# Canyon Terrace Apartments

## Initial Study/Mitigated Negative Declaration

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**City of Folsom**
**Community Development Department**
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**Volume 1 of 2**

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# 1.0 INTRODUCTION

This Initial Study (IS) addresses the proposed Canyon Terrace Apartments project (proposed project) and whether it may cause significant effects on the environment. The IS also assesses whether any environmental impacts of the project are susceptible to substantial reduction or avoidance by project revision, imposition of conditions, or any other means [§15152(b)(2)] of the California Environmental Quality Act (CEQA) Guidelines. If such revisions, conditions, or other means are identified, they will be included as mitigation measures.

This Initial Study relies on State CEQA Guidelines Sections §15064 and 15064.4 in its determination of the significance of the environmental impacts. Per §15064, the finding as to whether a project may have one or more significant impacts shall be based on substantial evidence in the record, and that controversy alone, without substantial evidence of a significant impact, does not trigger the need for an Environmental Impact Report (EIR).

# 2.0 PROJECT BACKGROUND

The following project specific technical reports quantified analysis and or surveys were used in preparation of this Initial Study and are incorporated by reference:

- Air Quality and Greenhouse Gas Analysis, prepared by De Novo Planning Group (February 2019).
- Consulting Arborist Report, prepared by ABACUS Consulting Arborists (March 2016, revised September 2018).
- Cultural Resources Assessment for the Canyon Terrace Apartments Project, prepared by HELIX Environmental Planning (September 2018).
- Energy Technical Memorandum, prepared by De Novo Planning Group (March 2019).
- Geotechnical Exploration, prepared by ENGEO Inc. (June 2017).
- Environmental Noise Analysis, prepared by J.C. Brennan & Associates, Inc. (September 2018).
- Tribal Consultation Record for Compliance with Assembly Bill 52 and CEQA for the Canyon Terrace Apartments Project, prepared by ECORP Consulting, Inc. (October 2018).
- Traffic Impact Analysis Report, prepared by GHD (February 2019).

# 3.0 PROJECT DESCRIPTION

## 3.1 Project Location

The proposed project would be constructed on an approximately 17-acre parcel situated near the northwestern boundary of the City of Folsom in Sacramento County, California. The project site is located southwest of the intersection of Oak Avenue Parkway and American River Canyon Drive, within the existing Canyon Terrace Apartment community. The project site is located on Assessor's Parcel Number (APN) 213-0060-025. Refer to **Figure 1** for the regional location and **Figure 2** for an aerial view of the project site in **Appendix A**.

## 3.2 Project Setting and Surrounding Land Uses

The project site is currently developed and located within the existing Canyon Terrace Apartment community. The project site is bounded by a shopping center to the north, American River Canyon Drive

and single-family residential dwellings to the east, single-family residential dwellings to the south, and Odyssey Learning Center and single-family residential to the west. The more regional setting is primarily characterized by residential development with a commercial shopping center immediately adjacent to the north.

The project site gently slopes downward from both east to west and from south to north. There are no wetlands or streams located on the project site.

## 3.3 Project Characteristics

The Canyon Terrace Apartment community currently consists of 200 existing apartment units allocated within 25 two-story apartment buildings. The proposed project includes the construction of 96 new apartment units within eight new apartment buildings in the existing Canyon Terrace Apartment community. Refer to **Figure 3** for the site design plan in Appendix A.

The proposed apartment buildings would be three-stories tall and feature garages on the first level of the buildings. The proposed apartment building would be wood-framed structures with concrete slab-on-grade first floors. Five of the eight proposed apartment buildings would be cut into the slope along the eastern portion of the project site, and the bottom of these apartment buildings would be used as garage space.

A small community building, pool area, and two tennis courts would be demolished as part of the proposed project. However, the proposed project includes a new swimming pool, clubhouse/leasing office/fitness center building, and new paved parking areas and drive lanes. The applicant proposes to install a solar photovoltaic system on the rooftops of the proposed clubhouse/leasing office/fitness center building and adjacent apartment building (Building 1 in Figure 3).

### Parking and Circulation

Parking areas throughout the apartment community would be retained, except in areas of the new development where displaced parking spaces would be replaced with the proposed infill project. The proposed project would include a total of 233 new parking spaces to the Canyon Terrace Apartment community. The additional parking proposed would be allocated as follows:

- 127 surface stalls (including three Americans with Disabilities Act (ADA) compliant spaces)
- 79 garage stalls
- 27 carport stalls

The applicant proposes to install a minimum of three electric vehicle charging stations at the project site. The charging stations would be located in the surface parking spaces closest to the proposed clubhouse/leasing office/fitness center building. Additionally, the project applicant proposes to implement electric vehicle car sharing at the project site through a company called Envoy.

Access to the project site would continue to be provided by two existing driveways located on the west side of American River Canyon Drive, and pedestrian facilities with ADA compliant features are provided adjacent to the residential and community recreation facilities of the existing apartment complex. The proposed project includes the construction of new on-site sidewalks and pedestrian pathways containing ADA compliant features to provide connectivity between the proposed buildings, community recreation facilities and the parking lots. The sidewalks would adhere to California Title 24 code

requirements regarding site accessibility with vertical slopes no greater than five percent and cross slopes no greater than two percent.

## Emergency Vehicle Access

Emergency vehicle access would be maintained throughout the project site to meet the Fire Department standards for fire truck maneuvering, location of fire truck to fight a fire, rescue access to the units, and fire hose access to all sides of the building.

### Utilities

On-site domestic water would connect to the existing (looped) water system on-site. All domestic water pipelines include a 20-foot wide SJSWD easement for service.

On-site fire water would connect to the City of Folsom water supply on American River Canyon Drive at the existing north and south driveways and would include two double detector check valves (one on each end of the looped system), providing fire water to the proposed hydrants, exterior Fire Department Connection assemblies, and fire riser rooms.

The on-site sewer system would be privately owned, operated, and maintained. The proposed sewer system would run south to north across the project site to Canyon Terrace Lane, then east to west to the connection to the public sewer system in the northwest corner of the Canyon Terrace Apartment community. The proposed sewer line would function as a standalone system (no tie-ins from the existing network) until it would connect to the outgoing manhole in the northwest corner of the property.

All new proposed trash enclosures would include a drain that connects to the sanitary sewer system in conformance with Storm Water Quality Guidance.

The on-site storm drain design would conform to City of Folsom standards and include design features consistent with the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (updated June 2007). Low Impact Design features have been identified for each drainage management area within the proposed expansion.

## Landscaping

The proposed landscape design would replace large existing areas of high water use lawn grass with a combination of low to medium water use shrub/ground cover areas and a low water use native grass mix. The native grass mix would look like long meadow grass and be retained in a green state year-round with low volume irrigation.

The existing oleander hedge in the southern portion of the project site near American River Canyon Drive would not be removed. Existing trees and vegetation outside of the project grading limits would not be removed. The project would blend proposed landscaping in with the existing surrounding landscaping.

Parking areas would be shaded by deciduous broadleaf and flowering canopy trees.

### Fencing

Four- to seven-foot rock retaining walls are proposed on portions of the eastern property line, between the proposed Buildings 6 and 7 and American River Canyon Drive. Faux stone retaining walls ranging between 3-13 feet are proposed on the western edge of the project site boundary between the new proposed surface parking areas and existing apartment buildings. Stem walls are proposed along ramps throughout the proposed development.

Additionally, a minimum of a 5-foot tall security fence/wall would be installed around the proposed pool area.

### Grading

Construction of the proposed project would disturb more than one acre of soil and would conform to the California General Construction Permit. Site grading would require the removal of all on-site trees within the development area. No oak trees or trees protected by the Folsom Tree Ordinance would be removed.

## 3.4 City Regulation of Urban Development

### General Plan

The City of Folsom updated and adopted its current comprehensive General Plan in August 2018. The General Plan is a long-term planning document that guides growth and land development in the City. It provides the foundation for establishing community goals and supporting policies, and directs appropriate land uses for all land parcels within the City. The project site is designated as Multi-Family Low Density (MLD) in the City of Folsom General Plan. However, the proposed land use for the project is Multi-Family Medium Density (MMD). A General Plan Amendment would be required for the proposed development.

### Zoning Ordinance

Developed land uses in the City of Folsom are regulated specifically by the City's Zoning Code (Title 17 of the City's Municipal Code), in addition to the other adopted regulations and programs that apply to all proposed development within the City. In more detail than the General Plan, the Zoning Code regulates land uses on a parcel-by-parcel basis throughout the City. In order to achieve this regulation, the City assigns each parcel within the City to a zoning district, such as a district for single-family homes. Regulations for each district apply equally to all properties within the district.

The project site is currently zoned for Residential Multi-Family Dwelling District (R-M), but a Rezone and Planned Development Permit would be required for the proposed development to change the zoning to Residential Multi-Family Planned Development (RM-PD). Chapter 17.38 of the Zoning Code outlines use standards for a Planned Development District.

## 3.5 Other City Regulation of Urban Development

The City of Folsom further regulates urban development through standard construction conditions and through mitigation, building, and construction requirements set forth in the Folsom Municipal Code. Required of all projects constructed throughout the City, compliance with the requirements of the City's

standard conditions and the provisions of the Municipal Code avoids or reduces many potential environmental effects. City procedures to minimize negative environmental effects and disruptions include an analysis of existing features, responsible agency and public input to the design process, engineering and design standards, and construction controls. The activities that mitigate typical environmental impacts to be implemented by the City during the project review, design, and construction phases are described in greater detail below.

## Community Development Department Standard Construction Conditions

The City's standard construction requirements are set forth in the City of Folsom, Community Development Standard Construction Specifications updated in April 23, 2015. A summary of these requirements is set forth below and incorporated by reference into the project description. Copies of these documents may be reviewed at the City of Folsom, Community Development Department, 50 East Natoma Street, Folsom, California 95630.

The Department's standard construction specifications are required to be adhered to by any contractor constructing a public or private project within the City.

*Use of Pesticides* – Requires contractors to store, use, and apply a wide range of chemicals consistent with all local, state, and federal rules and regulations.

*Air Pollution Control* – Requires compliance with all Sacramento Metropolitan Air Quality Management District (SMAQMD) and City air pollution regulations.

*Water Pollution* – Requires compliance with City water pollution regulations, including National Pollutant Discharge Elimination System (NPDES) provisions.

*Noise Control* – Requires that all construction work comply with the Folsom Noise Ordinance (discussed further below), and that all construction vehicles be equipped with a muffler to control sound levels.

*Naturally Occurring Asbestos* – Requires compliance with all SMAQMD and City air pollution regulations, including preparation and implementation of an Asbestos Dust Mitigation Plan consistent with the requirements of Section 93105 of the State Government Code.

*Weekend, Holiday, and Night Work* – Prohibits construction work during evening hours, or on Sunday or holidays, to reduce noise and other construction nuisance effects.

*Public Convenience* – Regulates traffic through the work area, operations of existing traffic signals, roadway cuts for pipelines and cable installation, effects to adjacent property owners, and notification of adjacent property owners and businesses.

*Public Safety and Traffic Control* – Regulates signage and other traffic safety devices through work zones.

*Existing Utilities* – Regulates the relocation and protection of utilities.

*Preservation of Property* – Requires preservation of trees and shrubbery and prohibits adverse effects to adjacent property and fixtures.

*Cultural Resources* – Requires that contractors stop work upon the discovery of unknown cultural or historic resources, and that an archaeologist be retained to evaluate the significance of the resource and to establish mitigation requirements, if necessary.

*Protection of Existing Trees* – Specifies measures necessary to protect both ornamental and native oak trees.

*Clearing and Grubbing* – Specifies protection standards for signs, mailboxes, underground structures, drainage facilities, sprinklers and lights, trees and shrubbery, and fencing. Also requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP) to control erosion and siltation of receiving waters.

*Reseeding* – Specifies seed mixes and methods for reseeding of graded areas.

## City of Folsom Municipal Code

The City regulates many aspects of construction and development through requirements and ordinances established in the Folsom Municipal Code. These requirements are summarized in **Table 1** and incorporated by reference into the project description. Copies of these documents may be reviewed at the City of Folsom, Office of the City Clerk, 50 East Natoma Street; Folsom, California 95630.

**Table 1. City of Folsom Municipal Code Regulating Construction and Development**

| CODE SECTION | CODE NAME | EFFECT OF CODE |
|---|---|---|
| 8.42 | Noise Control | Establishes interior and exterior noise standards that may not be exceeded within structures, including residences; establishes time periods for construction operations. |
| 8.70 | Stormwater Management and Discharge Control | Establishes conditions and requirements for the discharge of urban pollutants and sediments to the storm-drainage system; requires preparation and implementation of Stormwater Pollution Prevention Plans. |
| 9.34 | Hazardous Materials Disclosure | Defines hazardous materials; requires filing of a Hazardous Material Disclosure Form by businesses that manufacture, use, or store such materials. |
| 9.35 | Underground Storage of Hazardous Substances | Establishes standards for the construction and monitoring of facilities used for the underground storage of hazardous substances and establishes a procedure for issuance of permits for the use of these facilities. |
| 12.16 | Tree Preservation | Regulates the cutting or modification of trees, including oaks and specified other trees; requires a Tree Permit prior to cutting or modification; establishes mitigation requirements for cut or damaged trees. |
| 13.26 | Water Conservation | Prohibits the wasteful use of water; establishes sustainable landscape requirements; defines water use restrictions. |
| 14.19 | Energy Code | Adopts the California Energy Code, 2010 Edition, published as Part 6, Title 24, C.C.R. to require energy efficiency standards for structures. |
| 14.20 | Green Building Standards Code | Adopts the California Green Building Standards Code (CALGreen Code), 2010 Edition, excluding Appendix Chapters |

| CODE SECTION | CODE NAME | EFFECT OF CODE |
|---|---|---|
| | | A4 and A5, published as Part 11, Title 24, C.C.R. to promote and require the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. |
| 14.29 | Grading Code | Requires a grading permit prior to the initiation of any grading, excavation, fill or dredging; establishes standards, conditions, and requirements for grading, erosion control, stormwater drainage, and revegetation. |
| 14.32 | Flood Damage Prevention | Restricts or prohibits uses that cause water or erosion hazards, or that result in damaging increases in erosion or in flood heights; requires that uses vulnerable to floods be protected against flood damage; controls the modification of floodways; regulates activities that may increase flood damage or that could divert floodwaters. |

# 4.0 PROJECT OBJECTIVES

The project objectives, as expressed by the applicant, are to:

- Provide rental residential units to northwestern portion of City residents that either prefer rental living or are in transition to or from for-sale residential units;
- Provide infill rental residential units by adding units to an existing rental community;
- Provide rental residential units in an area of the City that has few opportunities for new residential development; and,
- Redevelop the existing project amenities and provide the entire Canyon Terrace community with a modern, up-to-date pool, clubhouse, and fitness center.

