would also include an HOA that would maintain the proposed park and common landscaping within the project site. While the internal streets would be public, they would be designed to meet City standards and therefore would not require any additional infrastructure for the City to maintain them. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

4.16 RECREATION

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New 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?	☐	☐	☐	☒

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? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would not result in an increase in demand for existing recreational facilities such that it would cause physical deterioration of such facilities, as the 2008 Project included a private backyard and front landscaped area on each lot and a 1.69 acre park. Similar to the 2008 Project, each lot in the proposed project would include a private backyard and a front landscaped area and a total of 1.5 acres of landscaped area including a 1.12-acre park and an approximately 4- to 6-foot-wide trail. Therefore, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration could result and this impact would be less than significant. The proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

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? ***(No New Impact)***

Refer to Section 4.16.b. The proposed project would include a private backyard and a landscaped front yard area on each lot and a 1.12-acre park, the effects of which are evaluated throughout this Initial Study. Impacts associated with the development of these facilities can all be mitigated to a less than significant level with the recommended mitigation measures. Therefore, the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

4.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	☒	☐	☐	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐
d. Result in inadequate emergency access?	☒	☐	☐	☐

a. through d. (Potentially Significant Impact)

The 2008 IS/MND determined that that 2008 Project would have a potentially significant impact related to level of service (LOS) at the Deer Valley Road/Lone Tree Way and Deer Valley Road/ Prewett Ranch Drive intersections. The 2008 IS/MND identified Mitigation Measure TRANS-1 and TRANS-2, which require the modification of striping and turn lanes at these intersections, to ensure these impacts would be reduced to a less than significant level. Existing and cumulative conditions related to transportation have substantially changed since preparation of the 2008 IS/MND. In addition, the regulatory environment and applicable thresholds for the evaluation of impacts related to transportation have also undergone substantial changes. Therefore, a TIA will be prepared for the proposed project.

Specifically, on December 28, 2018, the California Office of Administrative Law cleared the revised CEQA Guidelines for use. Among the changes to the guidelines was removal of vehicle delay and LOS from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on VMT. Lead agencies were required to use the new guidelines starting July 1, 2020. The City has not adopted VMT thresholds for use in determining VMT impacts under CEQA. Therefore, this analysis uses the VMT thresholds adopted by Contra Costa County, which state that in order to be considered less than significant, a project must have 15 percent less VMT than the regional threshold. Tables 4.K and 4.L, below, present the VMT for the proposed project compared to both the City and Contra Costa County for under both existing (2020) and cumulative (2040) conditions.

Table 4.K: Existing (2020) Conditions VMT

Jurisdiction	Households	Population	Home-Based VMT	VMT Per Capita	VMT Per Capita Difference
Proposed Project	121	381	8,454	22.19	
City of Antioch	34,379	108,286	2,239,101	20.68	+7.3%
Contra Costa County	399,078	1,115,729	18,695,161	16.76	+32.4%

Source: Contra Costs Transportation Authority (CCTA) Countywide Travel Demand Model; LSA (2020).

Table 4.L: Cumulative (2040) Conditions VMT

Jurisdiction	Households	Population	Home-Based VMT	VMT Per Capita	VMT Per Capita Difference
Proposed Project	121	381	7,500	19.68	
City of Antioch	42,155	136,914	2,603,400	19.01	+3.5%
Contra Costa County	474,867	1,373,400	20,538,090	14.95	+31.6%

Source: Contra Costs Transportation Authority (CCTA) Countywide Travel Demand Model; LSA (2020).

As shown above, the proposed project is anticipated to result in an increase in VMT in both the City and Contra Costa County under both existing and cumulative conditions. This increase would exceed the County threshold of 15 percent less VMT. Therefore, because VMT was not previously analyzed or identified as a potential impact in the 2008 IS/MND, this would be a new potentially significant impact. As such, a TIA will be prepared for the proposed project which will further analyze the impacts related to VMT and recommend potential mitigation measures. However, it should be noted that feasible mitigation measures may not effectively reduce the VMT impact to a less-than-significant level. This additional analysis will be included in the EIR.

In addition to the VMT analysis, the transportation section of the EIR will also include an evaluation of potential impacts related to site access and circulation and emergency access.

Section 7.3.2 of the City's General Plan states that a traffic impact study must be prepared for projects that are projected to generate 50 or more peak hour trips at any one intersection. The proposed project is anticipated to generate more than 50 peak hour trips at multiple intersections, and therefore a local LOS analysis will be prepared to ensure the proposed project would be consistent with the City's General Plan. If necessary, the LOS analysis will include recommendations that could be used as conditions of approval to ensure the proposed project would comply with General Plan policies related to transportation. LOS would be analyzed for the following intersections:

1. Deer Valley Road/Lone Tree Way;
2. Deer Valley Road/Prewett Ranch Drive;
3. Deer Valley Road/Wellness Way;

4. Street F – Kaiser Permanente Driveway/Wellness Way;
5. Sagebrush Drive/Lone Tree Way;
6. Oneida Way/Prewett Ranch Drive;
7. Hillcrest Avenue/Lone Tree Way;
8. Vista Grande Drive/Lone Tree Way;
9. Fairside Way-Heidorn Ranch Road/Lone Tree Way; and
10. Canada Valley Road/Lone Tree Way.

The LOS analysis will not be included as part of the EIR, but will be used by the City to ensure General Plan compliance and will be considered by City decision-makers during the project approval process.

4.18 TRIBAL CULTURAL RESOURCES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	☐	☐	☐	☒
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

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

The 2008 IS/MND did not include a specific evaluation of potential impacts to tribal cultural resources, as it was adopted prior to the implementation of Assembly Bill 52. There are no known tribal cultural resources, as defined by Public Resources Code Sections 5020.1(k) and 5024.1, located within or in the immediate vicinity of the site. As noted in Section 4.5, Cultural Resources, the proposed project would not result in any new or more severe impacts related to cultural resources, and this impact would be less than significant. Additionally, the City sent letters to tribes historically affiliated with the project site on September 1, 2020 to give potential interested representatives the opportunity to consult with the City and provide any specialized knowledge of the project site. As described previously, the City received an email from Ms. Gould of the Confederated Villages of Lisjan on November 3, 2020 requesting additional information about the proposed project.

However, no specific requests for consultation have been made to date. Therefore, with implementation of Mitigation Measures CULT-1 through CULT-3, impacts to potential tribal cultural resources that could be discovered during construction period activities would be reduced to a less-than-significant level. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.19 UTILITIES AND SERVICE SYSTEMS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater 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?	☐	☐	☐	☒

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would be adequately served by wastewater, water, and stormwater facilities and that existing water entitlements and solid waste capacity would be sufficient. The proposed project would include connections to the same water, wastewater, and stormwater infrastructure, which have not changed since the adoption of the 2008 IS/MND. In addition, the proposed project would result in the construction of fewer residential units, lessening the demand for these services, as compared to the 2008 Project. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project was accounted for in the City's 2005 Urban Water Management Plan[33] (UWMP), and therefore there would be sufficient water supply with existing entitlements. Since the adoption of the 2008 IS/MND, the City has updated the UWMP (in 2015),[34] which accounts for build out of the entire Sand Creek Focus Area, including the project site.

[33] Antioch, City of, 2005. *Urban Water Management Plan Update, Draft Report*. December.

[34] Antioch, City of. 2016. *City of Antioch 2015 Urban Water Management Plan.* May.

The 2015 UWMP determined that there would be adequate water supplies to meet demand consistent with City targets through 2040 with existing entitlements. Therefore, no new or expanded entitlements would be needed to serve the proposed project and this impact would be less than significant. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? ***(No New Impact)***

Since the adoption of the 2008 IS/MND, the Delta Diablo Sanitation District, which provides wastewater treatment to the project site, has increased the capacity of the wastewater treatment plant (WWTP) from 16.5 million gallons per day (mgd) to 22.7 mgd, though it is only permitted to treat 19.5 mgd. The WWTP currently treats approximately 13 mgd of wastewater, leaving a capacity of approximately 6.5 mgd, or approximately 35 percent. Therefore, because the proposed project would include 15 fewer residential units than the 2008 Project, and because the WWTP has more capacity than was assumed in the 2008 IS/MND, the proposed project would not require additional wastewater treatment capacity and this impact would be less than significant. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? ***(No New Impact)***

The 2008 IS/MND determined that the proposed project would generate approximately 1,360 pounds per day of solid waste, and that this would not exceed the capacity of the Keller Canyon Landfill, which had a capacity of approximately 68.7 million cubic yards in 2001. The maximum capacity of the Keller Canyon Landfill has not changed since the adoption of the 2008 IS/MND, and the Keller Canyon Landfill continues to have a ceased operation date of December 2030. As previously described, the proposed project would include 15 fewer residential units than the 2008 Project, and therefore would generate a reduced amount of solid waste. Therefore, this impact would continue to be less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? ***(No New Impact)***

Refer to Section 4.19.d. The proposed project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Therefore, this impact would be less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.20 WILDFIRE

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
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?	☐	☐	☐	☒

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? ***(No New Impact)***

The 2008 IS/MND included an evaluation of potential impacts related to wildfire in Section VII, Hazards and Hazardous Materials, as it was adopted prior to the December 2018 update to the CEQA Guidelines, which included wildfire as an individual topic. However, the projects site is not located within a State Responsibility Area (SRA) for fire protection,[35] and is not located within a very high fire hazard severity zone, as noted in Section 3.9, Hazards and Hazardous Materials. Therefore, the project would not result in any impacts associated with its location within or in proximity to, a wildfire-prone area, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project, 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? ***(No New Impact)***

Refer to Section 4.20.a. No new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[35] California Board of Forestry and Fire Protection. 2020. State Responsibility Area Viewer. Website: bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer (accessed October 2020).

c. Would the project 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? ***(No New Impact)***

Refer to Section 4.20.a. No new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? ***(No New Impact)***

Refer to Section 4.20.a. No new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New 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 cumulativ"ly considerable? ("Cumula"ively 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?	☒	☐	☐	☐

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? ***(No New Impact)***

The project site consists of an infill site in an urban area. The site does not support habitat for special-status plant or animal species. With mitigation, development of the proposed project would not: (1) degrade the quality of the environment; (2) substantially reduce the habitat of a fish or wildlife species; (3) cause a fish or wildlife species population 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, this impact would be less than significant and no new or more severe impacts would occur beyond those examined in the 2008 IS/MND.

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)? ***(New Potentially Significant Impact)***

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound to increase other environmental impacts." Section 15130 of the CEQA Guidelines requires evaluation of potential environmental impacts when the project's incremental effect is cumulatively considerable. "Cumulatively considerable" means

that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of "reasonably foreseeable probable future" projects, per CEQA Section 15355. Cumulative impacts can result from a combination of the proposed project together with other closely related projects that cause an adverse change in the environment. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

As discussed in this Initial Study, potentially significant impacts related to transportation may result from the proposed project. This impact, as well as any cumulatively considerable impacts that may result from the proposed project related to these issues, will be evaluated in a Focused EIR.

All of the remaining impacts of the proposed project would be individually limited and not cumulatively considerable, because these impacts are either temporary in nature (i.e., limited to the construction period) or are limited to the project site (i.e., potential discovery of unknown cultural or paleontological resources). The potentially significant impacts that can be reduced to a less-than-significant level with implementation of recommended mitigation measures include the topics of aesthetics, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and noise. These impacts would primarily be related to construction-period activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics. For the topic of aesthetics, potentially significant impacts to new sources of light and glare would be reduced to a less-than-significant level with implementation of Mitigation Measure AES-1. For the topic of air quality, potentially significant impacts to air quality standards associated with project construction would be reduced to less-than-significant levels with implementation of Mitigation Measure AIR-1. For the topic of biological resources, implementation of Mitigation Measure BIO-1a through BIO-5 would ensure that impacts to special status-species and nesting birds are reduced to a less-than-significant level. For the topic of cultural resources, potentially significant impacts to archaeological resources and human remains would be reduced to less-than-significant levels with implementation of Mitigation Measures CULt-1 through CULT-3. For the topic of geology and soils, potentially significant impacts related to seismic-related ground failure, soil erosion and paleontological resources would be reduced to less-than-significant levels with implementation of Mitigation Measures GEO-1 through GEO-4. For the topic of hazards and hazardous materials, potentially significant impacts related to the release of hazardous materials into the environment would be reduced to a less-than-significant level with implementation of Mitigation Measure HAZ-1 and HAZ-2. For the topic of hydrology and water quality, implementation of Mitigation Measures HYD-1 through HYD-5 would ensure that potential water quality impacts and on- and off-site flooding are reduced to a less-than-significant level.

For the topics of agricultural and forestry resources, energy, greenhouse gas emissions, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, utilities and service systems, and wildfire, the project would have no new impacts, and therefore, the project would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the proposed project would be reduced to a less-than-significant level through the implementation of the mitigation measures recommended in this document.

When future development proposals are considered by the City, these proposals would undergo environmental review pursuant to CEQA, and when necessary, mitigation measures would be adopted as appropriate. In most cases, this environmental review and compliance with project conditions of approval, relevant policies and mitigation measures, and the General Plan, and compliance with applicable regulations would ensure that significant impacts would be avoided or otherwise mitigated to less-than-significant levels.

Implementation of these measures would ensure that the impacts of the project and other projects within the vicinity would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project development. Therefore, this impact would be less than significant.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(New Potentially Significant Impact)***

The proposed project's potential to result in environmental effects that could directly or indirectly impacts human beings have been evaluated in this Initial Study. With implementation of the mitigation measures identified in the 2008 IS/MND, most environmental effects that could adversely affect human beings would be less than significant. The proposed project's potential to result in environmental effects related to transportation that could directly or indirectly impact human beings will be evaluated in the EIR.

5.0 LIST OF PREPARERS

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APPENDIX A

2008 IS/MND MMRP

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) was formulated based on the findings of the 2008 Initial Study/Mitigated Negative Declaration (2008 IS/MND) prepared for the Deer Valley Estates Master Plan (2008 Project). This MMRP is in compliance with Section 15097 of the *CEQA Guidelines*, which requires that the Lead Agency "adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects." The MMRP lists mitigation measures recommended in the IS/MND and identifies mitigation monitoring requirements. This MMRP includes edits made as a result of the proposed Deer Valley Estates project that is the subject of a new Initial Study and Environmental Impact Report. These revisions are shown below double-underlined and ~~strikeout~~ text.

Table 1 presents the mitigation measures identified for the proposed project. Each mitigation measure is numbered according to the topical section to which it pertains to. As an example, Mitigation Measure AES-1 is the first mitigation measure identified in the Aesthetics section.

The column entitled "Mitigation Responsibility" identifies the party responsible for carrying out the required actions. The columns entitled "Monitoring/Reporting Agency and "Monitoring Schedule" identify the party ultimately responsible for ensuring that the mitigation measure is implemented and the approximate timeframe for the oversight agency to ensure implementation of the mitigation measure. The column entitled "Verification of Compliance" will be used by the lead agency to document the person who verified the implementation of the mitigation measure and the date on which this verification occurred.

Table V-1: Mitigation Monitoring and Reporting Program

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
I. Aesthetics				
AES-1: Outdoor lighting shall be designed to minimize glare and spillover to surrounding properties. The proposed project shall incorporate non-mirrored glass to minimize daylight glare.	Project Applicant	City of Antioch Community Development Department	Prior to issuance of a building permit	*Verified by:* *Date:*
II. Agricultural Resources				
No mitigation required				
III. Air Quality				
AIR-1: In order to meet the BAAQMD fugitive dust threshold, ~~Consistent with guidance from the BAAQMD,~~ the following BAAQMD Basic Construction Mitigation Measures ~~measures~~ shall be implemented ~~on the project site during the construction period~~: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt tracked-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. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. • Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • A publicly-visible sign shall be posted with the telephone number and person to contact at the City of Antioch regarding dust complaints. This person shall respond and take	Construction Manager	City of Antioch Public Works Department	During grading and construction activities	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. •— • ~~Water all active construction areas at least twice daily.~~ • ~~Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.~~ • ~~Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.~~ • ~~Sweep daily (preferably with water sweepers) all paved access roads, parking areas and staging areas at construction sites.~~ • ~~Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.~~				
IV. Biological Resources				
BIO-1a: Prior to issuance of grading or construction permits for the proposed project, a qualified biologist shall conduct protocol level surveys to determine the presence or absence of vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog, and California tiger salamander on the project site. These surveys shall be conducted in consultation with the appropriate regulatory agencies to determine under what conditions surveys could occur. Some protocol level surveys may take up to two years to conduct. If these species are determined to be absent from the site, no further mitigation would be required. If suitable conditions do not exist for protocol level surveys prior to grading or construction activities, these species must be assumed present on the project site.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading or construction permit	*Verified by:* *Date:*
BIO-1b: If vernal pool fairy shrimp and/or vernal pool tadpole shrimp are identified on the project site, or are assumed present due to the absence of protocol level surveys, the seasonal wetland located on the site shall be avoided. If the seasonal wetland is avoided, all development shall be setback at least 250-feet from the edges of the wetland. Siltation fencing should be erected between the wetland and the development area.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading or construction permit	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1c: If vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog or California tiger salamander are identified on the project site, or are assumed present due to the absence of protocol level surveys, and avoidance is not feasible, the project applicant shall mitigate for the loss of habitat. Authorized take permits may be required by the U.S. Fish and Wildlife Service for incidental take of individuals that may be present. If avoidance of the seasonal wetland is not feasible, the project applicant shall purchase lands at an approved off-site mitigation bank or other lands approved by the applicable resources agencies and the City of Antioch (e.g., in fee-title or through conservation easement). Mitigation would be required at a replacement to loss ratio of 2:1 and a creation to loss ratio of 1:1 (a total mitigation ratio of 3:1) for vernal pool fairy shrimp and/or vernal pool tadpole shrimp (these are standard mitigation ratios accepted by the U.S. Fish and Wildlife Service for impacts to these species). The project applicant shall preserve 0.74 acres of known vernal pool fairy shrimp and/or vernal pool tadpole shrimp habitat and create another 0.37 acres of suitable habitat for each species, as applicable. These acreages are based on an estimated 0.37 acres of seasonal wetland habitat located on the project site; verification of the correct acreage is required by Mitigation Measure BIO-5a. The Elsie Gridley Multi-Species Conservation Bank includes Antioch within its service area and offers preservation habitat for $140,000 per acre, and creation habitat for $165,000 per acre. Loss of California red-legged frog or California tiger salamander habitat should be mitigated at a 1:1 mitigation to loss ratio (38 acres) at a suitable site that is known to support a breeding population. Because the project site supports low value California tiger salamander habitat, purchasing high quality, known breeding habitat would duly compensate for the loss of low quality habitat, especially if the site acquired is either in fee-title or via a conservation easement that preserves and enhances breeding and estivation habitat or preserves and enhances suitable estivation habitat adjacent to a known, protected breeding site. Enhancement shall include a controlled grazing regime, limited public access, fencing, or other appropriate measure. The Elsie Gridley Multi-Species Conservation Bank offers California tiger salamander habitat for $8,500 per acre. These 38 acres may also accommodate the potential loss of burrowing owl and San Joaquin kit fox habitat, as applicable.	Project Applicant/ Project Biologist	City of Antioch Community Development Department and U.S. Fish and Wildlife Service	Prior to issuance of a grading or construction permit	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-2a: Protocol level burrowing owl surveys shall be conducted during the height of the breeding season (April 15 to July 15) to determine the number of both individuals and breeding pairs present on the site. Preconstruction surveys shall also be conducted for burrowing owls prior to site preparation, grading, and construction. All surveys shall conform to the survey protocol established by the California Burrowing Owl Consortium.[1] Preconstruction surveys shall be conducted no more than 30 days prior to the initiation of construction activities and at 30-day intervals if construction activities have not been initiated in an area.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Protocol level surveys shall occur during the height of the breeding period (April 15 to July 15) Preconstruction surveys shall occur no more than 30 days prior to initiation of construction activities in any given area	*Verified by:* *Date:*
BIO-2b: For grading and construction activities occurring during the non-breeding season (September 1 through January 31), burrowing owls may be evicted from the entire construction area using passive relocation techniques. One-way doors shall be installed in all suitable burrows (approximately 4 inches in diameter), left in place for a minimum of 48 hours, and monitored daily to evaluate the exclusion of owls from burrows and to maintain the one-way doors in good repair. Burrows shall then be excavated, using hand tools. Sections of flexible plastic pipe shall also be inserted into burrows during excavation to maintain an escape route for any animals inside the burrow. Once excavation is completed and no owls remain on-site, burrows shall be refilled to prevent reoccupation, or the entire site shall be disced and managed until construction activities begin.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	During the non-breeding season (September 1 through January 31)	*Verified by:* *Date:*
BIO-2c: For grading and construction activities occurring during the breeding season (February 1 through August 31), a 75-meter (250-foot) radius circular buffer shall be erected around each active burrow and a qualified biologist shall monitor construction activities to ensure effectiveness of the buffer area for breeding activities. Construction-related activity (e.g., site grading, staking, surveying) shall not occur within the exclusion zone until the burrows are confirmed to be unoccupied and/or juveniles from the nest are foraging independently and capable of independent survival. Only biologists familiar with burrowing owl behavior shall be permitted to determine whether juveniles are capable of independent survival. Once the burrows are unoccupied or the young are capable of independent survival, passive relocation	Project Applicant/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	During the breeding season (February 1 through August 31)	*Verified by:* *Date:*

[1] California Burrowing Owl Consortium, 1997. Burrowing Owl Survey Protocol and Mitigation Guidelines. Appendix B, pp. 171–177 in Lincer, J.L. and K. Steenhof, eds. The Burrowing Owl, Its Biology and Management; Including the Proceedings of the First International Burrowing Owl Symposium. Raptor Research Report No. 9.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-2c *Continued* techniques (as described above in Mitigation Measure BIO-2a) shall be implemented to evict the owls from the burrows. Burrows shall be excavated, using hand tools, and re-filled to prevent reoccupation prior to allowing construction within the exclusion zone, or the site shall be disced. Sections of flexible plastic pipe shall also be inserted into burrows during excavation to maintain an escape route for any animals inside the burrow. Due to the density of the burrowing owl population on the project site, it is possible that construction activities may not be able to avoid active burrows; in this case, construction activities shall not be permitted during the breeding season.				
BIO-2d: Removal of burrowing owls at the project site shall conform to the requirements of CDFG's *Staff Report on Burrowing Owl Mitigation*.[2] This shall entail establishing 6.5 acres of suitable habitat for each individual or pair of burrowing owls displaced from the project site. This may be accomplished through the purchase of credits at an established mitigation bank approved for this species or preservation of grassland habitat (through conservation easement, fee-title, or other applicable measure) at another suitable location within eastern Contra Costa County that currently supports a burrowing owl population. Habitat used for burrowing owl mitigation may also accommodate the potential loss of estivation habitat for California tiger salamander and San Joaquin kit fox habitat, as applicable.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading or construction permit	*Verified by:* *Date:*
BIO-3a: Pre-construction surveys for kit fox dens shall be conducted by a qualified biologist no less than 14 days or more than 30 days prior to any grading or construction activities on the project site. If an active den is detected within (or immediately adjacent to) the construction area, the U.S. Fish and Wildlife Service shall be immediately contacted to determine the best course of action. If no kit fox activity is detected, a written report shall be submitted to the U.S. Fish and Wildlife Service within 5 days of survey completion.	Project Applicant/ Project Biologist	City of Antioch Community Development Department and U.S. Fish and Wildlife Service	No less than 14 days or more than 30 days prior to grading or construction activities	*Verified by:* *Date:*
BIO-3b: If active dens are identified within (or immediately adjacent to) the construction area, the project applicant shall follow the U.S. Fish and Wildlife Service's *Standardized Recommendations for Protection of the Kit Fox Prior to or During Ground Disturbance* throughout the construction period. Specific measures are detailed in the Biological Evaluation prepared for the project site (see Appendix A).	Project Applicant/ Project Biologist/ Construction Manager	City of Antioch Community Development Department and U.S. Fish and Wildlife Service	During the construction period	*Verified by:* *Date:*

[2] California Department of Fish and Game (CDFG), 1995. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game. Sacramento, CA. 8 pp. October 17.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3c: If active dens are identified within (or immediately adjacent to) the construction area, the project applicant shall mitigate for the loss of San Joaquin Kit Fox habitat at a mitigation to loss ratio of 1:1 (38 acres). These 38 acres may also accommodate the potential loss of estivation habitat for California tiger salamander and burrowing owl habitat, as applicable.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of grading or construction permits	*Verified by:* *Date:*
BIO-4. If mitigation lands are purchased through conservation easements or in fee-title, the project applicant shall implement the Resource Management Plan prepared for the proposed project.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of grading or construction permits	*Verified by:* *Date:*
BIO-5a: The project applicant shall conduct a formal wetland delineation to determine the extent of jurisdictional waters of the United States on the project site. Potential impacts to jurisdictional waters shall be avoided where feasible. The applicant shall submit the wetland delineation to the City of Antioch Community Development Department prior to the issuance of a grading permit.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of a grading permit	*Verified by:* *Date:*
BIO-5b: The project applicant shall obtain the appropriate federal and State permits authorizing the fill of any jurisdictional wetlands identified on the project site. The applicant shall provide proof to the City of Antioch Community Development Department of compliance with the terms and conditions of any required permits prior to issuance of the grading permit. All work in jurisdictional areas shall be in compliance with the terms and conditions of the federal and State permits.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of a grading permit	*Verified by:* *Date:*
BIO-5c: The project applicant shall preserve off-site seasonal wetlands at a mitigation-to-loss ratio of 1:1 (currently identified as approximately 0.37 acres), to mitigate for the loss of the seasonal wetland. The exact acreage shall be determined based on the final mapping results of the formal wetland delineation approved by the Corps. This may be accomplished through the purchase of credits at an established mitigation bank or preservation of seasonal wetland habitat (through conservation easement or other applicable measure) at another suitable location approved by the City of Antioch and the applicable resource agencies. Should the provision of off-site seasonal wetland habitat be required to mitigate the loss of special status species, a 2:1 or higher mitigation ratio may be required by the resource agencies. Preservation of 0.37 acres (or appropriate 1:1 ratio) or higher of off-site seasonal wetland habitat would off-set the loss of the seasonal wetland itself and no further mitigation would be required.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of a grading permit	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-6: The 12 trees removed from the project site shall be replaced with 36 (a 3:1 mitigation to loss ratio) native trees indigenous to the region (e.g., native oaks adapted to the climate of Antioch). A 3:1 mitigation ratio is required to off-set the temporal loss of the mature trees. These trees shall be planted on-site using d-pots[3] from local stock. D-pots are recommended because smaller trees are more likely to establish a deep root system and out perform larger box trees. Replacement trees would require irrigation for 3 to 5 years to ensure an 80 percent survival rate. A landscape management plan shall be developed and shall specify when, where, and what trees are planted on-site, and how they would be cared for. The landscape management plan shall be submitted to the City for approval.	Project Applicant/ Project Landscape Architect	City of Antioch Community Development Department	Prior to final development plan approval	*Verified by:* *Date:*
BIO-7: The proposed project shall avoid construction activities during the bird nesting season (February 1 through August 31). If construction activities are scheduled during the nesting season, the project applicant shall retain a qualified biologist to conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey shall be conducted no more than 14 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of a grading permit	*Verified by:* *Date:*
V. Cultural Resources				
CULT-1: If deposits of prehistoric[4] or historic archeological materials are encountered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archeologist shall be contacted to assess the deposit finds and make recommendations. While deposits of prehistoric or historic archeological materials should be avoided by project activities, if the deposits cannot be avoided, they shall be evaluated for their California Register eligibility. If the deposits are not eligible for the California Register, avoidance is not necessary. If the deposits are eligible for the California Register, they shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance	Project Applicant/ Construction Manager/ Qualified Archaeologist	City of Antioch Community Development Department	During all ground-disturbing activities and after resources are identified	*Verified by:* *Date:*

[3] A d-pot is a 2.5- to 3-inch diameter by 10- to 12-inch deep container (usually bound by plastic mesh) that houses the root system of sapling trees.

[4] Prehistoric materials include flaked-stone tools (e.g. projectile points, knives, choppers) or obsidian, chert, or quartzite toolmaking debris; culturally darkened soil (i.e., midden soil often containing heat affected rock, ash and charcoal, shellfish remains, and cultural materials); and stone milling equipment (e.g., mortars, pestles, handstones). Historical materials can include wood, stone, concrete, or adobe footings, walls and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, and other refuse.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
with the recommendations of the evaluating archaeologist and CEQA Guidelines Section 15126.4 (b)(3)(C), which requires implementation of a data recovery plan and avoidance of human remains. Upon completion of the archaeologist's assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the discovered archaeological materials. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center (NWIC).				
CULT-2: If paleontological resources[5] are encountered during site preparation or grading activities, all work within 25 feet of the discovery shall be redirected until a qualified paleontologist has assessed the discoveries and made recommendations. If the paleontological resources are found to be significant, adverse effects to such resources shall be avoided by project activities. If project activities cannot avoid the resources, the adverse effects shall be mitigated. Mitigation shall include data recovery and analysis, preparation of a final report, and the formal transmission or delivery of any fossil material recovered to a paleontological repository, such as the University of California Museum of Paleontology (UCMP). Upon completion of project activities, a final report documenting methods and findings of the mitigation shall be prepared and submitted to the project applicant, the City of Antioch, and a suitable paleontological repository.	Project Applicant/ Construction Manager/ Qualified Paleontologist	City of Antioch Community Development Department	During all ground-disturbing activities and after resources are identified	*Verified by:* *Date:*
CULT-3: If human remains are encountered, work within 25 feet of the discovery shall be redirected and the Contra Costa County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center.	Project Applicant/ Construction Manager/ Qualified Archaeologist	City of Antioch Community Development Department and Contra Costa County Coroner	During ground disturbing activities and after resources are identified	*Verified by:* *Date:*

[5] Paleontological resources include fossil plants and animals, and evidence of past life such as trace fossils and tracks. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Vertebrate land mammals may include bones of mammoth, camel, saber tooth cat, horse, and bison. Paleontological resources may also include plant imprints, petrified wood, and animal tracks.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
VI. Geology and Soils				
GEO-1: Project design and construction shall be in conformance with, or exceed, current best standards for earthquake resistant construction in accordance with the California Building Code (Seismic Zone 4), applicable local codes, and in accordance with the generally accepted standards of geotechnical practice for seismic design in Northern California. In addition, project design shall follow the recommendations of a site-specific design level geotechnical investigation report to be prepared by a Certified Engineering Geologist or Geotechnical Engineer. The City Engineer shall approve all final design and engineering plans.	Project Applicant/ Project Geotechnical Engineer	City of Antioch Community Development Department	Prior to final development plan approval	*Verified by:* *Date:*
GEO-2: The applicant shall ensure that the requirements for worker health and safety as specified by the California Division of Occupational Safety and Health (DOSH) (which acts to protect workers from safety hazards through its California OSHA (Cal/OSHA)) are implemented. In particular, due to the caving proclivity of the soil types of the project site, shoring requirements for workers dealing with work in excavations, as specified in the California Code of Regulations, Title 8, Section 1540 et. al., Excavations, shall be observed.[6] This article applies to all open excavations made in the earth's surface (including trenches).	Project Applicant/ Construction Manager	City of Antioch Community Development Department	Prior to issuance of a grading permit and during the construction period	*Verified by:* *Date:*
GEO-3: The applicant shall incorporate all recommendations of a final site-specific design-level geotechnical investigation as prepared by a licensed Geotechnical Engineer and approved by the City of Antioch into all development plans submitted for the project, including recommendations for grading, placement of fill materials, pretreatment of expansive soils, and avoidance of settlement and/or differential settlement of infrastructure and buildings.	Project Applicant/ Project Geotechnical Engineer	City of Antioch Community Development Department	Prior to final development plan approval	*Verified by:* *Date:*
GEO-4: Implement the recommendations in the geotechnical report related to demolition/clearing, grading, drainage, foundations, post-tensioned slab foundation, concrete flatwork, and retaining walls.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	Prior to issuance of a grading permit and during the construction period	*Verified by:* *Date:*

[6] Title 8, California Code of Regulations, Sections 1539-1543. Website: www.dir.ca.gov/Title8/sub4.html.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
VII. Hazards and Hazardous Materials				
HAZ-1: Prior to the issuance of grading or construction permits for the project site, a qualified environmental professional shall conduct an environmental investigation at the project site in accordance with California Department of Toxic Substances Control (DTSC) Interim Guidance for Sampling Former Agricultural Fields (Interim Guidance).[7] As specified in the Interim Guidance, any detected organic compounds or metals above naturally-occurring concentrations must be evaluated in a risk assessment, and additional remedial action such as soils removal may be required, depending on the results of the environmental investigation and risk assessment. The investigation report and certification that required further actions have been completed shall be submitted to the City of Antioch for review and approval.	Project Applicant/ Qualified Environmental Professional	City of Antioch Community Development Department	Prior to issuance of grading or construction permits	*Verified by:* *Date:*
HAZ-2: Prior to the issuance of grading or construction permits for the project site, a Construction Risk Management Plan (CRMP) should be prepared to address potential hazardous material issues during construction of the project. The CRMP should include any available data from sampling conducted for the project, including the sampling specified in Mitigation Measure HAZ-1. The CRMP shall include provisions to protect construction workers and the nearby public from health risks from pipeline hazards and potential historic releases associated with oil and natural gas production in the project vicinity. The CRMP shall incorporate Best Practices defined by the Common Ground Alliance[8] to protect construction worker safety and prevent accidental releases from oil and natural gas pipelines. The CRMP shall also require site inspections during initial grading activities at the site; provide procedures to be undertaken in the event that previously unreported petroleum contamination or subsurface hazards are discovered during construction; incorporate construction safety measures for excavation and other construction activities; establish detailed procedures for the safe storage, stockpiling, use, and disposal of hazardous materials at the project site; provide emergency response procedures; and designate personnel responsible for implementation of the CRMP. The CRMP shall be submitted to the City of Antioch for review and approval.	Project Applicant/ Qualified Environmental Professional	City of Antioch Community Development Department	Prior to issuance of grading or construction permit	*Verified by:* *Date:*
VIII. Hydrology and Water Quality				
HYD-1: The project proponent shall prepare a SWPPP designed to reduce potential impacts to surface water quality through the project construction period. The SWPPP must be maintained on-site and made available to City inspectors and/or RWQCB staff upon request. The SWPPP shall include specific and detailed BMPs designed to mitigate construction-related pollutants. At minimum, BMPs shall include practices to minimize the contact of	Project Applicant/ Construction Manager	City of Antioch Community Development Department	Prior to approval of the grading plan	*Verified by:* *Date:*

[7] Department of Toxic Substances Control, 2002. Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision). August 26.