# 5.0 REQUIRED APPROVALS

A listing and brief description of the project approvals required to implement the proposed project is provided below. This environmental document is intended to address the environmental impacts associated with all the following decision actions and approvals:

- General Plan Amendment
- Rezone
- Planned Development Permit

The City of Folsom has the following discretionary powers related to the proposed project:

- **Certification of the environmental document:** The Folsom City Council will act as the lead agency as defined by the California Environmental Quality Act (CEQA) and will have authority to determine if the environmental document is adequate under CEQA.

- **Approval of project:** The Folsom City Council will consider approval of the project and all entitlements as described above.

# 6.0 PREVIOUS RELEVANT ENVIRONMENTAL ANALYSIS

## 6.1 City of Folsom General Plan

The Program EIR for the City of Folsom General Plan (2018) provides relevant policy guidance for this environmental analysis. The EIR evaluated the environmental impacts that could result from implementation of the City of Folsom 2035 General Plan (2035 General Plan) (City of Folsom 2018a). The Program EIR is intended to provide information to the public and to decision makers regarding the potential effects of adoption and implementation of the 2035 General Plan, which consists of a comprehensive update of Folsom's current General Plan. The 2035 General Plan consists of a policy document, including Land Use and Circulation Diagrams.

## 6.2 Tiering

"Tiering" refers to the relationship between a Program EIR (where long-range programmatic cumulative impacts are the focus of the environmental analysis) and subsequent environmental analyses such as the subject document, which focus primarily on issues unique to a smaller project within the larger program or plan. Through tiering a subsequent environmental analysis can incorporate, by reference, discussion that summarizes general environmental data found in the Program EIR that establishes cumulative impacts and mitigation measures, the planning context, and/or the regulatory background. These broad-based issues need not be reevaluated subsequently, having been previously identified and evaluated at the program stage.

Tiering focuses the environmental review on the project-specific significant effects that were not examined in the prior environmental review, or that are susceptible to substantial reduction or avoidance by specific revisions in the project, by the imposition of conditions or by other means. Section 21093(b) of the Public Resources Code requires the tiering of environmental review whenever feasible, as determined by the Lead Agency.

In the case of the proposed project, this Initial Study tiers from the Program EIR for the City of Folsom 2035 General Plan. The Folsom 2035 General Plan is a project that is related to the proposed project and, pursuant to §15152(a) of the State CEQA Guidelines, tiering of environmental documents is appropriate. State CEQA Guidelines §15152(e) specifically provides that:

"[w]hen tiering is used, the later EIRs or Negative Declarations shall refer to the prior EIR and state where a copy of the prior EIR may be examined. The later [environmental document] should state that the Lead Agency is using the tiering concept and that the [environmental document] is being tiered with the earlier EIR."

The above mentioned Program EIR can be reviewed at the following location:

City of Folsom
Community Development Department
50 East Natoma Street
Folsom, CA 95630
Contact: Mr. Steve Banks, Principal Planner
(916) 461-6207

## 6.3 Incorporation of the Folsom General Plan and East Area Facilities Plan EIRs by Reference

The Program EIR for the Folsom 2035 General Plan is a comprehensive document. Due to various references to the Folsom 2035 General Plan Program EIR in this proposed project, and to its importance relative to understanding the environmental analysis that has occurred to date with respect to development in the Folsom area, the program EIR document is hereby incorporated by reference pursuant to State CEQA Guidelines Section 15150.

## 6.4 Summary of Folsom 2035 General Plan EIR

The 2035 General Plan Program EIR focused on the secondary or indirect effects of implementing the 2035 General Plan 1. Indirect physical changes to the environment (impacts) that could result from implementation of 2035 General Plan are addressed in the appropriate technical chapters of the Program EIR. Likewise, inconsistency with an adopted plan, in general, is not considered a direct physical impact to the environment, but may result in impacts, which are discussed in the appropriate technical chapters. According to this definition, potential secondary or indirect environmental effects may be divided into two broad classes:

- Coverage Impacts - Those that result from development or other activities covering land or otherwise physically interfering with a resource (e.g., constructing a paved parking lot over a sensitive biological resource); and,

- Intensity Impacts - Those that result from increased levels of human activity (e.g., increases in traffic levels leading to increased emissions of criteria air pollutants).

The 2035 General Plan does not identify any additional areas designated for urban uses beyond those set forth in the 1988 General Plan as amended through fall 2017. Therefore, the environmental analysis concentrates its evaluation on those undeveloped areas designated for urban uses and the resources still present within them, including within the Folsom Plan Area Specific Plan (FPASP) area, south of Highway 50.

**Coverage Impacts**

These impacts are based on the conversion of existing vacant parcels to a developed land use. Conversion can result in the eradication of, or damage to, a resource, revealing of environmental conditions detrimental to a developed land use, or exposure of the developed use to an existing environmental hazard. For the purposes of evaluating these effects, the Program EIR assumed that all land identified for urban uses in the 2035 General Plan would be developed with such uses within the 20 year planning horizon.

For areas designated for urban or infrastructure uses by the 2035 General Plan, potential coverage effects for certain environmental topics were assessed in a multi-step process. Quantitative evaluations began with a review of resources potentially affected by the implementation of the 2035 General Plan project, and the areal extent of identified resources.

To determine the locations where a resource could be converted to developed uses under the proposed 2035 General Plan, an inventory of each environmental resource within each urban area project boundary was completed. Using geospatial data, or geographic information systems (GIS), all parcels or lots within the 2035 Plan Evaluation Area were identified as developed or vacant. Vacant parcels were further identified as being located north of Highway 50, or south of Highway 50 within the FPASP area.

For vacant parcels north of Highway 50, the analysis identified 453 total vacant parcels encompassing 441 acres. Of these 453 parcels, 377 are lots within existing single-family residential subdivisions totaling 163 acres, with a gross median lot size of 16,125 square feet. Of the remaining 76 parcels, the majority are designated for commercial or multi-family uses. For these uses, the total acreage is 278 acres with a gross median parcel size of 37,150 square feet. Once the 453 parcels were identified, each was evaluated using aerial photographs to determine its condition. As evidenced on the aerial photographs, the overwhelming majority of both the single-family residential and commercial/multi-family residential parcels are remnant areas within subdivisions or larger development projects, and most have been disturbed by prior rough grading and/or the construction of roads and utilities.

There are a total of 3,336 acres in the FPASP area south of Highway 50, of which 1,118 acres would remain in open space. The remaining 2,218 acres would be developed with a variety of urban land uses and supporting infrastructure. Although potential environmental impacts could occur throughout the 2035 Plan Evaluation Area, the majority of the land available for new development of urban uses (77 percent of the citywide total or 2,218 acres) would be located within the FPASP area.

The possibility of potential coverage impacts was determined by layering maps of sensitive resources (e.g., sensitive species, areas of naturally occurring asbestos, flood hazards) over the map of vacant parcels. The results of this type of analysis are reported in the following chapters of the PEIR: 6. Aesthetics and Visual Resources, 7. Agricultural and Forestry Resources, 9. Biological Resources, 10. Cultural Resources, 11. Geology, Soils, and Mineral Resources, 13. Hazards and Hazardous Materials, 14. Hydrology and Water Quality, and 18. Tribal Cultural Resources.

**Intensity Impacts**

Intensity impacts, such as those for traffic, air quality, greenhouse gas emissions, and noise, depend upon both the location and level of human activity. Other impacts, such as those to public services and utilities depend upon the size of the served population.

The 2035 General Plan proposed no increases in the amount of land identified for urban uses beyond that currently identified in the 1988 General Plan as amended. However, the development of urban uses on vacant land designated and available for residential and employment uses would result in an increase in the number of people and jobs in the City over existing (2015/2017) conditions. For intensity impacts, the PEIR evaluated a forecast of 2035 conditions consistent with the land uses identified in the 2035 General Plan.

The 2035 development forecast is based on a buildout model for use in the analysis of future traffic conditions. Summarily, the buildout model forecasts full development of all planned land uses within the

existing city limits, full buildout of the Easton and Glenborough projects as approved by Sacramento County, and background land use assumptions outside of the City, Glenborough, and Easton consistent with the land use assumptions of Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). Because the MTP/SCS forecasts conditions for the year 2036, the buildout model used in the Program EIR interpolates 2035 conditions, the horizon year for the proposed Folsom General Plan.

As with the Coverage Impact analysis, the Intensity Impact Analysis focused on the difference between the location and level of human activity currently existing (2015/2017), and the level of activity that would exist with implementation of the 2035 General Plan. The results of this type of analysis are reported in the following chapters of the Program EIR: 8. Air Resources, 12. Global Climate Change, 15. Noise and Vibration, 16. Public Services and Recreation, 17. Transportation, and 19. Utilities and Service Systems.

# 7.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that may require mitigation to reduce the impact from “Potential Impact” to “Less than Significant” as indicated by the checklist on the following pages. The potential impacts and any potential mitigation required will be addressed in the Environmental Impact Report.

An Initial Study is conducted by a Lead Agency to determine if a project may have a potentially significant effect on the environment (CEQA Guidelines Section 15063). An Environmental Impact Report (EIR) must be prepared if an Initial Study indicates that further analysis is needed to determine whether a significant impact will occur or if there is substantial evidence in the record that a project may have a significant effect on the environment (CEQA Guidelines Section 15064(f)).

| | | |
|---|---|---|
| ☐ Aesthetics | ☐ Agriculture/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 |

# 8.0 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

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 “potential impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect I) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. |
| ☐ | I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. |

Signature _____ Date _____

Printed Name: _____ For: _____

# 9.0 ENVIRONMENTAL INITIAL STUDY CHECKLIST

Responses to the following questions and related discussion indicate if the proposed project will have or will potentially have a significant adverse impact on the environment, either individually or cumulatively with other projects. All phases of project planning, implementation, and operation are considered. Mandatory Findings of Significance are located in Section 9.XXI below.

A. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

B. "Less Than Significant with Mitigation" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

C. "Less Than Significant Impact" applies where the project creates no significant impacts, only less than significant impacts.

D. "No Impact" applies where a project does not create an impact in that category. "No Impact" answers do not require an explanation if they are adequately supported by the information sources cited by the lead agency which show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project specific screening analysis).

# I. AESTHETICS

| AESTHETICS: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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 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? | ☐ | ☐ | ■ | ☐ |

## Environmental Setting

The project site is currently developed and located within the existing Canyon Terrace Apartment community. The project site is bounded by a shopping center to the north, American River Canyon Drive and single-family residential to the east, single-family residential units to the south, and Odyssey Learning Center and single-family residential to the west. The more regional setting is primarily characterized by residential development with a commercial shopping center immediately adjacent to the north.

The proposed project includes the construction of ninety-six new apartment units within eight new apartment buildings within the existing Canyon Terrace Apartment community. The Canyon Terrace Apartment community currently consists of 200 existing apartment units allocated among 25 two-story apartment buildings. The proposed apartment buildings would be three-stories tall and feature garages on the first level of the buildings.

The proposed landscape design would replace large existing areas of high water use lawn grass with a combination of low to medium water use shrub/ground cover areas and a low water use native grass mix. The native grass mix would look like long meadow grass and be retained in a green state year-round with low volume irrigation.

The existing oleander hedge in the southern portion of the project site near American River Canyon Drive would not be removed. Existing trees and vegetation outside of the project grading limits would not be removed. The project would blend proposed landscaping in with the existing surrounding landscaping.

Parking areas would be shaded by deciduous broadleaf and flowering canopy trees.

Four- to 7-foot rock retaining walls are proposed on portions of the eastern property line, between the proposed Buildings 6 and 7 and American River Canyon Drive. Faux stone retaining walls ranging between 3-13 feet are proposed on the western edge of the project site boundary between the new proposed surface parking areas and existing apartment buildings. Stem walls are proposed along ramps throughout the proposed development.

Additionally, a minimum of a 5-foot tall security fence/wall would be installed around the proposed pool area.

## Evaluation of Aesthetics

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

**No Impact.** Neither the project site nor the surrounding areas are scenic vistas due to the existing nearby commercial and residential developments. Further, neither the project site, nor views to or from the project site, have been designated as important scenic resources by the City of Folsom or any other public agency. Therefore, the proposed development would not interfere with or degrade a scenic vista, and no impact would occur.

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

**No Impact.** There are no state or locally designated scenic highways in the vicinity of the proposed project site (Caltrans 2018). Implementation of the proposed project would not adversely affect scenic resources within a designated scenic highway, and no impact would occur.

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

**Less Than Significant Impact.** Implementation of the proposed project would result in the demolition of a small community building, pool area, and two tennis courts and construction of eight three-story apartment buildings in an existing apartment community, altering the existing visual character to a slightly more developed character than is currently experienced by viewers.

Residents of the Canyon Terrace Apartment community may be affected by the proposed project, particularly because the proposed project would increase lot coverage, develop open space areas within the apartment community, and eliminate existing views of activity along American River Canyon Drive.

While the proposed project would result in a change in visual character on-site, the proposed land use is consistent with the overall characteristic of the area and does not conflict with other regulations governing scenic quality. Therefore, project impacts would be less than significant, and no mitigation is necessary.

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

**Less Than Significant Impact.** Any new lighting associated with the development of the proposed project would be subject to City standard practices regarding night lighting that would be made a condition of approval of the Planned Development Permit. The proposed apartment buildings and other project features would comply with design standards outlined in the Folsom Municipal Code. The exterior of the proposed apartment buildings would not be made of reflective materials that would introduce a new source of glare, and existing City standards would limit light spillover and intensity. Therefore, impacts would be a less than significant impact, and no mitigation is necessary.