[8] Common Ground Alliance (CGA), 2004. Best Practices, Version 2.0. December.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HYD-1 *Continued* construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain. An important component of the stormwater quality protection effort is the knowledge of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP. The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, which must include both dry and wet weather inspections. RWQCB and /or City personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented. BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control; that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions. The City of Antioch Community Development Department shall review and approve the SWPPP prior to approval of the grading plan.				
HYD-1b: The project applicant shall design Best Management Practices into the project to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development, and to detain and treat 75 percent of the runoff from a major storm event. The design team for the development project shall review and incorporate as many concepts as practicable from *Start at the Source*, *Design Guidance Manual for Stormwater Quality Protection.*[9]	Project Applicant/ Project Engineer	City of Antioch Community Development Department	Prior to final development plan approval	*Verified by:* *Date:*

[9] Bay Area Stormwater Management Agencies Association, 1999. *Start at the Source, Design Guidance Manual for Stormwater Quality Protection*.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HYD-2: The City of Antioch Community Development Department shall review and approve the design-level stormwater control plan prior to approval of the grading plan. If it is determined by the City that the stormwater control plan for the proposed project does not include adequate measures to treat runoff to the maximum extent practicable in compliance with the County NPDES permit, then the applicant shall work closely with the City to revise the stormwater control plan so the Maximum Extent Practical (MEP) requirement is achieved.	Project Applicant/ Project Engineer	City of Antioch Community Development Department	Prior to approval of the final grading plan	*Verified by:* *Date:*
HYD-3: As a condition of approval of the final grading and drainage plans for the project, the project applicant shall demonstrate through detailed hydraulic analysis that implementation of the proposed drainage plans will not create potential hydromodification impacts downstream by implementing the following: The project applicant's licensed professional engineer shall work cooperatively with the City of Antioch and the RWQCB to incorporate BMPs into the final drainage plan that will result in a post-project runoff curve (i.e., storm water flow/duration graphs) that closely resembles the pre-project curve; Include drainage components that are designed in compliance with City of Antioch standards. The grading and drainage plans shall be reviewed for compliance with these requirements by the City of Antioch; and The project applicant shall establish a self-perpetuating drainage system maintenance program (to be managed by a homeowners association or similar entity) that includes annual inspections of detention basins, sedimentation basins, drainage ditches, swales, and drainage inlets. Any accumulation of sediment or other debris shall be promptly removed and necessary maintenance to insure continued efficient operation shall be performed.	Project Applicant/ Project Hydrologist	City of Antioch Community Development Department	Prior to approval of the final grading and drainage plans	*Verified by:* *Date:*
HYD-4: The project applicant's licensed professional engineer shall analyze the potential for the project to contribute to downstream flooding impacts. The final drainage plan shall include a design that, when implemented, would not increase peak flows or exacerbate downstream flooding. Properly implemented hydrograph modification mitigation (required under Mitigation Measure HYD-3) will also mitigate the potential for impacting downstream flooding impacts.	Project Applicant/ Project Hydrologist	City of Antioch Community Development Department	Prior to approval of the final drainage plan	*Verified by:* *Date:*
HYD-5: As required by Ordinance 90-74, the applicant shall contribute to the construction and maintenance of regional drainage infrastructure by paying applicable fees associated with the amount of new impervious cover proposed by the project.	Project Applicant	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
IX. Land Use And Planning				
No mitigation required				
X. Mineral Resources				
No mitigation required				

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
XI. Noise				
NOISE-1a: The project contractor ensure that all construction related activities are restricted to the hours of 7:00 a.m. to 6:00 p.m. on weekdays, within 300 feet of occupied dwelling spaces between 8:00 a.m. and 5:00 p.m. on weekends, and between 9:00 a.m. and 5:00 p.m. on weekends and holidays, irrespective of the distance from the occupied dwelling.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	During the construction period	*Verified by:* *Date:*
~~NOISE-1a: The construction contractor shall limit all noise producing construction related activities, including haul truck deliveries or warming up and idling of heavy construction equipment, to the hours of 8:00 a.m. to 5:00 p.m. on weekdays. No construction shall be allowed on weekends and public holidays.~~	~~Project Applicant/ Construction Manager~~	~~City of Antioch Community Development Department~~	~~During the construction period~~	~~*Verified by:*~~ ~~*Date:*~~
NOISE-1b: During all project site excavation and on-site grading, the construction contractor shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	During excavation and grading activities	*Verified by:* *Date:*
NOISE-1c: The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	During grading and construction activities	*Verified by:* *Date:*
NOISE-1d: The construction contractor shall locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	During grading and construction activities	*Verified by:* *Date:*
NOISE-1e: The construction contractor shall use temporary noise attenuation fences at least 6 feet in height to protect all sensitive receptors along the project site's northern property line that are not currently protected by a sound wall of at least 6 feet in height. Noise attenuation fencing shall consist of a solid, continuous fence (with no horizontal or vertical gaps) at least 6 feet in height and of equivalent mass as that of solid wood fencing boards (e.g., made of plywood of at least ¾ inch thickness).	Project Applicant/ Construction Manager	City of Antioch Community Development Department	Prior to and during grading and construction activities	*Verified by:* *Date:*
NOISE-2a: A sound wall a minimum of 6 feet in height (measured above the finished roadway elevation) shall be constructed along the project property line bordering Deer Valley Road. The sound wall must be constructed without gaps (including at the bottom) and must be at least 1 inch thick and have equivalent mass to that of solid wood fencing boards.	Project Applicant/ Project Engineer	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
NOISE-2b: A sound wall a minimum of 6 feet in height (measured above the finished roadway elevation) shall also be constructed along the project property line bordering Wellness Way. The sound wall must be constructed without gaps (including at the bottom) and must be at least 1 inch thick and have equivalent mass to that of solid wood fencing boards.	Project Applicant/ Project Engineer	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
XII. Population And Housing				
No mitigation required				
XII. Public Services				
No mitigation required				
XIII. Recreation				
No mitigation required				
XV. Traffic				
TRANS-1: The Deer Valley Road/Lone Tree Way intersection should be re-striped to a through-shared right-turn lane. Because the proposed project does not itself trigger the impact, but adds to the eastbound right queue, the project applicant shall pay a pro-rata fair-share cost of intersection improvements.	Project Applicant/ City of Antioch	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
TRANS-2: The Deer Valley Road/Prewett Ranch Drive southbound left-turn lane should be extended an additional 50 feet to a total length of 190 feet plus 120 feet of the deceleration and taper. The project applicant shall be responsible for the full cost of the modification to the intersection. This intersection improvement shall be completed prior to occupation of the proposed project.	Project Applicant/ City of Antioch	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
XVI. Utilities And Services				
No mitigation required				

APPENDIX B

CALEEMOD OUTPUT SHEETS

Deer Valley Estates

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	121.00	Dwelling Unit	36.06	217,800.00	346
City Park	1.50	Acre	1.50	65,340.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - Total project site is 37.56 acres.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	NumDays	740.00	400.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	PhaseEndDate	11/29/2024	3/31/2023
tblConstructionPhase	PhaseEndDate	6/28/2024	1/6/2023
tblConstructionPhase	PhaseEndDate	8/27/2021	6/25/2021
tblConstructionPhase	PhaseEndDate	5/14/2021	4/30/2021
tblConstructionPhase	PhaseStartDate	9/14/2024	2/20/2023
tblConstructionPhase	PhaseStartDate	8/28/2021	6/28/2021
tblConstructionPhase	PhaseStartDate	5/15/2021	5/3/2021
tblGrading	AcresOfGrading	100.00	37.56
tblLandUse	LotAcreage	39.29	36.06

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2727	2.6902	2.1107	4.2700e-003	0.3741	0.1255	0.4996	0.1820	0.1168	0.2988	0.0000	376.6823	376.6823	0.0867	0.0000	378.8487
2022	0.2575	2.3562	2.3940	4.9900e-003	0.0934	0.1063	0.1997	0.0253	0.1000	0.1253	0.0000	440.7598	440.7598	0.0772	0.0000	442.6901
2023	1.5573	0.2140	0.2995	5.1000e-004	5.2300e-003	0.0105	0.0157	1.4000e-003	9.7800e-003	0.0112	0.0000	44.9534	44.9534	0.0115	0.0000	45.2399
Maximum	**1.5573**	**2.6902**	**2.3940**	**4.9900e-003**	**0.3741**	**0.1255**	**0.4996**	**0.1820**	**0.1168**	**0.2988**	**0.0000**	**440.7598**	**440.7598**	**0.0867**	**0.0000**	**442.6901**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1429	3.1325	2.3333	4.2700e-003	0.1975	0.0978	0.2953	0.0898	0.0977	0.1875	0.0000	376.6820	376.6820	0.0867	0.0000	378.8484
2022	0.1762	3.3882	2.5903	4.9900e-003	0.0934	0.1185	0.2119	0.0253	0.1185	0.1438	0.0000	440.7595	440.7595	0.0772	0.0000	442.6897
2023	1.5533	0.4015	0.3445	5.1000e-004	5.2300e-003	0.0137	0.0190	1.4000e-003	0.0137	0.0151	0.0000	44.9534	44.9534	0.0115	0.0000	45.2399
Maximum	**1.5533**	**3.3882**	**2.5903**	**4.9900e-003**	**0.1975**	**0.1185**	**0.2953**	**0.0898**	**0.1185**	**0.1875**	**0.0000**	**440.7595**	**440.7595**	**0.0867**	**0.0000**	**442.6897**

Deer Valley Estates - Bay Area AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**10.30**	**-31.59**	**-9.66**	**0.00**	**37.35**	**5.04**	**26.40**	**44.18**	**-1.50**	**20.41**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-5-2021**	**7-4-2021**	1.4463	1.4191
2	**7-5-2021**	**10-4-2021**	0.7312	0.9054
3	**10-5-2021**	**1-4-2022**	0.7303	0.9073
4	**1-5-2022**	**4-4-2022**	0.6472	0.8822
5	**4-5-2022**	**7-4-2022**	0.6524	0.8901
6	**7-5-2022**	**10-4-2022**	0.6597	0.9000
7	**10-5-2022**	**1-4-2023**	0.6589	0.9011
8	**1-5-2023**	**4-4-2023**	1.6569	1.8173
		Highest	1.6569	1.8173

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7448	0.0260	1.9357	2.1800e-003		0.1545	0.1545		0.1545	0.1545	15.3804	5.2440	20.6244	0.0305	8.8000e-004	21.6482
Energy	0.0190	0.1621	0.0690	1.0300e-003		0.0131	0.0131		0.0131	0.0131	0.0000	333.6770	333.6770	0.0165	6.1000e-003	335.9081
Mobile	0.2598	1.1504	2.9511	0.0110	0.9818	8.9900e-003	0.9908	0.2635	8.3900e-003	0.2719	0.0000	1,008.4517	1,008.4517	0.0350	0.0000	1,009.3272
Waste						0.0000	0.0000		0.0000	0.0000	29.5250	0.0000	29.5250	1.7449	0.0000	73.1470
Water						0.0000	0.0000		0.0000	0.0000	2.5011	9.8894	12.3905	0.2578	6.2500e-003	20.6959
Total	**2.0236**	**1.3385**	**4.9557**	**0.0142**	**0.9818**	**0.1766**	**1.1584**	**0.2635**	**0.1760**	**0.4395**	**47.4066**	**1,357.2621**	**1,404.6687**	**2.0846**	**0.0132**	**1,460.7264**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0327	0.0192	0.9024	1.0000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	11.7394	11.7394	1.6100e-003	1.9000e-004	11.8357
Energy	0.0100	0.0855	0.0364	5.5000e-004		6.9100e-003	6.9100e-003		6.9100e-003	6.9100e-003	0.0000	241.8912	241.8912	0.0145	4.4200e-003	243.5716
Mobile	0.2616	1.1615	2.9937	0.0112	1.0011	9.1400e-003	1.0103	0.2687	8.5400e-003	0.2772	0.0000	1,026.8382	1,026.8382	0.0355	0.0000	1,027.7262
Waste						0.0000	0.0000		0.0000	0.0000	7.3813	0.0000	7.3813	0.4362	0.0000	18.2868
Water						0.0000	0.0000		0.0000	0.0000	2.5011	9.8894	12.3905	0.2578	6.2500e-003	20.6959
Total	**1.3043**	**1.2662**	**3.9325**	**0.0118**	**1.0011**	**0.0217**	**1.0229**	**0.2687**	**0.0211**	**0.2898**	**9.8824**	**1,290.3583**	**1,300.2406**	**0.7456**	**0.0109**	**1,322.1162**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**35.55**	**5.40**	**20.65**	**16.63**	**-1.97**	**87.69**	**11.70**	**-1.97**	**87.99**	**34.06**	**79.15**	**4.93**	**7.43**	**64.23**	**17.91**	**9.49**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/30/2021	5	20	
2	Grading	Grading	5/3/2021	6/25/2021	5	40	
3	Building Construction	Building Construction	6/28/2021	1/6/2023	5	400	
4	Paving	Paving	1/9/2023	2/17/2023	5	30	
5	Architectural Coating	Architectural Coating	2/20/2023	3/31/2023	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 37.56

Acres of Paving: 0

Residential Indoor: 441,045; Residential Outdoor: 147,015; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	71.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.8000e-004	4.0400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2024	1.2024	3.0000e-005	0.0000	1.2031
Total	**5.5000e-004**	**3.8000e-004**	**4.0400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2024**	**1.2024**	**3.0000e-005**	**0.0000**	**1.2031**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0813	0.0000	0.0813	0.0447	0.0000	0.0447	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.3372	0.2296	3.8000e-004		9.4600e-003	9.4600e-003		9.4600e-003	9.4600e-003	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0121**	**0.3372**	**0.2296**	**3.8000e-004**	**0.0813**	**9.4600e-003**	**0.0908**	**0.0447**	**9.4600e-003**	**0.0542**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.8000e-004	4.0400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2024	1.2024	3.0000e-005	0.0000	1.2031
Total	**5.5000e-004**	**3.8000e-004**	**4.0400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2024**	**1.2024**	**3.0000e-005**	**0.0000**	**1.2031**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1404	0.0000	0.1404	0.0684	0.0000	0.0684	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0838	0.9280	0.6176	1.2400e-003		0.0397	0.0397		0.0365	0.0365	0.0000	108.9900	108.9900	0.0353	0.0000	109.8712
Total	**0.0838**	**0.9280**	**0.6176**	**1.2400e-003**	**0.1404**	**0.0397**	**0.1801**	**0.0684**	**0.0365**	**0.1049**	**0.0000**	**108.9900**	**108.9900**	**0.0353**	**0.0000**	**109.8712**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	8.5000e-004	8.9700e-003	3.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.6720	2.6720	6.0000e-005	0.0000	2.6735
Total	**1.2300e-003**	**8.5000e-004**	**8.9700e-003**	**3.0000e-005**	**3.1600e-003**	**2.0000e-005**	**3.1800e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.6720**	**2.6720**	**6.0000e-005**	**0.0000**	**2.6735**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0308	0.0000	0.0308	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0362	1.0248	0.7345	1.2400e-003		0.0267	0.0267		0.0267	0.0267	0.0000	108.9898	108.9898	0.0353	0.0000	109.8711
Total	**0.0362**	**1.0248**	**0.7345**	**1.2400e-003**	**0.0632**	**0.0267**	**0.0898**	**0.0308**	**0.0267**	**0.0574**	**0.0000**	**108.9898**	**108.9898**	**0.0353**	**0.0000**	**109.8711**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	8.5000e-004	8.9700e-003	3.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.6720	2.6720	6.0000e-005	0.0000	2.6735
Total	**1.2300e-003**	**8.5000e-004**	**8.9700e-003**	**3.0000e-005**	**3.1600e-003**	**2.0000e-005**	**3.1800e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.6720**	**2.6720**	**6.0000e-005**	**0.0000**	**2.6735**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1283	1.1767	1.1188	1.8200e-003		0.0647	0.0647		0.0608	0.0608	0.0000	156.3552	156.3552	0.0377	0.0000	157.2982
Total	**0.1283**	**1.1767**	**1.1188**	**1.8200e-003**		**0.0647**	**0.0647**		**0.0608**	**0.0608**	**0.0000**	**156.3552**	**156.3552**	**0.0377**	**0.0000**	**157.2982**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.1400e-003	0.1692	0.0422	4.4000e-004	0.0106	3.7000e-004	0.0110	3.0700e-003	3.5000e-004	3.4200e-003	0.0000	42.0137	42.0137	2.0700e-003	0.0000	42.0654
Worker	0.0147	0.0102	0.1075	3.5000e-004	0.0379	2.5000e-004	0.0381	0.0101	2.3000e-004	0.0103	0.0000	32.0134	32.0134	7.2000e-004	0.0000	32.0314
Total	**0.0199**	**0.1794**	**0.1497**	**7.9000e-004**	**0.0485**	**6.2000e-004**	**0.0491**	**0.0131**	**5.8000e-004**	**0.0137**	**0.0000**	**74.0271**	**74.0271**	**2.7900e-003**	**0.0000**	**74.0967**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0730	1.5899	1.2065	1.8200e-003		0.0610	0.0610		0.0610	0.0610	0.0000	156.3550	156.3550	0.0377	0.0000	157.2980
Total	**0.0730**	**1.5899**	**1.2065**	**1.8200e-003**		**0.0610**	**0.0610**		**0.0610**	**0.0610**	**0.0000**	**156.3550**	**156.3550**	**0.0377**	**0.0000**	**157.2980**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.1400e-003	0.1692	0.0422	4.4000e-004	0.0106	3.7000e-004	0.0110	3.0700e-003	3.5000e-004	3.4200e-003	0.0000	42.0137	42.0137	2.0700e-003	0.0000	42.0654
Worker	0.0147	0.0102	0.1075	3.5000e-004	0.0379	2.5000e-004	0.0381	0.0101	2.3000e-004	0.0103	0.0000	32.0134	32.0134	7.2000e-004	0.0000	32.0314
Total	**0.0199**	**0.1794**	**0.1497**	**7.9000e-004**	**0.0485**	**6.2000e-004**	**0.0491**	**0.0131**	**5.8000e-004**	**0.0137**	**0.0000**	**74.0271**	**74.0271**	**2.7900e-003**	**0.0000**	**74.0967**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.2400e-003	0.3086	0.0765	8.3000e-004	0.0205	6.1000e-004	0.0211	5.9200e-003	5.9000e-004	6.5100e-003	0.0000	80.1219	80.1219	3.8000e-003	0.0000	80.2169
Worker	0.0264	0.0175	0.1903	6.6000e-004	0.0729	4.7000e-004	0.0734	0.0194	4.3000e-004	0.0198	0.0000	59.3951	59.3951	1.2400e-003	0.0000	59.4261
Total	**0.0356**	**0.3262**	**0.2667**	**1.4900e-003**	**0.0934**	**1.0800e-003**	**0.0945**	**0.0253**	**1.0200e-003**	**0.0263**	**0.0000**	**139.5170**	**139.5170**	**5.0400e-003**	**0.0000**	**139.6430**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1405	3.0621	2.3236	3.5000e-003		0.1175	0.1175		0.1175	0.1175	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.1405**	**3.0621**	**2.3236**	**3.5000e-003**		**0.1175**	**0.1175**		**0.1175**	**0.1175**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.2400e-003	0.3086	0.0765	8.3000e-004	0.0205	6.1000e-004	0.0211	5.9200e-003	5.9000e-004	6.5100e-003	0.0000	80.1219	80.1219	3.8000e-003	0.0000	80.2169
Worker	0.0264	0.0175	0.1903	6.6000e-004	0.0729	4.7000e-004	0.0734	0.0194	4.3000e-004	0.0198	0.0000	59.3951	59.3951	1.2400e-003	0.0000	59.4261
Total	**0.0356**	**0.3262**	**0.2667**	**1.4900e-003**	**0.0934**	**1.0800e-003**	**0.0945**	**0.0253**	**1.0200e-003**	**0.0263**	**0.0000**	**139.5170**	**139.5170**	**5.0400e-003**	**0.0000**	**139.6430**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9300e-003	0.0360	0.0406	7.0000e-005		1.7500e-003	1.7500e-003		1.6500e-003	1.6500e-003	0.0000	5.7951	5.7951	1.3800e-003	0.0000	5.8296
Total	**3.9300e-003**	**0.0360**	**0.0406**	**7.0000e-005**		**1.7500e-003**	**1.7500e-003**		**1.6500e-003**	**1.6500e-003**	**0.0000**	**5.7951**	**5.7951**	**1.3800e-003**	**0.0000**	**5.8296**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	4.5800e-003	1.3200e-003	2.0000e-005	3.9000e-004	1.0000e-005	4.0000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	1.4976	1.4976	6.0000e-005	0.0000	1.4992
Worker	4.7000e-004	3.0000e-004	3.3700e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.0985	1.0985	2.0000e-005	0.0000	1.0990
Total	**6.0000e-004**	**4.8800e-003**	**4.6900e-003**	**3.0000e-005**	**1.7900e-003**	**2.0000e-005**	**1.8100e-003**	**4.8000e-004**	**2.0000e-005**	**5.0000e-004**	**0.0000**	**2.5961**	**2.5961**	**8.0000e-005**	**0.0000**	**2.5982**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.7000e-003	0.0589	0.0447	7.0000e-005		2.2600e-003	2.2600e-003		2.2600e-003	2.2600e-003	0.0000	5.7951	5.7951	1.3800e-003	0.0000	5.8296
Total	**2.7000e-003**	**0.0589**	**0.0447**	**7.0000e-005**		**2.2600e-003**	**2.2600e-003**		**2.2600e-003**	**2.2600e-003**	**0.0000**	**5.7951**	**5.7951**	**1.3800e-003**	**0.0000**	**5.8296**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	4.5800e-003	1.3200e-003	2.0000e-005	3.9000e-004	1.0000e-005	4.0000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	1.4976	1.4976	6.0000e-005	0.0000	1.4992
Worker	4.7000e-004	3.0000e-004	3.3700e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.0985	1.0985	2.0000e-005	0.0000	1.0990
Total	**6.0000e-004**	**4.8800e-003**	**4.6900e-003**	**3.0000e-005**	**1.7900e-003**	**2.0000e-005**	**1.8100e-003**	**4.8000e-004**	**2.0000e-005**	**5.0000e-004**	**0.0000**	**2.5961**	**2.5961**	**8.0000e-005**	**0.0000**	**2.5982**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0155	0.1529	0.2188	3.4000e-004		7.6500e-003	7.6500e-003		7.0400e-003	7.0400e-003	0.0000	30.0403	30.0403	9.7200e-003	0.0000	30.2832
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0155**	**0.1529**	**0.2188**	**3.4000e-004**		**7.6500e-003**	**7.6500e-003**		**7.0400e-003**	**7.0400e-003**	**0.0000**	**30.0403**	**30.0403**	**9.7200e-003**	**0.0000**	**30.2832**

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	3.8000e-004	4.2700e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.7900e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3924	1.3924	3.0000e-005	0.0000	1.3931
Total	**6.0000e-004**	**3.8000e-004**	**4.2700e-003**	**2.0000e-005**	**1.7800e-003**	**1.0000e-005**	**1.7900e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.3924**	**1.3924**	**3.0000e-005**	**0.0000**	**1.3931**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0140	0.3017	0.2594	3.4000e-004		0.0100	0.0100		0.0100	0.0100	0.0000	30.0403	30.0403	9.7200e-003	0.0000	30.2832
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0140**	**0.3017**	**0.2594**	**3.4000e-004**		**0.0100**	**0.0100**		**0.0100**	**0.0100**	**0.0000**	**30.0403**	**30.0403**	**9.7200e-003**	**0.0000**	**30.2832**

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	3.8000e-004	4.2700e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.7900e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3924	1.3924	3.0000e-005	0.0000	1.3931
Total	**6.0000e-004**	**3.8000e-004**	**4.2700e-003**	**2.0000e-005**	**1.7800e-003**	**1.0000e-005**	**1.7900e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.3924**	**1.3924**	**3.0000e-005**	**0.0000**	**1.3931**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.5332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8700e-003	0.0195	0.0272	4.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	3.8299	3.8299	2.3000e-004	0.0000	3.8356
Total	**1.5361**	**0.0195**	**0.0272**	**4.0000e-005**		**1.0600e-003**	**1.0600e-003**		**1.0600e-003**	**1.0600e-003**	**0.0000**	**3.8299**	**3.8299**	**2.3000e-004**	**0.0000**	**3.8356**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	3.6000e-004	3.9800e-003	1.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2996	1.2996	3.0000e-005	0.0000	1.3002
Total	**5.6000e-004**	**3.6000e-004**	**3.9800e-003**	**1.0000e-005**	**1.6600e-003**	**1.0000e-005**	**1.6700e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2996**	**1.2996**	**3.0000e-005**	**0.0000**	**1.3002**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.5332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0353	0.0275	4.0000e-005		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	3.8299	3.8299	2.3000e-004	0.0000	3.8356
Total	**1.5349**	**0.0353**	**0.0275**	**4.0000e-005**		**1.4300e-003**	**1.4300e-003**		**1.4300e-003**	**1.4300e-003**	**0.0000**	**3.8299**	**3.8299**	**2.3000e-004**	**0.0000**	**3.8356**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	3.6000e-004	3.9800e-003	1.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2996	1.2996	3.0000e-005	0.0000	1.3002
Total	**5.6000e-004**	**3.6000e-004**	**3.9800e-003**	**1.0000e-005**	**1.6600e-003**	**1.0000e-005**	**1.6700e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2996**	**1.2996**	**3.0000e-005**	**0.0000**	**1.3002**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2616	1.1615	2.9937	0.0112	1.0011	9.1400e-003	1.0103	0.2687	8.5400e-003	0.2772	0.0000	1,026.8382	1,026.8382	0.0355	0.0000	1,027.7262
Unmitigated	0.2598	1.1504	2.9511	0.0110	0.9818	8.9900e-003	0.9908	0.2635	8.3900e-003	0.2719	0.0000	1,008.4517	1,008.4517	0.0350	0.0000	1,009.3272

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	1,142.24	1,142.24	1142.24	2,638,126	2,690,139
Total	1,142.24	1,142.24	1,142.24	2,638,126	2,690,139

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Single Family Housing	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	142.8874	142.8874	0.0126	2.6100e-003	143.9795
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	146.0031	146.0031	0.0129	2.6600e-003	147.1190
NaturalGas Mitigated	0.0100	0.0855	0.0364	5.5000e-004		6.9100e-003	6.9100e-003		6.9100e-003	6.9100e-003	0.0000	99.0038	99.0038	1.9000e-003	1.8200e-003	99.5922
NaturalGas Unmitigated	0.0190	0.1621	0.0690	1.0300e-003		0.0131	0.0131		0.0131	0.0131	0.0000	187.6739	187.6739	3.6000e-003	3.4400e-003	188.7891

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.51688e+006	0.0190	0.1621	0.0690	1.0300e-003		0.0131	0.0131		0.0131	0.0131	0.0000	187.6739	187.6739	3.6000e-003	3.4400e-003	188.7891
Total		**0.0190**	**0.1621**	**0.0690**	**1.0300e-003**		**0.0131**	**0.0131**		**0.0131**	**0.0131**	**0.0000**	**187.6739**	**187.6739**	**3.6000e-003**	**3.4400e-003**	**188.7891**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.85526e+006	0.0100	0.0855	0.0364	5.5000e-004		6.9100e-003	6.9100e-003		6.9100e-003	6.9100e-003	0.0000	99.0038	99.0038	1.9000e-003	1.8200e-003	99.5922
Total		**0.0100**	**0.0855**	**0.0364**	**5.5000e-004**		**6.9100e-003**	**6.9100e-003**		**6.9100e-003**	**6.9100e-003**	**0.0000**	**99.0038**	**99.0038**	**1.9000e-003**	**1.8200e-003**	**99.5922**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	978959	146.0031	0.0129	2.6600e-003	147.1190
Total		**146.0031**	**0.0129**	**2.6600e-003**	**147.1190**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	958068	142.8874	0.0126	2.6100e-003	143.9795
Total		**142.8874**	**0.0126**	**2.6100e-003**	**143.9795**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0327	0.0192	0.9024	1.0000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	11.7394	11.7394	1.6100e-003	1.9000e-004	11.8357
Unmitigated	1.7448	0.0260	1.9357	2.1800e-003		0.1545	0.1545		0.1545	0.1545	15.3804	5.2440	20.6244	0.0305	8.8000e-004	21.6482

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1533					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8512					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.7132	0.0156	1.0370	2.1400e-003		0.1496	0.1496		0.1496	0.1496	15.3804	3.7764	19.1568	0.0291	8.8000e-004	20.1453
Landscaping	0.0271	0.0104	0.8987	5.0000e-005		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	1.4676	1.4676	1.4100e-003	0.0000	1.5029
Total	**1.7448**	**0.0260**	**1.9357**	**2.1900e-003**		**0.1545**	**0.1545**		**0.1545**	**0.1545**	**15.3804**	**5.2440**	**20.6244**	**0.0305**	**8.8000e-004**	**21.6482**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1533					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8512					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.0400e-003	8.8700e-003	3.7700e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	10.2718	10.2718	2.0000e-004	1.9000e-004	10.3328
Landscaping	0.0271	0.0104	0.8987	5.0000e-005		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	1.4676	1.4676	1.4100e-003	0.0000	1.5029
Total	**1.0327**	**0.0192**	**0.9024**	**1.1000e-004**		**5.6900e-003**	**5.6900e-003**		**5.6900e-003**	**5.6900e-003**	**0.0000**	**11.7394**	**11.7394**	**1.6100e-003**	**1.9000e-004**	**11.8357**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	12.3905	0.2578	6.2500e-003	20.6959
Unmitigated	12.3905	0.2578	6.2500e-003	20.6959

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.78722	0.9329	8.0000e-005	2.0000e-005	0.9401
Single Family Housing	7.88364 / 4.97012	11.4576	0.2577	6.2300e-003	19.7559
Total		**12.3905**	**0.2578**	**6.2500e-003**	**20.6959**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.78722	0.9329	8.0000e-005	2.0000e-005	0.9401
Single Family Housing	7.88364 / 4.97012	11.4576	0.2577	6.2300e-003	19.7559
Total		**12.3905**	**0.2578**	**6.2500e-003**	**20.6959**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.3813	0.4362	0.0000	18.2868
Unmitigated	29.5250	1.7449	0.0000	73.1470

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.13	0.0264	1.5600e-003	0.0000	0.0654
Single Family Housing	145.32	29.4987	1.7433	0.0000	73.0817
Total		**29.5250**	**1.7449**	**0.0000**	**73.1470**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.0325	6.6000e-003	3.9000e-004	0.0000	0.0163
Single Family Housing	36.33	7.3747	0.4358	0.0000	18.2704
Total		**7.3813**	**0.4362**	**0.0000**	**18.2868**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Deer Valley Estates

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	121.00	Dwelling Unit	36.06	217,800.00	346
City Park	1.50	Acre	1.50	65,340.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Deer Valley Estates - Bay Area AQMD Air District, Summer

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - Total project site is 37.56 acres.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	NumDays	740.00	400.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	PhaseEndDate	11/29/2024	3/31/2023
tblConstructionPhase	PhaseEndDate	6/28/2024	1/6/2023
tblConstructionPhase	PhaseEndDate	8/27/2021	6/25/2021
tblConstructionPhase	PhaseEndDate	5/14/2021	4/30/2021
tblConstructionPhase	PhaseStartDate	9/14/2024	2/20/2023
tblConstructionPhase	PhaseStartDate	8/28/2021	6/28/2021
tblConstructionPhase	PhaseStartDate	5/15/2021	5/3/2021
tblGrading	AcresOfGrading	100.00	37.56
tblLandUse	LotAcreage	39.29	36.06

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2555	46.4374	31.3697	0.0636	18.2141	2.0454	20.2595	9.9699	1.8818	11.8517	0.0000	6,165.4353	6,165.4353	1.9463	0.0000	6,214.0939
2022	1.9882	18.0859	18.5204	0.0388	0.7457	0.8173	1.5630	0.2015	0.7689	0.9704	0.0000	3,782.7361	3,782.7361	0.6544	0.0000	3,799.0949
2023	102.4430	16.3090	18.2213	0.0385	0.7457	0.7053	1.4510	0.2015	0.6636	0.8651	0.0000	3,743.5283	3,743.5283	0.7161	0.0000	3,759.6428
Maximum	**102.4430**	**46.4374**	**31.3697**	**0.0636**	**18.2141**	**2.0454**	**20.2595**	**9.9699**	**1.8818**	**11.8517**	**0.0000**	**6,165.4353**	**6,165.4353**	**1.9463**	**0.0000**	**6,214.0939**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.8749	51.2762	37.2139	0.0636	8.2777	1.3344	9.2248	4.5080	1.3343	5.4551	0.0000	6,165.4353	6,165.4353	1.9463	0.0000	6,214.0938
2022	1.3628	26.0246	20.0308	0.0388	0.7457	0.9118	1.6575	0.2015	0.9113	1.1128	0.0000	3,782.7361	3,782.7361	0.6544	0.0000	3,799.0949
2023	102.3652	25.4785	19.8510	0.0385	0.7457	0.9091	1.6549	0.2015	0.9088	1.1102	0.0000	3,743.5283	3,743.5283	0.7161	0.0000	3,759.6428
Maximum	**102.3652**	**51.2762**	**37.2139**	**0.0636**	**8.2777**	**1.3344**	**9.2248**	**4.5080**	**1.3343**	**5.4551**	**0.0000**	**6,165.4353**	**6,165.4353**	**1.9463**	**0.0000**	**6,214.0938**

Deer Valley Estates - Bay Area AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.84**	**-27.15**	**-13.19**	**0.00**	**50.42**	**11.57**	**46.13**	**52.66**	**4.83**	**43.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	131.1996	2.5295	172.1600	0.3060		22.9876	22.9876		22.9876	22.9876	2,465.7790	765.3281	3,231.1071	3.0661	0.1740	3,359.6103
Energy	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981
Mobile	1.6423	6.1285	16.8858	0.0638	5.6043	0.0494	5.6537	1.4993	0.0461	1.5454		6,460.2062	6,460.2062	0.2134		6,465.5418
Total	**132.9459**	**9.5460**	**189.4236**	**0.3754**	**5.6043**	**23.1088**	**28.7131**	**1.4993**	**23.1055**	**24.6048**	**2,465.7790**	**8,359.0962**	**10,824.8752**	**3.3013**	**0.1948**	**10,965.4503**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.9916	1.7075	10.6626	0.0107		0.1840	0.1840		0.1840	0.1840	0.0000	2,050.7752	2,050.7752	0.0563	0.0373	2,063.2872
Energy	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
Mobile	1.6525	6.1854	17.1500	0.0650	5.7148	0.0502	5.7650	1.5289	0.0469	1.5757		6,578.1527	6,578.1527	0.2166		6,583.5674
Total	**7.6989**	**8.3613**	**28.0120**	**0.0787**	**5.7148**	**0.2721**	**5.9869**	**1.5289**	**0.2688**	**1.7976**	**0.0000**	**9,226.9171**	**9,226.9171**	**0.2843**	**0.0482**	**9,248.3975**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**94.21**	**12.41**	**85.21**	**79.05**	**-1.97**	**98.82**	**79.15**	**-1.97**	**98.84**	**92.69**	**100.00**	**-10.38**	**14.76**	**91.39**	**75.24**	**15.66**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/30/2021	5	20	
2	Grading	Grading	5/3/2021	6/25/2021	5	40	
3	Building Construction	Building Construction	6/28/2021	1/6/2023	5	400	
4	Paving	Paving	1/9/2023	2/17/2023	5	30	
5	Architectural Coating	Architectural Coating	2/20/2023	3/31/2023	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 37.56

Acres of Paving: 0

Residential Indoor: 441,045; Residential Outdoor: 147,015; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	71.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0338	0.4421	1.4300e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		142.5527	142.5527	3.1900e-003		142.6324
Total	**0.0579**	**0.0338**	**0.4421**	**1.4300e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**142.5527**	**142.5527**	**3.1900e-003**		**142.6324**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**8.1298**	**0.9462**	**9.0760**	**4.4688**	**0.9462**	**5.4150**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0338	0.4421	1.4300e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		142.5527	142.5527	3.1900e-003		142.6324
Total	**0.0579**	**0.0338**	**0.4421**	**1.4300e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**142.5527**	**142.5527**	**3.1900e-003**		**142.6324**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0179	0.0000	7.0179	3.4178	0.0000	3.4178			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.0179**	**1.9853**	**9.0032**	**3.4178**	**1.8265**	**5.2443**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1581	0.0000	3.1581	1.5380	0.0000	1.5380			0.0000			0.0000
Off-Road	1.8106	51.2386	36.7226	0.0620		1.3333	1.3333		1.3333	1.3333	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**1.8106**	**51.2386**	**36.7226**	**0.0620**	**3.1581**	**1.3333**	**4.4914**	**1.5380**	**1.3333**	**2.8713**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0744	2.4802	0.5849	6.5400e-003	0.1625	5.3700e-003	0.1678	0.0468	5.1400e-003	0.0519		693.5005	693.5005	0.0326		694.3142
Worker	0.2283	0.1334	1.7440	5.6400e-003	0.5833	3.6700e-003	0.5869	0.1547	3.3800e-003	0.1581		562.2913	562.2913	0.0126		562.6055
Total	**0.3027**	**2.6136**	**2.3288**	**0.0122**	**0.7457**	**9.0400e-003**	**0.7548**	**0.2015**	**8.5200e-003**	**0.2100**		**1,255.7918**	**1,255.7918**	**0.0451**		**1,256.9197**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0744	2.4802	0.5849	6.5400e-003	0.1625	5.3700e-003	0.1678	0.0468	5.1400e-003	0.0519		693.5005	693.5005	0.0326		694.3142
Worker	0.2283	0.1334	1.7440	5.6400e-003	0.5833	3.6700e-003	0.5869	0.1547	3.3800e-003	0.1581		562.2913	562.2913	0.0126		562.6055
Total	**0.3027**	**2.6136**	**2.3288**	**0.0122**	**0.7457**	**9.0400e-003**	**0.7548**	**0.2015**	**8.5200e-003**	**0.2100**		**1,255.7918**	**1,255.7918**	**0.0451**		**1,256.9197**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0694	2.3506	0.5500	6.4800e-003	0.1625	4.6600e-003	0.1671	0.0468	4.4500e-003	0.0512		686.7468	686.7468	0.0311		687.5248
Worker	0.2125	0.1197	1.6070	5.4300e-003	0.5833	3.5800e-003	0.5868	0.1547	3.3000e-003	0.1580		541.6557	541.6557	0.0113		541.9379
Total	**0.2819**	**2.4702**	**2.1570**	**0.0119**	**0.7457**	**8.2400e-003**	**0.7540**	**0.2015**	**7.7500e-003**	**0.2092**		**1,228.4025**	**1,228.4025**	**0.0424**		**1,229.4627**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0694	2.3506	0.5500	6.4800e-003	0.1625	4.6600e-003	0.1671	0.0468	4.4500e-003	0.0512		686.7468	686.7468	0.0311		687.5248
Worker	0.2125	0.1197	1.6070	5.4300e-003	0.5833	3.5800e-003	0.5868	0.1547	3.3000e-003	0.1580		541.6557	541.6557	0.0113		541.9379
Total	**0.2819**	**2.4702**	**2.1570**	**0.0119**	**0.7457**	**8.2400e-003**	**0.7540**	**0.2015**	**7.7500e-003**	**0.2092**		**1,228.4025**	**1,228.4025**	**0.0424**		**1,229.4627**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0520	1.8165	0.4952	6.2900e-003	0.1625	2.0700e-003	0.1645	0.0468	1.9800e-003	0.0488		667.4278	667.4278	0.0266		668.0928
Worker	0.1984	0.1076	1.4821	5.2200e-003	0.5833	3.5100e-003	0.5868	0.1547	3.2300e-003	0.1579		520.8906	520.8906	0.0101		521.1440
Total	**0.2504**	**1.9241**	**1.9773**	**0.0115**	**0.7457**	**5.5800e-003**	**0.7513**	**0.2015**	**5.2100e-003**	**0.2067**		**1,188.3184**	**1,188.3184**	**0.0367**		**1,189.2368**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0520	1.8165	0.4952	6.2900e-003	0.1625	2.0700e-003	0.1645	0.0468	1.9800e-003	0.0488		667.4278	667.4278	0.0266		668.0928
Worker	0.1984	0.1076	1.4821	5.2200e-003	0.5833	3.5100e-003	0.5868	0.1547	3.2300e-003	0.1579		520.8906	520.8906	0.0101		521.1440
Total	**0.2504**	**1.9241**	**1.9773**	**0.0115**	**0.7457**	**5.5800e-003**	**0.7513**	**0.2015**	**5.2100e-003**	**0.2067**		**1,188.3184**	**1,188.3184**	**0.0367**		**1,189.2368**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0227	0.3131	1.1000e-003	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		110.0473	110.0473	2.1400e-003		110.1009
Total	**0.0419**	**0.0227**	**0.3131**	**1.1000e-003**	**0.1232**	**7.4000e-004**	**0.1240**	**0.0327**	**6.8000e-004**	**0.0334**		**110.0473**	**110.0473**	**2.1400e-003**		**110.1009**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9311**	**20.1146**	**17.2957**	**0.0228**		**0.6670**	**0.6670**		**0.6670**	**0.6670**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0227	0.3131	1.1000e-003	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		110.0473	110.0473	2.1400e-003		110.1009
Total	**0.0419**	**0.0227**	**0.3131**	**1.1000e-003**	**0.1232**	**7.4000e-004**	**0.1240**	**0.0327**	**6.8000e-004**	**0.0334**		**110.0473**	**110.0473**	**2.1400e-003**		**110.1009**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	102.2122					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**102.4038**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0391	0.0212	0.2922	1.0300e-003	0.1150	6.9000e-004	0.1157	0.0305	6.4000e-004	0.0311		102.7108	102.7108	2.0000e-003		102.7608
Total	**0.0391**	**0.0212**	**0.2922**	**1.0300e-003**	**0.1150**	**6.9000e-004**	**0.1157**	**0.0305**	**6.4000e-004**	**0.0311**		**102.7108**	**102.7108**	**2.0000e-003**		**102.7608**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	102.2122					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**102.3261**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0391	0.0212	0.2922	1.0300e-003	0.1150	6.9000e-004	0.1157	0.0305	6.4000e-004	0.0311		102.7108	102.7108	2.0000e-003		102.7608
Total	**0.0391**	**0.0212**	**0.2922**	**1.0300e-003**	**0.1150**	**6.9000e-004**	**0.1157**	**0.0305**	**6.4000e-004**	**0.0311**		**102.7108**	**102.7108**	**2.0000e-003**		**102.7608**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6525	6.1854	17.1500	0.0650	5.7148	0.0502	5.7650	1.5289	0.0469	1.5757		6,578.1527	6,578.1527	0.2166		6,583.5674
Unmitigated	1.6423	6.1285	16.8858	0.0638	5.6043	0.0494	5.6537	1.4993	0.0461	1.5454		6,460.2062	6,460.2062	0.2134		6,465.5418

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	1,142.24	1,142.24	1142.24	2,638,126	2,690,139
Total	1,142.24	1,142.24	1,142.24	2,638,126	2,690,139

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Single Family Housing	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
NaturalGas Unmitigated	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	9635.28	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981
Total		**0.1039**	**0.8880**	**0.3779**	**5.6700e-003**		**0.0718**	**0.0718**		**0.0718**	**0.0718**		**1,133.5619**	**1,133.5619**	**0.0217**	**0.0208**	**1,140.2981**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	5.08291	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
Total		**0.0548**	**0.4684**	**0.1993**	**2.9900e-003**		**0.0379**	**0.0379**		**0.0379**	**0.0379**		**597.9893**	**597.9893**	**0.0115**	**0.0110**	**601.5429**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.9916	1.7075	10.6626	0.0107		0.1840	0.1840		0.1840	0.1840	0.0000	2,050.7752	2,050.7752	0.0563	0.0373	2,063.2872
Unmitigated	131.1996	2.5295	172.1600	0.3060		22.9876	22.9876		22.9876	22.9876	2,465.7790	765.3281	3,231.1071	3.0661	0.1740	3,359.6103

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	125.3944	2.4144	162.1749	0.3054		22.9323	22.9323		22.9323	22.9323	2,465.7790	747.3529	3,213.1319	3.0488	0.1740	3,341.2030
Landscaping	0.3008	0.1151	9.9850	5.3000e-004		0.0553	0.0553		0.0553	0.0553		17.9752	17.9752	0.0173		18.4073
Total	**131.1996**	**2.5295**	**172.1600**	**0.3060**		**22.9876**	**22.9876**		**22.9876**	**22.9876**	**2,465.7790**	**765.3281**	**3,231.1071**	**3.0661**	**0.1740**	**3,359.6103**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1863	1.5924	0.6776	0.0102		0.1287	0.1287		0.1287	0.1287	0.0000	2,032.8000	2,032.8000	0.0390	0.0373	2,044.8799
Landscaping	0.3008	0.1151	9.9850	5.3000e-004		0.0553	0.0553		0.0553	0.0553		17.9752	17.9752	0.0173		18.4073
Total	**5.9916**	**1.7075**	**10.6626**	**0.0107**		**0.1840**	**0.1840**		**0.1840**	**0.1840**	**0.0000**	**2,050.7752**	**2,050.7752**	**0.0563**	**0.0373**	**2,063.2872**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Deer Valley Estates

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	121.00	Dwelling Unit	36.06	217,800.00	346
City Park	1.50	Acre	1.50	65,340.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Deer Valley Estates - Bay Area AQMD Air District, Winter

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - Total project site is 37.56 acres.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	NumDays	740.00	400.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	PhaseEndDate	11/29/2024	3/31/2023
tblConstructionPhase	PhaseEndDate	6/28/2024	1/6/2023
tblConstructionPhase	PhaseEndDate	8/27/2021	6/25/2021
tblConstructionPhase	PhaseEndDate	5/14/2021	4/30/2021
tblConstructionPhase	PhaseStartDate	9/14/2024	2/20/2023
tblConstructionPhase	PhaseStartDate	8/28/2021	6/28/2021
tblConstructionPhase	PhaseStartDate	5/15/2021	5/3/2021
tblGrading	AcresOfGrading	100.00	37.56
tblLandUse	LotAcreage	39.29	36.06

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2593	46.4463	31.3381	0.0635	18.2141	2.0454	20.2595	9.9699	1.8818	11.8517	0.0000	6,152.9508	6,152.9508	1.9461	0.0000	6,201.6033
2022	2.0055	18.1317	18.4926	0.0382	0.7457	0.8174	1.5631	0.2015	0.7691	0.9706	0.0000	3,722.5293	3,722.5293	0.6561	0.0000	3,738.9312
2023	102.4455	16.3431	18.1803	0.0379	0.7457	0.7054	1.4511	0.2015	0.6637	0.8652	0.0000	3,685.6419	3,685.6419	0.7160	0.0000	3,701.7867
Maximum	**102.4455**	**46.4463**	**31.3381**	**0.0635**	**18.2141**	**2.0454**	**20.2595**	**9.9699**	**1.8818**	**11.8517**	**0.0000**	**6,152.9508**	**6,152.9508**	**1.9461**	**0.0000**	**6,201.6033**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.8787	51.2851	37.1822	0.0635	8.2777	1.3344	9.2248	4.5080	1.3343	5.4551	0.0000	6,152.9508	6,152.9508	1.9461	0.0000	6,201.6033
2022	1.3801	26.0705	20.0030	0.0382	0.7457	0.9120	1.6577	0.2015	0.9115	1.1129	0.0000	3,722.5293	3,722.5293	0.6561	0.0000	3,738.9312
2023	102.3678	25.5126	19.8101	0.0379	0.7457	0.9092	1.6549	0.2015	0.9088	1.1103	0.0000	3,685.6419	3,685.6419	0.7160	0.0000	3,701.7867
Maximum	**102.3678**	**51.2851**	**37.1822**	**0.0635**	**8.2777**	**1.3344**	**9.2248**	**4.5080**	**1.3343**	**5.4551**	**0.0000**	**6,152.9508**	**6,152.9508**	**1.9461**	**0.0000**	**6,201.6033**

Deer Valley Estates - Bay Area AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.84**	**-27.12**	**-13.21**	**0.00**	**50.42**	**11.57**	**46.13**	**52.66**	**4.83**	**43.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	131.1996	2.5295	172.1600	0.3060		22.9876	22.9876		22.9876	22.9876	2,465.7790	765.3281	3,231.1071	3.0661	0.1740	3,359.6103
Energy	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981
Mobile	1.4133	6.4429	16.9644	0.0598	5.6043	0.0496	5.6539	1.4993	0.0463	1.5456		6,050.2794	6,050.2794	0.2174		6,055.7131
Total	**132.7168**	**9.8604**	**189.5022**	**0.3714**	**5.6043**	**23.1090**	**28.7133**	**1.4993**	**23.1057**	**24.6050**	**2,465.7790**	**7,949.1695**	**10,414.9484**	**3.3052**	**0.1948**	**10,555.6215**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.9916	1.7075	10.6626	0.0107		0.1840	0.1840		0.1840	0.1840	0.0000	2,050.7752	2,050.7752	0.0563	0.0373	2,063.2872
Energy	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
Mobile	1.4233	6.5063	17.1995	0.0609	5.7148	0.0504	5.7653	1.5289	0.0471	1.5760		6,160.9785	6,160.9785	0.2204		6,166.4879
Total	**7.4697**	**8.6822**	**28.0614**	**0.0745**	**5.7148**	**0.2723**	**5.9872**	**1.5289**	**0.2690**	**1.7979**	**0.0000**	**8,809.7430**	**8,809.7430**	**0.2881**	**0.0482**	**8,831.3179**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**94.37**	**11.95**	**85.19**	**79.93**	**-1.97**	**98.82**	**79.15**	**-1.97**	**98.84**	**92.69**	**100.00**	**-10.83**	**15.41**	**91.28**	**75.24**	**16.34**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/30/2021	5	20	
2	Grading	Grading	5/3/2021	6/25/2021	5	40	
3	Building Construction	Building Construction	6/28/2021	1/6/2023	5	400	
4	Paving	Paving	1/9/2023	2/17/2023	5	30	
5	Architectural Coating	Architectural Coating	2/20/2023	3/31/2023	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 37.56

Acres of Paving: 0

Residential Indoor: 441,045; Residential Outdoor: 147,015; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	71.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0613	0.0418	0.4137	1.3200e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		131.3166	131.3166	2.9700e-003		131.3909
Total	**0.0613**	**0.0418**	**0.4137**	**1.3200e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**131.3166**	**131.3166**	**2.9700e-003**		**131.3909**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**8.1298**	**0.9462**	**9.0760**	**4.4688**	**0.9462**	**5.4150**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0613	0.0418	0.4137	1.3200e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		131.3166	131.3166	2.9700e-003		131.3909
Total	**0.0613**	**0.0418**	**0.4137**	**1.3200e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**131.3166**	**131.3166**	**2.9700e-003**		**131.3909**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0179	0.0000	7.0179	3.4178	0.0000	3.4178			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**7.0179**	**1.9853**	**9.0032**	**3.4178**	**1.8265**	**5.2443**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1581	0.0000	3.1581	1.5380	0.0000	1.5380			0.0000			0.0000
Off-Road	1.8106	51.2386	36.7226	0.0620		1.3333	1.3333		1.3333	1.3333	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**1.8106**	**51.2386**	**36.7226**	**0.0620**	**3.1581**	**1.3333**	**4.4914**	**1.5380**	**1.3333**	**2.8713**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0788	2.5015	0.6722	6.3800e-003	0.1625	5.5600e-003	0.1680	0.0468	5.3200e-003	0.0521		675.9052	675.9052	0.0352		676.7855
Worker	0.2418	0.1648	1.6317	5.2000e-003	0.5833	3.6700e-003	0.5869	0.1547	3.3800e-003	0.1581		517.9710	517.9710	0.0117		518.2640
Total	**0.3207**	**2.6663**	**2.3039**	**0.0116**	**0.7457**	**9.2300e-003**	**0.7549**	**0.2015**	**8.7000e-003**	**0.2102**		**1,193.8762**	**1,193.8762**	**0.0469**		**1,195.0495**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0788	2.5015	0.6722	6.3800e-003	0.1625	5.5600e-003	0.1680	0.0468	5.3200e-003	0.0521		675.9052	675.9052	0.0352		676.7855
Worker	0.2418	0.1648	1.6317	5.2000e-003	0.5833	3.6700e-003	0.5869	0.1547	3.3800e-003	0.1581		517.9710	517.9710	0.0117		518.2640
Total	**0.3207**	**2.6663**	**2.3039**	**0.0116**	**0.7457**	**9.2300e-003**	**0.7549**	**0.2015**	**8.7000e-003**	**0.2102**		**1,193.8762**	**1,193.8762**	**0.0469**		**1,195.0495**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0735	2.3683	0.6319	6.3100e-003	0.1625	4.8300e-003	0.1673	0.0468	4.6200e-003	0.0514		669.2134	669.2134	0.0336		670.0543
Worker	0.2257	0.1478	1.4973	5.0000e-003	0.5833	3.5800e-003	0.5868	0.1547	3.3000e-003	0.1580		498.9823	498.9823	0.0105		499.2447
Total	**0.2993**	**2.5161**	**2.1292**	**0.0113**	**0.7457**	**8.4100e-003**	**0.7541**	**0.2015**	**7.9200e-003**	**0.2094**		**1,168.1957**	**1,168.1957**	**0.0441**		**1,169.2990**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0735	2.3683	0.6319	6.3100e-003	0.1625	4.8300e-003	0.1673	0.0468	4.6200e-003	0.0514		669.2134	669.2134	0.0336		670.0543
Worker	0.2257	0.1478	1.4973	5.0000e-003	0.5833	3.5800e-003	0.5868	0.1547	3.3000e-003	0.1580		498.9823	498.9823	0.0105		499.2447
Total	**0.2993**	**2.5161**	**2.1292**	**0.0113**	**0.7457**	**8.4100e-003**	**0.7541**	**0.2015**	**7.9200e-003**	**0.2094**		**1,168.1957**	**1,168.1957**	**0.0441**		**1,169.2990**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0553	1.8254	0.5611	6.1300e-003	0.1625	2.1600e-003	0.1646	0.0468	2.0600e-003	0.0488		650.5585	650.5585	0.0286		651.2724
Worker	0.2114	0.1328	1.3752	4.8100e-003	0.5833	3.5100e-003	0.5868	0.1547	3.2300e-003	0.1579		479.8735	479.8735	9.3900e-003		480.1082
Total	**0.2667**	**1.9582**	**1.9363**	**0.0109**	**0.7457**	**5.6700e-003**	**0.7514**	**0.2015**	**5.2900e-003**	**0.2068**		**1,130.4320**	**1,130.4320**	**0.0380**		**1,131.3807**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0553	1.8254	0.5611	6.1300e-003	0.1625	2.1600e-003	0.1646	0.0468	2.0600e-003	0.0488		650.5585	650.5585	0.0286		651.2724
Worker	0.2114	0.1328	1.3752	4.8100e-003	0.5833	3.5100e-003	0.5868	0.1547	3.2300e-003	0.1579		479.8735	479.8735	9.3900e-003		480.1082
Total	**0.2667**	**1.9582**	**1.9363**	**0.0109**	**0.7457**	**5.6700e-003**	**0.7514**	**0.2015**	**5.2900e-003**	**0.2068**		**1,130.4320**	**1,130.4320**	**0.0380**		**1,131.3807**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0447	0.0281	0.2905	1.0200e-003	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		101.3817	101.3817	1.9800e-003		101.4313
Total	**0.0447**	**0.0281**	**0.2905**	**1.0200e-003**	**0.1232**	**7.4000e-004**	**0.1240**	**0.0327**	**6.8000e-004**	**0.0334**		**101.3817**	**101.3817**	**1.9800e-003**		**101.4313**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9311**	**20.1146**	**17.2957**	**0.0228**		**0.6670**	**0.6670**		**0.6670**	**0.6670**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0447	0.0281	0.2905	1.0200e-003	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		101.3817	101.3817	1.9800e-003		101.4313
Total	**0.0447**	**0.0281**	**0.2905**	**1.0200e-003**	**0.1232**	**7.4000e-004**	**0.1240**	**0.0327**	**6.8000e-004**	**0.0334**		**101.3817**	**101.3817**	**1.9800e-003**		**101.4313**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	102.2122					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**102.4038**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0417	0.0262	0.2712	9.5000e-004	0.1150	6.9000e-004	0.1157	0.0305	6.4000e-004	0.0311		94.6229	94.6229	1.8500e-003		94.6692
Total	**0.0417**	**0.0262**	**0.2712**	**9.5000e-004**	**0.1150**	**6.9000e-004**	**0.1157**	**0.0305**	**6.4000e-004**	**0.0311**		**94.6229**	**94.6229**	**1.8500e-003**		**94.6692**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	102.2122					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**102.3261**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0417	0.0262	0.2712	9.5000e-004	0.1150	6.9000e-004	0.1157	0.0305	6.4000e-004	0.0311		94.6229	94.6229	1.8500e-003		94.6692
Total	**0.0417**	**0.0262**	**0.2712**	**9.5000e-004**	**0.1150**	**6.9000e-004**	**0.1157**	**0.0305**	**6.4000e-004**	**0.0311**		**94.6229**	**94.6229**	**1.8500e-003**		**94.6692**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4233	6.5063	17.1995	0.0609	5.7148	0.0504	5.7653	1.5289	0.0471	1.5760		6,160.9785	6,160.9785	0.2204		6,166.4879
Unmitigated	1.4133	6.4429	16.9644	0.0598	5.6043	0.0496	5.6539	1.4993	0.0463	1.5456		6,050.2794	6,050.2794	0.2174		6,055.7131

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	1,142.24	1,142.24	1142.24	2,638,126	2,690,139
Total	1,142.24	1,142.24	1,142.24	2,638,126	2,690,139

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Single Family Housing	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
NaturalGas Unmitigated	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	9635.28	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981
Total		**0.1039**	**0.8880**	**0.3779**	**5.6700e-003**		**0.0718**	**0.0718**		**0.0718**	**0.0718**		**1,133.5619**	**1,133.5619**	**0.0217**	**0.0208**	**1,140.2981**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	5.08291	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
Total		**0.0548**	**0.4684**	**0.1993**	**2.9900e-003**		**0.0379**	**0.0379**		**0.0379**	**0.0379**		**597.9893**	**597.9893**	**0.0115**	**0.0110**	**601.5429**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.9916	1.7075	10.6626	0.0107		0.1840	0.1840		0.1840	0.1840	0.0000	2,050.7752	2,050.7752	0.0563	0.0373	2,063.2872
Unmitigated	131.1996	2.5295	172.1600	0.3060		22.9876	22.9876		22.9876	22.9876	2,465.7790	765.3281	3,231.1071	3.0661	0.1740	3,359.6103

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	125.3944	2.4144	162.1749	0.3054		22.9323	22.9323		22.9323	22.9323	2,465.7790	747.3529	3,213.1319	3.0488	0.1740	3,341.2030
Landscaping	0.3008	0.1151	9.9850	5.3000e-004		0.0553	0.0553		0.0553	0.0553		17.9752	17.9752	0.0173		18.4073
Total	**131.1996**	**2.5295**	**172.1600**	**0.3060**		**22.9876**	**22.9876**		**22.9876**	**22.9876**	**2,465.7790**	**765.3281**	**3,231.1071**	**3.0661**	**0.1740**	**3,359.6103**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1863	1.5924	0.6776	0.0102		0.1287	0.1287		0.1287	0.1287	0.0000	2,032.8000	2,032.8000	0.0390	0.0373	2,044.8799
Landscaping	0.3008	0.1151	9.9850	5.3000e-004		0.0553	0.0553		0.0553	0.0553		17.9752	17.9752	0.0173		18.4073
Total	**5.9916**	**1.7075**	**10.6626**	**0.0107**		**0.1840**	**0.1840**		**0.1840**	**0.1840**	**0.0000**	**2,050.7752**	**2,050.7752**	**0.0563**	**0.0373**	**2,063.2872**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Deer Valley Estates - Phase 1

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.75	Acre	0.75	32,670.00	0
Single Family Housing	63.00	Dwelling Unit	19.25	113,400.00	180

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Deer Valley Estates - Phase 1 - Bay Area AQMD Air District, Annual

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - Phase 1 of the proposed project involves the construction of 63 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - 20 acres disturbed during Phase 1.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	300.00	200.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	PhaseEndDate	6/11/2021	5/14/2021
tblConstructionPhase	PhaseEndDate	9/16/2022	2/18/2022
tblConstructionPhase	PhaseEndDate	1/5/2024	3/11/2022
tblConstructionPhase	PhaseEndDate	2/2/2024	4/1/2022
tblConstructionPhase	PhaseStartDate	5/1/2021	4/19/2021
tblConstructionPhase	PhaseStartDate	7/24/2021	5/17/2021
tblConstructionPhase	PhaseStartDate	12/9/2023	2/20/2022
tblConstructionPhase	PhaseStartDate	1/6/2024	3/14/2022
tblGrading	AcresOfGrading	50.00	20.00
tblLandUse	LotAcreage	20.45	19.25

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2313	2.2149	1.8809	3.5400e-003	0.1934	0.1096	0.3030	0.0926	0.1024	0.1950	0.0000	309.7651	309.7651	0.0709	0.0000	311.5373
2022	0.8408	0.3896	0.4309	7.8000e-004	7.6600e-003	0.0191	0.0268	2.0700e-003	0.0179	0.0200	0.0000	67.9962	67.9962	0.0151	0.0000	68.3727
Maximum	**0.8408**	**2.2149**	**1.8809**	**3.5400e-003**	**0.1934**	**0.1096**	**0.3030**	**0.0926**	**0.1024**	**0.1950**	**0.0000**	**309.7651**	**309.7651**	**0.0709**	**0.0000**	**311.5373**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1265	2.7345	2.0555	3.5400e-003	0.1048	0.0930	0.1978	0.0465	0.0930	0.1395	0.0000	309.7648	309.7648	0.0709	0.0000	311.5370
2022	0.8279	0.6030	0.4778	7.8000e-004	7.6600e-003	0.0216	0.0293	2.0700e-003	0.0216	0.0237	0.0000	67.9961	67.9961	0.0151	0.0000	68.3726
Maximum	**0.8279**	**2.7345**	**2.0555**	**3.5400e-003**	**0.1048**	**0.0930**	**0.1978**	**0.0465**	**0.0930**	**0.1395**	**0.0000**	**309.7648**	**309.7648**	**0.0709**	**0.0000**	**311.5370**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**10.98**	**-28.14**	**-9.58**	**0.00**	**44.08**	**10.93**	**31.14**	**48.72**	**4.78**	**24.14**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-5-2021	7-4-2021	1.0252	1.1003
2	7-5-2021	10-4-2021	0.6833	0.8575
3	10-5-2021	1-4-2022	0.6814	0.8585
4	1-5-2022	4-4-2022	1.1224	1.3087
		Highest	1.1224	1.3087