## II. AGRICULTURE AND FORESTRY RESOURCES

| AGRICULTURE AND FORESTRY RESOURCES: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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? | ☐ | ☐ | ☐ | ■ |

### Environmental Setting

No agricultural activities or timber management occur on the project site or in adjacent areas, and the project site is not designated for agricultural or timberland uses. The California Important Farmland Finder prepared for Sacramento County classifies the project site as urban and built up (CDC 2016). Urban and built up land is land occupied by structures or infrastructure to accommodate a building density of at least one unit to one and one-half acres, or approximately six structures to 10 acres (CDC 2016).

The Natural Resources Conservation Service (NRCS) soil survey report generated for the project site indicates that no Prime or Unique Farmland or Farmland of Statewide Importance occurs on the project site (NRCS 2018).

## Evaluation of Agriculture and Forestry Resources

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?

**No Impact.** The project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide importance (Farmland), pursuant to the California Important Farmland Finder (CDC 2016a). Therefore, the project would have no impact for question a).

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

**No Impact.** The project site is not zoned for agricultural use or enacted into a Williamson Act contract. Therefore, the project would have no impact for question b).

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

**No Impact.** The project site is not zoned or designated as farmland, and the surrounding land uses are primarily residential developments. Therefore, the nature and location of the project would not directly or indirectly result in the conversion of Farmland to non-agricultural uses. No impact would occur.

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?

**No Impact**. Because no portion of the City or the project site are zoned for forest land or timberland, no impact would occur for questions d) and e).

# III. AIR QUALITY

| AIR QUALITY: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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. 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 Air Quality section of this document is based upon the approach, methodology, results, and conclusions outlined in the project-specific Air Quality and Greenhouse Gas Analysis prepared by De Novo Planning Group (De Novo 2019). The Air Quality and Greenhouse Gas Technical Report is included as **Appendix B**.

## Environmental Setting

Climate in the Folsom area is characterized by hot, dry summers and cold, rainy winters. During summer's longer daylight hours, plentiful sunshine provides the energy needed to fuel photochemical reactions between Oxides of Nitrogen ($NO_X$) and Reactive Organic Gasses (ROG), which result in Ozone ($O_3$) formation. High concentrations of $O_3$ are reached in the Folsom area due to intense heat, strong and low morning inversions, greatly restricted vertical mixing during the day, and daytime subsidence that strengthens the inversion layer. Currently, the greatest pollution problem in the Folsom area is from $NO_X$.

The City of Folsom lies within the eastern edge of the Sacramento Valley Air Basin (SVAB). The Sacramento Metropolitan Air Quality Management District (SMAQMD) is responsible for implementing emissions standards and other requirements of federal and state laws in the project area. As required by the California Clean Air Act (CCAA), SMAQMD has published various air quality planning documents as discussed below to address requirements to bring the District into compliance with the federal and state ambient air quality standards. The Air Quality Attainment Plans are incorporated into the State Implementation Plan, which is subsequently submitted to the US Environmental Protection Agency (EPA), the federal agency that administrates the Federal Clean Air Act of 1970, as amended in 1990.

Ambient air quality is described in terms of compliance with state and national standards, and the levels of air pollutant concentrations considered safe, to protect the public health and welfare. These

standards are designed to protect people most sensitive to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. The EPA has established national ambient air quality standards (NAAQS) for seven air pollution constituents. As permitted by the Clean Air Act, California has adopted the more stringent California ambient air quality standards (CAAQS) and expanded the number of regulated air constituents.

The California Air Resources Board (CARB) is required to designate areas of the state as attainment, nonattainment, or unclassified for any state standard. An "attainment" designation for an area signifies that pollutant concentrations do not violate the standard for that pollutant in that area. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once. The air quality attainment status of the SVAB, including the City of Folsom, is shown in **Table 2.**

**Table 2. Sacramento Valley Air Basin – Attainment Status**

| POLLUTANT | STATE OF CALIFORNIA ATTAINMENT STATUS | FEDERAL ATTAINMENT STATUS |
|---|---|---|
| Ozone | Nonattainment | Nonattainment |
| Suspended Particulate Matter ($PM_{10}$) | Nonattainment | Attainment |
| Fine Particulate Matter ($PM_{2.5}$) | Attainment | Nonattainment |
| Carbon Monoxide | Attainment | Attainment/Unclassified |
| Nitrogen Dioxide | Attainment | Attainment/Unclassified |
| Lead | Attainment | Attainment/Unclassified |
| Sulfur Dioxide | Attainment | Unclassified |
| Sulfates | Attainment | No Federal Standard |
| Hydrogen Sulfide | Unclassified | No Federal Standard |
| Visibility Reducing Particles | Unclassified | No Federal Standard |

Source: CARB 2017a

The Sacramento County/Sacramento Metropolitan Area portion of the SVAB is currently in nonattainment for federal and/or state ozone, respirable particulate matter ($PM_{10}$) and fine particulate matter ($PM_{2.5}$) standards. Concentrations of all other pollutants meet state and federal standards.

Ozone is not emitted directly into the environment, but is generated from complex chemical reactions between ROG, or non-methane hydrocarbons, and $NO_X$ that occur in the presence of sunlight. ROG and $NO_X$ generators in Sacramento County include motor vehicles, recreational boats, other transportation sources, and industrial processes. $PM_{10}$ and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, fuel combustion, tire and brake wear, construction operations and windblown dust.

**Air Quality Monitoring**

CARB's air quality monitoring network provides information on ambient concentrations of air pollutants in the SVAB. SMAQMD operates a monitoring station in Folsom, where the air quality data for ozone and $PM_{2.5}$ were obtained. Other data are reported from one additional location in Sacramento County. **Table 3** compares a three-year summary of the highest annual criteria air pollutant emissions collected at these monitoring stations with applicable CAAQS, which are more stringent than the corresponding NAAQS. The concentrations of the pollutants ozone, $PM_{2.5}$, and $PM_{10}$ are expected to be fairly representative of the project site, due to the regional nature of these pollutants.

**Table 3. Summary of Annual Air Quality Data for Folsom Area Air Quality Monitoring Stations**

| POLLUTANT | 2015 | 2016 | 2017 |
|---|---|---|---|
| ***Ozone ($O_3$) 1-hour:*** *Monitoring location: Folsom – Natoma Street* | | | |
| Maximum Concentration (ppm) | 0.114 | 0.111 | 0.107 |
| Days Exceeding State Standard (1-hr avg. 0.09 ppm) | 3 | 6 | 4 |
| ***Ozone ($O_3$) 8-hour:*** *Monitoring location: Folsom – Natoma Street* | | | |
| Maximum Concentration (ppm) | 0.093 | 0.095 | 0.087 |
| Days Exceeding State Standard (8-hr avg. 0.070 ppm) | 11 | 24 | 19 |
| Days Exceeding National Standard (8-hr avg. 0.075 ppm) | 5 | 13 | 7 |
| ***$PM_{10}$:*** *Monitoring location: North Highlands Blackfoot Way* | | | |
| Maximum State 24-Hour Concentration (µg/m3) | 46.0 | 31.0 | 65.0 |
| Days Exceeding State Standard (Daily Standard 50 µg/m$^3$) | * | 0 | 3 |
| Maximum Federal 24-Hour Concentration (µg/m3) | 45.0 | 31.0 | 66.0 |
| Days Exceeding Federal Standard (Daily Standard 150 µg/m$^3$) | * | 0 | 0 |
| ***$PM_{2.5}$:*** *Monitoring location: Folsom – Natoma Street* | | | |
| Maximum National 24-Hour Concentration (µg/m$^3$) | 38.1 | 25.7 | 33.2 |
| Days Exceeding National 2006 Standard (Daily Standard 35 µg/m$^3$) | 1 | 0 | 0 |

*Insufficient data to determine the value
Source: CARB 2018.

As indicated in Table 3, 1-hour and 8-hour ozone standards have been exceeded numerous times over the past three years. $PM_{10}$ concentrations exceeded state standards in 2017 and have not exceeded federal standards in the past three years. $PM_{2.5}$ federal standards were exceeded in 2015.

**Air Quality Attainment Planning**

In order to work towards attainment for ozone, $PM_{10}$ and $PM_{2.5}$, the EPA Office of Air Quality Planning and Standards requires that each state containing nonattainment areas develop a written plan for cleaning the air in those areas. The plans developed are called State Implementation Plans (SIP). Through these plans, states outline efforts they will make to try to correct the levels of air pollution and bring their areas back into attainment. The status of air quality attainment planning for the Sacramento area is listed below (SMAQMD 2018a):

- **8-Hour $O_3$.** The Sacramento region was classified by the EPA as a "serious" nonattainment area on June 15, 2004 for the federal 8-hour ozone standard, with an attainment deadline of June 15, 2013. An evaluation of proposed control measures and associated ROG and $NO_X$ emission reductions concluded that no set of feasible controls were available to provide the needed emission reductions before the attainment deadline year. Given the magnitude of the shortfall in emission reductions, and the schedule for implementing new control measures, the earliest possible attainment demonstration year for the Sacramento region is determined to be the "severe" area deadline of 2019. Section 181(b)(3) of the Clean Air Act permits a state to request that the EPA reclassify a nonattainment area to a higher classification and extend the time allowed for attainment. This process is appropriate for areas that must rely on longer-term strategies to achieve the emission reductions needed for attainment. The EPA approved this request on May 5, 2010. In 2013, the region developed an Ozone Attainment and Reasonable Further Progress Plan. This plan was approved and effective March 2, 2015 and addresses how the region would attain the 1997 8-hour standard.

- **1-Hour $O_3$.** On May 9, 2011, EPA proposed to determine that California is no longer required to implement or submit a CAA Section 185 fee program for 1-hour ozone as a revision to the SIP for the Sacramento Metro 1-hour ozone nonattainment area. EPA has also taken an "interim final" action to stop sanctions from applying to the Sacramento Metro Area.

- **$PM_{10}$.** In March 2002, the EPA officially determined that Sacramento County had attained the $PM_{10}$ standards. In November 2010, the SMAQMD formally requested that the EPA redesignate Sacramento County from nonattainment to attainment for $PM_{10}$. The EPA approved this request effective October 28, 2013. The SMAQMD additionally adopted a $PM_{10}$ Maintenance Plan. The first Maintenance Plan showed maintenance from 2012 through 2022. A Second Maintenance Plan will be prepared and submitted by the SMAQMD to demonstrate maintenance for ten additional years, through 2032.

- **$PM_{2.5}$.** The Sacramento $PM_{2.5}$ nonattainment area designation met the $PM_{2.5}$ NAAQS by December 31, 2011. On May 9, 2012, CARB submitted a request that EPA find the Sacramento region in attainment for the 2006 24-hour $PM_{2.5}$ NAAQS. EPA issued a proposed rule for Determination of Attainment for the Sacramento Nonattainment Area on October 26, 2012 and a final rule for Determination of Attainment on July 15, 2013. EPA used the updated 2010-2012 ambient air quality data for determination and the final rule became effective on August 14, 2013. On May 10, 2017, the EPA found the area attained the 2006 24-hour NAAQS by the attainment date of December 31, 2015 based on monitoring data for 2013-2015. Contents of the PM2.5 Implementation/Maintenance Plan include demonstration that the NAAQS was met and that all requirements have been met for a redesignation to attainment, specification of actions to be taken if the standards are violated in the future, and establishment of regional motor vehicle emission budgets. The 2013 Maintenance Plan will be updated and submitted in the future based on the clean data finding made by the EPA.

- **CO.** The region is currently designated attainment for 1-hour and 8-hour CO standards. The Maintenance Plan developed for CO in 1996 was revised in 2004 to extend the 1996 CO Maintenance Plan demonstration to 2018.

**Sacramento Metropolitan Air Quality Management District**

At the county level, air quality is managed through land use and development planning practices that are implemented by Sacramento County and the incorporated Cities and through permitted source controls that are implemented by the SMAQMD.

The SMAQMD is responsible for (1) implementing air quality regulations, including developing plans and control measures for stationary sources of air pollution to meet the NAAQS and CAAQS, (2) implementing permit programs for the construction, modification, and operation of sources of air pollution, and (3) enforcing air pollution statutes and regulations governing stationary sources. With CARB oversight, the SMAQMD administers local regulations.

SMAQMD also has a set of rules and regulations applicable to construction, of which the following are relevant to this project:

- **Rule 402: Nuisance.** A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose,

health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

- **Rule 403: Fugitive Dust.** The responsible person or entity is required to implement every reasonable method to control dust emissions from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation to prevent fugitive dust generated through those activities from escaping the project site. Actions include but are not limited to application of water or chemicals, asphalt, and/or oil depending on the dust-generating activity.

- **Rule 442: Architectural Coatings.** The responsible person or entity may not use a coating with a volatile organic compound content in excess of the corresponding limits specified in this rule.

- **Rule 453**: **Cutback and Emulsified Asphalt Paving Materials**: Asphalt paving operations that may be associated with implementation of the project would be subject to Rule 453. This rule applies to the manufacture and use of cutback asphalt and emulsified asphalt for paving and maintenance operation.

## Evaluation of Air Quality

a) Conflict with or obstruct implementation of the applicable air quality plan?

**Less Than Significant Impact.** In accordance with SMAQMD's Guide, construction-generated $NO_X$ and operational-generated ROG and $NO_X$ (all ozone precursors), and all $PM_{10}$ and $PM_{2.5}$ emissions, are used to determine consistency with the Ozone Attainment Plan. The Guide states:

> *By exceeding the District's mass emission thresholds for operational emissions of ROG, $NO_X$, $PM_{10}$, or $PM_{2.5}$, the project would be considered to conflict with or obstruct implementation of the District's air quality planning efforts.*

The proposed project would not conflict with or obstruct implementation of the applicable air quality plans (including the 2018 Updates to the California State Implementation Plan, the $PM_{2.5}$ Implementation/Maintenance Plan, and the 2009 Triennial Report and Plan Revision) during project construction or operation. Further, the proposed project is consistent with all applicable SMAQMD rules and regulations, including Rule 402, Rule 403, Rule 442, and Rule 453. The proposed project is also consistent with the goals and policies contained within the City of Folsom General Plan (see Appendix B). Therefore, impacts would be less than significant, and no mitigation would be necessary.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

**Less Than Significant Impact.** By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards in a region. Instead, a project's individual criteria pollutant and precursor emissions contribute to existing cumulatively significant adverse air quality impacts in the region.