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9085	0.0135	1.0082	1.1400e-003		0.0805	0.0805		0.0805	0.0805	8.0080	2.7304	10.7383	0.0159	4.6000e-004	11.2714
Energy	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	173.7326	173.7326	8.5800e-003	3.1800e-003	174.8943
Mobile	0.1476	0.7262	1.6562	5.9100e-003	0.5112	5.3600e-003	0.5166	0.1372	5.0200e-003	0.1422	0.0000	542.9263	542.9263	0.0200	0.0000	543.4274
Waste						0.0000	0.0000		0.0000	0.0000	15.3583	0.0000	15.3583	0.9077	0.0000	38.0495
Water						0.0000	0.0000		0.0000	0.0000	1.3022	5.1298	6.4320	0.1342	3.2500e-003	10.7561
Total	**1.0660**	**0.8241**	**2.7003**	**7.5900e-003**	**0.5112**	**0.0926**	**0.6038**	**0.1372**	**0.0923**	**0.2295**	**24.6685**	**724.5191**	**749.1876**	**1.0863**	**6.8900e-003**	**778.3988**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5377	0.0100	0.4703	5.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	6.1122	6.1122	8.4000e-004	1.0000e-004	6.1625
Energy	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	125.9434	125.9434	7.5500e-003	2.3000e-003	126.8183
Mobile	0.1487	0.7338	1.6799	6.0200e-003	0.5213	5.4600e-003	0.5267	0.1399	5.1100e-003	0.1450	0.0000	552.8324	552.8324	0.0203	0.0000	553.3403
Waste						0.0000	0.0000		0.0000	0.0000	3.8396	0.0000	3.8396	0.2269	0.0000	9.5124
Water						0.0000	0.0000		0.0000	0.0000	1.3022	5.1298	6.4320	0.1342	3.2500e-003	10.7561
Total	**0.6916**	**0.7883**	**2.1691**	**6.3500e-003**	**0.5213**	**0.0120**	**0.5333**	**0.1399**	**0.0117**	**0.1516**	**5.1418**	**690.0178**	**695.1596**	**0.3898**	**5.6500e-003**	**706.5896**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**35.12**	**4.35**	**19.67**	**16.34**	**-1.97**	**87.02**	**11.68**	**-1.98**	**87.36**	**33.95**	**79.16**	**4.76**	**7.21**	**64.12**	**18.00**	**9.23**

3.0 Construction Detail

Construction Phase

Deer Valley Estates - Phase 1 - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/16/2021	5	10	
2	Grading	Grading	4/19/2021	5/14/2021	5	20	
3	Building Construction	Building Construction	5/17/2021	2/18/2022	5	200	
4	Paving	Paving	2/20/2022	3/11/2022	5	15	
5	Architectural Coating	Architectural Coating	3/14/2022	4/1/2022	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 229,635; Residential Outdoor: 76,545; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	36.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.0200e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6012	0.6012	1.0000e-005	0.0000	0.6015
Total	**2.8000e-004**	**1.9000e-004**	**2.0200e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6012**	**0.6012**	**1.0000e-005**	**0.0000**	**0.6015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		4.7300e-003	4.7300e-003		4.7300e-003	4.7300e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0407**	**4.7300e-003**	**0.0454**	**0.0223**	**4.7300e-003**	**0.0271**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.0200e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6012	0.6012	1.0000e-005	0.0000	0.6015
Total	**2.8000e-004**	**1.9000e-004**	**2.0200e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6012**	**0.6012**	**1.0000e-005**	**0.0000**	**0.6015**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0708	0.0000	0.0708	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0419	0.4640	0.3088	6.2000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	54.4950	54.4950	0.0176	0.0000	54.9356
Total	**0.0419**	**0.4640**	**0.3088**	**6.2000e-004**	**0.0708**	**0.0199**	**0.0907**	**0.0343**	**0.0183**	**0.0525**	**0.0000**	**54.4950**	**54.4950**	**0.0176**	**0.0000**	**54.9356**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3360	1.3360	3.0000e-005	0.0000	1.3367
Total	**6.1000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3360**	**1.3360**	**3.0000e-005**	**0.0000**	**1.3367**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0319	0.0000	0.0319	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.5124	0.3672	6.2000e-004		0.0133	0.0133		0.0133	0.0133	0.0000	54.4949	54.4949	0.0176	0.0000	54.9355
Total	**0.0181**	**0.5124**	**0.3672**	**6.2000e-004**	**0.0319**	**0.0133**	**0.0452**	**0.0154**	**0.0133**	**0.0287**	**0.0000**	**54.4949**	**54.4949**	**0.0176**	**0.0000**	**54.9355**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3360	1.3360	3.0000e-005	0.0000	1.3367
Total	**6.1000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3360**	**1.3360**	**3.0000e-005**	**0.0000**	**1.3367**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1568	1.4382	1.3675	2.2200e-003		0.0791	0.0791		0.0744	0.0744	0.0000	191.1008	191.1008	0.0461	0.0000	192.2534
Total	**0.1568**	**1.4382**	**1.3675**	**2.2200e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**191.1008**	**191.1008**	**0.0461**	**0.0000**	**192.2534**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1400e-003	0.1034	0.0258	2.7000e-004	6.4900e-003	2.2000e-004	6.7200e-003	1.8800e-003	2.2000e-004	2.0900e-003	0.0000	25.6751	25.6751	1.2600e-003	0.0000	25.7066
Worker	9.1100e-003	6.2900e-003	0.0666	2.2000e-004	0.0235	1.5000e-004	0.0236	6.2400e-003	1.4000e-004	6.3800e-003	0.0000	19.8393	19.8393	4.4000e-004	0.0000	19.8504
Total	**0.0123**	**0.1097**	**0.0924**	**4.9000e-004**	**0.0300**	**3.7000e-004**	**0.0303**	**8.1200e-003**	**3.6000e-004**	**8.4700e-003**	**0.0000**	**45.5144**	**45.5144**	**1.7000e-003**	**0.0000**	**45.5570**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0892	1.9432	1.4746	2.2200e-003		0.0745	0.0745		0.0745	0.0745	0.0000	191.1005	191.1005	0.0461	0.0000	192.2531
Total	**0.0892**	**1.9432**	**1.4746**	**2.2200e-003**		**0.0745**	**0.0745**		**0.0745**	**0.0745**	**0.0000**	**191.1005**	**191.1005**	**0.0461**	**0.0000**	**192.2531**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1400e-003	0.1034	0.0258	2.7000e-004	6.4900e-003	2.2000e-004	6.7200e-003	1.8800e-003	2.2000e-004	2.0900e-003	0.0000	25.6751	25.6751	1.2600e-003	0.0000	25.7066
Worker	9.1100e-003	6.2900e-003	0.0666	2.2000e-004	0.0235	1.5000e-004	0.0236	6.2400e-003	1.4000e-004	6.3800e-003	0.0000	19.8393	19.8393	4.4000e-004	0.0000	19.8504
Total	**0.0123**	**0.1097**	**0.0924**	**4.9000e-004**	**0.0300**	**3.7000e-004**	**0.0303**	**8.1200e-003**	**3.6000e-004**	**8.4700e-003**	**0.0000**	**45.5144**	**45.5144**	**1.7000e-003**	**0.0000**	**45.5570**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0299	0.2733	0.2864	4.7000e-004		0.0142	0.0142		0.0133	0.0133	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	**0.0299**	**0.2733**	**0.2864**	**4.7000e-004**		**0.0142**	**0.0142**		**0.0133**	**0.0133**	**0.0000**	**40.5519**	**40.5519**	**9.7200e-003**	**0.0000**	**40.7948**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2000e-004	0.0208	5.1500e-003	6.0000e-005	1.3800e-003	4.0000e-005	1.4200e-003	4.0000e-004	4.0000e-005	4.4000e-004	0.0000	5.3928	5.3928	2.6000e-004	0.0000	5.3992
Worker	1.8000e-003	1.2000e-003	0.0130	4.0000e-005	4.9800e-003	3.0000e-005	5.0100e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	4.0541	4.0541	8.0000e-005	0.0000	4.0562
Total	**2.4200e-003**	**0.0220**	**0.0181**	**1.0000e-004**	**6.3600e-003**	**7.0000e-005**	**6.4300e-003**	**1.7200e-003**	**7.0000e-005**	**1.7900e-003**	**0.0000**	**9.4469**	**9.4469**	**3.4000e-004**	**0.0000**	**9.4554**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0189	0.4122	0.3128	4.7000e-004		0.0158	0.0158		0.0158	0.0158	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	**0.0189**	**0.4122**	**0.3128**	**4.7000e-004**		**0.0158**	**0.0158**		**0.0158**	**0.0158**	**0.0000**	**40.5519**	**40.5519**	**9.7200e-003**	**0.0000**	**40.7948**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2000e-004	0.0208	5.1500e-003	6.0000e-005	1.3800e-003	4.0000e-005	1.4200e-003	4.0000e-004	4.0000e-005	4.4000e-004	0.0000	5.3928	5.3928	2.6000e-004	0.0000	5.3992
Worker	1.8000e-003	1.2000e-003	0.0130	4.0000e-005	4.9800e-003	3.0000e-005	5.0100e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	4.0541	4.0541	8.0000e-005	0.0000	4.0562
Total	**2.4200e-003**	**0.0220**	**0.0181**	**1.0000e-004**	**6.3600e-003**	**7.0000e-005**	**6.4300e-003**	**1.7200e-003**	**7.0000e-005**	**1.7900e-003**	**0.0000**	**9.4469**	**9.4469**	**3.4000e-004**	**0.0000**	**9.4554**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2700e-003	0.0834	0.1094	1.7000e-004		4.2600e-003	4.2600e-003		3.9200e-003	3.9200e-003	0.0000	15.0207	15.0207	4.8600e-003	0.0000	15.1421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.2700e-003**	**0.0834**	**0.1094**	**1.7000e-004**		**4.2600e-003**	**4.2600e-003**		**3.9200e-003**	**3.9200e-003**	**0.0000**	**15.0207**	**15.0207**	**4.8600e-003**	**0.0000**	**15.1421**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.1000e-004	2.3200e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7239	0.7239	2.0000e-005	0.0000	0.7243
Total	**3.2000e-004**	**2.1000e-004**	**2.3200e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7239**	**0.7239**	**2.0000e-005**	**0.0000**	**0.7243**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9800e-003	0.1509	0.1297	1.7000e-004		5.0000e-003	5.0000e-003		5.0000e-003	5.0000e-003	0.0000	15.0207	15.0207	4.8600e-003	0.0000	15.1421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.9800e-003**	**0.1509**	**0.1297**	**1.7000e-004**		**5.0000e-003**	**5.0000e-003**		**5.0000e-003**	**5.0000e-003**	**0.0000**	**15.0207**	**15.0207**	**4.8600e-003**	**0.0000**	**15.1421**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.1000e-004	2.3200e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7239	0.7239	2.0000e-005	0.0000	0.7243
Total	**3.2000e-004**	**2.1000e-004**	**2.3200e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7239**	**0.7239**	**2.0000e-005**	**0.0000**	**0.7243**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7983					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0106	0.0136	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.7998**	**0.0106**	**0.0136**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.0800e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3378	0.3378	1.0000e-005	0.0000	0.3380
Total	**1.5000e-004**	**1.0000e-004**	**1.0800e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3378**	**0.3378**	**1.0000e-005**	**0.0000**	**0.3380**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7983					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5000e-004	0.0176	0.0137	2.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.7991**	**0.0176**	**0.0137**	**2.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.0800e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3378	0.3378	1.0000e-005	0.0000	0.3380
Total	**1.5000e-004**	**1.0000e-004**	**1.0800e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3378**	**0.3378**	**1.0000e-005**	**0.0000**	**0.3380**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1487	0.7338	1.6799	6.0200e-003	0.5213	5.4600e-003	0.5267	0.1399	5.1100e-003	0.1450	0.0000	552.8324	552.8324	0.0203	0.0000	553.3403
Unmitigated	0.1476	0.7262	1.6562	5.9100e-003	0.5112	5.3600e-003	0.5166	0.1372	5.0200e-003	0.1422	0.0000	542.9263	542.9263	0.0200	0.0000	543.4274

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	594.72	594.72	594.72	1,373,570	1,400,651
Total	594.72	594.72	594.72	1,373,570	1,400,651

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Single Family Housing	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	74.3959	74.3959	6.5600e-003	1.3600e-003	74.9645
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	76.0181	76.0181	6.7000e-003	1.3900e-003	76.5991
NaturalGas Mitigated	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.5475	51.5475	9.9000e-004	9.5000e-004	51.8538
NaturalGas Unmitigated	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.7145	97.7145	1.8700e-003	1.7900e-003	98.2952

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.8311e+006	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.7145	97.7145	1.8700e-003	1.7900e-003	98.2952
Total		**9.8700e-003**	**0.0844**	**0.0359**	**5.4000e-004**		**6.8200e-003**	**6.8200e-003**		**6.8200e-003**	**6.8200e-003**	**0.0000**	**97.7145**	**97.7145**	**1.8700e-003**	**1.7900e-003**	**98.2952**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	965963	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.5475	51.5475	9.9000e-004	9.5000e-004	51.8538
Total		**5.2100e-003**	**0.0445**	**0.0189**	**2.8000e-004**		**3.6000e-003**	**3.6000e-003**		**3.6000e-003**	**3.6000e-003**	**0.0000**	**51.5475**	**51.5475**	**9.9000e-004**	**9.5000e-004**	**51.8538**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	509706	76.0181	6.7000e-003	1.3900e-003	76.5991
Total		**76.0181**	**6.7000e-003**	**1.3900e-003**	**76.5991**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	498829	74.3959	6.5600e-003	1.3600e-003	74.9645
Total		**74.3959**	**6.5600e-003**	**1.3600e-003**	**74.9645**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5377	0.0100	0.4703	5.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	6.1122	6.1122	8.4000e-004	1.0000e-004	6.1625
Unmitigated	0.9085	0.0135	1.0082	1.1400e-003		0.0805	0.0805		0.0805	0.0805	8.0080	2.7304	10.7383	0.0159	4.6000e-004	11.2714

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3713	8.1400e-003	0.5399	1.1100e-003		0.0779	0.0779		0.0779	0.0779	8.0080	1.9662	9.9742	0.0151	4.6000e-004	10.4889
Landscaping	0.0141	5.4000e-003	0.4683	2.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7641	0.7641	7.4000e-004	0.0000	0.7826
Total	**0.9085**	**0.0135**	**1.0082**	**1.1300e-003**		**0.0805**	**0.0805**		**0.0805**	**0.0805**	**8.0080**	**2.7304**	**10.7383**	**0.0159**	**4.6000e-004**	**11.2714**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.4000e-004	4.6200e-003	1.9700e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3481	5.3481	1.0000e-004	1.0000e-004	5.3799
Landscaping	0.0141	5.4000e-003	0.4683	2.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7641	0.7641	7.4000e-004	0.0000	0.7826
Total	**0.5377**	**0.0100**	**0.4703**	**5.0000e-005**		**2.9600e-003**	**2.9600e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**6.1123**	**6.1123**	**8.4000e-004**	**1.0000e-004**	**6.1625**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.4320	0.1342	3.2500e-003	10.7561
Unmitigated	6.4320	0.1342	3.2500e-003	10.7561

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	4.1047 / 2.58775	5.9655	0.1342	3.2400e-003	10.2861
Total		**6.4320**	**0.1342**	**3.2500e-003**	**10.7561**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	4.1047 / 2.58775	5.9655	0.1342	3.2400e-003	10.2861
Total		**6.4320**	**0.1342**	**3.2500e-003**	**10.7561**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.8396	0.2269	0.0000	9.5124
Unmitigated	15.3583	0.9077	0.0000	38.0495

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Single Family Housing	75.6	15.3461	0.9069	0.0000	38.0194
Total		**15.3583**	**0.9077**	**0.0000**	**38.0495**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.015	3.0400e-003	1.8000e-004	0.0000	7.5400e-003
Single Family Housing	18.9	3.8365	0.2267	0.0000	9.5048
Total		**3.8396**	**0.2269**	**0.0000**	**9.5124**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Deer Valley Estates - Phase 2

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.75	Acre	0.75	32,670.00	0
Single Family Housing	58.00	Dwelling Unit	16.81	104,400.00	166

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Deer Valley Estates - Phase 2 - Bay Area AQMD Air District, Annual

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - Phase 2 of the proposed project involves the construction of 58 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - 17.56 acres disturbed during Phase 2.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	300.00	200.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	PhaseEndDate	5/27/2022	5/13/2022
tblConstructionPhase	PhaseEndDate	7/21/2023	2/17/2023
tblConstructionPhase	PhaseEndDate	8/18/2023	3/10/2023
tblConstructionPhase	PhaseEndDate	9/15/2023	3/31/2023
tblConstructionPhase	PhaseStartDate	4/16/2022	4/18/2022
tblConstructionPhase	PhaseStartDate	5/28/2022	5/16/2022
tblConstructionPhase	PhaseStartDate	7/22/2023	2/20/2023
tblConstructionPhase	PhaseStartDate	8/19/2023	3/13/2023
tblGrading	AcresOfGrading	50.00	17.56
tblLandUse	LotAcreage	18.83	16.81

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2049	1.9461	1.8287	3.5200e-003	0.1915	0.0915	0.2830	0.0923	0.0856	0.1779	0.0000	308.2982	308.2982	0.0705	0.0000	310.0601
2023	0.7742	0.3553	0.4266	7.7000e-004	7.5200e-003	0.0167	0.0242	2.0300e-003	0.0156	0.0177	0.0000	67.5542	67.5542	0.0149	0.0000	67.9276
Maximum	**0.7742**	**1.9461**	**1.8287**	**3.5200e-003**	**0.1915**	**0.0915**	**0.2830**	**0.0923**	**0.0856**	**0.1779**	**0.0000**	**308.2982**	**308.2982**	**0.0705**	**0.0000**	**310.0601**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1254	2.7282	2.0464	3.5200e-003	0.1035	0.0930	0.1965	0.0463	0.0929	0.1392	0.0000	308.2978	308.2978	0.0705	0.0000	310.0598
2023	0.7642	0.5981	0.4756	7.7000e-004	7.5200e-003	0.0216	0.0291	2.0300e-003	0.0216	0.0236	0.0000	67.5541	67.5541	0.0149	0.0000	67.9275
Maximum	**0.7642**	**2.7282**	**2.0464**	**3.5200e-003**	**0.1035**	**0.0930**	**0.1965**	**0.0463**	**0.0929**	**0.1392**	**0.0000**	**308.2978**	**308.2978**	**0.0705**	**0.0000**	**310.0598**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**9.14**	**-44.53**	**-11.83**	**0.00**	**44.19**	**-5.89**	**26.55**	**48.83**	**-13.14**	**16.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-4-2022	7-3-2022	0.8781	1.0987
2	7-4-2022	10-3-2022	0.6143	0.8546
3	10-4-2022	1-3-2023	0.6135	0.8553
4	1-4-2023	4-3-2023	1.0263	1.2390
		Highest	1.0263	1.2390

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.8364	0.0125	0.9279	1.0500e-003		0.0741	0.0741		0.0741	0.0741	7.3724	2.5137	9.8861	0.0146	4.2000e-004	10.3768
Energy	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	159.9443	159.9443	7.9000e-003	2.9300e-003	161.0138
Mobile	0.1245	0.5515	1.4146	5.2600e-003	0.4706	4.3100e-003	0.4749	0.1263	4.0200e-003	0.1303	0.0000	483.3901	483.3901	0.0168	0.0000	483.8097
Waste						0.0000	0.0000		0.0000	0.0000	14.1647	0.0000	14.1647	0.8371	0.0000	35.0925
Water						0.0000	0.0000		0.0000	0.0000	1.1989	4.7597	5.9585	0.1236	2.9900e-003	9.9398
Total	**0.9700**	**0.6416**	**2.3755**	**6.8100e-003**	**0.4706**	**0.0847**	**0.5553**	**0.1263**	**0.0844**	**0.2107**	**22.7360**	**650.6077**	**673.3438**	**1.0000**	**6.3400e-003**	**700.2326**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4950	9.2200e-003	0.4326	5.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	5.6272	5.6272	7.7000e-004	9.0000e-005	5.6733
Energy	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	115.9479	115.9479	6.9500e-003	2.1200e-003	116.7533
Mobile	0.1254	0.5567	1.4350	5.3600e-003	0.4799	4.3800e-003	0.4843	0.1288	4.0900e-003	0.1329	0.0000	492.2035	492.2035	0.0170	0.0000	492.6291
Waste						0.0000	0.0000		0.0000	0.0000	3.5412	0.0000	3.5412	0.2093	0.0000	8.7731
Water						0.0000	0.0000		0.0000	0.0000	1.1989	4.7597	5.9585	0.1236	2.9900e-003	9.9398
Total	**0.6252**	**0.6069**	**1.8850**	**5.6700e-003**	**0.4799**	**0.0104**	**0.4903**	**0.1288**	**0.0101**	**0.1389**	**4.7401**	**618.5381**	**623.2782**	**0.3576**	**5.2000e-003**	**633.7686**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**35.54**	**5.40**	**20.65**	**16.74**	**-1.97**	**87.69**	**11.70**	**-1.97**	**87.99**	**34.06**	**79.15**	**4.93**	**7.44**	**64.24**	**17.98**	**9.49**

3.0 Construction Detail

Construction Phase

Deer Valley Estates - Phase 2 - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/4/2022	4/15/2022	5	10	
2	Grading	Grading	4/18/2022	5/13/2022	5	20	
3	Building Construction	Building Construction	5/16/2022	2/17/2023	5	200	
4	Paving	Paving	2/20/2023	3/10/2023	5	15	
5	Architectural Coating	Architectural Coating	3/13/2023	3/31/2023	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 17.56

Acres of Paving: 0

Residential Indoor: 211,410; Residential Outdoor: 70,470; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Deer Valley Estates - Phase 2 - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	35.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.7000e-004	1.8600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5792	0.5792	1.0000e-005	0.0000	0.5795
Total	**2.6000e-004**	**1.7000e-004**	**1.8600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5792**	**0.5792**	**1.0000e-005**	**0.0000**	**0.5795**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		4.7300e-003	4.7300e-003		4.7300e-003	4.7300e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0407**	**4.7300e-003**	**0.0454**	**0.0223**	**4.7300e-003**	**0.0271**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.7000e-004	1.8600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5792	0.5792	1.0000e-005	0.0000	0.5795
Total	**2.6000e-004**	**1.7000e-004**	**1.8600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5792**	**0.5792**	**1.0000e-005**	**0.0000**	**0.5795**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0695	0.0000	0.0695	0.0341	0.0000	0.0341	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0363	0.3884	0.2904	6.2000e-004		0.0164	0.0164		0.0150	0.0150	0.0000	54.5346	54.5346	0.0176	0.0000	54.9755
Total	**0.0363**	**0.3884**	**0.2904**	**6.2000e-004**	**0.0695**	**0.0164**	**0.0859**	**0.0341**	**0.0150**	**0.0492**	**0.0000**	**54.5346**	**54.5346**	**0.0176**	**0.0000**	**54.9755**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	3.8000e-004	4.1200e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2870	1.2870	3.0000e-005	0.0000	1.2877
Total	**5.7000e-004**	**3.8000e-004**	**4.1200e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.2870**	**1.2870**	**3.0000e-005**	**0.0000**	**1.2877**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0313	0.0000	0.0313	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.5124	0.3672	6.2000e-004		0.0133	0.0133		0.0133	0.0133	0.0000	54.5345	54.5345	0.0176	0.0000	54.9755
Total	**0.0181**	**0.5124**	**0.3672**	**6.2000e-004**	**0.0313**	**0.0133**	**0.0446**	**0.0154**	**0.0133**	**0.0287**	**0.0000**	**54.5345**	**54.5345**	**0.0176**	**0.0000**	**54.9755**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	3.8000e-004	4.1200e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2870	1.2870	3.0000e-005	0.0000	1.2877
Total	**5.7000e-004**	**3.8000e-004**	**4.1200e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.2870**	**1.2870**	**3.0000e-005**	**0.0000**	**1.2877**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1408	1.2883	1.3500	2.2200e-003		0.0667	0.0667		0.0628	0.0628	0.0000	191.1733	191.1733	0.0458	0.0000	192.3183
Total	**0.1408**	**1.2883**	**1.3500**	**2.2200e-003**		**0.0667**	**0.0667**		**0.0628**	**0.0628**	**0.0000**	**191.1733**	**191.1733**	**0.0458**	**0.0000**	**192.3183**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9300e-003	0.0979	0.0243	2.6000e-004	6.4900e-003	2.0000e-004	6.6900e-003	1.8800e-003	1.9000e-004	2.0600e-003	0.0000	25.4233	25.4233	1.2100e-003	0.0000	25.4535
Worker	8.2600e-003	5.4800e-003	0.0595	2.1000e-004	0.0228	1.5000e-004	0.0230	6.0700e-003	1.3000e-004	6.2000e-003	0.0000	18.5811	18.5811	3.9000e-004	0.0000	18.5908
Total	**0.0112**	**0.1034**	**0.0838**	**4.7000e-004**	**0.0293**	**3.5000e-004**	**0.0297**	**7.9500e-003**	**3.2000e-004**	**8.2600e-003**	**0.0000**	**44.0044**	**44.0044**	**1.6000e-003**	**0.0000**	**44.0442**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0892	1.9432	1.4746	2.2200e-003		0.0745	0.0745		0.0745	0.0745	0.0000	191.1731	191.1731	0.0458	0.0000	192.3181
Total	**0.0892**	**1.9432**	**1.4746**	**2.2200e-003**		**0.0745**	**0.0745**		**0.0745**	**0.0745**	**0.0000**	**191.1731**	**191.1731**	**0.0458**	**0.0000**	**192.3181**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9300e-003	0.0979	0.0243	2.6000e-004	6.4900e-003	2.0000e-004	6.6900e-003	1.8800e-003	1.9000e-004	2.0600e-003	0.0000	25.4233	25.4233	1.2100e-003	0.0000	25.4535
Worker	8.2600e-003	5.4800e-003	0.0595	2.1000e-004	0.0228	1.5000e-004	0.0230	6.0700e-003	1.3000e-004	6.2000e-003	0.0000	18.5811	18.5811	3.9000e-004	0.0000	18.5908
Total	**0.0112**	**0.1034**	**0.0838**	**4.7000e-004**	**0.0293**	**3.5000e-004**	**0.0297**	**7.9500e-003**	**3.2000e-004**	**8.2600e-003**	**0.0000**	**44.0044**	**44.0044**	**1.6000e-003**	**0.0000**	**44.0442**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0275	0.2517	0.2843	4.7000e-004		0.0123	0.0123		0.0115	0.0115	0.0000	40.5658	40.5658	9.6500e-003	0.0000	40.8071
Total	**0.0275**	**0.2517**	**0.2843**	**4.7000e-004**		**0.0123**	**0.0123**		**0.0115**	**0.0115**	**0.0000**	**40.5658**	**40.5658**	**9.6500e-003**	**0.0000**	**40.8071**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7000e-004	0.0160	4.6100e-003	5.0000e-005	1.3800e-003	2.0000e-005	1.4000e-003	4.0000e-004	2.0000e-005	4.2000e-004	0.0000	5.2417	5.2417	2.2000e-004	0.0000	5.2471
Worker	1.6400e-003	1.0500e-003	0.0116	4.0000e-005	4.8400e-003	3.0000e-005	4.8700e-003	1.2900e-003	3.0000e-005	1.3200e-003	0.0000	3.7905	3.7905	7.0000e-005	0.0000	3.7923
Total	**2.1100e-003**	**0.0171**	**0.0162**	**9.0000e-005**	**6.2200e-003**	**5.0000e-005**	**6.2700e-003**	**1.6900e-003**	**5.0000e-005**	**1.7400e-003**	**0.0000**	**9.0322**	**9.0322**	**2.9000e-004**	**0.0000**	**9.0395**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0189	0.4122	0.3128	4.7000e-004		0.0158	0.0158		0.0158	0.0158	0.0000	40.5658	40.5658	9.6500e-003	0.0000	40.8070
Total	**0.0189**	**0.4122**	**0.3128**	**4.7000e-004**		**0.0158**	**0.0158**		**0.0158**	**0.0158**	**0.0000**	**40.5658**	**40.5658**	**9.6500e-003**	**0.0000**	**40.8070**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7000e-004	0.0160	4.6100e-003	5.0000e-005	1.3800e-003	2.0000e-005	1.4000e-003	4.0000e-004	2.0000e-005	4.2000e-004	0.0000	5.2417	5.2417	2.2000e-004	0.0000	5.2471
Worker	1.6400e-003	1.0500e-003	0.0116	4.0000e-005	4.8400e-003	3.0000e-005	4.8700e-003	1.2900e-003	3.0000e-005	1.3200e-003	0.0000	3.7905	3.7905	7.0000e-005	0.0000	3.7923
Total	**2.1100e-003**	**0.0171**	**0.0162**	**9.0000e-005**	**6.2200e-003**	**5.0000e-005**	**6.2700e-003**	**1.6900e-003**	**5.0000e-005**	**1.7400e-003**	**0.0000**	**9.0322**	**9.0322**	**2.9000e-004**	**0.0000**	**9.0395**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7500e-003	0.0764	0.1094	1.7000e-004		3.8300e-003	3.8300e-003		3.5200e-003	3.5200e-003	0.0000	15.0202	15.0202	4.8600e-003	0.0000	15.1416
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.7500e-003**	**0.0764**	**0.1094**	**1.7000e-004**		**3.8300e-003**	**3.8300e-003**		**3.5200e-003**	**3.5200e-003**	**0.0000**	**15.0202**	**15.0202**	**4.8600e-003**	**0.0000**	**15.1416**

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.9000e-004	2.1300e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.6962	0.6962	1.0000e-005	0.0000	0.6966
Total	**3.0000e-004**	**1.9000e-004**	**2.1300e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.6962**	**0.6962**	**1.0000e-005**	**0.0000**	**0.6966**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9800e-003	0.1509	0.1297	1.7000e-004		5.0000e-003	5.0000e-003		5.0000e-003	5.0000e-003	0.0000	15.0201	15.0201	4.8600e-003	0.0000	15.1416
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.9800e-003**	**0.1509**	**0.1297**	**1.7000e-004**		**5.0000e-003**	**5.0000e-003**		**5.0000e-003**	**5.0000e-003**	**0.0000**	**15.0201**	**15.0201**	**4.8600e-003**	**0.0000**	**15.1416**

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.9000e-004	2.1300e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.6962	0.6962	1.0000e-005	0.0000	0.6966
Total	**3.0000e-004**	**1.9000e-004**	**2.1300e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.6962**	**0.6962**	**1.0000e-005**	**0.0000**	**0.6966**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4400e-003	9.7700e-003	0.0136	2.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	1.9149	1.9149	1.1000e-004	0.0000	1.9178
Total	**0.7364**	**9.7700e-003**	**0.0136**	**2.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.1000e-004**	**0.0000**	**1.9178**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	9.0000e-005	1.0000e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3249	0.3249	1.0000e-005	0.0000	0.3251
Total	**1.4000e-004**	**9.0000e-005**	**1.0000e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3249**	**0.3249**	**1.0000e-005**	**0.0000**	**0.3251**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5000e-004	0.0176	0.0137	2.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	1.9149	1.9149	1.1000e-004	0.0000	1.9178
Total	**0.7358**	**0.0176**	**0.0137**	**2.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.1000e-004**	**0.0000**	**1.9178**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	9.0000e-005	1.0000e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3249	0.3249	1.0000e-005	0.0000	0.3251
Total	**1.4000e-004**	**9.0000e-005**	**1.0000e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3249**	**0.3249**	**1.0000e-005**	**0.0000**	**0.3251**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1254	0.5567	1.4350	5.3600e-003	0.4799	4.3800e-003	0.4843	0.1288	4.0900e-003	0.1329	0.0000	492.2035	492.2035	0.0170	0.0000	492.6291
Unmitigated	0.1245	0.5515	1.4146	5.2600e-003	0.4706	4.3100e-003	0.4749	0.1263	4.0200e-003	0.1303	0.0000	483.3901	483.3901	0.0168	0.0000	483.8097

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	547.52	547.52	547.52	1,264,556	1,289,488
Total	547.52	547.52	547.52	1,264,556	1,289,488

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Single Family Housing	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	68.4915	68.4915	6.0400e-003	1.2500e-003	69.0150
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	69.9850	69.9850	6.1700e-003	1.2800e-003	70.5198
NaturalGas Mitigated	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4564	47.4564	9.1000e-004	8.7000e-004	47.7384
NaturalGas Unmitigated	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	89.9594	89.9594	1.7200e-003	1.6500e-003	90.4940