Construction Emissions

*Regional Emissions*

Construction activities would result in temporary short-term emissions associated with vehicle trips from construction workers, operation of construction equipment, and the dust generated during construction activities. Construction was assumed to occur from year 2019 through year 2021. The proposed project would include demolition, site preparation, grading, building construction, paving, and architectural coating phases. Demolition was assumed to occur over two phases (for the purposes of modeling), based on how CalEEMod treats the demolition of buildings versus non-buildings.

SMAQMD's Guide includes a construction screening level to determine if a project would exceed the $NO_X$ threshold of significance. However, because the proposed project includes demolition activities and grading activities, the $NO_X$ construction screening level is not recommended for use. As such, the California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to quantify project-generated construction emissions (De Novo 2019). The analysis methodology, assumptions, and CalEEMod output are provided in Appendix B.

The SMAQMD does not have a recommended threshold for construction-generated ROG; therefore, the maximum daily emissions of $NO_X$ are displayed below. As shown in **Table 4**, the proposed project would generate less than significant levels of the ozone precursor $NO_X$.

**Table 4. Estimated Project Construction $NO_x$ Emissions**

| CONSTRUCTION YEAR | $NO_X$ (lbs./day) |
|---|---|
| 2019 | 46 |
| 2020 | 21 |
| 2021 | 2 |
| *SMAQMD Threshold* | *85* |
| **Threshold exceeded?** | **No** |

Source of emissions: De Novo 2019 (Appendix B).
Source of threshold: SMAQMD 2015.

*Local Emissions*

The SMAQMD utilizes the same screening level as the $NO_X$ emission screening level to assist a project proponent or lead agency in determining if $PM_{10}$ or $PM_{2.5}$ emissions from constructing a project in Sacramento County will exceed the SMAQMD's construction significance thresholds. As with the $NO_X$ screening presented above, because the proposed project includes demolition and grading activities, the $PM_{10}$ and $PM_{2.5}$ construction screening level is not recommended for use. As such, CalEEMod 2016.3.2 was used to quantify project-generated construction emissions as discussed previously (De Novo 2019).

The maximum daily and annual emissions of $PM_{10}$ and $PM_{2.5}$ are analyzed below. As shown in **Table 5**, the proposed project would generate less than significant levels of $PM_{10}$ and $PM_{2.5}$. Impacts related to construction-generated $PM_{10}$ and $PM_{2.5}$ emissions would be less than significant.

**Table 5. Estimated Project Construction PM Emissions**

| CONSTRUCTION YEAR | $PM_{10}$ | | $PM_{2.5}$ | |
|---|---|---|---|---|
| | (lbs./day) | (tons/year) | (lbs./day) | (tons/year) |
| 2019 | 21 | 0.3 | 12 | 0.2 |
| 2020 | 2 | 0.2 | 1 | 0.1 |
| 2021 | <0.5 | <0.05 | <0.5 | <0.05 |
| *SMAQMD Threshold* | *80* | *14.6* | *82* | *15* |
| **Threshold exceeded?** | **No** | **No** | **No** | **No** |

Source of emissions: De Novo 2019 (Appendix B).
Source of threshold: SMAQMD 2015.

Operational Emissions

*Regional Emissions*

The proposed project would result in a direct and indirect source of air pollution, in that it would generate and attract vehicle trips in the region (mobile source emissions) and increase area source emissions and energy consumption. The mobile source emissions would be entirely from vehicles, while the area source emissions would be primarily from the use of natural gas fuel combustion, hearth fuel combustion, landscape fuel combustion, consumer products, and architectural coatings.

SMAQMD provides operational screening levels to identify when additional analysis is necessary to determine potential significance for operational ROG, $NO_X$, $PM_{10}$, or $PM_{2.5}$ emissions. The operational screening levels represent the development size at which the operational emissions thresholds of significance would not be exceeded. The proposed residential development would qualify as the CalEEMod Land Use of low-rise apartments under the general land use category of residential. According to the screening thresholds for low-rise apartments, the operational screening level for ozone is 682 dwelling units and for particulate matter is 1,385 dwelling units (SMAQMD 2018b). The proposed project would develop 96 dwelling units and would therefore not have the potential to exceed SMAQMD's recommended mass emission thresholds for $NO_X$, ROG, $PM_{10}$, or $PM_{2.5}$. Therefore, the proposed project would generate less than significant quantities of operational ROG, $NO_X$, $PM_{10}$, and $PM_{2.5}$, and project-specific modeling for operational emissions is not required. However, as a conservative analysis, operational emissions are presented below and further detailed in Appendix B. As displayed in **Table 6**, operational emissions would not exceed SMAQMD thresholds and impacts would be less than significant.

**Table 6. Estimated Project Operation Emissions**

| | $NO_x$ | ROG | $PM_{10}$ | | $PM_{2.5}$ | |
|---|---|---|---|---|---|---|
| | (lbs./day) | (lbs./day) | (lbs./day) | (tons/year) | (lbs./day) | (tons/year) |
| Area | <0.5 | 2.6 | <0.05 | <0.05 | <0.05 | <0.05 |
| Energy | <0.5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Mobile | 1.4 | <0.5 | 1.0 | 0.2 | <0.5 | <0.05 |
| **Total** | **1.8** | **3.1** | **1.1** | **0.2** | **<0.5** | **0.1** |

| | $NO_x$ | ROG | $PM_{10}$ | | $PM_{2.5}$ | |
|---|---|---|---|---|---|---|
| | (lbs./day) | (lbs./day) | (lbs./day) | (tons/year) | (lbs./day) | (tons/year) |
| *SMAQMD Threshold* | *65* | *65* | *80* | *14.6* | *82* | *15* |
| **Threshold exceeded?** | **No** | **No** | **No** | **No** | **No** | **No** |

Source of emissions: De Novo 2019 (Appendix B).
Source of threshold: SMAQMD 2015.
Note: totals may not sum due to rounding.

*Local Emissions*

The primary pollutant of localized concern is mobile-source CO. Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Long-distance transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific meteorological conditions and traffic conditions, CO concentrations at receptors located near roadway intersections may reach unhealthy levels, when combined with background CO levels.

The SMAQMD's two-tiered screening criteria identifies when a project has the potential to contribute to a CO hotspot and if CO dispersion modeling is necessary. According to the first screening tier, the proposed project will result in a less-than-significant impact to air quality for local CO if:

1. Traffic generated by the proposed project will not result in deterioration of intersection level of service (LOS) to LOS E or F; and
2. The project will not contribute additional traffic to an intersection that already operates at LOS E or F.

According to the Canyon Terrace Apartments Traffic Impact Analysis Report (GHD 2019), the proposed project would result in a deterioration of one intersection from LOS D to LOS E. Specifically, the intersection of Oak Avenue Parkway/Baldwin Dam Road is projected to deteriorate from an acceptable LOS of D to an unacceptable LOS of E in the AM peak hour, under the Cumulative Plus Project condition. Therefore, the proposed project would not satisfy the first criterion under the first tier of the SMAQMD's recommended screening criteria.

The SMAQMD guidance states that, if the first tier of screening criteria is not met, then a second tier of screening criteria shall be examined. The second tier of screening criteria is listed below. According to the SMAQMD, the proposed project would result in a less than significant impact to air quality for local CO if all of the following criteria are met:

- The project will not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- The project will not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway; or other locations where horizontal or vertical mixing of air will be substantially limited; and
- The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average (as identified by the EMFAC or CalEEMod models).

The proposed project meets each of these three criteria. The proposed project does not result in an affected intersection experiencing more than 31,600 vehicles per hour, would not contribute traffic at a

location where horizontal or vertical mixing of air will be substantially limited, and the mix of vehicles types at the intersection would not be substantially different than the County average. Therefore, the potential for a carbon monoxide hotspot impact represents a less than significant impact.

As shown in Tables 4, 5, and 6, all emissions would be reduced to a level that does not exceed the project-level thresholds of significance. However, the SMAQMD requires all projects within its jurisdiction to implement all feasible best management practices (BMP) for PM. The following BMP would be implemented to further reduce PM emissions:

- The project applicant shall ensure the project operations meet all requirements of SMAQMD District Rule 403 (Fugitive Dust).
- The project applicant shall ensure that project operations comply with the mandatory measures contained in the California Building Energy Efficiency Standards (Title 24, Part 6) that pertain to efficient use of natural gas for space and water heating and other uses.
- The project applicant shall ensure the project operations comply with the mandatory measures contained in the California Green Building Code (Title 24, Part 11). Current mandatory measures related to operational PM include requirements for electric vehicle charging and fireplaces.

As discussed above, no exceedance of the SMAQMD's emission thresholds for criteria pollutants would be expected for the proposed project, and the project would not result in a cumulatively considerable net increase in any criteria pollutant. Impacts would be less than significant, and implementation of the BMP listed above would further reduce PM emissions from project construction and operation. No mitigation is necessary.

c) Expose sensitive receptors to substantial pollutant concentrations?

**Less Than Significant Impact.** Emissions of criteria air pollutants during project construction would be temporary over a relatively short time period and therefore would be expected to be less than significant. Sensitive receptors in the vicinity of the project include nearby residents in the immediate surroundings. Other than emissions from vehicle trips by residents, and potential emissions from natural gas used for space heating, no other air emissions would be released during operation of the proposed development. In addition, as displayed in the tables above, construction and operational emissions would be substantially less than the identified emission thresholds. Normal activities associated with operation of the development would not result in the release of any toxic substances into the air.

Thus, overall air emissions would not expose sensitive receptors to substantial air pollutant concentrations. Impacts would be a less than significant impact, and no mitigation would be necessary.

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

**Less Than Significant Impact.** Heavy diesel equipment could generate odors during construction activities. The generation of odors during the construction period would be temporary and would tend to be dispersed within a short distance from the active work area, and therefore, would be less than significant.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses (SMAQMD 2016). The proposed project would not include any of these uses. Solid waste generated by the proposed on-site uses would be collected by a contracted waste hauler, ensuring that any odors resulting from on-site waste would be managed and collected in a manner to prevent the proliferation of odors.

Therefore, odor impacts from project construction and operation would be less than significant, and no mitigation is required.

# IV. BIOLOGICAL RESOURCES

| BIOLOGICAL RESOURCES: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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 Wildlife or U.S. Fish and Wildlife Service? | ☐ | ■ | ☐ | ☐ |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service? | ☐ | ☐ | ☐ | ■ |
| c) Have a substantial adverse effect on 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? | ☐ | ☐ | ☐ | ■ |

## Environmental Setting

The project site features urban/developed habitat. The proposed project includes the demolition of a small community building, pool area, and two tennis courts and the clearing of existing landscaping in the project development area. There are no jurisdictional wetlands, riparian, or other special status habitats located on or immediately adjacent to the project site.

### Regulatory Framework Related to Biological Resources

The City of Folsom regulates urban development through standard construction conditions and through mitigation, building, and construction requirements set forth in the Folsom Municipal Code. Required of all projects constructed throughout the City, compliance with the requirements of the City's standard conditions and the provisions of the Municipal Code avoids or reduces many potential environmental

effects. No Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan has been approved for the City of Folsom.

***State and Federal Endangered Species Acts***

Special status species are protected by state and federal laws. The California Endangered Species Act (CESA; California Fish and Game Code Sections 2050 to 2097) protects species listed as threatened and endangered under CESA from harm or harassment. This law is similar to the Federal Endangered Species Act of 1973 (FESA; 16 USC 1531 et seq.) which protects federally threatened or endangered species (50 CFR 17.11, and 17.12; listed species) from take. For both laws, take of the protected species may be allowed through consultation with and issuance of a permit by the agency with jurisdiction over the protected species.

***California Code of Regulations and California Fish and Game Code***

The official listing of endangered and threatened animals and plants is contained in the California Code of Regulations Title 14 § 670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW for inclusion on the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code. CDFW also designates Species of Special Concern that are not currently listed or candidate species.

Legal protection is also provided for wildlife species in California that are identified as “fully protected animals.” These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fishes) of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species at any time. The CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by these species. The CDFW has informed non-federal agencies and private parties that they must avoid take of any fully protected species. However, Senate Bill (SB) 618 (2011) allows the CDFW to issue permits authorizing the incidental take of fully protected species under the CESA, so long as any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

***California Native Plant Protection Act***

The California Native Plant Protection Act of 1977 (California Fish and Game Code Sections 1900 to 1913) requires all state agencies to use their authority to implement programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use other than changing from one agricultural use to another, which allows CDFW to salvage listed plants that would otherwise be destroyed.

***Nesting and Migratory Birds***

Nesting birds are protected by state and federal laws. California Fish and Game Code (§3503, 3503.5, and 3800) prohibits the possession, incidental take, or needless destruction of any bird nests or eggs; Fish and Game Code §3511 designates certain bird species “fully protected” (including all raptors), making it unlawful to take, possess, or destroy these species except under issuance of a specific permit. Under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USF §703-711), migratory bird species and their

nests and eggs that are on the federal list (50 CFR §10.13) are protected from injury or death, and project-related disturbance must be reduced or eliminated during the nesting cycle.

***City of Folsom Tree Preservation Ordinance***

Requirements related to biological resources also include protection of existing trees and specifies measures necessary to protect both ornamental and native oak trees.

Chapter 12.16 of the Folsom Municipal Code, Tree Preservation, further regulates the cutting or modification of trees, including oaks and specified other trees; requires a Tree Permit prior to cutting or modification; and establishes mitigation requirements for cut or damaged trees (City of Folsom 2018b). The Tree Preservation Ordinance establishes policies, regulations, and standards necessary to ensure that the City will continue to preserve and maintain its "urban forests". Anyone who wishes to perform "Regulated Activities" on "Protected Trees" must apply for a permit with the City. Regulated activities include:

- Removal of a Protected Tree
- Pruning/trimming of a Protected Tree
- Grading or trenching within the Protected zone

Protected trees include:

- Native oak trees with a diameter of 6 inches or larger at breast height for single trunk trees or 20 inches or larger at combined diameter at breast height of native oak multi-trunk trees
- Heritage oak trees are native oaks with a trunk diameter of 19 inches or larger at breast height or native oaks with a multi-trunk diameter of 38 inches or larger at breast height
- Landmark trees are a tree or group of trees determined by the City Council to be a significant community benefit
- Street trees within the tree maintenance strip or contained on the master tree list

***Jurisdictional Waters***

Any person, firm, or agency planning to alter or work in "waters of the U.S.," including the discharge of dredged or fill material, must first obtain authorization from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA). Section 401 requires an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. must obtain a state certification that the discharge complies with other provisions of the CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California. The RWQCB also regulates discharges of pollutants or dredged or fill material to waters of the State which is a broader definition than waters of the U.S.

**Biological Resources Present in the Project Site**

***Land Cover Type***

The land cover type present on the project site is developed. Developed land is land that has been built upon or otherwise modified to the point that it no longer naturally supports vegetation. Developed land includes pavement, structures, irrigated landscaping, hardscape, and areas where materials or debris have been permanently placed.

***Wildlife***

The project site provides habitat for disturbance-tolerant wildlife species typical of urban and suburban areas.

***Special-Status Species with the Potential to Occur***

The regionally-occurring special-status species in the Folsom area are typically associated with aquatic habitats including perennial waterbodies, wetlands, and/or vernal pools, or are associated with relatively undisturbed contiguous stands of oak or riparian woodland. The project site is developed and lacks any of these aquatic habitats. Species expected to use the site would be highly adaptable common species tolerant of disturbance and urban areas.

No special-status wildlife species are expected to occur on the project site with the possible exception of a special-status bird using the project site as a temporary stopover in transit to or from more suitable habitats.

***Other Migratory Birds and Nesting Birds***

While no special-status bird species are expected to nest on the project site, marginal habitat is present on the site for a variety of common bird species that nest in trees, on buildings, or on the ground in urban and suburban areas.

***Protected Trees***

Site grading would require the removal of all on-site trees within the development area. No oak trees or trees protected by the Folsom Tree Ordinance would be removed (ABACUS 2018).

***Jurisdictional Waters***

No potential waters of the U.S. and/or State are present on the project site.

## Evaluation of Biological Resources

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

**Less Than Significant with Mitigation.** The proposed project would not affect special-status species. However, common bird species protected by the MBTA and/or Fish and Game Code may nest on the

buildings and trees present on the project site. If active nests are present at the time of demolition, demolition activities may result in injury or death of individual birds (e.g., if trees or limbs containing active nests are removed), or harassment which may cause nesting birds to abandon active nests resulting in the loss of eggs or young. The loss of foraging habitat in the vicinity of an active nest may result in the reduced health and vigor of eggs and/or nestlings, resulting in reduced survival rates. Any harassment, injury, or death of nesting birds, their nestlings, or eggs would be considered a significant impact.

The following mitigation measures would be implemented to avoid and minimize impacts to nesting birds:

**Mitigation Measure BIO-01: Avoid and minimize impacts to nesting birds.**

- If demolition activities occur during the typical bird nesting season (February 15 through August 31), pre-construction nesting bird surveys shall be conducted by a qualified biologist on the project site and within a 500-foot radius of proposed demolition or construction areas, where access is available, no more than 14 days prior to the initiation of demolition or construction. If no nests are found, no further mitigation is required.

- If active nests are identified in these areas, the City shall coordinate with CDFW to develop measures to avoid disturbance of active nests prior to the initiation of any demolition or construction activities, or demolition or construction could be delayed until the young have fledged. Avoidance measures may include establishment of a buffer zone and monitoring of the nest by a qualified biologist until the young have fledged the nest and are independent of the site. If a buffer zone is implemented, the size of the buffer zone shall be determined by a qualified biologist in coordination with CDFW and shall be appropriate for the species of bird and nest location.

With implementation of the above mitigation measure, impacts to nesting birds would be less than significant.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

**No Impact.** No riparian habitats, sensitive natural communities, or other protected habitats are located on or adjacent to the project site. Therefore, no impact would occur.

c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

**No Impact.** No potential waters of the U.S. or State exist on the project site. Therefore, there would be no impact.

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?

**Less Than Significant Impact.** The project site is developed and surrounded by other residential developments and a commercial shopping center. The project site does not provide features most likely to be used as a wildlife movement corridor. Therefore, impacts to wildlife corridors or the use of native wildlife nursery sites would be less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

**No Impact.** Construction of the proposed project would require the removal of all on-site trees within the development area. No oak trees or trees protected by the Folsom Tree Ordinance would be removed (see **Appendix C** for the Arborist Report). Therefore, no impact would occur.

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?

**No Impact.** No Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan has been approved for the City of Folsom. Therefore, no impacts to an existing adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan would occur.

# V. CULTURAL RESOURCES

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

The Cultural Resources section of this document is based upon the approach, methodology, results, and conclusions outlined in the project-specific Cultural Resources Assessment prepared by HELIX (2018; **Appendix D**).

## Environmental Setting

State and federal legislation requires the protection of historical and cultural resources. In 1971, President's Executive Order No. 11593 required that all federal agencies initiate procedures to preserve and maintain cultural resources by nomination and inclusion on the National Register of Historic Places. In 1980, the Governor's Executive Order No. B-64-80 required that state agencies inventory all "significant historic and cultural sites, structures, and objects under their jurisdiction which are over 50 years of age and which may qualify for listing on the National Register of Historic Places." Section 15064.5(b)(1) of the CEQA Guidelines specifies that projects that cause "…physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historic resource would be materially impaired" shall be found to have a significant impact on the environment. For the purposes of CEQA, an historical resource is a resource listed in, or determined eligible for listing in the California Register of Historical Resources. When a project could impact a resource, it must be determined whether the resource is an historical resource, which is defined as a resource that:

> (A) is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and,
>
> (B) Meets any of the following criteria: 1) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; 2) is associated with the lives of persons important in our past; 3) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or 4) has yielded, or may be likely to yield, information important in prehistory or history. The City of Folsom Standard Construction Specifications were developed and approved by the City of Folsom in May 2004 and updated in April 2015. They include Article 11 - Cultural Resources, which provides direction on actions to

be taken in the event that materials are discovered that may ultimately be identified as a historical or archaeological resource, or human remains (City of Folsom 2015).

**Cultural Background**

Following is a brief summary providing a context in which to understand the background and relevance of resources that may occur in the general project area. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview. Further details can be found in ethnographic studies, mission records, and major published sources.

*Southern Maidu*

At the time of European contact, the Southern Maidu tribe of California Native Americans, previously referred to as the Nisenan, occupied the project vicinity. The Southern Maidu occupied the drainages of the Yuba, Bear, and American rivers and the lower drainages of the Feather River, bounded by the west bank of the Sacramento River to the west, the crest of the Sierra Nevada to the east, a few miles south of the American River to the south. The northern boundary is not well established due to the Southern Maidu's linguistic similarity with neighboring groups but extended somewhere between the Feather and Yuba rivers (Kroeber 1925; Wilson and Towne 1978).

The Southern Maidu constructed villages on natural rises along streams and rivers ranging in size from three to fifty houses. The houses were typically dome or conical shaped and covered with earth, tule mats, or grasses, and major villages contained a semi-subterranean dance house structure covered by earth, tule, and brush (Wilson and Towne 1978). The Southern Maidu subsistence base varied and included gathering seeds and seasonal plant resources, hunting, and fishing. The Southern Maidu were not dependent on one staple, as their territory provided abundant year-round sources of different food. Acorns were a primary food source and were stored in granaries, in addition to buckeye nuts, digger and sugar pine nuts, and hazelnuts. Ethnographic reports indicate the Southern Maidu obtained large game such as deer, antelope, tule elk, mountain lions, and black bears, by game drives, snares, decoys, deadfalls, and bows and arrows. Rabbits and other small game were hunted with sticks, blunted arrows, traps, snares, nets, fire, and rodent hooks.

The Southern Maidu political organization was centered on the tribelet and each village was governed by a headman who served as an advisor and whose position was typically passed on patrilineally, although some chiefs were chosen by the villagers (Beals 1933; Wilson and Towne 1978). Very little contact existed for the Southern Maidu outside of their tribelet area, and outside contact was typically only for ceremonies, trade, and warfare (Beals 1933). Southern Maidu disposed of their dead by cremation and then burial, usually on the morning after the person died. The deceased person's property would be burned and their house moved or destroyed. After the cremation, the bones and ashes would be gathered and buried in the village cemetery. When a death occurred away from the person's village, they would be cremated where they died and their remains returned to their village to be buried (Wilson and Towne 1978).

**Historic Background**

The history of the northern Central Valley and Sierra Nevada foothills can be divided into several periods of influence; pertinent historic periods are briefly summarized below.

*Spanish Period*

The arrival and expansion of the Spanish did not have a significant effect on the Southern Maidu way of life, as contact with the Spanish was limited, and only in the southern edge of their territory. Spanish exploration of the greater Southern Maidu territory occurred when José Canizares explored the adjacent Plains Miwok territory in 1776. There is no recorded history of any Southern Maidu being removed and forced into the Spanish Mission system as neophytes, unlike their Miwok neighbors (Wilson and Towne 1978). There are numerous accounts of neophytes fleeing the missions, and a series of "Indian Wars" broke out when the Spanish tried to return them to the missions (Johnson 1978). The Southern Maidu received some of the escaped mission neophytes and felt pressure on their southern borders from displaced Miwok villages.

*Mexican Period*

With the declaration of Mexican independence in 1821, Spanish control of Alta California ended, although little change actually occurred. Political change did not take place until mission secularization in 1834, when Native Americans were released from missionary control and the mission lands were granted to private individuals. Shoup and Milliken (1999) state that mission secularization exposed Native Americans to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos. Following mission secularization, the Mexican population grew as the native population continued to decline. Anglo-American settlers began to arrive in Alta California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to receive land grants. In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of Alta California was 8,000 non-natives and 10,000 Native Americans. However, these estimates have been debated. Cook (1976) suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,385.

*European Expansion*

Jedediah Smith was the first to explore the Central Valley in 1828, but other fur-trapping expeditions soon followed. In the late 1820s, American trappers, as well as ones from the Hudson's Bay Company, began establishing camps in the Southern Maidu territory to trap beavers, an occupation that was said to have been peaceful (Wilson and Towne 1978). During this period, Native American populations were declining rapidly, due to an influx of Euro-American diseases. In 1832, a party of trappers from the Hudson's Bay Company, led by John Work, traveled down the Sacramento River unintentionally spreading a malaria epidemic to Native Californians. This epidemic wiped out much of the Southern Maidu, and survivors moved into the hills. Four years later, a smallpox epidemic decimated local populations, and it is estimated that up to 75 percent of the Southern Maidu population died (Cook 1955).

After the upheaval of the Bear Flag Revolt in 1846, John Sutter sent James Marshall to construct a sawmill in the Sierra Nevada foothills at Coloma in 1847 (Severson 1973). In January of 1848, Marshall discovered gold near the Southern Maidu village of "Culloma", (Coloma) which marked the start of the Gold Rush. The influx of miners and entrepreneurs increased the population of California, not including Native Californians, from 14,000 to 224,000 in just four years. This, in turn, stimulated commercial growth in the Sacramento Valley as eager entrepreneurs set up businesses to support the miners and mining operations. When the Gold Rush was over, many miners settled in the area and established farms, ranches, and lumber mills.

*City of Folsom*

The City of Folsom's history can be traced back to 1847 when William Leidesdorff traveled to the Sacramento area to see the 35,000 acres he had purchased years earlier. Following Leidesdorff's death in 1848, US Army Captain Joseph Folsom purchased the land from Leidesdorff's heirs and with the help of Theodore Judah established a town site near the Negro Bar mining spot on the American River. Naming the town Granite City, the original plans were for a railroad terminus although at that time there were no railroad trains in northern California. Folsom died before the first railroad arrived in 1856 but the name of the town was changed Granite City to "Folsom" in his honor.

The town soon began to prosper with new hotels and businesses but the real boost to local economy came with the establishment of Folsom Prison in 1880 and the Folsom Powerhouse in 1895. Plans for Folsom Prison moved forward when the wealthy, Robert Livermore family offered to donate land in exchange for prison labor to build a hydro-electric dam across the American River to power a sawmill. Although the sawmill was never established, the family soon realized that force of the dammed water could be used to provide power to Sacramento and in 1895, Folsom made history when the first long-distance transmission of electricity spanned 22 miles from Folsom to Sacramento.

As Folsom continued to grow in size, bridges were constructed across the American River including the Truss Bridge in 1895 and the Rainbow Bridge in 1919. In 1945, the City of Folsom was incorporated and in 1955, Folsom Dam was constructed to provide hydroelectric power and recreation for the burgeoning local population. In the mid-1960s, Johnny Cash made the City of Folsom famous with his hit single "Folsom Prison Blues" coinciding with a time when the city's economy was centered around the prison. A huge economic boom came to Folsom in 1984 when Intel opened its vast campus and established itself as the largest private employer in the Sacramento area. In the 1990s, Folsom grew rapidly as a suburb community to Sacramento and it continues to grow today as an upscale community.

**Cultural Resources Records Search**

On August 3, 2018, HELIX conducted a cultural resource records search at the NCIC to identify any resources, sites, or features within a 0.50-mile radius of the project boundaries. The search included current inventories of the National Register of Historic Places (NR), the California Register of Historical Resources (CRHR), the California Historical Landmarks listings (CHL), and the California Points of Historical Interest list. The California State Historic Property Data File (HPDF) for Sacramento County was also reviewed to determine if any local resources have been previously evaluated for historic significance within the search radius.

The results of the records search indicate that six precontact resources and seven historic-age resources have been recorded within the 0.50-mile search radius; none have been recorded within the project area. Details of the recorded resources are noted in **Table 7**. In addition, 14 reports are on file with the NCIC for the 0.50-mile radius (**Table 8**). None of the reports addressed the project area.