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.68578e+006	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	89.9594	89.9594	1.7200e-003	1.6500e-003	90.4940
Total		**9.0900e-003**	**0.0777**	**0.0331**	**5.0000e-004**		**6.2800e-003**	**6.2800e-003**		**6.2800e-003**	**6.2800e-003**	**0.0000**	**89.9594**	**89.9594**	**1.7200e-003**	**1.6500e-003**	**90.4940**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	889299	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4564	47.4564	9.1000e-004	8.7000e-004	47.7384
Total		**4.8000e-003**	**0.0410**	**0.0174**	**2.6000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**47.4564**	**47.4564**	**9.1000e-004**	**8.7000e-004**	**47.7384**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	469253	69.9850	6.1700e-003	1.2800e-003	70.5198
Total		**69.9850**	**6.1700e-003**	**1.2800e-003**	**70.5198**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	459239	68.4915	6.0400e-003	1.2500e-003	69.0150
Total		**68.4915**	**6.0400e-003**	**1.2500e-003**	**69.0150**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4950	9.2200e-003	0.4326	5.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	5.6272	5.6272	7.7000e-004	9.0000e-005	5.6733
Unmitigated	0.8364	0.0125	0.9279	1.0500e-003		0.0741	0.0741		0.0741	0.0741	7.3724	2.5137	9.8861	0.0146	4.2000e-004	10.3768

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4080					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3419	7.4900e-003	0.4971	1.0200e-003		0.0717	0.0717		0.0717	0.0717	7.3724	1.8102	9.1826	0.0139	4.2000e-004	9.6564
Landscaping	0.0130	4.9700e-003	0.4308	2.0000e-005		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	0.7035	0.7035	6.8000e-004	0.0000	0.7204
Total	**0.8364**	**0.0125**	**0.9279**	**1.0400e-003**		**0.0741**	**0.0741**		**0.0741**	**0.0741**	**7.3724**	**2.5137**	**9.8861**	**0.0146**	**4.2000e-004**	**10.3768**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4080					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.0000e-004	4.2500e-003	1.8100e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9237	4.9237	9.0000e-005	9.0000e-005	4.9529
Landscaping	0.0130	4.9700e-003	0.4308	2.0000e-005		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	0.7035	0.7035	6.8000e-004	0.0000	0.7204
Total	**0.4950**	**9.2200e-003**	**0.4326**	**5.0000e-005**		**2.7200e-003**	**2.7200e-003**		**2.7200e-003**	**2.7200e-003**	**0.0000**	**5.6271**	**5.6271**	**7.7000e-004**	**9.0000e-005**	**5.6733**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.9585	0.1236	2.9900e-003	9.9398
Unmitigated	5.9585	0.1236	2.9900e-003	9.9398

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	3.77893 / 2.38237	5.4921	0.1235	2.9900e-003	9.4697
Total		**5.9585**	**0.1236**	**3.0000e-003**	**9.9398**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	3.77893 / 2.38237	5.4921	0.1235	2.9900e-003	9.4697
Total		**5.9585**	**0.1236**	**3.0000e-003**	**9.9398**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.5412	0.2093	0.0000	8.7731
Unmitigated	14.1647	0.8371	0.0000	35.0925

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Single Family Housing	69.72	14.1525	0.8364	0.0000	35.0623
Total		**14.1647**	**0.8371**	**0.0000**	**35.0925**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.015	3.0400e-003	1.8000e-004	0.0000	7.5400e-003
Single Family Housing	17.43	3.5381	0.2091	0.0000	8.7656
Total		**3.5412**	**0.2093**	**0.0000**	**8.7731**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Deer Valley Estates - Phase 1 - Mitigated

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.75	Acre	0.75	32,670.00	0
Single Family Housing	63.00	Dwelling Unit	19.25	113,400.00	180

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - Phase 1 of the proposed project involves the construction of 63 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - 20 acres disturbed during Phase 1.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment with level 3 diesel particulate filters mitigation.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	15.00

tblConstructionPhase	NumDays	300.00	200.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	15.00
tblGrading	AcresOfGrading	50.00	20.00
tblLandUse	LotAcreage	20.45	19.25
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2313	2.2149	1.8809	3.5400e-003	0.1934	0.1096	0.3030	0.0926	0.1024	0.1950	0.0000	309.7651	309.7651	0.0709	0.0000	311.5373
2022	0.8408	0.3896	0.4309	7.8000e-004	7.6600e-003	0.0191	0.0268	2.0700e-003	0.0179	0.0200	0.0000	67.9962	67.9962	0.0151	0.0000	68.3727
Maximum	**0.8408**	**2.2149**	**1.8809**	**3.5400e-003**	**0.1934**	**0.1096**	**0.3030**	**0.0926**	**0.1024**	**0.1950**	**0.0000**	**309.7651**	**309.7651**	**0.0709**	**0.0000**	**311.5373**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1265	2.7345	2.0555	3.5400e-003	0.1048	0.0143	0.1191	0.0465	0.0143	0.0608	0.0000	309.7648	309.7648	0.0709	0.0000	311.5370
2022	0.8279	0.6030	0.4778	7.8000e-004	7.6600e-003	3.3100e-003	0.0110	2.0700e-003	3.3100e-003	5.3800e-003	0.0000	67.9961	67.9961	0.0151	0.0000	68.3726
Maximum	**0.8279**	**2.7345**	**2.0555**	**3.5400e-003**	**0.1048**	**0.0143**	**0.1191**	**0.0465**	**0.0143**	**0.0608**	**0.0000**	**309.7648**	**309.7648**	**0.0709**	**0.0000**	**311.5370**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**10.98**	**-28.14**	**-9.58**	**0.00**	**44.08**	**86.33**	**60.56**	**48.72**	**85.40**	**69.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-5-2021	7-4-2021	1.0252	1.1003
2	7-5-2021	10-4-2021	0.6833	0.8575
3	10-5-2021	1-4-2022	0.6814	0.8585
4	1-5-2022	4-4-2022	1.1224	1.3087
		Highest	1.1224	1.3087

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9085	0.0135	1.0082	1.1400e-003		0.0805	0.0805		0.0805	0.0805	8.0080	2.7304	10.7383	0.0159	4.6000e-004	11.2714
Energy	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	173.7326	173.7326	8.5800e-003	3.1800e-003	174.8943
Mobile	0.1476	0.7262	1.6562	5.9100e-003	0.5112	5.3600e-003	0.5166	0.1372	5.0200e-003	0.1422	0.0000	542.9263	542.9263	0.0200	0.0000	543.4274
Waste						0.0000	0.0000		0.0000	0.0000	15.3583	0.0000	15.3583	0.9077	0.0000	38.0495
Water						0.0000	0.0000		0.0000	0.0000	1.3022	5.1298	6.4320	0.1342	3.2500e-003	10.7561
Total	**1.0660**	**0.8241**	**2.7003**	**7.5900e-003**	**0.5112**	**0.0926**	**0.6038**	**0.1372**	**0.0923**	**0.2295**	**24.6685**	**724.5191**	**749.1876**	**1.0863**	**6.8900e-003**	**778.3988**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5377	0.0100	0.4703	5.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	6.1122	6.1122	8.4000e-004	1.0000e-004	6.1625
Energy	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	125.9434	125.9434	7.5500e-003	2.3000e-003	126.8183
Mobile	0.1487	0.7338	1.6799	6.0200e-003	0.5213	5.4600e-003	0.5267	0.1399	5.1100e-003	0.1450	0.0000	552.8324	552.8324	0.0203	0.0000	553.3403
Waste						0.0000	0.0000		0.0000	0.0000	3.8396	0.0000	3.8396	0.2269	0.0000	9.5124
Water						0.0000	0.0000		0.0000	0.0000	1.3022	5.1298	6.4320	0.1342	3.2500e-003	10.7561
Total	**0.6916**	**0.7883**	**2.1691**	**6.3500e-003**	**0.5213**	**0.0120**	**0.5333**	**0.1399**	**0.0117**	**0.1516**	**5.1418**	**690.0178**	**695.1596**	**0.3898**	**5.6500e-003**	**706.5896**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**35.12**	**4.35**	**19.67**	**16.34**	**-1.97**	**87.02**	**11.68**	**-1.98**	**87.36**	**33.95**	**79.16**	**4.76**	**7.21**	**64.12**	**18.00**	**9.23**

3.0 Construction Detail

Construction Phase

Deer Valley Estates - Phase 1 - Mitigated - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/16/2021	5	10	
2	Grading	Grading	4/19/2021	5/14/2021	5	20	
3	Building Construction	Building Construction	5/17/2021	2/18/2022	5	200	
4	Paving	Paving	2/20/2022	3/11/2022	5	15	
5	Architectural Coating	Architectural Coating	3/14/2022	4/1/2022	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 229,635; Residential Outdoor: 76,545; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Deer Valley Estates - Phase 1 - Mitigated - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	36.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.0200e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6012	0.6012	1.0000e-005	0.0000	0.6015
Total	**2.8000e-004**	**1.9000e-004**	**2.0200e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6012**	**0.6012**	**1.0000e-005**	**0.0000**	**0.6015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0407**	**7.1000e-004**	**0.0414**	**0.0223**	**7.1000e-004**	**0.0231**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.0200e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6012	0.6012	1.0000e-005	0.0000	0.6015
Total	**2.8000e-004**	**1.9000e-004**	**2.0200e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6012**	**0.6012**	**1.0000e-005**	**0.0000**	**0.6015**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0708	0.0000	0.0708	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0419	0.4640	0.3088	6.2000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	54.4950	54.4950	0.0176	0.0000	54.9356
Total	**0.0419**	**0.4640**	**0.3088**	**6.2000e-004**	**0.0708**	**0.0199**	**0.0907**	**0.0343**	**0.0183**	**0.0525**	**0.0000**	**54.4950**	**54.4950**	**0.0176**	**0.0000**	**54.9356**

3.3 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3360	1.3360	3.0000e-005	0.0000	1.3367
Total	**6.1000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3360**	**1.3360**	**3.0000e-005**	**0.0000**	**1.3367**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0319	0.0000	0.0319	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.5124	0.3672	6.2000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	54.4949	54.4949	0.0176	0.0000	54.9355
Total	**0.0181**	**0.5124**	**0.3672**	**6.2000e-004**	**0.0319**	**2.0000e-003**	**0.0339**	**0.0154**	**2.0000e-003**	**0.0174**	**0.0000**	**54.4949**	**54.4949**	**0.0176**	**0.0000**	**54.9355**

3.3 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3360	1.3360	3.0000e-005	0.0000	1.3367
Total	**6.1000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3360**	**1.3360**	**3.0000e-005**	**0.0000**	**1.3367**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1568	1.4382	1.3675	2.2200e-003		0.0791	0.0791		0.0744	0.0744	0.0000	191.1008	191.1008	0.0461	0.0000	192.2534
Total	**0.1568**	**1.4382**	**1.3675**	**2.2200e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**191.1008**	**191.1008**	**0.0461**	**0.0000**	**192.2534**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1400e-003	0.1034	0.0258	2.7000e-004	6.4900e-003	2.2000e-004	6.7200e-003	1.8800e-003	2.2000e-004	2.0900e-003	0.0000	25.6751	25.6751	1.2600e-003	0.0000	25.7066
Worker	9.1100e-003	6.2900e-003	0.0666	2.2000e-004	0.0235	1.5000e-004	0.0236	6.2400e-003	1.4000e-004	6.3800e-003	0.0000	19.8393	19.8393	4.4000e-004	0.0000	19.8504
Total	**0.0123**	**0.1097**	**0.0924**	**4.9000e-004**	**0.0300**	**3.7000e-004**	**0.0303**	**8.1200e-003**	**3.6000e-004**	**8.4700e-003**	**0.0000**	**45.5144**	**45.5144**	**1.7000e-003**	**0.0000**	**45.5570**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0892	1.9432	1.4746	2.2200e-003		0.0112	0.0112		0.0112	0.0112	0.0000	191.1005	191.1005	0.0461	0.0000	192.2531
Total	**0.0892**	**1.9432**	**1.4746**	**2.2200e-003**		**0.0112**	**0.0112**		**0.0112**	**0.0112**	**0.0000**	**191.1005**	**191.1005**	**0.0461**	**0.0000**	**192.2531**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1400e-003	0.1034	0.0258	2.7000e-004	6.4900e-003	2.2000e-004	6.7200e-003	1.8800e-003	2.2000e-004	2.0900e-003	0.0000	25.6751	25.6751	1.2600e-003	0.0000	25.7066
Worker	9.1100e-003	6.2900e-003	0.0666	2.2000e-004	0.0235	1.5000e-004	0.0236	6.2400e-003	1.4000e-004	6.3800e-003	0.0000	19.8393	19.8393	4.4000e-004	0.0000	19.8504
Total	**0.0123**	**0.1097**	**0.0924**	**4.9000e-004**	**0.0300**	**3.7000e-004**	**0.0303**	**8.1200e-003**	**3.6000e-004**	**8.4700e-003**	**0.0000**	**45.5144**	**45.5144**	**1.7000e-003**	**0.0000**	**45.5570**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0299	0.2733	0.2864	4.7000e-004		0.0142	0.0142		0.0133	0.0133	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	**0.0299**	**0.2733**	**0.2864**	**4.7000e-004**		**0.0142**	**0.0142**		**0.0133**	**0.0133**	**0.0000**	**40.5519**	**40.5519**	**9.7200e-003**	**0.0000**	**40.7948**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2000e-004	0.0208	5.1500e-003	6.0000e-005	1.3800e-003	4.0000e-005	1.4200e-003	4.0000e-004	4.0000e-005	4.4000e-004	0.0000	5.3928	5.3928	2.6000e-004	0.0000	5.3992
Worker	1.8000e-003	1.2000e-003	0.0130	4.0000e-005	4.9800e-003	3.0000e-005	5.0100e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	4.0541	4.0541	8.0000e-005	0.0000	4.0562
Total	**2.4200e-003**	**0.0220**	**0.0181**	**1.0000e-004**	**6.3600e-003**	**7.0000e-005**	**6.4300e-003**	**1.7200e-003**	**7.0000e-005**	**1.7900e-003**	**0.0000**	**9.4469**	**9.4469**	**3.4000e-004**	**0.0000**	**9.4554**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0189	0.4122	0.3128	4.7000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	**0.0189**	**0.4122**	**0.3128**	**4.7000e-004**		**2.3700e-003**	**2.3700e-003**		**2.3700e-003**	**2.3700e-003**	**0.0000**	**40.5519**	**40.5519**	**9.7200e-003**	**0.0000**	**40.7948**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2000e-004	0.0208	5.1500e-003	6.0000e-005	1.3800e-003	4.0000e-005	1.4200e-003	4.0000e-004	4.0000e-005	4.4000e-004	0.0000	5.3928	5.3928	2.6000e-004	0.0000	5.3992
Worker	1.8000e-003	1.2000e-003	0.0130	4.0000e-005	4.9800e-003	3.0000e-005	5.0100e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	4.0541	4.0541	8.0000e-005	0.0000	4.0562
Total	**2.4200e-003**	**0.0220**	**0.0181**	**1.0000e-004**	**6.3600e-003**	**7.0000e-005**	**6.4300e-003**	**1.7200e-003**	**7.0000e-005**	**1.7900e-003**	**0.0000**	**9.4469**	**9.4469**	**3.4000e-004**	**0.0000**	**9.4554**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2700e-003	0.0834	0.1094	1.7000e-004		4.2600e-003	4.2600e-003		3.9200e-003	3.9200e-003	0.0000	15.0207	15.0207	4.8600e-003	0.0000	15.1421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.2700e-003**	**0.0834**	**0.1094**	**1.7000e-004**		**4.2600e-003**	**4.2600e-003**		**3.9200e-003**	**3.9200e-003**	**0.0000**	**15.0207**	**15.0207**	**4.8600e-003**	**0.0000**	**15.1421**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.1000e-004	2.3200e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7239	0.7239	2.0000e-005	0.0000	0.7243
Total	**3.2000e-004**	**2.1000e-004**	**2.3200e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7239**	**0.7239**	**2.0000e-005**	**0.0000**	**0.7243**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9800e-003	0.1509	0.1297	1.7000e-004		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	15.0207	15.0207	4.8600e-003	0.0000	15.1421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.9800e-003**	**0.1509**	**0.1297**	**1.7000e-004**		**7.5000e-004**	**7.5000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**15.0207**	**15.0207**	**4.8600e-003**	**0.0000**	**15.1421**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.1000e-004	2.3200e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7239	0.7239	2.0000e-005	0.0000	0.7243
Total	**3.2000e-004**	**2.1000e-004**	**2.3200e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7239**	**0.7239**	**2.0000e-005**	**0.0000**	**0.7243**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7983					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0106	0.0136	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.7998**	**0.0106**	**0.0136**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.0800e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3378	0.3378	1.0000e-005	0.0000	0.3380
Total	**1.5000e-004**	**1.0000e-004**	**1.0800e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3378**	**0.3378**	**1.0000e-005**	**0.0000**	**0.3380**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7983					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5000e-004	0.0176	0.0137	2.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.7991**	**0.0176**	**0.0137**	**2.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.0800e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3378	0.3378	1.0000e-005	0.0000	0.3380
Total	**1.5000e-004**	**1.0000e-004**	**1.0800e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3378**	**0.3378**	**1.0000e-005**	**0.0000**	**0.3380**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1487	0.7338	1.6799	6.0200e-003	0.5213	5.4600e-003	0.5267	0.1399	5.1100e-003	0.1450	0.0000	552.8324	552.8324	0.0203	0.0000	553.3403
Unmitigated	0.1476	0.7262	1.6562	5.9100e-003	0.5112	5.3600e-003	0.5166	0.1372	5.0200e-003	0.1422	0.0000	542.9263	542.9263	0.0200	0.0000	543.4274

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	594.72	594.72	594.72	1,373,570	1,400,651
Total	594.72	594.72	594.72	1,373,570	1,400,651

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Single Family Housing	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	74.3959	74.3959	6.5600e-003	1.3600e-003	74.9645
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	76.0181	76.0181	6.7000e-003	1.3900e-003	76.5991
NaturalGas Mitigated	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.5475	51.5475	9.9000e-004	9.5000e-004	51.8538
NaturalGas Unmitigated	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.7145	97.7145	1.8700e-003	1.7900e-003	98.2952

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.8311e+006	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.7145	97.7145	1.8700e-003	1.7900e-003	98.2952
Total		**9.8700e-003**	**0.0844**	**0.0359**	**5.4000e-004**		**6.8200e-003**	**6.8200e-003**		**6.8200e-003**	**6.8200e-003**	**0.0000**	**97.7145**	**97.7145**	**1.8700e-003**	**1.7900e-003**	**98.2952**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	965963	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.5475	51.5475	9.9000e-004	9.5000e-004	51.8538
Total		**5.2100e-003**	**0.0445**	**0.0189**	**2.8000e-004**		**3.6000e-003**	**3.6000e-003**		**3.6000e-003**	**3.6000e-003**	**0.0000**	**51.5475**	**51.5475**	**9.9000e-004**	**9.5000e-004**	**51.8538**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	509706	76.0181	6.7000e-003	1.3900e-003	76.5991
Total		**76.0181**	**6.7000e-003**	**1.3900e-003**	**76.5991**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	498829	74.3959	6.5600e-003	1.3600e-003	74.9645
Total		**74.3959**	**6.5600e-003**	**1.3600e-003**	**74.9645**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5377	0.0100	0.4703	5.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	6.1122	6.1122	8.4000e-004	1.0000e-004	6.1625
Unmitigated	0.9085	0.0135	1.0082	1.1400e-003		0.0805	0.0805		0.0805	0.0805	8.0080	2.7304	10.7383	0.0159	4.6000e-004	11.2714

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3713	8.1400e-003	0.5399	1.1100e-003		0.0779	0.0779		0.0779	0.0779	8.0080	1.9662	9.9742	0.0151	4.6000e-004	10.4889
Landscaping	0.0141	5.4000e-003	0.4683	2.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7641	0.7641	7.4000e-004	0.0000	0.7826
Total	**0.9085**	**0.0135**	**1.0082**	**1.1300e-003**		**0.0805**	**0.0805**		**0.0805**	**0.0805**	**8.0080**	**2.7304**	**10.7383**	**0.0159**	**4.6000e-004**	**11.2714**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.4000e-004	4.6200e-003	1.9700e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3481	5.3481	1.0000e-004	1.0000e-004	5.3799
Landscaping	0.0141	5.4000e-003	0.4683	2.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7641	0.7641	7.4000e-004	0.0000	0.7826
Total	**0.5377**	**0.0100**	**0.4703**	**5.0000e-005**		**2.9600e-003**	**2.9600e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**6.1123**	**6.1123**	**8.4000e-004**	**1.0000e-004**	**6.1625**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.4320	0.1342	3.2500e-003	10.7561
Unmitigated	6.4320	0.1342	3.2500e-003	10.7561

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	4.1047 / 2.58775	5.9655	0.1342	3.2400e-003	10.2861
Total		**6.4320**	**0.1342**	**3.2500e-003**	**10.7561**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	4.1047 / 2.58775	5.9655	0.1342	3.2400e-003	10.2861
Total		**6.4320**	**0.1342**	**3.2500e-003**	**10.7561**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.8396	0.2269	0.0000	9.5124
Unmitigated	15.3583	0.9077	0.0000	38.0495

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Single Family Housing	75.6	15.3461	0.9069	0.0000	38.0194
Total		**15.3583**	**0.9077**	**0.0000**	**38.0495**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.015	3.0400e-003	1.8000e-004	0.0000	7.5400e-003
Single Family Housing	18.9	3.8365	0.2267	0.0000	9.5048
Total		**3.8396**	**0.2269**	**0.0000**	**9.5124**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Deer Valley Estates - Phase 2 - Mitigated

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.75	Acre	0.75	32,670.00	0
Single Family Housing	58.00	Dwelling Unit	16.81	104,400.00	166

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - Phase 2 of the proposed project involves the construction of 58 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - 17.56 acres disturbed during Phase 2.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment and level 3 diesel particulate filters mitigation.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblGrading	AcresOfGrading	75.00	17.56

tblLandUse	LotAcreage	18.83	16.81
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2141	2.0562	1.8890	3.6800e-003	0.2206	0.0956	0.3162	0.1086	0.0893	0.1979	0.0000	321.9558	321.9558	0.0764	0.0000	323.8667
2023	0.8705	1.2289	1.4130	2.6300e-003	0.0275	0.0568	0.0843	7.4500e-003	0.0533	0.0608	0.0000	229.4191	229.4191	0.0478	0.0000	230.6152
Maximum	**0.8705**	**2.0562**	**1.8890**	**3.6800e-003**	**0.2206**	**0.0956**	**0.3162**	**0.1086**	**0.0893**	**0.1979**	**0.0000**	**321.9558**	**321.9558**	**0.0764**	**0.0000**	**323.8667**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1286	2.8605	2.1376	3.6800e-003	0.1161	0.0146	0.1307	0.0534	0.0145	0.0680	0.0000	321.9554	321.9554	0.0764	0.0000	323.8664
2023	0.8330	2.0034	1.5585	2.6300e-003	0.0275	0.0112	0.0387	7.4500e-003	0.0112	0.0186	0.0000	229.4188	229.4188	0.0478	0.0000	230.6149
Maximum	**0.8330**	**2.8605**	**2.1376**	**3.6800e-003**	**0.1161**	**0.0146**	**0.1307**	**0.0534**	**0.0145**	**0.0680**	**0.0000**	**321.9554**	**321.9554**	**0.0764**	**0.0000**	**323.8664**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**11.34**	**-48.06**	**-11.93**	**0.00**	**42.12**	**83.11**	**57.71**	**47.54**	**81.98**	**66.53**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-4-2022	7-3-2022	1.0412	1.2909
2	7-4-2022	10-3-2022	0.6143	0.8546
3	10-4-2022	1-3-2023	0.6135	0.8553
4	1-4-2023	4-3-2023	0.5486	0.8275
5	4-4-2023	7-3-2023	0.5539	0.8359
6	7-4-2023	9-30-2023	0.9726	1.1363
		Highest	1.0412	1.2909

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.8364	0.0125	0.9279	1.0500e-003		0.0741	0.0741		0.0741	0.0741	7.3724	2.5137	9.8861	0.0146	4.2000e-004	10.3768
Energy	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	159.9443	159.9443	7.9000e-003	2.9300e-003	161.0138
Mobile	0.1245	0.5515	1.4146	5.2600e-003	0.4706	4.3100e-003	0.4749	0.1263	4.0200e-003	0.1303	0.0000	483.3901	483.3901	0.0168	0.0000	483.8097
Waste						0.0000	0.0000		0.0000	0.0000	14.1647	0.0000	14.1647	0.8371	0.0000	35.0925
Water						0.0000	0.0000		0.0000	0.0000	1.1989	4.7597	5.9585	0.1236	2.9900e-003	9.9398
Total	**0.9700**	**0.6416**	**2.3755**	**6.8100e-003**	**0.4706**	**0.0847**	**0.5553**	**0.1263**	**0.0844**	**0.2107**	**22.7360**	**650.6077**	**673.3438**	**1.0000**	**6.3400e-003**	**700.2326**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4950	9.2200e-003	0.4326	5.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	5.6272	5.6272	7.7000e-004	9.0000e-005	5.6733
Energy	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	115.9479	115.9479	6.9500e-003	2.1200e-003	116.7533
Mobile	0.1254	0.5567	1.4350	5.3600e-003	0.4799	4.3800e-003	0.4843	0.1288	4.0900e-003	0.1329	0.0000	492.2035	492.2035	0.0170	0.0000	492.6291
Waste						0.0000	0.0000		0.0000	0.0000	3.5412	0.0000	3.5412	0.2093	0.0000	8.7731
Water						0.0000	0.0000		0.0000	0.0000	1.1989	4.7597	5.9585	0.1236	2.9900e-003	9.9398
Total	**0.6252**	**0.6069**	**1.8850**	**5.6700e-003**	**0.4799**	**0.0104**	**0.4903**	**0.1288**	**0.0101**	**0.1389**	**4.7401**	**618.5381**	**623.2782**	**0.3576**	**5.2000e-003**	**633.7686**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**35.54**	**5.40**	**20.65**	**16.74**	**-1.97**	**87.69**	**11.70**	**-1.97**	**87.99**	**34.06**	**79.15**	**4.93**	**7.44**	**64.24**	**17.98**	**9.49**

3.0 Construction Detail

Construction Phase

Deer Valley Estates - Phase 2 - Mitigated - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/4/2022	4/15/2022	5	10	
2	Grading	Grading	4/16/2022	5/27/2022	5	30	
3	Building Construction	Building Construction	5/28/2022	7/21/2023	5	300	
4	Paving	Paving	7/22/2023	8/18/2023	5	20	
5	Architectural Coating	Architectural Coating	8/19/2023	9/15/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 17.56

Acres of Paving: 0

Residential Indoor: 211,410; Residential Outdoor: 70,470; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Deer Valley Estates - Phase 2 - Mitigated - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	35.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.7000e-004	1.8600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5792	0.5792	1.0000e-005	0.0000	0.5795
Total	**2.6000e-004**	**1.7000e-004**	**1.8600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5792**	**0.5792**	**1.0000e-005**	**0.0000**	**0.5795**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0407**	**7.1000e-004**	**0.0414**	**0.0223**	**7.1000e-004**	**0.0231**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.7000e-004	1.8600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5792	0.5792	1.0000e-005	0.0000	0.5795
Total	**2.6000e-004**	**1.7000e-004**	**1.8600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5792**	**0.5792**	**1.0000e-005**	**0.0000**	**0.5795**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0996	0.0000	0.0996	0.0507	0.0000	0.0507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8019	81.8019	0.0265	0.0000	82.4633
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.0996**	**0.0245**	**0.1242**	**0.0507**	**0.0226**	**0.0732**	**0.0000**	**81.8019**	**81.8019**	**0.0265**	**0.0000**	**82.4633**

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	5.7000e-004	6.1800e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.9305	1.9305	4.0000e-005	0.0000	1.9315
Total	**8.6000e-004**	**5.7000e-004**	**6.1800e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**1.9305**	**1.9305**	**4.0000e-005**	**0.0000**	**1.9315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0448	0.0000	0.0448	0.0228	0.0000	0.0228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0272	0.7686	0.5508	9.3000e-004		3.0000e-003	3.0000e-003		3.0000e-003	3.0000e-003	0.0000	81.8018	81.8018	0.0265	0.0000	82.4632
Total	**0.0272**	**0.7686**	**0.5508**	**9.3000e-004**	**0.0448**	**3.0000e-003**	**0.0478**	**0.0228**	**3.0000e-003**	**0.0258**	**0.0000**	**81.8018**	**81.8018**	**0.0265**	**0.0000**	**82.4632**

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	5.7000e-004	6.1800e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.9305	1.9305	4.0000e-005	0.0000	1.9315
Total	**8.6000e-004**	**5.7000e-004**	**6.1800e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**1.9305**	**1.9305**	**4.0000e-005**	**0.0000**	**1.9315**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1322	1.2102	1.2682	2.0900e-003		0.0627	0.0627		0.0590	0.0590	0.0000	179.5871	179.5871	0.0430	0.0000	180.6627
Total	**0.1322**	**1.2102**	**1.2682**	**2.0900e-003**		**0.0627**	**0.0627**		**0.0590**	**0.0590**	**0.0000**	**179.5871**	**179.5871**	**0.0430**	**0.0000**	**180.6627**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7500e-003	0.0920	0.0228	2.5000e-004	6.1000e-003	1.8000e-004	6.2800e-003	1.7600e-003	1.8000e-004	1.9400e-003	0.0000	23.8825	23.8825	1.1300e-003	0.0000	23.9108
Worker	7.7600e-003	5.1500e-003	0.0559	1.9000e-004	0.0214	1.4000e-004	0.0216	5.7000e-003	1.3000e-004	5.8300e-003	0.0000	17.4550	17.4550	3.6000e-004	0.0000	17.4641
Total	**0.0105**	**0.0972**	**0.0787**	**4.4000e-004**	**0.0275**	**3.2000e-004**	**0.0279**	**7.4600e-003**	**3.1000e-004**	**7.7700e-003**	**0.0000**	**41.3374**	**41.3374**	**1.4900e-003**	**0.0000**	**41.3749**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0838	1.8255	1.3852	2.0900e-003		0.0105	0.0105		0.0105	0.0105	0.0000	179.5869	179.5869	0.0430	0.0000	180.6625
Total	**0.0838**	**1.8255**	**1.3852**	**2.0900e-003**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**179.5869**	**179.5869**	**0.0430**	**0.0000**	**180.6625**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7500e-003	0.0920	0.0228	2.5000e-004	6.1000e-003	1.8000e-004	6.2800e-003	1.7600e-003	1.8000e-004	1.9400e-003	0.0000	23.8825	23.8825	1.1300e-003	0.0000	23.9108
Worker	7.7600e-003	5.1500e-003	0.0559	1.9000e-004	0.0214	1.4000e-004	0.0216	5.7000e-003	1.3000e-004	5.8300e-003	0.0000	17.4550	17.4550	3.6000e-004	0.0000	17.4641
Total	**0.0105**	**0.0972**	**0.0787**	**4.4000e-004**	**0.0275**	**3.2000e-004**	**0.0279**	**7.4600e-003**	**3.1000e-004**	**7.7700e-003**	**0.0000**	**41.3374**	**41.3374**	**1.4900e-003**	**0.0000**	**41.3749**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1140	1.0429	1.1777	1.9500e-003		0.0507	0.0507		0.0477	0.0477	0.0000	168.0584	168.0584	0.0400	0.0000	169.0579
Total	**0.1140**	**1.0429**	**1.1777**	**1.9500e-003**		**0.0507**	**0.0507**		**0.0477**	**0.0477**	**0.0000**	**168.0584**	**168.0584**	**0.0400**	**0.0000**	**169.0579**

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	0.0664	0.0191	2.3000e-004	5.7100e-003	8.0000e-005	5.7800e-003	1.6500e-003	7.0000e-005	1.7200e-003	0.0000	21.7155	21.7155	9.0000e-004	0.0000	21.7381
Worker	6.7900e-003	4.3300e-003	0.0481	1.7000e-004	0.0201	1.3000e-004	0.0202	5.3300e-003	1.2000e-004	5.4500e-003	0.0000	15.7035	15.7035	3.1000e-004	0.0000	15.7111
Total	**8.7200e-003**	**0.0707**	**0.0672**	**4.0000e-004**	**0.0258**	**2.1000e-004**	**0.0260**	**6.9800e-003**	**1.9000e-004**	**7.1700e-003**	**0.0000**	**37.4190**	**37.4190**	**1.2100e-003**	**0.0000**	**37.4492**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0784	1.7077	1.2959	1.9500e-003		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	168.0582	168.0582	0.0400	0.0000	169.0577
Total	**0.0784**	**1.7077**	**1.2959**	**1.9500e-003**		**9.8300e-003**	**9.8300e-003**		**9.8300e-003**	**9.8300e-003**	**0.0000**	**168.0582**	**168.0582**	**0.0400**	**0.0000**	**169.0577**