**Table 7.**
**Resources Within 0.50-Mile Search Radius**

| Resource Number | Description | Recorded By/Date | Within Project Area? |
|---|---|---|---|
| P-31-000896 | Multicomponent precontact site including a lithic scatter and a bedrock milling site | S.G Lindstrom and M. Panelli/1990 | No |
| P-34-000440 | Baldwin Reservoir Main Ditch | Sean Dexter and William Hoyle/1967 | No |
| P-34-000439 | Hinkle Creek Park Railroad Segment | Has been recorded since the late 1980's, but most recent recordation was by M. Nolte and J. Dougherty/2006 | No |
| P-34-001677 | Precontact midden site that includes bedrock mortar pits | P. Johnson and J. Johnson/1973 | No |
| P-34-001505 | Hinkle Creek #6, which includes two bedrock outcroppings | M. Nolte and J. Dougherty/2006 | No |
| P-34-001501 | Hinkle Creek #2, which is feature related to mining activities | M. Nolte and J. Dougherty/2006 | No |
| P-34-001502 | Hinkle Creek #3, which is a mining site | M. Nolte and J. Dougherty/2006 | No |
| P-34-001503 | Hinkle Creek #4, which includes bedrock outcroppings | M. Nolte and J. Dougherty/2006 | No |
| P-34-001504 | Hinkle Creek #5, which includes mortar cups in an outcrop of bedrocks near Hinkle Creek | M. Nolte and J. Dougherty/2006 | No |
| P-34-002209 | Hinkle Creek District #1, which includes two mining features in a historic district | PAR Environmental/2008 | No |
| P-34-000911 | Historic road | Eleanor H. Derr and Richard K. Derr/1993 | No |
| P-34-000372 | Railroad bed from 1860's | John H. Madsen/1977 | No |
| P-34-000437 | Bedrock mortar pits | J. Foster, D. Foster/1986 | No |

**Table 8.**
**Reports Within 0.50-Mile Search Radius**

| Report Number/Title | Recorded By/Date | Includes Project Area? |
|---|---|---|
| S-000042/ An Intensive Archaeological Survey of Both Banks of Portions of Miners and Strap Ravines and the Linda Creek Drainage in Placer and Sacramento Counties | Jerald J. Johnson/1976 | No |
| S-000155/ An Archaeological Survey of the Oak Avenue Parkway, Ashland Water Transmission Main, and Storage, Blue Ravine Water Transmission Main, and the Lew Howard Memorial Park for the City of Folsom, Sacramento County, California | Gregory Greenway/1977 | No |
| S-002041/Draft Environmental Impact Report for Oak Avenue-North, General Plan Amendment, Community Plan Amendment, and Rezone | Laurie Warner/1993 | No |
| S-004485/ Negative Cultural Resources Survey Report for the Ottoman Hills Project | Margaret Keefer/2003 | No |
| S-006291/A Cultural Resources Study for the San Juan Suburban Water District Pipeline Project Initial Study | Eleanor H. Derr/1993 | No |
| S-006522/Sprow Ranch Tentative Subdivision Map, Special Development Permit and Affordable Housing Plan (Cultural Resources) | G. Erwin/ 2005 | No |
| S-006545/Archaeological Survey of Illiescu Tentative Parcel Map | PAR Environmental/2005 | No |
| S-007056/Cultural Resources Inventory Hinkle Creek Center City of Folsom Sacramento County, CA | John W. Dougherty and Cindy L. Baker/2006 | No |
| S-009055/Archaeological Reconnaissance, Spring 1973; Part 1: Proposed Penryn 115KV Transmission Line, Pat 2: Proposed Table Mt. -Rancho Seco-Tesla 500KW Transmission Line | Patti Johnson/ 1973 | No |
| S-011163/Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SC15328B (Baldwin Dam), American River Canyon Drive, Folsom, Sacramento County, California | Carrie D. Wills/2012 | No |
| S-011526/Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SC15328B (Baldwin Dam), American River Canyon Drive, Folsom, Sacramento County, California | Carrie D. Wills and Kathleen A. Crawford/2014 | No |
| S-011573/Cultural Resources Assessment Manhole Access Roads Improvement Project, Folsom, Sacramento County, California | Ric Windmiller, Dana E. Supernowicz, Kenneth L. Finger/2014 | No |
| S-011578/Direct APE Architectural Assessment for T-Mobile West, LLC Candidate SC15328B (Baldwin Dam), American River Canyon Drive, Folsom, Sacramento County, California | Wayne H. Bonner and Kathleen A. Crawford/2012 | No |
| S-011887/Cultural Resources Constraints Report. Rio Oso-Gold Hill 230kV: Install top cage extension at structure 024/102. PM Number 30945905 | Ben Elliot/2013 | No |

Source: NCIC Record Search August 3, 2018.

**Native American Heritage Commission Sacred Lands File Search**

On August 2, 2018, HELIX sent a letter to the NAHC to determine if any sacred sites listed on the SLF are located within the project area. On August 6, 2018 a response was received stating that the search was negative for Sacred Lands within the project area. Included with the response was a list of 10 Native Americans who may have additional information about the project area. On September 4, 2018, information request letters were sent to each of the Native Americans requesting any additional information they may have about the project area. As of the date of this Initial Study, no responses have been received.

**Senate Bill (SB 18) Consultation Request**

On August 17, 2018, consultation request letters were sent by the City of Folsom (City) to 10 Native American tribal representatives specified by the NAHC as wishing to consult with the City regarding this project under SB 18. The letters included a detailed project description and stated:

> "In conjunction with the proposed General Plan Amendment, and in accordance with Senate Bill 18 (SB 18), we contacted the California Native American Heritage Commission (NAHC) on August 2, 2018 to request a list of Native American tribes and individuals who may wish to consult with the City under SB 18. Your name and contact information was provided to us by the NAHC in its response, which we received on August 6, 2018.
>
> The purposes of consultation under SB 18 are to consult on the preservation of, or the mitigation of impacts to, Native American Cultural Places, as defined in Public Resources Code 5097.993, and to protect the confidentiality of information concerning the same. Tribal participation is, therefore, important and we are hereby notifying you of the opportunity to consult with the City under SB 18 during our consideration of the General Plan Amendment."

HELIX is assisting the City in keeping the administrative records of the SB 18 consultation efforts.

**Pedestrian Survey**

On August 27, 2018, HELIX conducted a pedestrian survey of the project area. The general topography is rolling hills within a completely built urban environment. The overall visibility was poor to non-existent as the entire project area was planted with various types of landscape elements. Survey transects were not utilized because of the poor visibility, instead, the very few open areas with no vegetation were examined.

No historical or precontact resources were discovered during the course of the survey.

## Evaluation of Cultural Resources

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

**Less Than Significant Impact.** No precontact or historic resources have been previously recorded within the project area, and none were discovered during the pedestrian survey conducted by Senior Archaeologist, Carrie Wills. Therefore, project impacts to historic resources would be less than significant.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

**Less Than Significant Impact with Mitigation.** In accordance with State CEQA Guidelines, HELIX has assessed the project area for the presence of archaeological resources. Since the entire project area has been subject to extensive excavation for plants, grass and irrigation systems, it is highly unlikely that any intact resources are present within the project area. Still, the potential exists for inadvertent discovery of archaeological resources during project construction. The implementation of standard archaeological resource construction mitigation (Mitigation Measure CUL-01) would ensure that potential impacts would be less than significant.

**Mitigation Measure CUL-01: Avoid and minimize impacts to previously unknown archaeological resources.**

In accordance with Section 15064.5 of the State CEQA Guidelines, if buried archaeological resources are discovered during demolition or construction, operations shall stop within 50 feet of the find, and a qualified archaeologist shall be consulted to determine whether the resource is significant and requires further study. The archaeologist shall make recommendations to the Lead Agency concerning appropriate measures that will be implemented to protect the resource(s), including but not limited to excavation and evaluation of the finds, consistent with Section 15064.5 of the CEQA Guidelines and 36 CFR 800. Cultural resources could consist of but are not limited to stone, bone, wood, or shell artifacts, or features including hearths, structural remains, or historic dumpsites. Any previously undiscovered resources found during demolition or construction within the project area should be recorded on appropriate Department of Parks and Recreation (DPR) 523 forms and evaluated for significance in terms of CEQA criteria.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

**Less Than Significant Impact with Mitigation.** No human remains are known to exist within the project area nor were there any indications of human remains found during the field survey. However, there is always the possibility that subsurface construction activities associated with the proposed project, such as trenching and grading, could potentially damage or destroy previously undiscovered human remains. This is a potentially significant impact. However, if human remains are discovered, implementation of Mitigation Measure CUL-02 would reduce this potential impact to a less than significant level.

**Mitigation Measure CUL-02: Avoid and minimize impacts related to accidental discovery of human remains.**

If human remains are encountered during excavations associated with this project, all work will halt within 50 feet of the find, and the County Coroner will be notified (per Section 7050.5 of the California Health and Safety Code and Section 15064.5 of the State CEQA Guidelines). If the coroner determines that the remains are of Native American origin, he/she will contact the NAHC. The NAHC will be responsible for designating the most likely descendant (MLD), who will be responsible for the ultimate disposition of the remains, as required by Public Resources Code Section 5097.98. The MLD will make his/her recommendations within 48 hours of their notification by the NAHC.

# VI. ENERGY

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

An Energy Technical Memorandum was prepared for the proposed project to analyze the proposed energy efficient and sustainable project features and calculate the estimated reduction in air quality and GHG emissions from implementation of the proposed features. The memorandum and supporting information are included as **Appendix E** (De Novo Planning 2019).

## Environmental Setting

Electricity

California's electricity needs are satisfied by a variety of entities, including investor-owned utilities, publicly owned utilities, electric service providers and community choice aggregators. In 2017, the California power mix totaled 292,039 gigawatt hours (GWh). In-state generation accounted for 206,336 GWh, or 71 percent, of the state's power mix. The remaining electricity came from out-of-state imports (CEC 2018). **Table 9** provides a summary of California's electricity sources as of 2017.

**Table 9. California Electricity Sources 2017**

| Fuel Type | Percent of California Power |
|---|---|
| Coal | 4.13% |
| Large Hydro | 14.72% |
| Natural Gas | 33.67% |
| Nuclear | 9.08% |
| Oil | 0.01% |
| Other (Petroleum Coke/Waste Heat) | 0.14% |
| Renewables | 29% |

Source: CEC 2018

The project applicant proposes to install a solar photovoltaic system on the rooftops of the proposed clubhouse/leasing office/fitness center building and adjacent apartment building (Building 1). The solar energy system would be approximately 70,000 kilowatt direct current and would generate 100,000 kilowatt-hours annually.

Natural Gas

Natural gas provides the largest portion of the total in-state capacity and electricity generation in California, with nearly 50 percent of the natural gas burned in California used for electricity generation in 2017. Much of the remainder was consumed in the residential, industrial, and commercial sectors for uses such as cooking, space heating, and as an alternative transportation fuel. In 2012, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 2,313 billion cubic feet per year (bcf/year), up from 2,196 bcf/year in 2010 (CEC 2017a).

Transportation Fuels

Transportation accounts for a major portion of California's energy budget. Automobiles and trucks consume gasoline and diesel fuel, which are nonrenewable energy products derived from crude oil. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles (SUVs). In 2015, 15.1 billion gallons of gasoline were sold in California (CEC 2017b). Diesel fuel is the second most consumed fuel in California, used by heavy-duty trucks, delivery vehicles, buses, trains, ships, boats, and farm and construction equipment. In 2015, 4.2 billion gallons of diesel were sold in California (CEC 2017c).

The applicant proposes to install a minimum of three electric vehicle charging stations at the project site, consistent with the California Green Buildings Standard Code's provisions for electric vehicle charging infrastructure. In addition, the project applicant proposes to implement electric vehicle car sharing at the project site.

## Regulatory Framework

### *State Regulations*

California Building Standards Code (California Code of Regulations, Title 24)

The 2016 Building Energy Efficiency Standards, comprising Title 24, Parts 1 and 6, of the California Code of Regulations, is mandatory statewide. Local government agencies may adopt and enforce energy efficiency standards for newly constructed buildings, additions, alterations, and repairs provided the California Energy Commission finds that the standards will require buildings to consume no more energy than permitted by Title 24, Part 6. Such local standards may include adopting the requirements of Title 24, Part 6 before their effective date, requiring additional energy conservation measures, or setting more stricter energy budgets.

### *Local Regulations*

City of Folsom General Plan

The City of Folsom 2035 General Plan Utilities Element provides the following goals and policies relative to energy.

Goal PFS 8.1: Provide for the energy and telecommunications needs of Folsom and decrease the dependence on nonrenewable energy sources through energy conservation, efficiency, and renewable resource strategies now and in the future.

- PFS 8.1.3 Renewable Energy: Promote efforts to increase the use of renewable energy resources such as wind, solar, hydropower, and biomass both in the community and in City operations, where feasible.

- PFS 8.1.4 Regional Energy Conservation: Partner with neighboring jurisdictions and local energy utilities (e.g., SMUD and PG&E) to develop, maintain, and implement energy conservation programs.

- PFS 8.1.5 PACE Program: Assist in implementing the Property Assessed Clean Energy (PACE) financing programs to provide residential and commercial property owners with energy efficiency and renewable energy financing opportunities.

- PFS 8.1.6 Energy-Efficient Lighting: Reduce the energy required to light Folsom's parks and public facilities by employing energy-efficient lighting technology.

- PFS 8.1.7 Energy Conservation in City Operations: Strive to achieve an overall 20 percent reduction in City facility energy usage by continuing to install energy efficiency upgrades in City facilities (buildings, parks, and infrastructure) and implementing programs to measure and track energy usage in City facilities.

Folsom Municipal Code

Chapter 14.19 of the City of Folsom Municipal Code, entitled ENERGY CODE, adopts by reference the California Energy Code, 2010 Edition, published as Part 6, Title 24, California Code of Regulations to require energy efficiency standards for structures.

## Evaluation of Energy

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

**Less Than Significant Impact.** Project construction would require the use of construction equipment for clearing and grubbing, grading, hauling, and building activities, as well as construction workers and vendors traveling to and from the project site. Construction equipment requires gasoline, diesel, and potentially other fuel sources to operate.

Construction of the project would incorporate on-site energy conservation features. The following practices would be implemented during project construction to reduce waste and energy consumption:

- Follow maintenance schedules to maintain equipment in optimal working order and rated energy efficiency, which would include, but not be limited to, regular replacement of filters, cleaning of compressor coils, burner tune-ups, lubrication of pumps and motors, proper vehicle maintenance, etc.;

- Reduce on-site vehicle idling; and,

- In accordance with CALGreen criteria as well as state and local laws, at least 50 percent of on-site construction waste and ongoing operational waste would be diverted from landfills through reuse and recycling.

The project's construction-related energy usage would not represent a significant demand on energy resources because it is temporary in nature. Additionally, with implementation of the low impact design features, project construction would avoid or reduce inefficient, wasteful, and unnecessary consumption of energy. Therefore, the project's construction-phase energy impacts would be less than significant.