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	0.0664	0.0191	2.3000e-004	5.7100e-003	8.0000e-005	5.7800e-003	1.6500e-003	7.0000e-005	1.7200e-003	0.0000	21.7155	21.7155	9.0000e-004	0.0000	21.7381
Worker	6.7900e-003	4.3300e-003	0.0481	1.7000e-004	0.0201	1.3000e-004	0.0202	5.3300e-003	1.2000e-004	5.4500e-003	0.0000	15.7035	15.7035	3.1000e-004	0.0000	15.7111
Total	**8.7200e-003**	**0.0707**	**0.0672**	**4.0000e-004**	**0.0258**	**2.1000e-004**	**0.0260**	**6.9800e-003**	**1.9000e-004**	**7.1700e-003**	**0.0000**	**37.4190**	**37.4190**	**1.2100e-003**	**0.0000**	**37.4492**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	2.6000e-004	2.8400e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9283	0.9283	2.0000e-005	0.0000	0.9287
Total	**4.0000e-004**	**2.6000e-004**	**2.8400e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9283**	**0.9283**	**2.0000e-005**	**0.0000**	**0.9287**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.3100e-003	0.2012	0.1730	2.3000e-004		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.3100e-003**	**0.2012**	**0.1730**	**2.3000e-004**		**1.0000e-003**	**1.0000e-003**		**1.0000e-003**	**1.0000e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	2.6000e-004	2.8400e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9283	0.9283	2.0000e-005	0.0000	0.9287
Total	**4.0000e-004**	**2.6000e-004**	**2.8400e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9283**	**0.9283**	**2.0000e-005**	**0.0000**	**0.9287**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.7368**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.2000e-004	1.3300e-003	0.0000	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4332	0.4332	1.0000e-005	0.0000	0.4334
Total	**1.9000e-004**	**1.2000e-004**	**1.3300e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4332**	**0.4332**	**1.0000e-005**	**0.0000**	**0.4334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1400e-003	0.0235	0.0183	3.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.7361**	**0.0235**	**0.0183**	**3.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.2000e-004	1.3300e-003	0.0000	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4332	0.4332	1.0000e-005	0.0000	0.4334
Total	**1.9000e-004**	**1.2000e-004**	**1.3300e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4332**	**0.4332**	**1.0000e-005**	**0.0000**	**0.4334**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1254	0.5567	1.4350	5.3600e-003	0.4799	4.3800e-003	0.4843	0.1288	4.0900e-003	0.1329	0.0000	492.2035	492.2035	0.0170	0.0000	492.6291
Unmitigated	0.1245	0.5515	1.4146	5.2600e-003	0.4706	4.3100e-003	0.4749	0.1263	4.0200e-003	0.1303	0.0000	483.3901	483.3901	0.0168	0.0000	483.8097

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	547.52	547.52	547.52	1,264,556	1,289,488
Total	547.52	547.52	547.52	1,264,556	1,289,488

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Single Family Housing	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	68.4915	68.4915	6.0400e-003	1.2500e-003	69.0150
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	69.9850	69.9850	6.1700e-003	1.2800e-003	70.5198
NaturalGas Mitigated	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4564	47.4564	9.1000e-004	8.7000e-004	47.7384
NaturalGas Unmitigated	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	89.9594	89.9594	1.7200e-003	1.6500e-003	90.4940

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.68578e+006	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	89.9594	89.9594	1.7200e-003	1.6500e-003	90.4940
Total		**9.0900e-003**	**0.0777**	**0.0331**	**5.0000e-004**		**6.2800e-003**	**6.2800e-003**		**6.2800e-003**	**6.2800e-003**	**0.0000**	**89.9594**	**89.9594**	**1.7200e-003**	**1.6500e-003**	**90.4940**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	889299	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4564	47.4564	9.1000e-004	8.7000e-004	47.7384
Total		**4.8000e-003**	**0.0410**	**0.0174**	**2.6000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**47.4564**	**47.4564**	**9.1000e-004**	**8.7000e-004**	**47.7384**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	469253	69.9850	6.1700e-003	1.2800e-003	70.5198
Total		**69.9850**	**6.1700e-003**	**1.2800e-003**	**70.5198**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	459239	68.4915	6.0400e-003	1.2500e-003	69.0150
Total		**68.4915**	**6.0400e-003**	**1.2500e-003**	**69.0150**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4950	9.2200e-003	0.4326	5.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	5.6272	5.6272	7.7000e-004	9.0000e-005	5.6733
Unmitigated	0.8364	0.0125	0.9279	1.0500e-003		0.0741	0.0741		0.0741	0.0741	7.3724	2.5137	9.8861	0.0146	4.2000e-004	10.3768

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4080					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3419	7.4900e-003	0.4971	1.0200e-003		0.0717	0.0717		0.0717	0.0717	7.3724	1.8102	9.1826	0.0139	4.2000e-004	9.6564
Landscaping	0.0130	4.9700e-003	0.4308	2.0000e-005		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	0.7035	0.7035	6.8000e-004	0.0000	0.7204
Total	**0.8364**	**0.0125**	**0.9279**	**1.0400e-003**		**0.0741**	**0.0741**		**0.0741**	**0.0741**	**7.3724**	**2.5137**	**9.8861**	**0.0146**	**4.2000e-004**	**10.3768**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4080					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.0000e-004	4.2500e-003	1.8100e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9237	4.9237	9.0000e-005	9.0000e-005	4.9529
Landscaping	0.0130	4.9700e-003	0.4308	2.0000e-005		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	0.7035	0.7035	6.8000e-004	0.0000	0.7204
Total	**0.4950**	**9.2200e-003**	**0.4326**	**5.0000e-005**		**2.7200e-003**	**2.7200e-003**		**2.7200e-003**	**2.7200e-003**	**0.0000**	**5.6271**	**5.6271**	**7.7000e-004**	**9.0000e-005**	**5.6733**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.9585	0.1236	2.9900e-003	9.9398
Unmitigated	5.9585	0.1236	2.9900e-003	9.9398

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	3.77893 / 2.38237	5.4921	0.1235	2.9900e-003	9.4697
Total		**5.9585**	**0.1236**	**3.0000e-003**	**9.9398**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	3.77893 / 2.38237	5.4921	0.1235	2.9900e-003	9.4697
Total		**5.9585**	**0.1236**	**3.0000e-003**	**9.9398**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.5412	0.2093	0.0000	8.7731
Unmitigated	14.1647	0.8371	0.0000	35.0925

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Single Family Housing	69.72	14.1525	0.8364	0.0000	35.0623
Total		**14.1647**	**0.8371**	**0.0000**	**35.0925**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.015	3.0400e-003	1.8000e-004	0.0000	7.5400e-003
Single Family Housing	17.43	3.5381	0.2091	0.0000	8.7656
Total		**3.5412**	**0.2093**	**0.0000**	**8.7731**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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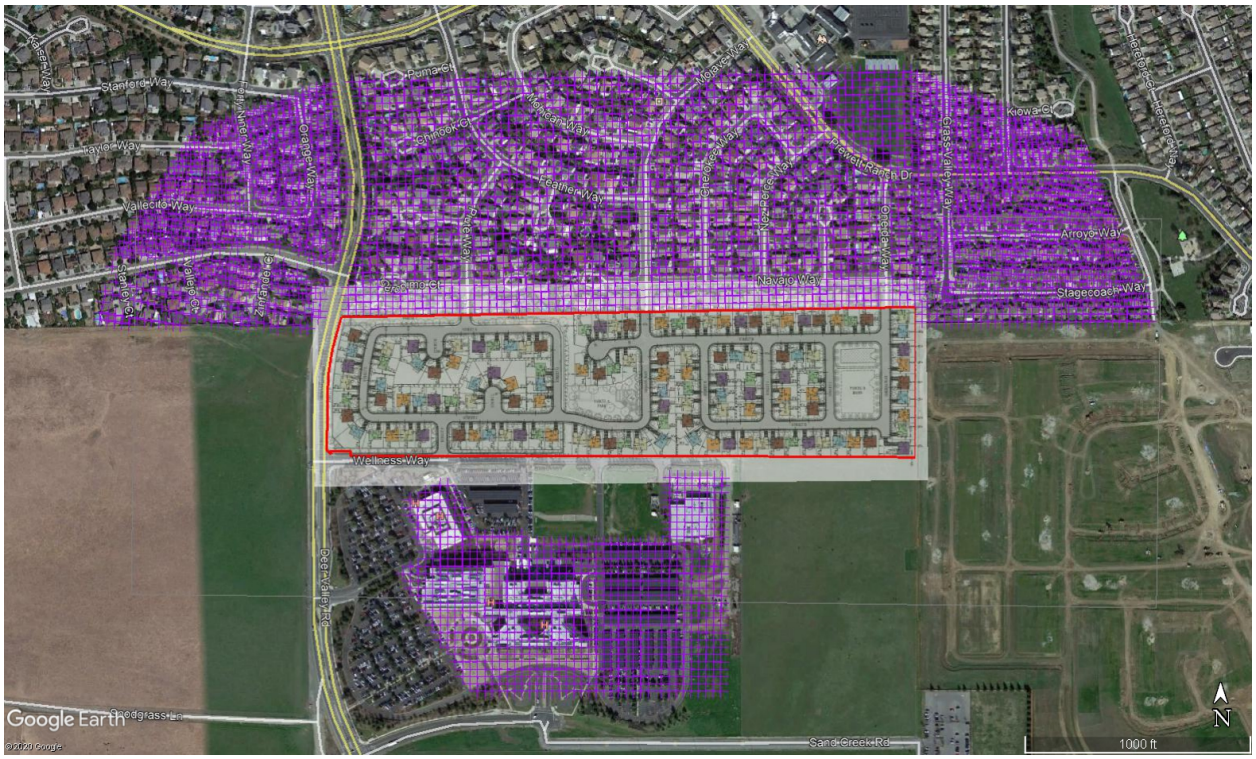
APPENDIX C

HEALTH RISK ASSESSMENT DATA

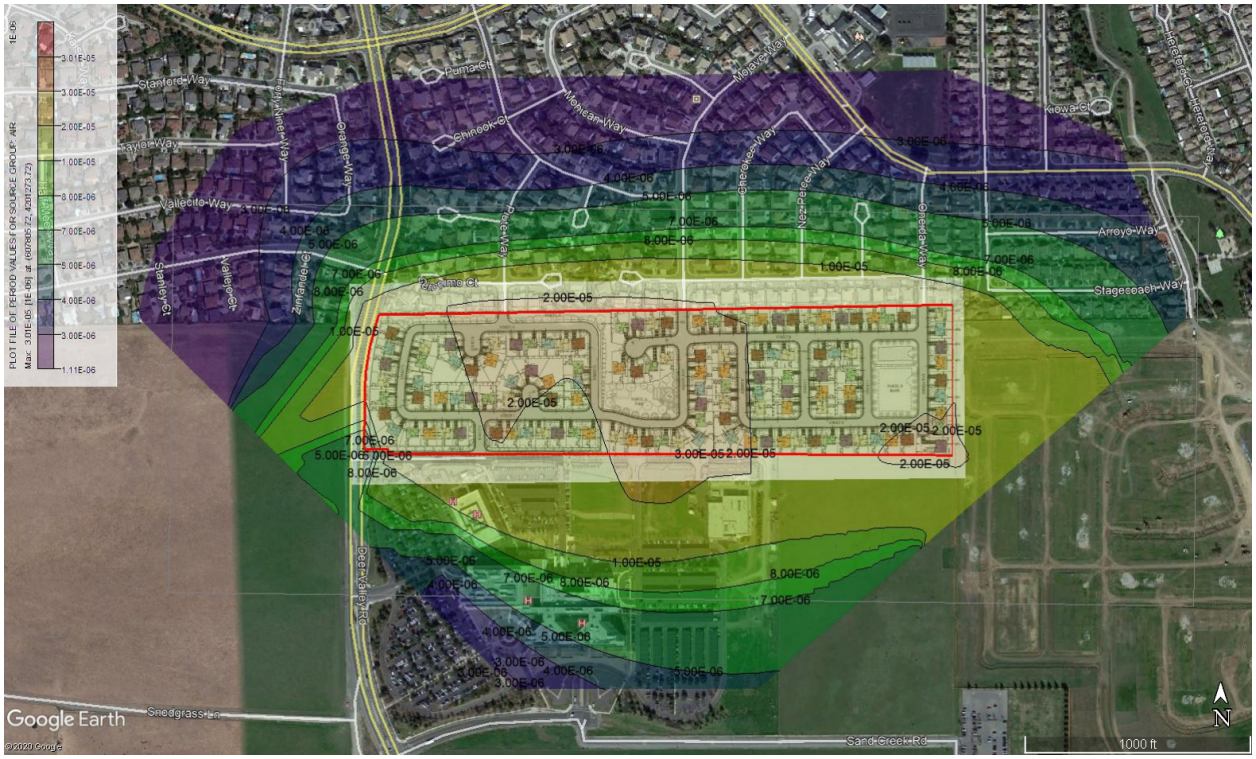
Project Boundary and Construction Area



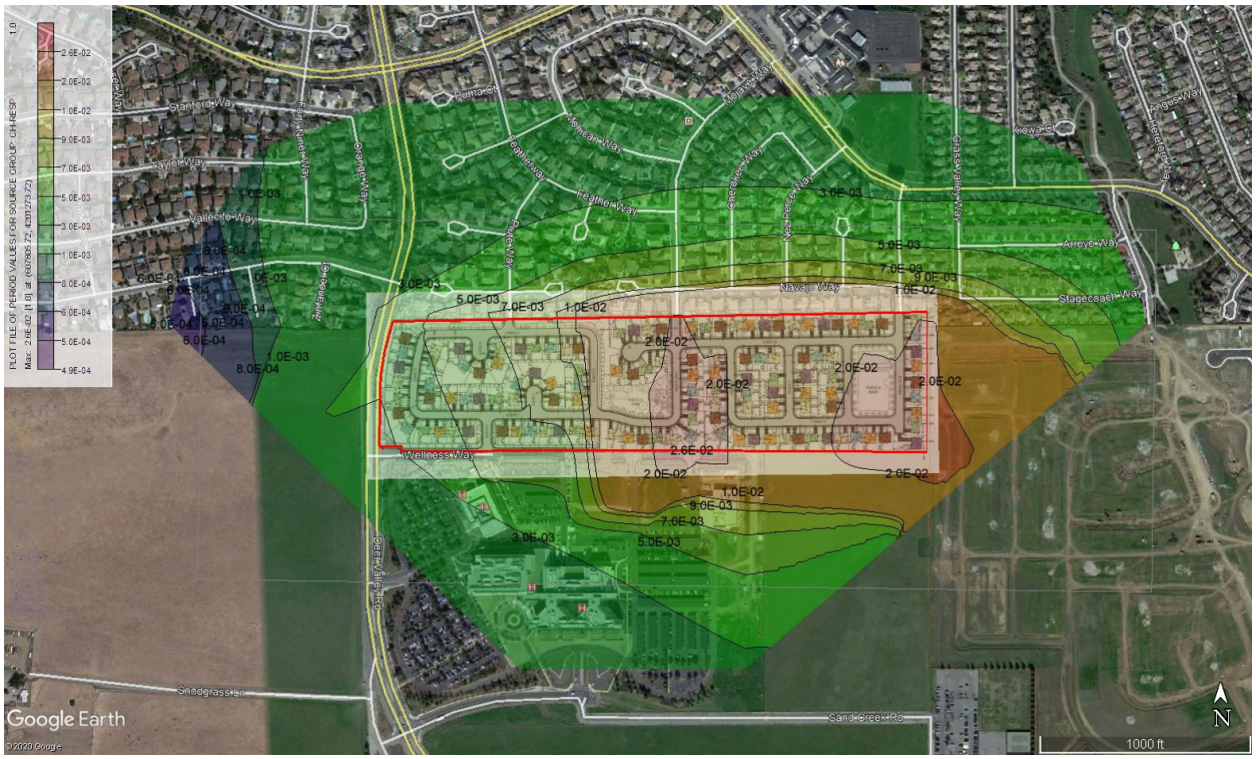
Project Receptors



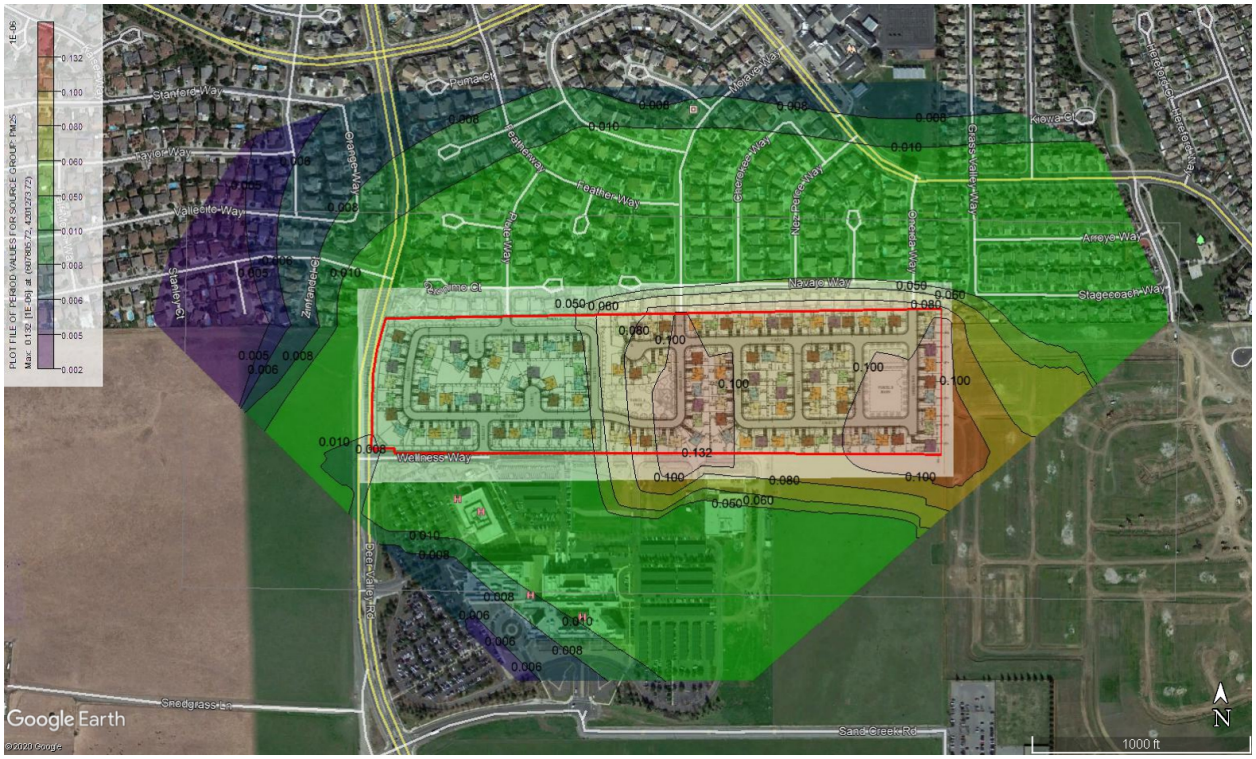
Unmitigated Cancer Risk



Unmitigated Hazard Index



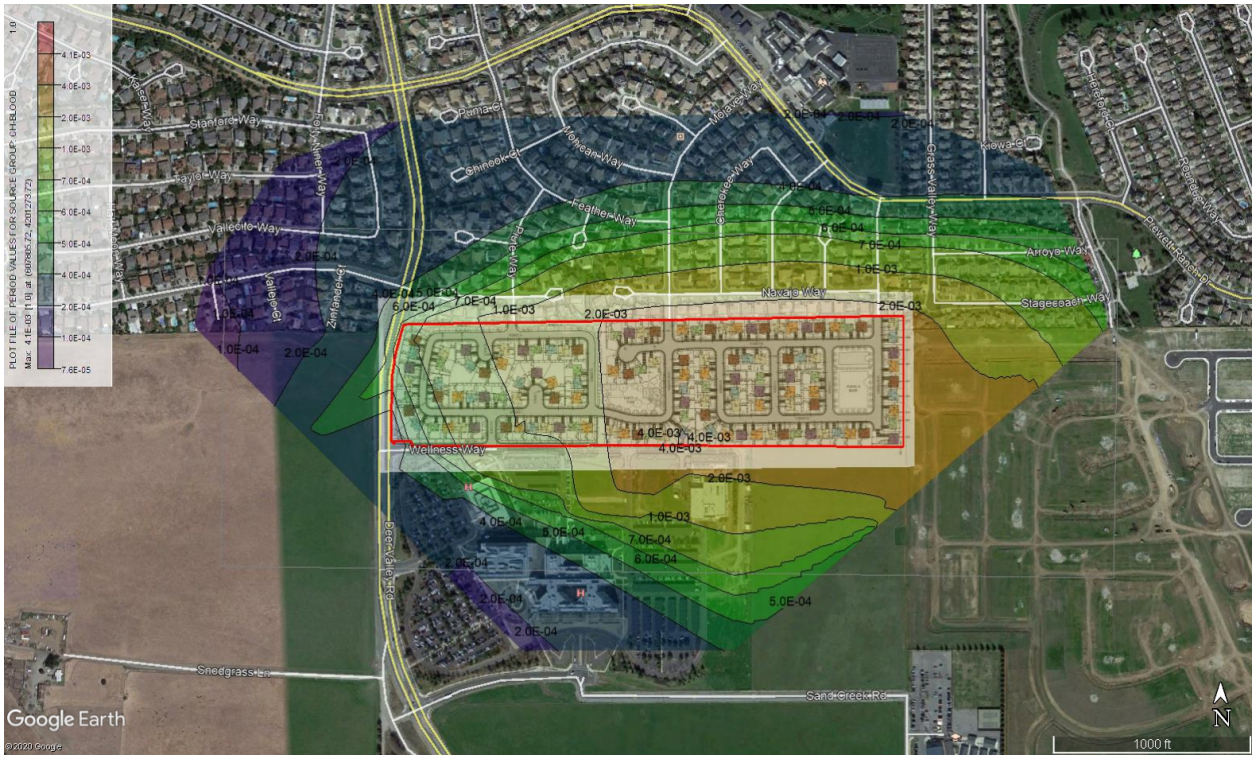
Unmitigated $PM_{2.5}$ Concentrations



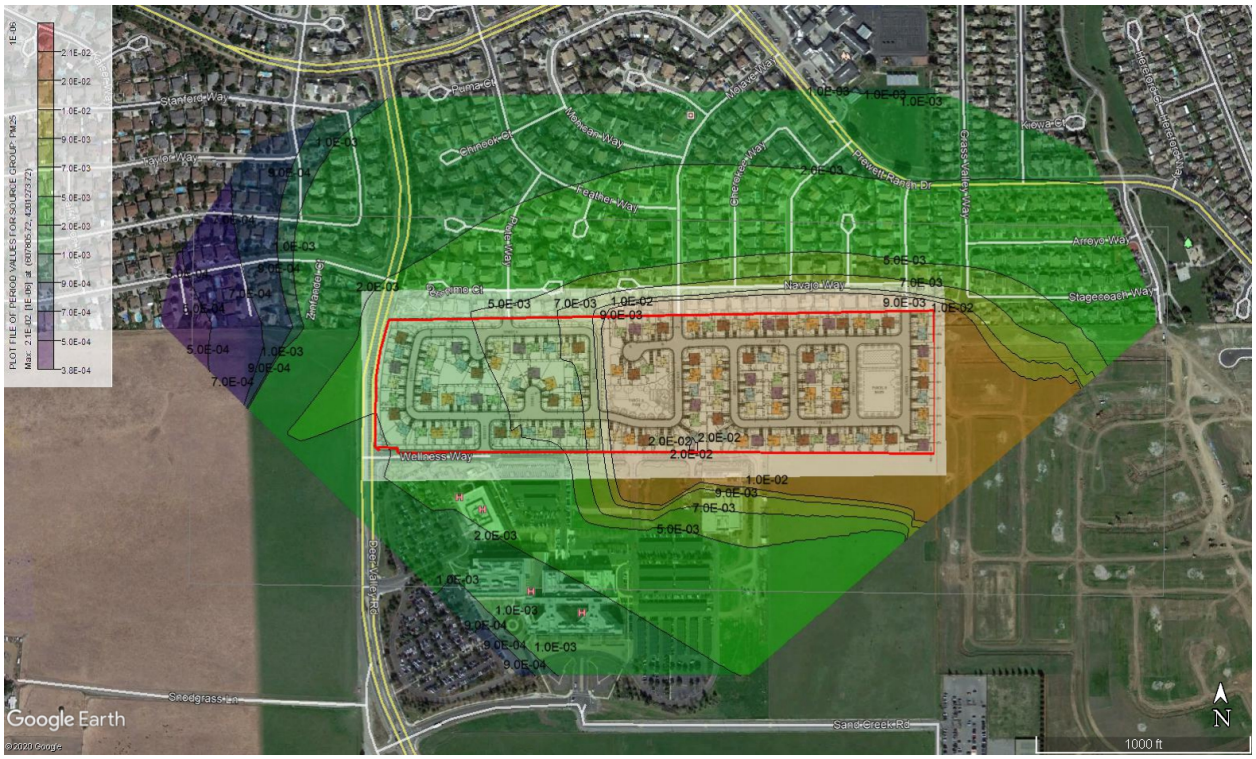
Mitigated Cancer Risk



Mitigated Hazard Index



Mitigated $PM_{2.5}$ Concentrations



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APPENDIX D

BIOLOGICAL RESOURCES ASSESSMENT

LSA

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

January 24, 2019

Carlos Yanez
Blue Mountain Communities
707 Aldridge Road
Vacaville, CA 95688

Subject: Biological Resources Assessment, 1600 Deer Valley Road, Antioch, Contra Costa County

Dear Carlos:

Per your request, LSA presents this letter regarding the results of a reconnaissance-level biological resources assessment for the above-referenced properties (Assessor's Parcel Numbers 057-022-013 and 055-071-026). LSA understands that you are exploring the construction of residential units on the approximately 38-acre site (see Figure 1). The primary objective of the biological assessment was to identify potentially significant biological resource constraints regarding development of the site, especially related to the potential presence of federal and State protected wildlife and plant species.

METHODS

LSA Senior Wildlife Biologist Gretchen Zantzinger conducted a reconnaissance-level survey of the 38-acre project site on January 3, 2019 to evaluate the potential occurrence of special-status species and sensitive habitats on the site. Prior to conducting the survey, LSA reviewed available background information/literature and searched the records of the California Department of Fish and Wildlife's (CDFW) *California Natural Diversity Database* (CNDDB) (CDFW 2019) and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 2019) for occurrences of special-status plant and wildlife species on or adjacent to the project site. LSA surveyed the project site by walking throughout the site to search for biological resources, such as the presence of special-status plants, animals, and their habitats, and sensitive habitats, such as wetlands or drainages. The potential presence of special-status species was determined based on an evaluation of the habitat types present on the site and the CNDDB records and other occurrence information from the vicinity of the site.

The survey was conducted by using meandering pedestrian transects, allowing for 100 percent visual coverage of the site. Plant and wildlife species observed were recorded in field notes. Digital photographs were taken to document site conditions.

The scientific and vernacular nomenclature for the plant and wildlife species used in this analysis are from the following standard sources: plants, Baldwin et al. (2012) and updates listed on the Jepson Herbarium website (http://ucjeps.berkeley.edu/eflora/); amphibians and reptiles, Crother (2017) and/or AmphibiaWeb (www.amphibiaweb.org); birds, American Ornithologists' Union (1998) and supplements through 2018; and mammals, Bradley et al. (2014).

California Native Plant Society Online Inventory

LSA accessed the CNPS Online Inventory of Rare and Endangered Vascular Plants of California for all rare plant records on the United States Geological Survey (USGS) *Antioch South Calif.* Quadrangle.

California Natural Diversity Database

LSA queried the CNDDB for occurrences of all wildlife and plant species subject within a 5-mile radius of the site boundary.

Other Sources

LSA reviewed the public draft of the Contra Costa County Habitat Conservation Plan (HCP) for information on protected biological resources that could occur on the site. The Environmental Impact Report (EIR) for the City of Antioch General Plan was also reviewed.

SPECIAL-STATUS SPECIES

Special-Status Plants

The query of the CNDDB produced a list of 25 plant species with a Rare Plant Rank of 1A, 1B, 2A, or 2B within 5 miles of the site:

- Antioch Dunes buckwheat (*Eriogonum nudum* var. *psychicola*)
- Antioch Dunes evening-primrose (*Oenothera deltoides* ssp. *howellii*)
- Big tarplant (*Blepharizonia plumosa*)
- Bolander's water-hemlock (*Cicuta maculata* var. *bolanderi*)
- Brewer's western flax (*Hesperolinon breweri*)
- Brittlescale (*Atriplex depressa*)
- Chaparral ragwort (*Senecio aphanactis*)
- Contra Costa goldfields (*Lasthenia conjugens*)
- Contra Costa wallflower (*Erysimum capitatum* var. *angustatum*)
- Delta mudwort (*Limosella australis*)
- Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
- Diablo helianthella (*Helianthella castanea*)
- Diamond-petaled California poppy (*Eshscholzia rhombipetalia*)
- Hall's bush-mallow (*Malacothamnus hallii*)
- Hoover's cryptantha (*Cryptantha hooveri*)
- Large-flowered fiddleneck (*Amsinkia grandiflora*)
- Mason's lilaeopsis (*Lilaeopsis masonii*)
- Mt. Diablo manzanita (*Arctostaphylos auriculata*)
- Mt. Diablo fairy-lantern (*Calochortus pulchellus*)
- San Joaquin spearscale (*Extriplex joaquinana*)
- Showy golden madia (*Madia radiata*)
- Shining navarretia (*Navarretia nigelliformis* ssp. *radians*)
- Showy golden (*Madia radiata*)
- Suisun Marsh aster (*Symphyotrichum lentum*)

- Round-leaved filaree (*California macrophylla*)

The CNDDB contained occurrences for three special-status plant species within 1 mile of the site:

- Brittlescale (*Atriplex depressa*)
- Hoover's cryptantha (*Cryptantha hooveri*)
- Shining navarretia (*Navarretia nigelliformis* ssp. *radians*)

Special-Status Wildlife

The CNDDB contained occurrences for 19 special-status wildlife species:

- Lange's metalmark butterfly (*Apodemia mormo langei*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- Longfin smelt (*Spirinchus thaleichthys*)
- Sacramento perch (Archoplites interruptus)
- California red-legged frog (*Rana draytonii*)
- Foothill yellow-legged frog (*Rana boylii*)
- California tiger salamander (*Ambystoma californiense*)
- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
- Giant garter snake (*Thamnophus gigas*)
- California black rail (*Laterallus jamaicensis coturniculus*)
- Song sparrow "Modesto" population (*Melospiza melodia*)
- Swainson's hawk (*Buteo swainsoni*)
- Tricolored blackbird (*Agelaius tricolor*)
- White-tailed kite (*Elanus leucurus*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Burrowing owl (*Athene cunicularia*)
- American badger (*Taxidea taxus*)
- San Joaquin kit fox (*Vulpes macrotis mutica*)

Focused rare plant and protocol-level wildlife surveys were beyond the scope of this reconnaissance-level survey.

RESULTS

Site Conditions

The project site is currently vacant and supports a disked field with ruderal/annual non-native grassland vegetation (see Figure 2). The field appeared to have been recently disked and exhibited minimal vegetation at the time of the field survey.

Soils

Soils of the generally sloped areas of the site consist of Altamont clay, 9 to 15 percent slopes. Soils of the generally flat areas of the site consist of Capay clay, 0 to 3 percent slopes. These soils are

generally moderately to well drained and have a moderate to high capacity for storing water, but they are not classified as hydric soils (NRCS Web Soil Survey 2018).

Wildlife

The white-tailed kite (*Elanus leucurus*) was the only special-status wildlife species detected during the survey.

Several common species of bird were observed flying over or in the vicinity of the site, consisting of:

- Rock pigeon (*Columba livia*)
- Mourning dove (*Zenaida macroura*)
- American white pelican (*Pelecanus erythrorhynchos*)
- Turkey vulture (*Cathartes aura*)
- Red-tailed hawk (*Buteo jamaicensis*)
- Ferruginous hawk (*Buteo regalis*)
- American kestrel (*Falco sparverius*)
- Northern flicker (*Colaptes auratus*)
- Ruby-crowned kinglet (*Regulus calendula*)
- California scrub-jay (*Aphelocoma californica*)
- Common raven (*Corvus corax*)
- Northern mockingbird (*Mimus polyglottos*)
- European starling (*Sturnus vulgaris*)
- White-crowned sparrow (*Zonotrichia leucophrys*)
- Black phoebe (*Sayornis nigricans*)
- Say's phoebe (*Sayornis saya*)
- Yellow-rumped warbler (*Setophaga coronata*)

California ground squirrels (*Otospermophilus beecheyi*) and their characteristic burrows are present across the entire site.