Operation of the proposed project would increase the consumption of energy related to electricity, natural gas, water, and wastewater. However, implementation of low impact design, energy efficient, and sustainable features would also reduce the energy usage. As discussed above under Environmental Setting, the project applicant proposes to install a solar photovoltaic system on the rooftops of the proposed clubhouse/leasing office/fitness center building and adjacent apartment building (Building 1). The proposed system is expected to generate sufficient energy to offset 100 percent of the energy requirements for the common area amenities, including the clubhouse, pool, and all common area lighting needs on the property. To the extent feasible, the applicant proposes to engage installers and manufacturers located in the Greater Sacramento region for the solar system. Installation of the three electric vehicle charging stations is expected to reduce project-wide transportation GHG emissions by approximately 0.06 percent for ROG, 0.27 percent for NOx, 0.48 percent for $SO_2$, 0.49 percent for $PM_{10}$, 0.46 percent for $PM_{2.5}$, 0.47 percent for $CO_2$, and 0.36 percent for $CO_2e$ (See Appendix E for detailed analysis). Implementation of the electric vehicle car sharing program would contribute directly to gasoline displacement, reduce vehicle miles traveled, car ownership (parking spaces), and GHG emissions.

Additionally, adequate energy facilities are already located within and adjacent to the site serving the existing uses. Thus, the incremental increase associated with implementation of the project would not require the construction of new energy facilities or sources of energy that would not otherwise be needed to serve the region. It is anticipated that these services would be provided from existing utilities on site, or from extensions from existing facilities immediately abutting the site. Therefore, energy impacts from project operation would be less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

**No Impact.** The proposed project would not conflict with or obstruct a state or local plan for renewable energy efficiency. The project would conform to all applicable state, federal, and local laws and codes. Therefore, the proposed project would have no impact.

# VII. GEOLOGY AND SOILS

| GEOLOGY AND SOILS: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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 and 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? | ☐ | ☐ | ☐ | ■ |

The Geology and Soils section of this document is based upon the approach, methodology, results, and conclusions outlined in the project-specific Geotechnical Exploration prepared by ENGEO Incorporated (ENGEO 2017). The geotechnical report is included as **Appendix F**.

## Environmental Setting

### Geology

The project site is located in the foothills of the Sierra Nevada geomorphic province. The Sierra Nevada Mountains are a fault block range trending generally north-northwest along the eastern portion of California. The Sierra Nevada fault block tilts to the west displaying a steep eastern slope and a gentle

western slope. Generally, the western Sierra Nevada slope contains large river systems, which have led to the development of deeply incised canyons and intact ridges. The Sierra Nevada basement bedrock is dominated by Paleozoic and Mesozoic age plutonic, metasedimentary, meta-volcanics, and metamorphic rocks. In some locations, overlaying the basement rock are Tertiary volcanic deposits.

The site geology is mapped as Tertiary Mehrten Formation by the California Geological Survey (CGS) (Gutierrez 2011 in ENGEO 2017). Mehrten Formation is composed of two units, Mehrten Breccia and Mehrten Conglomerate, derived from ancient Sierra Nevada volcanic activity. Mehrten Breccia is a nearly horizontal series of pyroclastic mudflows that consist of angular andesitic cobbles and boulders surrounded by heavily cemented tuffaceous siltstone. Mehrten Conglomerate typically underlies the Breccia unit and contains primarily andesitic rounded to subrounded cobbles in a moderately cemented siltstone-sandstone matrix. The conglomerate can contain discrete to massive beds of volcanic derived siltstone and sandstone. During the geotechnical exploration, Mehrten Conglomerate and deposits indicative of the younger Pliocene Laguna Formation were encountered. Laguna Formation consists of interbedded alluvial gravel, sand, and silt dominated by metamorphic and quartz grains sourced from the Sierra Nevada.

The project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone, and no known surface expression of active faults exists within the site.

The project site does lie within a seismically active region, as California has numerous faults that are considered active. An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years) (Hart 1997 in ENGEO 2017). **Table 10** below summarizes the distances to mapped, active faults and estimated maximum moment magnitudes within approximately 50 miles using the USGS Spatial Query tool, which is based on the 2008 USGS National Seismic Hazard Maps that were used to develop the 2016 California Building Code (CBC) seismic design parameters.

**Table 10. Active Faults Capable of Producing Significant Ground Shaking at the Project Site**

| Fault Name | Distance from Site (Miles) | Direction from Site | Maximum Moment Magnitude |
|---|---|---|---|
| Great Valley 4a, Trout Creek | 45 | Southwest | 6.6 |
| Great Valley 3, Mysterious Ridge | 46 | Southwest | 7.1 |
| Great Valley 4b, Gordon Valley | 48 | Southwest | 6.8 |

Source: ENGEO 2017.

**Subsurface Conditions**

ENGEO observed the excavation of eight test pits at the project site on June 8 and 13, 2017. The maximum depth penetrated by the test pits was approximately 10.5 feet. Seven of the eight test pits encountered 1.5 to 4.5 feet of fill from the ground surface down. The fill generally consisted of clayey sand and gravel with cobble, likely associated with previous grading of the existing Canyon Terrace Apartment development.

The test pits located in the northwestern portion of the project site encountered soil consistent with the Laguna Formation. The Laguna Formation soils generally consisted of cemented sandy silt and silty sand with minor amounts of fine gravel. One test pit in the northwestern portion of the project site encountered fat clay from a depth of approximately 4.5 to 7 feet, and laboratory expansion index testing indicated the clay has high expansion potential.

The test pits located on the southeastern portion of the site encountered Mehrten Conglomerate, which consisted of well-rounded cobble and gravel in a matrix of sandy clay and clayey sand. Some of these test pits encountered boulders up to approximately 16 inches in maximum dimension.

**City Regulation of Geology and Soils**

The City of Folsom regulates the effects of soils and geological constraints on urban development primarily through enforcement of the California Building Code, which requires the implementation of engineering solutions for constraints to urban development posed by slopes, soils, and geology. The City as additionally adopted a Grading Code (Folsom Municipal Code Section 14.29) that regulates grading citywide to control erosion, storm water drainage, revegetation, and ground movement.

## Evaluation of Geology and Soils

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.

**Less Than Significant Impact.** There are no known active faults crossing the property, and the project site is not located within an Earthquake Fault Special Study Zone. Therefore, ground rupture is unlikely at the subject property, and impacts would be less than significant.

   ii. Strong seismic ground shaking?

**Less Than Significant Impact.** An earthquake of moderate to high magnitude generated within the region could cause considerable ground shaking at the site. To minimize potential ground shaking effects, structures should be designed in accordance with the 2016 California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures built in accordance with the 2016 CBC would be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage (ENGEO 2017). Conformance to the current building code recommendations would minimize potential ground shaking impacts to a less-than-significant level.

   iii. Seismic-related ground failure, including liquefaction?

**Less Than Significant Impact.** Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. The sands that were encountered on the project site during the geotechnical exploration were generally cemented. In addition, groundwater was not encountered to the terminal depth of the test pits (ENGEO 2017). Therefore, the potential for liquefaction at the project site is low during seismic shaking, and impacts would be less than significant.

iv. Landslides?

**Less Than Significant Impact.** Site topography slopes downward from American River Canyon Drive on the east side of the site towards the west. The slopes are steepest near American River Canyon Drive with another steep portion towards the center of the site. Project site grades range from an elevation of 345 feet along the eastern edge of the project site to an elevation of 275 feet at the southwest corner. Based on topographic and lithologic data, the risk of landslides at the project site is considered low to negligible (ENGEO 2017). Therefore, potential impacts from the construction of the proposed project would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil?

**Less Than Significant Impact.** The 2016 CBC and the City's Grading Code and standard conditions for project approval contain requirements to minimize or avoid potential effects from water erosion hazards. As a condition of approval, prior to the issuance of a grading or building permit, the City would require the applicant to prepare a soils report, a detailed grading plan, and an erosion control plan by a qualified and licensed engineer. The soils report would identify soil hazards, including potential impacts from erosion. The City would be required to review and approve the erosion control plan based on the State of California Department of Conservation's "Erosion and Control Handbook." The erosion control plan would identify protective measures to be implemented during excavation, temporary stockpiling, disposal, and revegetation activities.

Further, because the project would result in one or more acre of ground disturbance, the project applicant would be required to obtain a General Construction Activity Stormwater Permit and a NPDES permit from the State Water Resources Control Board (SWRCB). Use of the permit requires the preparation of a SWPPP for approval by the SWRCB. The plan would contain best management practices to reduce potential impacts to water quality during construction of the project. Compliance with the City's regulations, the 2016 CBC requirements, and implementation of the SWPPP would reduce potential impacts related to soil erosion from water to less than significant.

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?

**Less Than Significant Impact**. Based on topographic and lithologic data, the risk of regional subsidence or uplift, soil liquefaction, lateral spreading, and landslides is considered low to negligible at the project site (ENGEO 2017). Therefore, potential impacts from project implementation would be less than significant.

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?

**Less Than Significant Impact.** Highly expansive soil was encountered in one of the test pits and potentially expansive clays were encountered near the surface of four test pits during the geotechnical exploration. Laboratory testing indicated that these soils exhibit low to high shrink/swell potential with variations in moisture content. Expansive soils change in volume with changes in moisture, and can shrink or swell, causing heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations.

To reduce the potential for damage to the planned buildings, the upper 18 inches of the building pad should extend at least 10 feet laterally beyond the building areas and be underlain by non-expansive fill. The geotechnical exploration provided construction recommendations that would reduce the swell potential of the clay by compacting the soil at a high moisture content and controlling the amount of compaction. Following the recommendations of the geotechnical exploration would minimize potential impacts from project construction on expansive and potentially expansive soil, and impacts would be less than significant.

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?

**No Impact.** The proposed sewer system would connect to the public sewer system in the northwest corner of the property and would not require septic systems or an alternative waste disposal system. No impact would occur.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

**No Impact.** The proposed project area is not located in an area that is considered likely to have paleontological resources present. Paleontological resources (fossils) are the remains and/or traces of prehistoric life. Fossils are typically preserved in layered sedimentary rocks, and the distribution of fossils is a result of the sedimentary history of the geologic units within which they occur. Vertebrate fossils have been documented in nine different locations within Sacramento County. The finds encompass several hundred specimens, all within the Riverbank Formation. Because of the large number of vertebrate fossils that have been recovered from the Riverbank Formation from Sacramento County and throughout the Central Valley, this formation is considered to have high sensitivity under criteria established by the Society of Vertebrate Paleontology (1995). Likewise, the Mehrten and Ione formations located within the 2035 Plan Evaluation Area may be considered to be sensitive for the presence of paleontological resources. Other geologic formations found in the 2035 Folsom Plan Evaluation Area, such as the Laguna Formation, mine/dredge tailings, and Holocene alluvium along local drainage features, would not be expected to contain fossils.

Fossils of plants, animals, or other organisms of paleontological significance have not been discovered within the project area, nor has the project area been identified as being within any of the areas mentioned above where such discoveries are likely. Therefore, the project would not result in impacts to paleontological resources or unique geologic features.

# VIII. GREENHOUSE GAS EMISSIONS

| GREENHOUSE GAS EMISSIONS: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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? | ☐ | ☐ | ■ | ☐ |

The Greenhouse Gas Emissions section of this document is based upon the approach, methodology, results, and conclusions outlined in the project-specific Air Quality and Greenhouse Gas Analysis prepared by De Novo Planning Group (De Novo 2019). The Air Quality and Greenhouse Gas Technical Report is included as **Appendix B**.

## Environmental Setting

Climate change refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have recently been associated with global warming, which is an average increase in the temperature of the atmosphere near the Earth's surface; this is attributed to an accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat in the atmosphere which, in turn, increases the Earth's surface temperature. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through fossil fuel combustion in conjunction with other human activities appears to be closely associated with global warming.

GHGs, as defined under California's Assembly Bill 32 (AB 32), include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride ($SF_6$). General discussions on climate change often include water vapor, ozone, and aerosols in the GHG category. Water vapor and atmospheric ozone are not gases that are formed directly in the construction or operation of development projects, nor can they be controlled in these projects. Aerosols are not gases. While these elements have a role in climate change, they are not considered by either regulatory bodies, such as CARB, or climate change groups, such as the Climate Registry, as gases to be reported or analyzed for control. Therefore, no further discussion of water vapor, ozone, or aerosols is provided.

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to $CO_2$. For example, since $CH_4$ and $N_2O$ are approximately 25 and 298 times more powerful than $CO_2$, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively ($CO_2$ has a GWP of 1). Carbon dioxide equivalent ($CO_2e$) is a quantity

that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce $CO_2e$. The atmospheric lifetime and GWP of selected GHGs are summarized in **Table 11**.

**Table 11. Global Warming Potentials and Atmospheric Lifetimes**

| GREENHOUSE GAS | ATMOSPHERIC LIFETIME (years) | GLOBAL WARMING POTENTIAL (100-year time horizon) |
|---|---|---|
| Carbon Dioxide ($CO_2$) | 50.0–200.0 | 1 |
| Methane ($CH_4$) | 12.0 | 25 |
| Nitrous Oxide ($N_2O$) | 114.0 | 298 |
| HFC-134a | 14 | 1,430 |
| PFC: Tetrafluoromethane ($CF_4$) | 50,000.0 | 7,390 |
| PFC: Hexafluoroethane ($C_2F_6$) | 10,000.0 | 12,200 |
| Sulfur Hexafluoride ($SF_6$) | 3,200.0 | 22,800 |

HFC: hydrofluorocarbons; PFC: perfluorocarbons.
Source: IPCC 2007.

**Regulatory Framework Relating to Greenhouse Gas Emissions**

AB 32, the California Global Warming Solutions Act of 2006, recognizes that California is a source of substantial amounts of GHG emissions. The statute states that:

> *Global warming poses a serious threat to the economic wellbeing, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*

In order to help avert these potential consequences, AB 32 established a State goal of reducing GHG emissions to 1990 levels by the year 2020, which is a reduction of approximately 16 percent from forecasted emission levels, with further reductions to follow. In addition, AB 32 required CARB develop a Scoping Plan to help the state achieve the targeted GHG reductions. In 2015, Executive Order (EO) B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in AB 32. As a follow-up to AB 32 and in response to EO-B-30-15, Senate Bill (SB) 32 was passed by the California legislature in 2016 to codify the EO's California GHG emission reduction target of 40 percent below 1990 levels by 2030.