Vegetation

The majority of vegetation on the site has been disked. Remnants of walnut trees are located in the center of the site. Ruderal weedy species from the previous year's growth are present along the edges and in patches not disked. The disked field supports primarily non-native annual grassland and ruderal vegetation. Plant species observed on the site consist of common filaree (*Erodium cicutarium*), California burclover (*Medicago polymorpha*), shortpod mustard (*Hirschfeldia incana*), and gumplant (*Grindelia hirsutula*).

Due to its disturbed nature, the site is unlikely to support any special-status plant species. Most of the special-status plant species in the area have very specific habitat needs (e.g., vernal pools, alkali, playa, thin rocky soil, brackish marshes) that are not present on the site.

No special-status plant species are expected on the site due to the extensive disturbance that has occurred in the past, the isolated nature of the property, and the non-native, weedy plant cover that is current present.

Wildlife

Nine of the wildlife species, Lange's metalmark butterfly, Sacramento perch, longfin smelt, tricolored blackbird, song sparrow, black rail, Alameda whipsnake, giant garter snake, and foothill yellow-legged frog, can be eliminated from consideration due to the lack of suitable habitat on or near the site. Ten species have some potential to occur on the site and are discussed below.

SENSITIVE HABITATS

Wildlife Nursery Sites

The project site does not support any suitable habitat for wildlife nursery sites, including bird rookeries or roosting bat colonies.

Wildlife Movement Corridors

The project site is a vacant lot with a disked field situated within an urban/grassland setting, surrounded to the north and south by urban development, such as roads, buildings, and parking lots. The western side of the site is open grassland, and the property to the east is being graded at present. No significant wildlife movement corridors, such as stream channels or riparian corridors, occur at the site. Existing wildlife that currently move through the site are likely both rural and urban-adapted species that would likely continue to move through the site after project development. Typical wildlife that may move through the site include various native and non-native birds, raccoon (*Procyon lotor*), deer (*Odocoileus hemionus*), and small rodents, such as house mouse (*Mus musculus*), deer mouse (*Peromyscus maniculatus*), and California ground squirrel.

LOCAL AND STATE REGULATIONS

Tree Preservation Ordinance

No trees are present for protection at the site.

HABITAT CONSERVATION PLANS

The project site is not located within the limits of a conservation plan and therefore would not conflict with any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

POTENTIAL BIOLOGICAL CONSTRAINTS

Crustaceans

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

No seasonal wetlands suitable for vernal pool fairy shrimp and vernal pool tadpole shrimp were observed on the site. However, the disking of the site may have impacted potentially suitable

habitat for these species, if present prior to disking. If these species inhabited the site prior to disking, the cysts (i.e., eggs) could remain on the site for several years, depending on the frequency of the disking. If suitable wetland habitat is present on the site in the future, vernal pool fairy shrimp and vernal pool tadpole shrimp could occur.

Amphibians

California Red-Legged Frog

The closest known record of California red-legged frogs occurs in Sand Creek less than 1 mile from the site. The site is within upland movement distance for California red-legged frog.

California Tiger Salamander

The closest suitable breeding habitat of California tiger salamander appears to be within 1 mile from the site. California ground squirrel burrows present on the site would be suitable refuge for the California tiger salamander.

Birds

Nests of special-status and common bird species that are protected by the federal Migratory Bird Treaty Act (MBTA) and/or California Fish and Game Code could occur on or adjacent to the site. Although there are no trees, ground-nesting birds, such as northern harrier, savanna sparrow, killdeer, and western meadowlark, could nest on the site. Numerous bird species could also nest in off-site trees and shrubs. Active bird nests, if present, could cause delays to construction. Timing activities, such as initial grubbing and grading to occur outside of the nesting season for birds, would minimize potential delays caused from bird nests. The generally accepted timeframe for the nesting bird season is February 1 through September 1.

LSA did not detect any nests on the site during the survey.

Swainson's Hawk

There is some potential for Swainson's hawk to forage on the site. Swainson's hawks, which are State-listed as threatened, could potentially forage on the site. The site's relatively small size and surrounding residential development limit the site's suitability for the species.

The nearest known Swainson's hawk nest site is located over 2 miles to the east of the site boundary. During the breeding season, Swainson's hawks may travel up to 18 miles to forage. The CDFW requires that projects consider impacts to Swainson's hawk if there are nests within 10 miles of the project.

Burrowing Owl

Although no burrowing owls or their sign were detected during this reconnaissance-level survey, their presence has been documented during previous surveys on and within 1 mile of the site. Despite the development of the adjacent properties, the presence and abundance of California ground squirrel burrows are sufficient to provide characteristics of habitat suitable for roosting and nesting, especially since the site has short or no vegetation across the entire site.

Loggerhead Shrike

Loggerhead shrikes could nest in trees present off site, but no suitable nesting structure for shrikes is present on site.

Mammals

American Badger

The American badger occurs in the same habitats as the burrowing owl and San Joaquin kit fox. The grassland on this site provides suitable habitat for this species.

San Joaquin Kit Fox

Although unlikely, San Joaquin kit foxes could move into and occupy the burrows on the site. This site is within the range of the San Joaquin kit fox.

CONCLUSION

No significant constraints are related to biological resources on the site.

RECOMMENDED MITIGATION MEASURES

Based on the field survey and review of CNDDB records (CDFW 2019), LSA recommends that the below measures be implemented to ensure impacts to biological resources are avoided.

Pre-Construction Surveys for Burrowing Owl

Pre-construction surveys should be conducted for burrowing owls prior to the commencement of construction activities. These surveys should conform to the survey protocol established by the California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation (Staff Report; CDFG 2012). The following measures are consistent with the provisions of the Migratory Bird Treaty Act and the Staff Report.

No more than 14 days prior to any ground disturbing activities (regardless of time of year), a qualified biologist will conduct a take avoidance survey for burrowing owls. If no owls are found during this first survey, a final survey will be conducted within 24 hours prior to ground disturbance to confirm that burrowing owls are still absent. If ground disturbing activities are delayed or suspended for more than 14 days after the initial take avoidance survey, the site will be resurveyed (including the final survey within 24 hours of disturbance). All surveys will be conducted in accordance with Staff Report guidelines.

If burrowing owls are found on the site during the surveys, mitigation may be required in accordance with Staff Report guidelines. If the surveys identify breeding or wintering burrowing owls on or adjacent to the site, occupied burrows will not be disturbed and will be provided with protective buffers. Where avoidance is not feasible, an exclusion plan will be implemented to encourage burrowing owls to move away from the work area prior to construction. The exclusion plan will be subject to CDFW approval and monitoring requirements. Compensatory mitigation,

including the preservation of suitable burrowing owl habitat at a minimum 1:1 ratio, may also be required by the CDFW as part of the approval of an exclusion plan.

Pre-Construction Surveys for Nesting Birds

The project should avoid construction activities during the bird nesting season (February 1 through August 31). If construction activities are scheduled during the nesting season, a qualified biologist should conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey should be conducted no more than 14 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.

Please contact me at gretchen.zantzinger@lsa.net or Ross Dobberteen, Principal in Charge, at ross.dobberteen@lsa.net if you have any questions and/or require further information regarding the results of this biological constraints analysis.

Sincerely,

LSA Associates, Inc.



Gretchen Zantzinger
Senior Wildlife Biologist

Attachment: Figure 1 – Regional Location and Study Area
Figure 2 – Study Area

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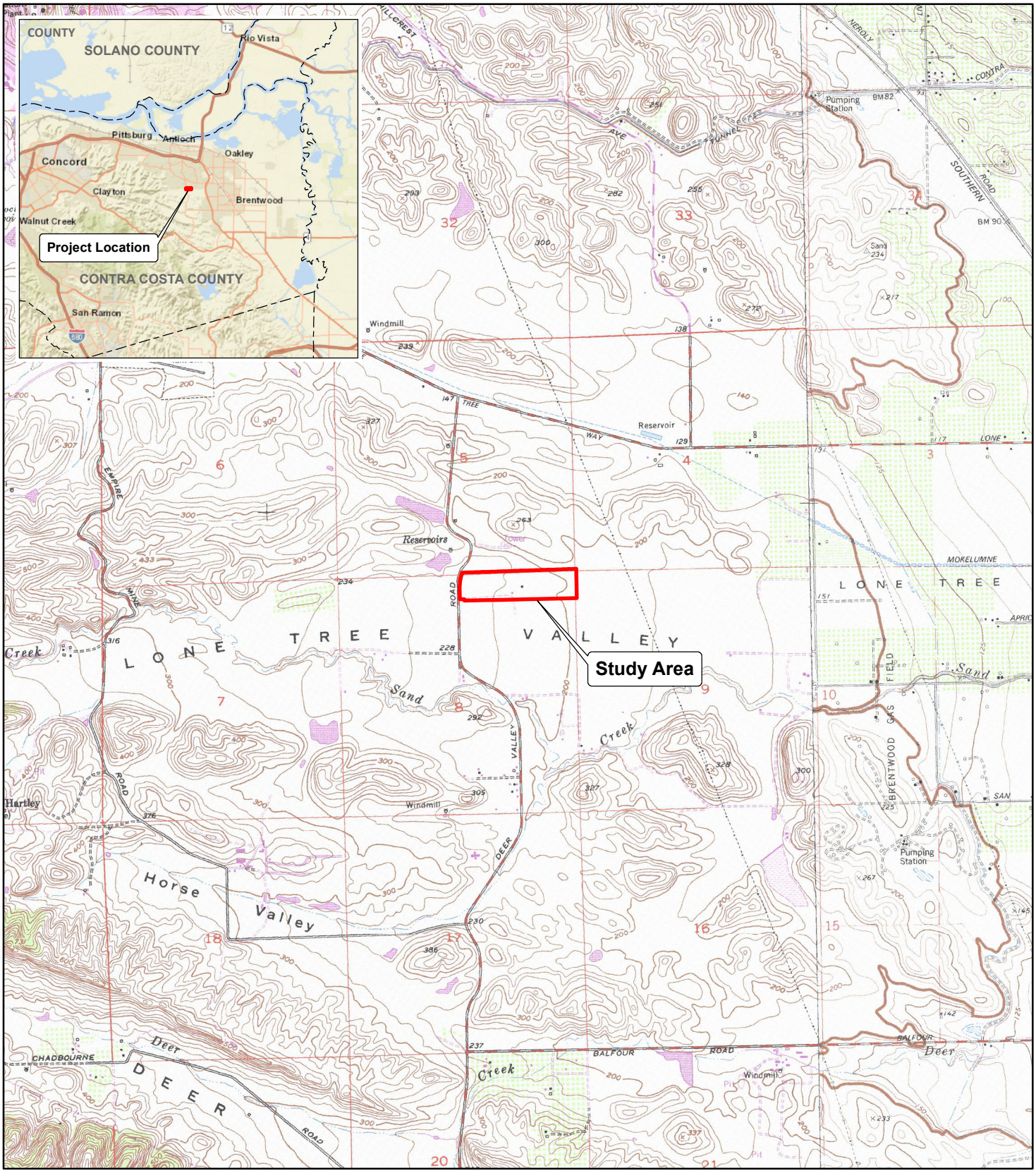
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LSA

FIGURE 1

N

0 1500 3000

FEET

1600 Deer Valley Road
Antioch, Contra Costa County, California

Regional Location and Study Area

SOURCE: USGS 7.5-minute Topo Quads – *Antioch South Calif.* (1980) and *Brentwood, Calif.* (1978). Esri World Street Map (c) 2018.

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LSA

LEGEND

Study Area

FIGURE 2

N

0 200 400

FEET

1600 Deer Valley Road
Antioch, Contra Costa County, California

Study Area

SOURCE: USGS 7.5-minute Topo Quads – *Antioch South Calif.* (1980) and *Brentwood, Calif.* (1978).

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APPENDIX E

JURISDICTIONAL DELINEATION

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: January 24, 2019

TO: Carlos Yanez, Blue Mountain Communities

FROM: Bernhard Warzecha, LSA

SUBJECT: CWA 404 Jurisdictional Delineation of 1600 Deer Valley Road, Antioch

LSA presents this memorandum which summarizes the methods and results of the Clean Water Act (CWA) Section 404 Jurisdictional Delineation (JD) of the property on December 27, 2018, at 1600 Deer Valley Road, Antioch, California.

STUDY AREA

The Study Area includes all of the approximately 38-acre property at 1600 Deer Valley Road in Antioch, Contra Costa County, California. Elevations of the Study Area range from about 200 feet in the eastern portion of the site to about 240 feet in the western portion. The Study Area is located within the Lower Marsh Creek Hydrological Unit (ID 180400030702), which drains to the San Joaquin River, a traditional navigable water of the United States.

METHODS

LSA senior biologist and certified wetland delineator Bernhard Warzecha surveyed the Study Area on December 27, 2018.

Wetlands

The presence or absence of potential wetlands was determined following requirements of the *Corps of Engineers Wetlands Delineation Manual*[1] (Corps Manual) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*[2] (Regional Supplement). These procedures evaluate the extent of hydrophytic vegetation, hydric soils, and wetland hydrology. All of these parameters must be satisfied for an area to be considered a jurisdictional wetland. Wetland indicator status of vegetation follows the *2016 National Wetland*

[1] Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi.

[2] U.S. Army Corps of Engineers. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Plant List for the Arid West Region.[1] Additional guidance of the 2015 Clean Water Rule and the *Technical Support Document for the Clean Water Rule: Definition of Waters of the United States*[2] was incorporated into this JD.

The survey included five sample points in the Study Area. Field data sheets are attached. Sample point locations were mapped using a global positioning system (GPS) receiver capable of submeter accuracy.

Tributaries

If present, tributaries are determined through presence of bed, bank, and Ordinary High Water Mark (OHWM) and/or hydrological connectivity. OHWM is determined and characterized using definitions and guidance of *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*.[3]

Additional Background Information

Additional relevant information about the Study Area was reviewed. This information included relevant sections of the Deer Valley Estates Master Plan Initial Study/Mitigated Negative Declaration (IS/MND; LSA 2007), current and historical aerial imagery (Google Earth Pro), the Watershed Assessment, Tracking and Environmental Results System (U.S. Environmental Protection Agency [EPA]), the Web Soil Survey, and the Climate Analysis for Wetlands (WETS) Tables (both National Resource Conservation Service [NRCS]). Specifically, the standard NRCS WETS analysis[4] includes a weighted comparison of historic rainfall to observed rainfall for the 3-month period before a wetland delineation field survey in order to evaluate if abnormal rainfall patterns may have contributed to observed presence or absence of wetland indicators. The WETS analysis is based on data from the nearest WETS-listed station (Antioch Pumping Plant #3).

RESULTS

Landscape Context and Hydrology

The Study Area consists to one half of flat and one half of sloped or hilly areas. Generally, the Study Area slopes to the southeast. Local depressional features occur. The Study Area is located in the watershed of Sand Creek. Sand Creek is an EPA-mapped “blue-line” stream located approximately 1,800 feet to the south. Sand Creek drains to Marsh Creek, which drains to the San Joaquin River, a traditional navigable water of the United States. However, no stream, channel, or other tributary characterized by an OHWM was observed connecting the Study Area to Sand Creek hydrologically.

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1 Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published April 28, 2016. ISSN 2153 733X.

2 Technical Support Document for the Clean Water Rule: Definition of Waters of the United States. 2015. U.S. Army Corps of Engineers.

3 Lichvar, R.W., and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. U.S. Army Corps of Engineers.

4 Part 650 Engineering Field Handbook - Chapter 19: Hydrology Test for Wetland Determination. NRCS 1997.

The majority of the Study Area, including all of the flat areas and a 0.37-acre area previously identified in the 2007 IS/MND as a potential seasonal wetland, were recently tilled and potentially leveled or filled. A pile of off-site fill material was observed on site.

Five concave/depressional sites with stunted re-growth and deeper tracks from tilling equipment suggested potential wetter areas. These focus areas are located in the northeast corner, the southwest corner, and along the southern parcel boundary. The focus areas were evaluated regarding the potential presence of wetland indicators, including hydrophytic vegetation, hydric soils, and indicators of hydrology. Data sheets for the sample points established in the focus areas are attached. The information presented below is applicable to all focus areas and sample points.

Vegetation

Due to recent tillage, vegetation throughout the Study Area and within the evaluated focus areas was difficult to reliably identify and quantify and therefore, results presented in this section are considered preliminary.

However, it could be determined that vegetation growing in the focus areas generally consisted of about 2-inch tall grass (Poaceae) seedlings (at a stage too early to reliably identify), a large quantity of common filaree (*Erodium cicutarium*) and California burclover (*Medicago polymorpha*), typical upland species and disturbance followers. Other unidentifiable forbs in cotyledon stage were present at non-dominant quantities. Additional plants or plant parts present indicate a substantial pre-tilling cover of shortpod mustard (*Hirschfeldia incana*; not a wetland species) and gumplant (*Grindelia hirsutula*), a facultative wetland (FACW) species. Several flowering gumplants were observed throughout the site. No typical and ubiquitous wetland plants, such as rush (*Juncus* sp.) or the previously documented hyssop loosestrife (*Lythrum hyssopifolia;* an obligate wetland plant), were observed.

Soils

Soils of the generally sloped areas of the Study Area consist of Altamont clay, 9 to 15 percent slopes. Soils of the generally flat areas of the Study Area consist of Capay clay, 0 to 3 percent slopes. These soils are generally moderately to well drained, have a moderate to high capacity for storing water, but are not classified as hydric soils (NRCS Web Soil Survey 2018).

All focus areas are located in areas mapped as Capay clay. Colors ranged from dark brown to brownish yellow. Sandy inclusions and were observed on the northeast focus areas and gravelly fill in the upper 2 inches was observed on the southwestern focus area. A restrictive Claypan layer at about 8 inches depth was observed in one location in the northeastern focus area.

No redox features were observed at any of the soil sample locations. No hydric soils were observed on the Study Area.

Hydrology

No primary or secondary wetland hydrology indicators were observed. No surface water was observed. No water table was present in the upper 12 inches. Soils were generally moist, but no saturation was present.

Climatic Factors

The results of the WETS analysis (attached) indicate that the relevant period prior this wetland delineation (October through December) has been drier than normal.

DISCUSSION

Both the Corps Manual and the Regional Supplement recognize atypical and difficult situations. These situations occur when one or more parameters have been altered by recent human activities to preclude the presence of wetland indicators, and situations in which "some wetlands can be difficult to identify because wetland indicators may be missing due to natural processes or recent disturbances" (Regional Supplement).

Recent tilling of the Study Area constitutes a recent disturbance or alteration and therefore, the situation found during the JD survey may qualify as atypical or difficult as defined by the Corps. Additionally, the absence of wetland indicators may have been compounded by climatic conditions, which have been drier than normal for the relevant period prior the delineation.

Generally, in atypical and difficult situations, the presence of at least one or two wetland indicators would support the interpretation that a missing wetland indicator was masked by recent alteration or abnormal climatic factors. In the case of this specific situation, however, the absence of both hydric soils and wetland hydrology suggest that no wetland is present in the Study Area at the time of the survey, regardless of the potential presence of facultative wetland vegetation.

CONCLUSION

Based on the information presented in this memorandum, LSA concludes that no wetlands or other waters of the U. S. are currently present in the Study Area located at 1600 Deer Valley Road, Antioch, California.

The findings and conclusions presented in this report represent the professional opinion of LSA.

Attachment: Data Sheets
WETS Table and Analysis
Figure 1: Study Area and Sample Point Locations

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: State: CA Sampling Point: 1

Investigator(s): B. Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 0-5

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: SP-1 recently tilled. Below normal rainfall

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1 m²)			
1. MEDICAGO POLYMORPHA	20	Y	FACU
2. ERODIUM CICUTARIUM	5	N	N/A
3. POACEAE SEEDLINGS	15	Y	N/A
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust /

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

Recently tilled, 2" Poaceae seedlings, not identifiable

SOIL

Sampling Point: (1)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	7.5YR/4/2	100					CLAY	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: State: CA Sampling Point: (2)

Investigator(s): B. Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 0-3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:
Below normal rainfall recently tilled, probably man-induced depression 10'x10' SP2

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. POACEAE SEEDLINGS	8	Y	N/A
2. MEDICAGO POLYMORPHA	1	N	FACU
3. ERODIUM CICUTARIUM	1	N	N/A
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks:
recently tilled <5% grass seedlings 2", not identifiable

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					Clay	
8-12								Restrictive Layer
								Claypan?

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Claypan ?

Depth (inches): 8

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: _____ State: CA Sampling Point: 3

Investigator(s): B. Warzecha Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 0-3

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks: site recently tilled, Below normal rainfall SP3 in swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2. HIRSCHFELDIA INCANA	3	N	N/A
3. CENTAUREA SOLSTITALIS	1	N	N/A
4. ERODIUM CICUTARIA	2	N	N/A
5. POACEAE SEEDLINGS	5	Y	N/A
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks: recently tilled, 2" grass seedlings not identifiable HIRINC senescent present

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	70					Clay	
0-12	10YR 6/6	30					SCL	Sandy inclusions

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Claypan

Depth (inches): 12

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: State: CA Sampling Point: 4

Investigator(s): B. Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 0-3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:
Depression at SW corner, tilled, compacted.
Rainfall below normal during 3-month period prior

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. POACEAE SEEDLINGS	20	Y	N/A
2. MEDICAGO POLYMORPHA	6	N	FACU
3. ERODIUM CICUTARIUM	4	N	N/A
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 70 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks:
tilled, compacted by driving
2". Poaceae seedlings not identifiable

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					Clay	
0-3								Gravel fill surface

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: State: CA Sampling Point: 5

Investigator(s): B. Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Slope (%): 0-3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Rainfall below normal for prior 3-month period. Site recently tilled. SP-5 ↓

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. POACEAE SEEDLINGS	5	Y	N/A
2. MEDICAGO POLYMORPHA	3	N	N/A
3. ERODIUM CICUTARIA	2	N	N/A
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks: Site recently tilled. 2" Poaceae seedlings not identifiable. Erodium sp. present.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	—				(L) Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETS Table

WETS Station: ANTIOCH PUMPING PLANT #3, CA								
Requested years: 1982 - 2018								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	54.9	38.9	46.9	2.84	0.98	3.41	6	0.0
Feb	61.1	42.8	51.9	2.60	1.12	3.10	6	0.0
Mar	66.4	45.8	56.1	2.16	0.95	2.64	6	0.0
Apr	72.3	48.7	60.5	0.78	0.38	0.90	2	0.0
May	79.2	53.5	66.4	0.39	0.00	0.31	1	0.0
Jun	86.4	58.0	72.2	0.10	0.00	0.12	0	0.0
Jul	91.6	59.6	75.6	0.00	0.00	0.00	0	0.0
Aug	89.8	58.7	74.3	0.02	0.00	0.00	0	0.0
Sep	86.5	57.5	72.0	0.17	0.00	0.09	1	0.0
Oct	77.5	53.0	65.3	0.50	0.17	0.49	1	0.0
Nov	64.3	45.2	54.7	1.57	0.77	1.84	4	0.0
Dec	55.2	39.0	47.1	2.60	1.34	3.13	5	0.0
Annual:					-	-		
Average	73.8	50.1	61.9	-	-	-	-	-
Total	-	-	-	13.73			32	0.0

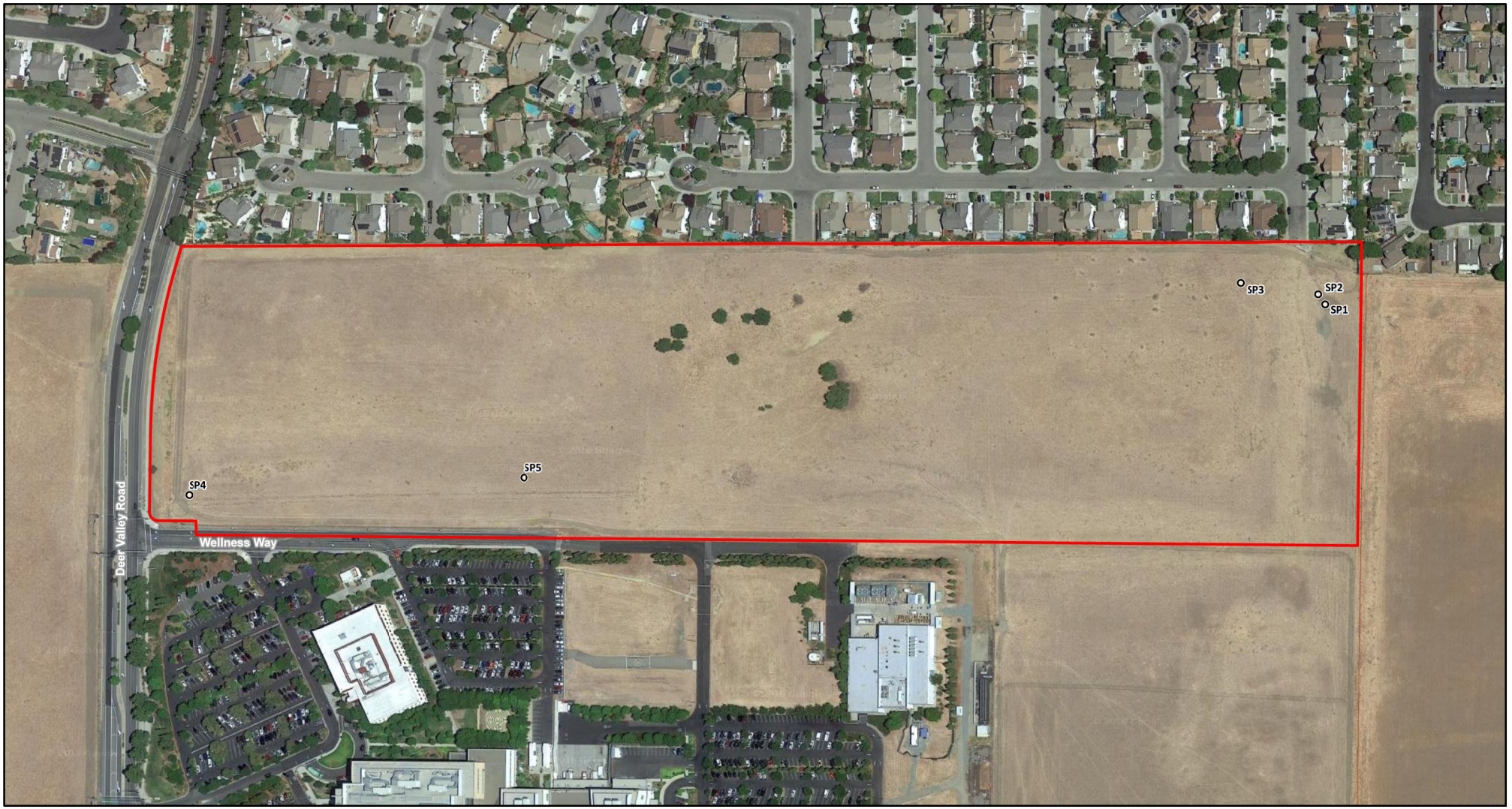
GROWING SEASON DATES			
Years with missing data:	24 deg = 14	28 deg = 17	32 deg = 15
Years with no occurrence:	24 deg = 23	28 deg = 11	32 deg = 2
Data years used:	24 deg = 23	28 deg = 20	32 deg = 22
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	No occurrence	1/25 to 12/9: 318 days
70 percent *	No occurrence	No occurrence	1/13 to 12/21: 342 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

WETS Analysis for 3-Month Period

Month	3 yrs in 10 have less than (inch)	Average (inch)	3 yrs in 10 have more than (inch)	Observed rainfall (inch)	Condition (dry, wet, normal)	Condition Value*	Weighting Factor	Product of previous 2 columns
October	0	0.45	0.44	0	dry	1	1	1
November	0.65	1.32	1.55	0.55	dry	1	2	2
December	1.36	2.71	3.25	1.4	normal	2	3	6
							Sum=	**9****

**If sum is:	
6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

*Condition values:
Dry=1
Normal=2
Wet=3



LSA

LEGEND

Study Area

Non-wetland Sample Point

0 100 200

FEET

SOURCE: Google Maps (c)2019.

I:\BLU1810\GIS\Maps\Delineation\Figure 1_Study Area and Sample Point Locations.mxd (1/23/2019)

FIGURE 1

1600 Deer Valley Road
Antioch, Contra Costa County, California

Study Area and Sample Point Locations

APPENDIX F

CULTURAL RESOURCES REPORT

LSA

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

January 28, 2019

Carlos Yanez
Blue Mountain Communities
707 Aldridge Road
Vacaville, CA 95688

Subject: Cultural Resources Supplemental Report for APN 057-022-013, 1600 Deer Valley Road, Antioch, Contra Costa County, California

Dear Carlos:

Per your request, LSA conducted a cultural resources study for an approximately 38-acre parcel (the "study area") at 1600 Deer Valley Road in Antioch, Contra Costa County (Attachment A: Figures 1-2). We understand that you are considering using the property for residential development. This study was done to supplement LSA's previous investigation of the study area (McKale 2007) in order to confirm and update the baseline conditions for cultural resources. This supplemental report documents the background research and site visit completed for this study, the methods and results of which are described below.

CULTURAL RESOURCES

Background Research

Background research was done to identify recorded and potential unrecorded cultural resources in the study area. The background research consisted of records search updates at the Northwest Information Center (NWIC) and the Native American Heritage Commission (NAHC), a review of geologic maps and literature to assess the potential for buried precontact Native American archaeological sites, and a review of historical maps to assess the potential for buried historic-period archaeological sites.

Northwest Information Center

The NWIC records search was conducted on January 4, 2019, and included the study area and a 0.25-mile search radius for archaeological sites. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resources records and reports for Contra Costa County.

The NWIC database indicates that there is one recorded archaeological site in the study area (Attachment A: Figure 3). That site—assigned the designation C-1092 by the NWIC—was recorded in 1986 and consisted of a 12' x 20' foundation pad and associated artifact deposit with a 1930s automobile frame, hay cutter, bed frame, fuel tank, stove, 55-gallon drums, ceramic fragments, butchered cattle bone, and walnut and olive trees.

East and adjacent to the study area is the Shannon Ranch/Williamson Ranch [NWIC designation P-07-000303], an approximately 398-acre property listed in the National Register of Historic Places (NRHP) (Attachment A: Figure 3). P-07-000303 "is significant for its association with the early agricultural industry in Contra Costa County, namely wheat and barley", and is the only ranch complex in eastern Contra Costa County that is intact and maintains its integrity (Pape 1986). The ranch includes nine contributing physical elements, all of which are approximately 0.5-mile northeast of the study area along Lone Tree Road.

Three previous cultural resource investigations have been completed of the study area (Jensen & Associates 1986; McKale 2007; Samuelson, Rice, and Self 1994). In 1986 Jensen & Associates conducted a cultural resources field survey for six proposed water conveyance alternatives being considered by the Bureau of Reclamation for the improvement of water quality in the Contra Costa Water District service area. The survey completed for that proposed project bisected the current study area in a north-south aligned transect. As previously described above, Jensen & Associates identified C-1092 in the study area and stated that "Given the lack of integrity, significance is considered to be negligible to non-existent."

In 1994, William Self & Associates (Samuelson, Rice, and Self 1994) completed a cultural resources study for the 2,700-acre Future Urban Area 1 project, which included the current study area. The 2,700-acre Future Urban Area consisted of lands slated for potential future mixed-use developments in the City of Antioch. A field survey completed for the 1994 study identified no new cultural resources in the current study area.

In 2007, LSA (McKale 2007) completed a cultural and paleontological resources study for a proposed 136-lot subdivision of the study area. LSA's study included background research, a field survey, and an evaluation to determine the eligibility of C-1092 for listing in the California Register of Historical Resources (CRHR). LSA's evaluation of C-1092 included reviews of historical maps, probate documents, deeds, and grantor/grantee documents, and minor subsurface archaeological testing. Based on the results of these tasks, LSA concluded that C-1092 is not eligible for listing in the CRHR under any of the criterion for listing (California PRC Section 5024.1(c)).

Native American Heritage Commission

The NAHC reviewed its Sacred Lands File to determine the potential presence of Native American cultural resources in the study area. The NAHC maintains the Sacred Lands File and is the official State repository of Native American sacred site location records in California.

Sharaya Souza, NAHC Analyst, stated in a letter dated January 17, 2019, that "*A records search of the Native American Heritage Commission Sacred Lands File was completed.…The results were negative."* The NAHC's response letter is appended to this report (Attachment B).

Geologic Map Review

Geologic mapping indicates that Eocene sandstone (Tkm) and Holocene alluvial pebble gravel, sand, and clay sediment (Qa) underlie the study area (Dibblee 2006). Eocene landforms were formed before evolution of modern *Homo sapiens*, and buried precontact archaeological deposits would not occur within these landforms. Holocene-age landforms, however, have variable potential for

containing buried, formerly exposed surfaces that were available for human habitation during the past 11,700 years. Although all Holocene surfaces have some potential for buried precontact archaeological deposits, studies of known buried sites in central California indicate that the majority of these are within approximately 656 feet (200 m) to water, as drainages were an important factor in focusing human settlements on the landscape (Meyer and Rosenthal 2007; Rosenthal, Hildebrandt, and King 2003).

The study area is not in proximity to a natural drainage to indicate an elevated potential for buried precontact archaeological deposits.

Historical Map and Aerial Photograph Review

Sanborn Fire Insurance maps do not provide coverage of the study area or vicinity, indicating that physical development was too sparse to warrant inspection by the insurance industry in the late 19th and early 20th centuries.

The earliest U.S. Geological Survey map of the project sites dates from 1896, which depicts a building in the center of the study area. A building at this same location is depicted on a 1949 aerial photograph, which also shows the western half of the property planted in row crops. The previously recorded historic-period site C-1092 likely represents the remnants of this former structure.

Based on the presence of a historic-period homestead formerly on the property, there is a potential for identifying buried hollow-filled features (e.g., wells and privies) containing archaeological deposits in the study area. Please refer to the Conclusions and Recommendations section below for additional information.

Field Survey

LSA cultural resources staff visited the study area on January 10, 2019. The purpose of the visit was to revisit the location of previously mapped historic-period site C-1092 and to confirm the findings of LSA's 2007 (McKale 2007) study. Surface visibility was excellent, with soils recently disced.

LSA's visit identified a scatter of historic-period ceramic fragments; colorless, aqua, and solarized bottle glass; cut mammal bones; metal debris; tree stumps; a concrete structural foundation; and recent dumping of modern trash. The 12' x 20' foundation pad, automobile frame, hay cutter, bed frame, fuel tank, stove, and 55-gallon drums described in the 1986 record for C-1092 were not identified. With the exception of recent trash, the materials identified by LSA appear to be generally associated with historic use of the property and C-1092.

CONCLUSIONS AND RECOMMENDATIONS

The recorded historic-period site C-1092 was previously evaluated as lacking historical significance (Jensen & Associates 1986; McKale 2007). Based on LSA's current study, we concur with these previous assessments; C-1092 does not appear to meet any of the criterion for listing in the CRHR, nor does it otherwise qualify as a historical resource under CEQA (*CEQA Guidelines* Section 15064.5(a)). The potential for identifying previously unrecorded historic-period or precontact archaeological deposits cannot be ruled out, however, and procedures for work stoppage and

evaluation of discoveries should be adopted as a condition of project approval. Please see the recommendations below for Accidental Discovery of Archaeological Deposits and Human Remains.

Accidental Discovery of Archaeological Deposits and Human Remains

Should an archaeological deposit be encountered during ground disturbance within the study area, all ground-disturbing activities within 25 feet should be redirected and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology contacted to assess the situation, determine if the deposit qualifies as a historical resource, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. If the deposit is found to be significant (i.e., eligible for listing in the CRHR), the project applicant would be responsible for funding and implementing appropriate mitigation measures. Mitigation measures may include recordation of the archaeological deposit, data recovery and analysis, and public outreach regarding the scientific and cultural importance of the discovery. Upon completion of the selected mitigations, a report documenting methods, findings, and recommendations should be prepared and submitted to the State for review, and the final report should be submitted to the NWIC at Sonoma State University. Significant archaeological materials should be submitted to an appropriate local curation facility and used for future research and public interpretive displays, as appropriate.

In the event that human remains are identified during project construction, these remains should be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, as appropriate.

Please contact me at (510) 236-6810 if you have any questions regarding our study. Thank you for using the services of LSA.

Sincerely,

LSA Associates, Inc.

E. Timothy Jones

E. Timothy Jones, M.A., RPA 15531
Archaeologist/Cultural Resources Manager

Enclosures: Attachment A - Figures
Figure 1 - Regional Location
Figure 2 - Project Site and Vicinity (USGS 7.5-minute Topographic Quadrangle)
Figure 3 - Cultural Resource Locations
Attachment B - NAHC Sacred Lands File Review

REFERENCES

Dibblee, Jr., Thomas W.
2006 *Geologic Map of the Antioch South & Brentwood Quadrangles, Contra Costa County, California.* Santa Barbara Museum of Natural History, Santa Barbara, California.

Jensen & Associates
1986 *Class III Intensive Archaeological Field Reconnaissance of the Kellogg Reformulation Unit Highline Canal Alternative, Contra Costa and Alameda Counties, California.* Jensen & Associates, Chico, California.

McKale, George
2007 *A Cultural/Paleontological Resources Study for the Deer Valley Estates Master Plan Project, Antioch, Contra Costa County, California.* LSA, Point Richmond, California.

Meyer, Jack and Jeffrey Rosenthal
2007 *Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4.* Far Western Anthropological Research Group, Inc., Davis, California.

Pape, Janet L.
1996 National Register of Historic Places Inventory—Nomination Form for Shannon Ranch/Williamson Ranch, Antioch, Contra Costa County, California. Form on file, Northwest Information Center, Sonoma State University, Rohnert Park, California.

Rosenthal, Jeffrey, Jack Meyer, William Hildebrandt, and Jerome King
2003 *A Geoarchaeological Study and Sensitivity Model for the Southern Santa Clara, Hollister, and San Juan Valleys, Santa Clara and San Benito Counties, California*. Far Western Anthropological Research Group, Inc., Davis, California.

Samuelson, Ann, Carolyn Rice, and William Self
1994 *Archaeological Survey Report, Future Urban Area 1, Antioch, Contra Costa County, California.* William Self Associates, Orinda, California.

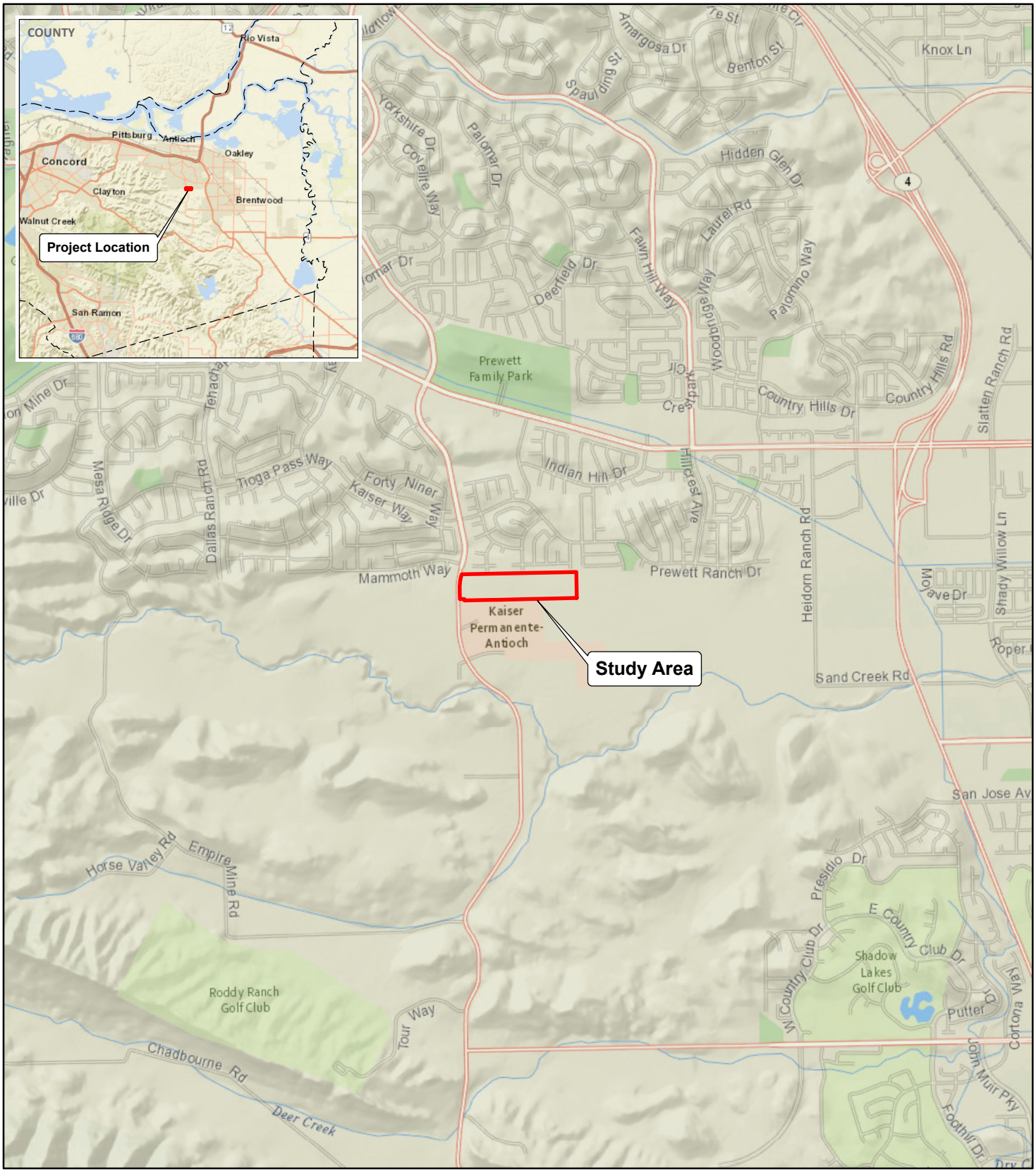
U.S. Geological Survey
1896 *California Mt. Diablo Quadrangle.* 15-minute topographic quadrangle. U.S. Geological Survey, Washington, D.C.

ATTACHMENT A – FIGURES

Figure 1: Regional Location and Study Area

Figure 2: Study Area (USGS 7.5-minute Topographic Quadrangle)

Figure 3: Cultural Resource Locations



LSA

FIGURE 1

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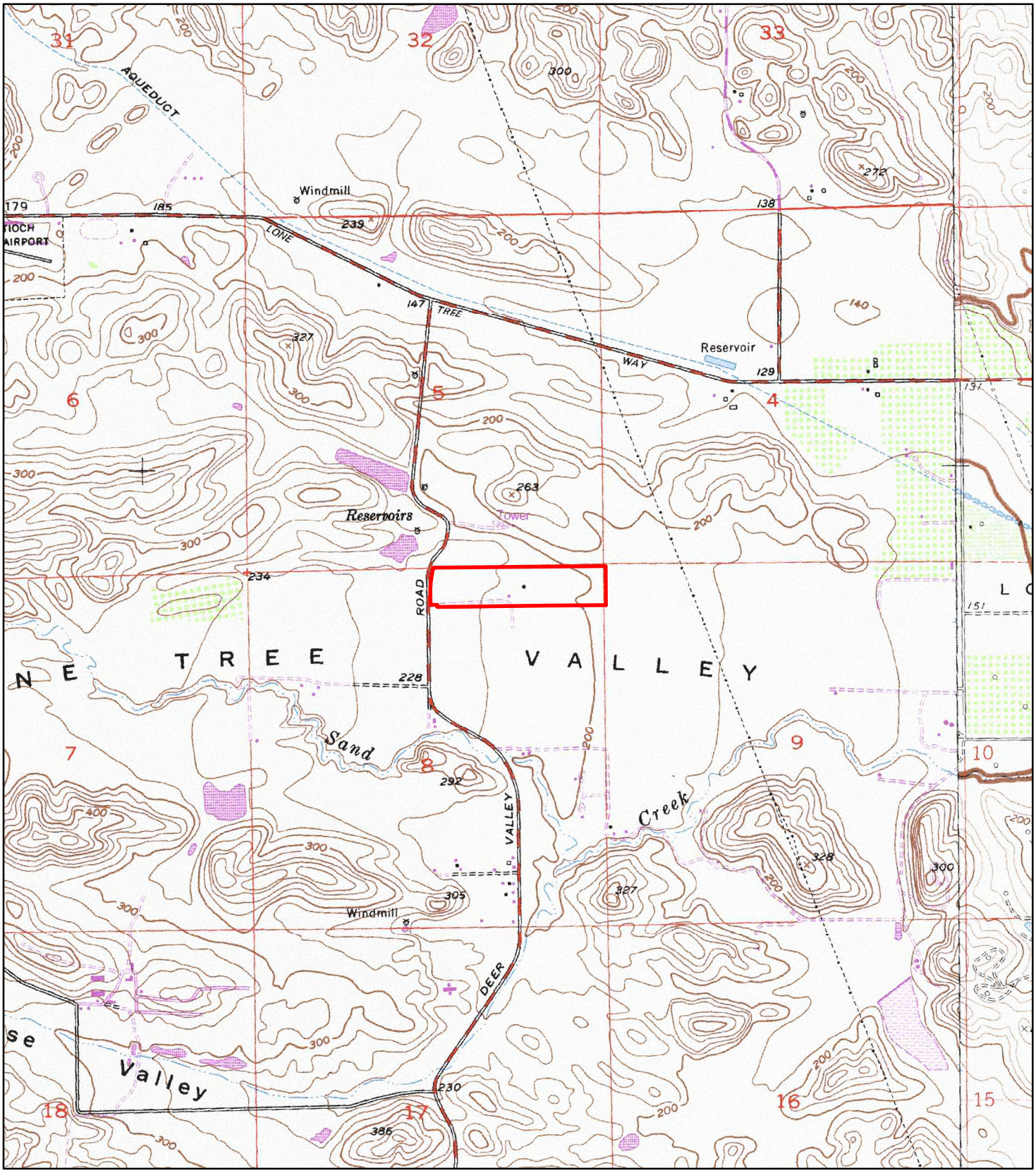
FEET

1600 Deer Valley Road
Antioch, Contra Costa County, California

Regional Location and Study Area

SOURCE: National Geographic (c) 2018; Esri World Street Map (c) 2018.

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LSA

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Study Area

FIGURE 2

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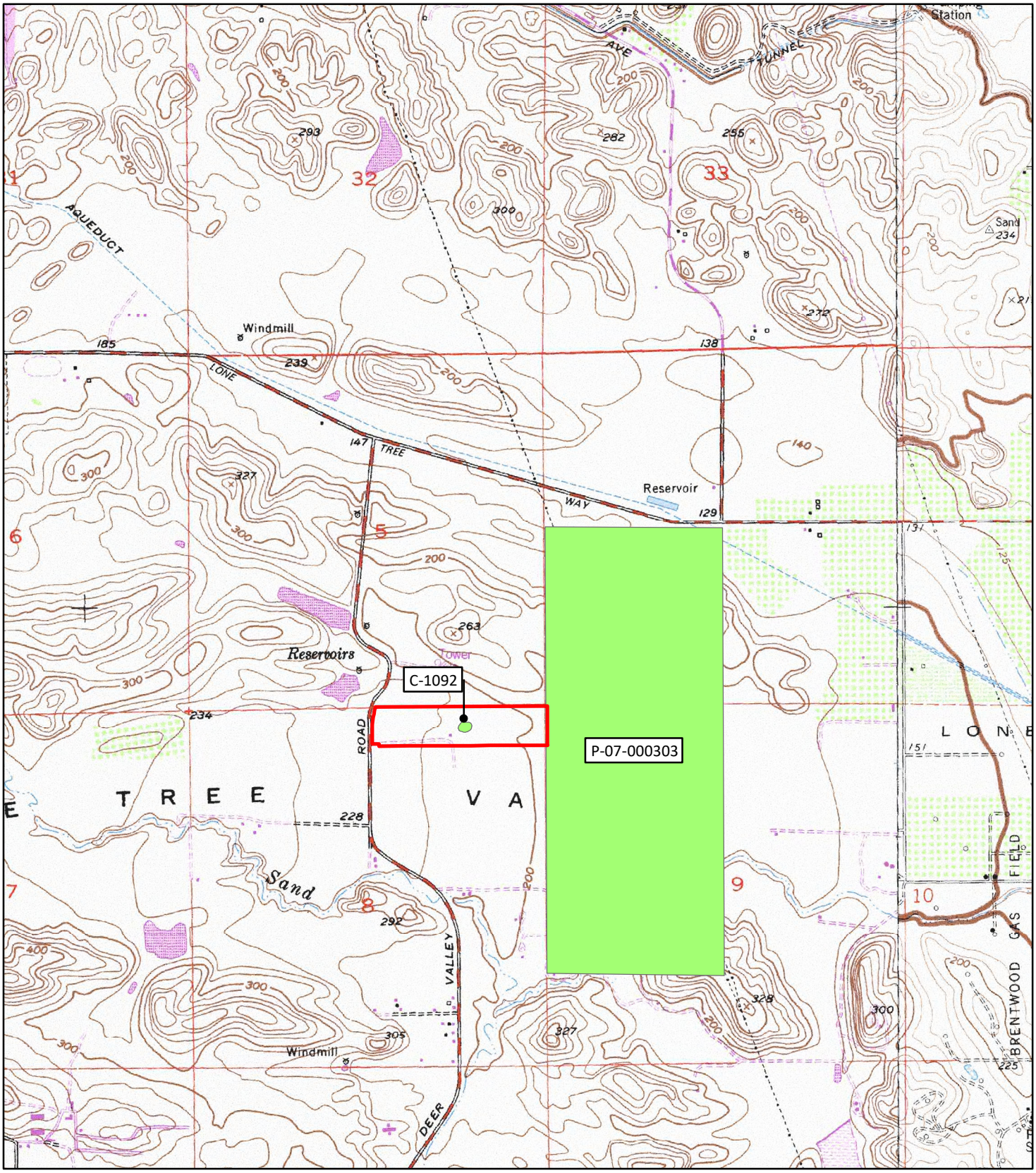
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1600 Deer Valley Road
Antioch, Contra Costa County, California

Study Area

SOURCE: USGS 7.5-minute Topo Quads – *Antioch South Calif.* (1980) and *Brentwood, Calif.* (1978).

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LSA

LEGEND

Study Area

Resources

FIGURE 3

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1600 Deer Valley Road
Antioch, Contra Costa County, California

Cultural Resource Locations

SOURCE: USGS 7.5-minute Topo Quads – *Antioch South Calif.* (1980) and *Brentwood, Calif.* (1978).

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ATTACHMENT B – NAHC SACRED LANDS FILE REVIEW

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Website: http://www.nahc.ca.gov

January 17, 2019

Timothy Jones
LSA Associates

Sent by Email: tim.jones@lsa.net
Number of Pages: 2

RE: 16000 Deer Valley Road, Antioch South, Contra Costa County

Dear Mr. Jones:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. **The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area**. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. **By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe**. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: Sharaya.Souza@NAHC.ca.gov or directly at (916) 573-0168.

Sincerely,

Sharaya Souza
Analyst

Attachment

Native American Heritage Commission
Native American Contacts List
1/17/2019

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road — Ohlone/Costanoan
Woodside ,CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 332-1526 Fax

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28 — Ohlone/Costanoan
Hollister ,CA 95024
ams@indiancanyon.org
(831) 637-4238

Muwekma Ohlone Indian Tribe of the SF Bay Area
Charlene Nijmeh, Chairperson
20885 Redwood Road, Suite 232 — Ohlone / Costanoan
Castro Valley ,CA 94546
cnihmeh@muwekma.org
(408) 464-2892
(408) 205-9714

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
P.O. Box 717 — Ohlone/Costanoan
Linden ,CA 95236 — Northern Valley Yokuts
canutes@verizon.net — Bay Miwok
(209) 887-3415

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3388 — Ohlone/Costanoan
Fremont ,CA 94539 — Bay Miwok
chochenyo@AOL.com — Plains Miwok
(510) 882-0527 Cell — Patwin
(510) 687-9393 Fax

Wilton Rancheria
Raymond Hitchcock, Chairperson
9728 Kent Street — Miwok
Elk Grove ,CA 95624
rhitchcock@wiltonrancheria-nsn.gov
(916) 683-6000 Office
(916) 683-6015 Fax

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes for the proposed:
16000 Deer Valley Road, Antioch South, Contra Costa County.

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APPENDIX G

NOISE MEASUREMENT SHEETS

Project Number: CAN2002 Test Personnel: J.T. Stephens
Project Name: Deer Valley Estates Equipment: LD LxT

Noise Measurement Survey

Site Number: ST-1 Date: 9/16/2020 Time: From 10:34 a.m. To 10:49 a.m.

Site Location: Southern terminus of Oneida Way, west sidewalk

Primary Noise Sources: Distant construction noise at tract east of project site and local traffic.

Measurement Results

	dBA
L_{eq}	46.9
L_{max}	57.2
L_{min}	36.0
L_{50}	42.3
L_{90}	37.8

Atmospheric Conditions

Maximum Wind Velocity (mph)	
Average Wind Velocity (mph)	8
Temperature (F)	77
Humidity (%)	48

Comments: Without construction, would be rather quiet

Location Photo:



Project Number: CAN2002 Test Personnel: J.T. Stephens
Project Name: Deer Valley Estates Equipment: LD LxT

Noise Measurement Survey

Site Number: ST-2 Date: 9/17/2020 Time: From 11:26 a.m. To 11:41 a.m.

Site Location: Southern property line, eastern terminus of paved road, north of HVAC at hospital

Primary Noise Sources: General ambient noise/ HVAC equipment

Measurement Results

	dBA
L_{eq}	57.9
L_{max}	70.5
L_{min}	55.8
L_{50}	57.4
L_{90}	56.8

Atmospheric Conditions

Maximum Wind Velocity (mph)	
Average Wind Velocity (mph)	3
Temperature (F)	78
Humidity (%)	54

Comments: 16 foot wall around mechanical equipment

Location Photo:



Project Number: CAN2002 Test Personnel: J.T. Stephens
Project Name: Deer Valley Estates Equipment: LD LxT

Noise Measurement Survey

Site Number: ST-3 Date: 9/17/2020 Time: From 12:19 p.m. To 12:34 p.m.

Site Location: North side of Wellness Way, just east of 1st parking lot entrance

Primary Noise Sources: Traffic on Wellness Way and Deer Valley Road, parking lot activities

Measurement Results

	dBA
L_{eq}	60.5
L_{max}	81.4
L_{min}	38.6
L_{50}	48.3
L_{90}	42.4

Atmospheric Conditions

Maximum Wind Velocity (mph)	
Average Wind Velocity (mph)	3
Temperature (F)	78
Humidity (%)	54

Comments:

Location Photo:



Noise Measurement Survey – 24 HR

Project Number: CAN2002
Project Name: Deer Valley Estates

Test Personnel: J.T. Stephens
Equipment: LD Spark 706RC

Site Number: LT-1 Date: 9/16-17/2020

Time: From 10:00 am To 10:00 am

Site Location: 70 feet east of Deer Valley Road Centerline

Primary Noise Sources: Traffic on Deer Valley Road

Comments:

Location Photo:



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APPENDIX C

VMT ANALYSIS MEMORANDUM

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CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: November 06, 2020

TO: Ms. Zoe Meredith, Associate Planner,
City of Antioch

FROM: Ambarish Mukherjee, P.E., AICP

SUBJECT: Deer Valley Estates Project Vehicle Miles Traveled Analysis

LSA is under contract to prepare a Transportation Analysis (TA) for the proposed Deer Valley Estates Project (project) to be located at 6100 Deer Valley Road in the City of Antioch (City). The project will include 121 new single-family homes. Figure 1 (all figures attached) illustrates the regional and project location. Figure 2 illustrates the conceptual site plan for the project.

As part of the TA, LSA has prepared this Vehicle Miles Traveled (VMT) analysis for the project.

BACKGROUND

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was the removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on VMT.

The City does not have its own VMT analysis guidelines. Therefore, the VMT analysis for this project has been prepared consistent with the Governor's Office of Planning and Research (OPR) *Technical Advisory (TA),* dated December 2018.

As per the OPR TA, the project VMT per capita has been compared with the regional VMT per capita to determine VMT impacts. Additionally, the OPR TA recommends that a region be identified that would typically include majority of the trips from a project. Therefore, for purposes of this analysis, Contra Costa County (County) has been considered as the region. Following is a detailed description of the VMT analysis.

METHODOLOGY

The OPR TA states that for residential projects, the threshold for determining VMT impacts is 15 percent below the region's existing VMT per capita. The project VMT per capita under existing (2020) conditions have been compared with the corresponding VMT per capita for the County to determine whether the project will have a significant VMT impact.

The Contra Costa Transportation Authority (CCTA) Countywide Travel Demand Model has been used to estimate both regional and project VMT. The model's 2020 scenario and socioeconomic data have been used for purposes of this analysis. Countywide and project VMT were calculated from the CCTA model runs as described below:

Project Traffic Analysis Zone Update

The first step in the preparation of this analysis was to update the traffic analysis zones (TAZs) in the model that include the project area. LSA converted the project land use into model socioeconomic data for the year 2020 scenario. The project land use was isolated to one TAZ to calculate project specific VMT per capita.

VMT ANALYSIS

The project's VMT per capita was compared to the VMT per capita for the County. Table A shows the VMT per capita estimates for the project and the County. As shown in Table A, the VMT per capita for the project is higher than the corresponding regional average under existing conditions. Therefore, as per the guidelines in the OPR TA, the project is anticipated to have a significant VMT impact.

Table A: Regional and Project VMT per Capita Comparison

Analysis Scenario	Region (Contra Costa County)	Project	Percentage Difference
Existing (2020)	16.75	22.19	+32.48%

Source: Contra Costa Transportation Authority (CCTA) Countywide Travel Demand Model
VMT = Vehicle Miles Traveled

MITIGATIONS

When a lead agency identifies a significant CEQA impact, the agency must identify feasible mitigation measures in order to avoid or substantially reduce that impact. VMT impacts will require mitigation of regional impacts through more behavioral changes. Enforcement of mitigation measures will be subject to the mitigation monitoring requirements of CEQA, as well as the regular police powers of the agency. These measures can also be incorporated as a part of plans, policies, regulations, or project designs.

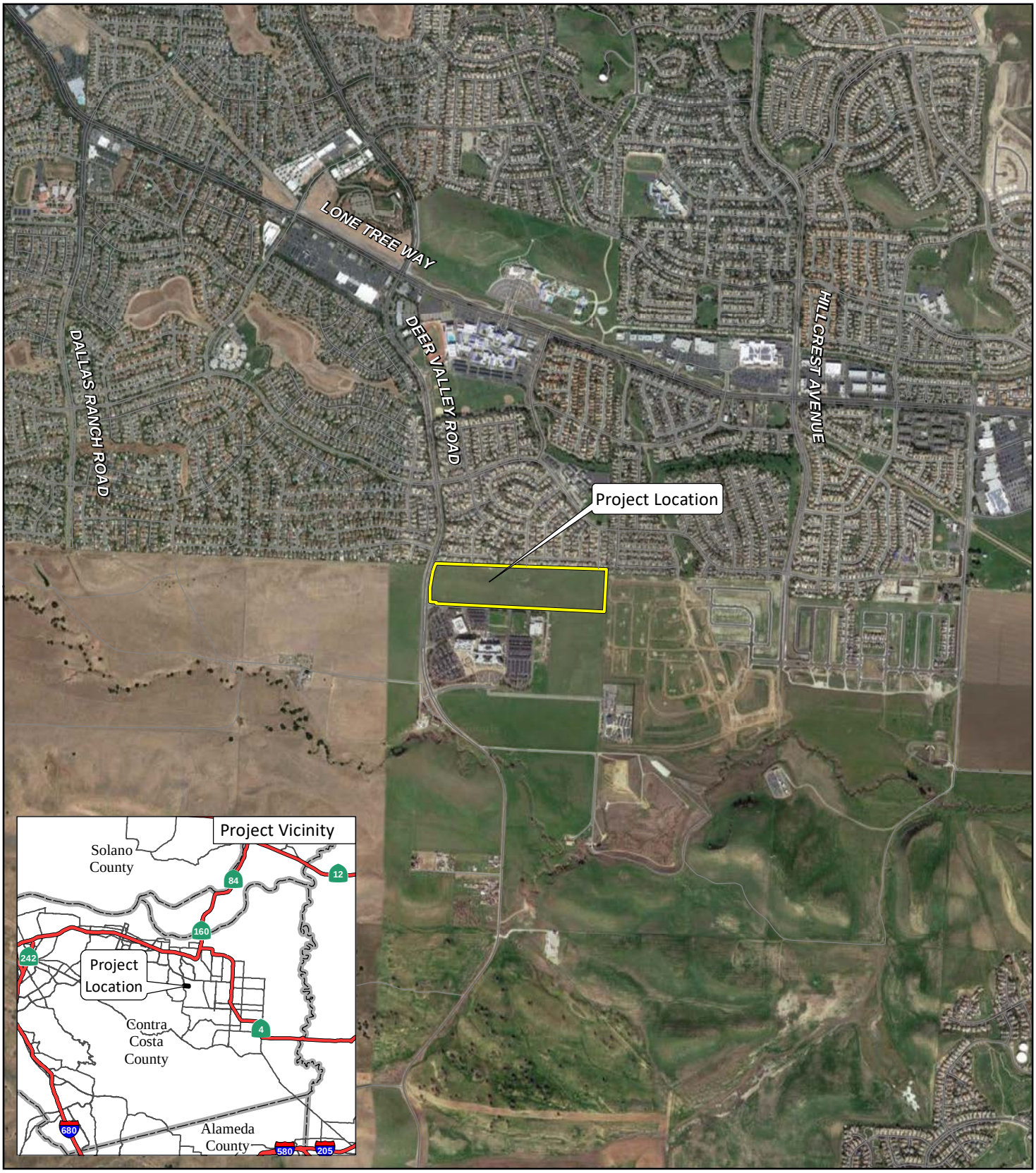
In general, transportation demand management (TDM) actions, active transportation amenities, and other measures to reduce the number of trips creating an impact are possible VMT mitigation strategies. Some possible mitigations for this project might be implementation of carpool programs, addition of bike lanes, provision of bike parking within the project site, implementation of pedestrian network improvements, provision of transit passes, etc.

Specific VMT mitigations for this project will be determined based on discussions with City staff, and are forthcoming.

ATTACHMENTS

Figures

Figure 1: Regional and Project Location
Figure 2: Conceptual Site Plan



LSA

FIGURE 1

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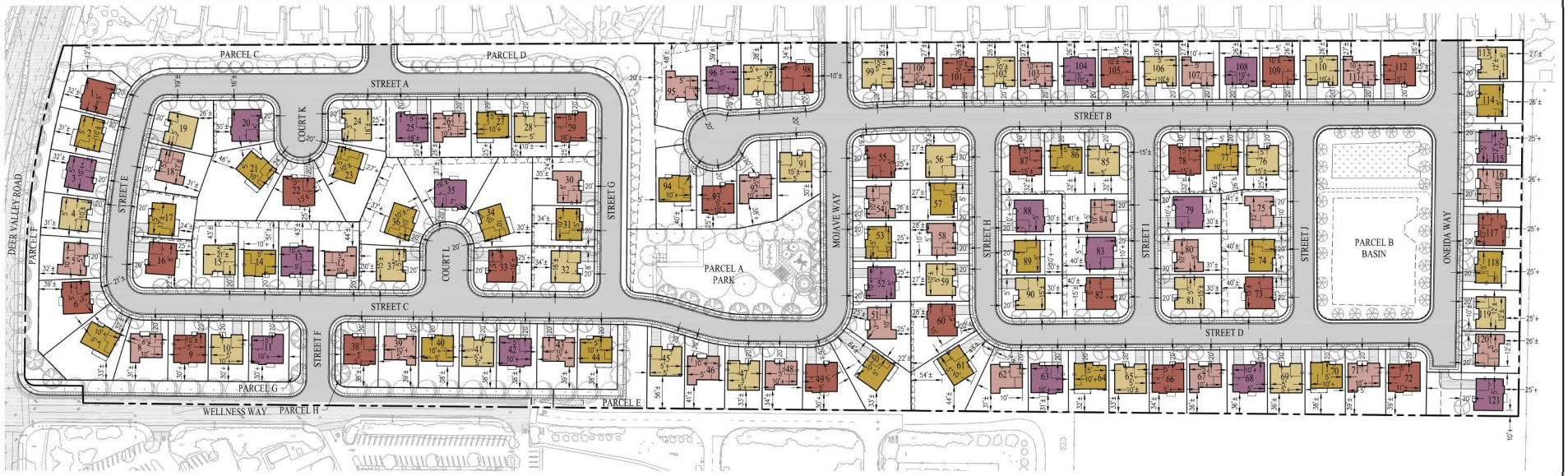
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Deer Valley Estates Project
Vehicle Miles Traveled Analysis

Regional and Project Location

SOURCE: ESRI Streetmap, 2013; Google Earth, 2018.

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LSA

FIGURE 2

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Deer Valley Estates Project
Vehicle Miles Traveled Analysis

Conceptual Site Plan

SOURCE: CBG; January 2020

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