On December 11, 2008, the CARB adopted the Scoping Plan (CARB 2008) as directed by AB 32. The Scoping Plan proposes a set of actions designed to reduce overall GHG emissions in California to the levels required by AB 32. Measures applicable to development projects include those related to energy-efficiency building and appliance standards, the use of renewable sources for electricity generation, regional transportation targets, and green building strategy. Relative to transportation, the Scoping Plan includes nine measures or recommended actions related to reducing vehicle miles traveled and vehicle GHGs through fuel and efficiency measures. These measures would be implemented statewide rather than on a project-by-project basis.

In response to EO B-30-15 and SB 32, all state agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets. CARB was directed to update the Scoping Plan to reflect the 2030 target and, therefore, is moving forward with the update process (CARB 2014). The mid-term target is critical to help frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue driving down emissions. CARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target set by EO B-30-15 and codified by SB 32. The 2017 Climate Change Scoping Plan Update, Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target, was adopted in December 2017. The Scoping Plan Update establishes a proposed framework for California to meet a 40 percent reduction in GHGs by 2030 compared to 1990 levels (CARB 2017b).

## Evaluation of Greenhouse Gas Emissions

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

**Less Than Significant Impact.**

*Construction*

Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, vendor trips, and worker commuting trips. Construction GHG emissions were calculated by using CalEEMod Version 2016.3.2; the model is described in Section III, Air Quality. Input details and output are provided in Appendix B. The results are output in metric tons (MT) of $CO_2e$ for each year of construction. The estimated construction GHG emissions for the project are shown in **Table 12**. The estimated increase in construction GHG emissions would be substantially below the SMAQMD construction phase threshold of 1,100 MT $CO_2e$ (SMAQMD 2015). Therefore, the project would generate less than significant levels of GHGs during construction and impacts would be less than significant.

**Table 12. Estimated Annual GHG Emissions from Project Construction**

| YEAR | EMISSIONS (MT $CO_2e$) |
|---|---|
| 2017 | 104 |
| 2018 | 344 |
| *SMAQMD Threshold* | *1,100* |
| **Threshold Exceeded?** | **No** |

Source of emissions: De Novo 2019 (Appendix B).
Source of threshold: SMAQMD 2015.

*Operation*

Operational GHG emissions for the proposed project are estimated by including purchased electricity; natural gas use for space and water heating; the electricity embodied in water consumption; the energy associated with solid waste disposal; and mobile source emissions. CalEEMod incorporates local energy emission factors and mitigation measures based on the California Air Pollution Control Officers Association's (CAPCOA's) publication Quantifying Greenhouse Gas Mitigation Measures (CAPCOA 2010) and the California Climate Action Registry's (CCAR's) General Reporting Protocol (CCAR 2009). CalEEMod data sheets and details of the electricity and water use calculations are included in Appendix B. The

results of the calculations are shown in **Table 13**. As shown therein, the total operational GHG emissions at buildout of the proposed project are estimated at 459 MT $CO_2e$ per year, which is less than the SMAQMD threshold of significance. Therefore, the project's impacts related to operational GHG emissions would be less than significant.

**Table 13. Estimated Annual GHG Emissions from Project Operation**

| SOURCE | EMISSIONS (MT $CO_2e$) |
|---|---|
| Area | 2 |
| Energy | 219 |
| Mobile | 198 |
| Waste | 22 |
| Water | 17 |
| **Total** | **459** |
| *SMAQMD Threshold* | *1,100* |
| **Threshold Exceeded?** | **No** |

Source of emissions: De Novo 2019 (Appendix B).
Source of threshold: SMAQMD 2015.
Note: totals may not sum due to rounding.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

**Less Than Significant Impact.** In accordance with SMAQMD's Guide, project emissions should be evaluated with respect to consistency with the following plans that have been adopted to reduce GHG emissions:

1. AB 32 and the Scoping Plan; and,
2. The Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS).

The SMAQMD's recommended thresholds and mitigation measures were developed to show consistency with AB 32 and the Scoping Plan. As discussed in response to Question VII(a) above, project generated GHG emissions would be below the SMAQMD significance threshold. Therefore, the proposed project would be consistent with AB 32 and the Scoping Plan.

The MTP/SCS relies on information from the Sacramento Area Council of Governments (SACOG), including projected growth in the County. The SACOG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County. As such, projects that propose development that is consistent with the growth anticipated by SACOG would be consistent with the MTP/SCS. The project is a multi-family medium density residential development that does not extend infrastructure to previously undeveloped areas, nor is the project of a magnitude, either in terms of employment (e.g., construction and leasing/operations) or number of available units, that would cause significant numbers of people to relocate to the area solely for the purpose of being close to the site. Based on these considerations, the project would not induce population growth in the community that exceeds the levels anticipated in plans adopted by the County. Therefore, the project would not exceed SACOG's population, housing, or employment projections. The proposed project is consistent with the MTP/SCS.

# IX. HAZARDS AND HAZARDOUS MATERIALS

| HAZARDS AND HAZARDOUS MATERIALS: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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 two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? | ☐ | ☐ | ☐ | ■ |
| f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ■ | ☐ |
| g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? | ☐ | ☐ | ■ | ☐ |

## Environmental Setting

The project site is currently developed and includes the demolition of a small community building, pool area, and two tennis courts within the existing Canyon Terrace Apartment community. The project site has no known past land uses associated with potentially hazardous sites.

The schools located nearest to the project site are: Odyssey Learning Center, located approximately 350 feet west of the project site and Ottomon Way Elementary School, located approximately 0.3-miles west of the project site.

The following databases were reviewed for the project site and surrounding area to identify potential hazardous contamination sites: the EPA's Envirofacts online database (EPA 2018a); California Department of Toxic Substance Control's EnviroStor online database (DTSC 2018); and the EPA's

Superfund National Priorities List (EPA 2018b). Based on the results of the databases reviewed, the project site is not listed as a hazardous waste site.

Federal and state laws include provisions for the safe handling of hazardous substances. The federal Occupational Safety and Health Administration (OSHA) administers requirements to ensure worker safety. Construction activity must also be in compliance with the California OSHA regulations (Occupational Safety and Health Act of 1970).

### Evaluation of Hazards and Hazardous Materials

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?

**Less Than Significant Impact.** No existing hazardous materials have been identified on the project site, and the site has no known history of past land uses associated with potentially hazardous sites. Demolition and construction of the proposed project would result in an increase in the generation, storage, and disposal of hazardous wastes. During project demolition and construction, oil, gasoline, diesel fuel, paints, solvents, and other hazardous materials may be used. If spilled, these substances could pose a risk to the environment and to human health.

Following demolition and construction, household hazardous materials such as various cleansers, paints, solvents, pesticides, pool chemicals, and automobile fluids would be expected to be used. The routine transport, use, and disposal of hazardous materials are subject to local, state, and federal regulations to minimize risk and exposure.

Further, the City has set forth its hazardous materials goals and policies in the Hazardous Materials Element of the General Plan. The preventative policies protect the health and welfare of residents of Folsom through management and regulation of hazardous materials. Consequently, use of the listed materials above for their intended purpose would not pose a significant risk to the public or environment, and impacts would be less than significant for questions a) and b).

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

**Less Than Significant with Mitigation.** The project site is located approximately 300 feet east of the Odyssey Learning Center and approximately 0.3-mile east of Ottomon Way Elementary School. Although no known hazardous materials are present on the project site, the proposed project involves the demolition of a small community building, pool area, and tennis courts that were constructed between 1980 and 1993 (NETRONLINE 2018), and it is assumed asbestos-containing materials and lead-based paint are present. Exposure pathways by which receptors could be exposed to hazardous materials include: 1) direct contact with hazardous materials; 2) incidental ingestion of hazardous materials (e.g., if workers fail to wash their hands before eating, drinking, or smoking); and 3) inhalation of airborne dust released from dried hazardous materials. This would be a potentially significant impact. Mitigation Measure HAZ-01 would be implemented to reduce potential impacts associated with the handling of asbestos and lead-based paint materials within one-quarter mile of a school to a less than significant level.

**Mitigation Measure HAZ-01: Conduct Asbestos and Lead-Based Paint Surveys and Testing**

Prior to initiating demolition activities, the project applicant shall retain a qualified inspector to survey the buildings and structures to be demolished for hazardous materials. If hazardous materials are found to be present, the project applicant shall have a licensed contractor properly remove and dispose of these hazardous materials in accordance with federal, state, and local laws.

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?

**No Impact.** The project site is not listed as a hazardous waste site on Envirofacts (EPA 2018a), EnviroStor (DTSC 2018), or the EPA's Superfund National Priorities List (EPA 2018b). Therefore, project implementation would have no hazardous impact to the public or environment.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

**No Impact.** The project site is not located within an Airport Land Use Plan area, and no public or private airfields are within two miles of the project site. Therefore, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area, and no impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

**Less Than Significant Impact.** Consistent with the City's Multi-Hazard Emergency Management Plan, the City of Folsom maintains pre-designated emergency evacuation routes along major streets and thoroughfares (City of Folsom 2005). The proposed project would not modify any pre-designated emergency evacuation route or preclude their continued use as an emergency evacuation route. Emergency vehicle access would be maintained throughout the project site to meet the Fire Department standards for fire truck maneuvering, location of fire truck to fight a fire, rescue access to the units, and fire hose access to all sides of the building. Therefore, project impacts to the City's adopted emergency plans would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

**Less Than Significant Impact.** The project site is located in an urbanized area in the City of Folsom and is provided urban levels of fire protection by the City. Additionally, on-site fire water would connect to the City of Folsom water supply on American River Canyon Drive at the existing north and south driveways and would include two double detector check valves (one on each end of the looped system), providing fire water to the proposed hydrants, exterior Fire Department Connection assemblies, and fire riser rooms. Therefore, the proposed project would not expose people or structures to a significant risk of loss due to wildland fires, and impacts would be less than significant.

# X. HYDROLOGY AND WATER QUALITY

| HYDROLOGY AND WATER QUALITY: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? | ☐ | ☐ | ■ | ☐ |
| b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | ☐ | ☐ | ■ | ☐ |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: | | | | |
| i. Result in substantial erosion or siltation on- or off-site? | ☐ | ☐ | ■ | ☐ |
| ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site? | ☐ | ☐ | ■ | ☐ |
| iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff? | ☐ | ☐ | ■ | ☐ |
| 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? | ☐ | ☐ | ■ | ☐ |

## Environmental Setting

The regional setting of the project site is primarily characterized by residential development with a commercial shopping center immediately adjacent to the north. The project site gently slopes downward from both east to west and from south to north. Precipitation is the only apparent source of surface water as there are no wetlands or streams located on the project site.

The on-site storm drain system for the proposed project would conform to City of Folsom standards and include design features consistent with the Stormwater Quality Design Manual for the Sacramento and South Placer Regions. Low Impact Design features, including a combination of bio-retention swales, basins, and planters, have been identified for each drainage management area within the proposed expansion. Additionally, all new proposed trash enclosures would include a drain that connects to the

sanitary sewer system in conformance with Storm Water Quality Guidance. The project would incorporate standard BMP to maintain existing water quality in accordance with City regulations.

Construction of the proposed project would disturb more than one acre of soil and would conform to the California General Construction Permit, and a SWPPP would be prepared for the proposed project.

Federal Emergency Management Agency (FEMA) flood insurance rate maps were reviewed for the project's proximity to a 100-year floodplain. The proposed project is on FEMA panel 06067C0104H, effective August 16, 2012. The project site is not located within a 100-year floodplain (FEMA 2018).

The site is not located in an area of important groundwater recharge. Domestic water in the City is provided solely by surface water sources, and the City is the purveyor of water to the project area.

## Regulatory Framework Relating to Hydrology and Water Quality

The City is a signatory to the Sacramento Countywide NPDES permit for the control of pollutants in urban stormwater. Since 1990, the City has been a partner in the Sacramento Stormwater Quality Partnership, along with the County of Sacramento and the Cities of Sacramento, Citrus Heights, Elk Grove, Galt, and Rancho Cordova. These agencies are implementing a comprehensive program involving public outreach, construction and industrial controls (i.e., BMP), water quality monitoring, and other activities designed to protect area creeks and rivers. This program would be unchanged by the proposed project, and the project would be required to implement all appropriate program requirements.

In addition to these activities, the City maintains the following requirements and programs to reduce the potential impacts of urban development on stormwater quality and quantity, erosion and sediment control, flood protection, and water use. These regulations and requirements would be unchanged by the proposed project.

Standard construction conditions required by the City include:

- *Water Pollution* – requires compliance with City water pollution regulations, including NPDES provisions.
- *Clearing and Grubbing* – specifies protection standards for signs, mailboxes, underground structures, drainage facilities, sprinklers and lights, trees and shrubbery, and fencing. Also requires the preparation of a SWPPP to control erosion and siltation of receiving waters.
- *Reseeding* – specifies seed mixes and methods for reseeding of graded areas.

Additionally, the City enforces the following requirements of the Folsom Municipal Code as presented in **Table 14**.

**Table 14. City of Folsom Municipal Code Sections Regulating the Effects on Hydrology and Water Quality from Urban Development**

| CODE SECTION | CODE NAME | EFFECT OF CODE |
|---|---|---|
| 8.70 | Stormwater Management and Discharge Control | Establishes conditions and requirements for the discharge of urban pollutants and sediments to the storm-drainage system; requires preparation and implementation of Stormwater Pollution Prevention Plans. |
| 13.26 | Water Conservation | Prohibits the wasteful use of water; establishes sustainable landscape requirements; defines water use restrictions. |
| 14.20 | Green Building Standards Code | Adopts by reference the California Green Building Standards Code (CALGreen Code), 2016 Edition, excluding Appendix Chapters A4, A5, and A6.1 published as Part 11, Title 24, C.C.R. Purpose of the Folsom Green Building Standards Code is to promote and require the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. |
| 14.29 | Grading Code | Requires a grading permit prior to the initiation of any grading, excavation, fill or dredging; establishes standards, conditions, and requirements for grading, erosion control, stormwater drainage, and revegetation. |
| 14.32 | Flood Damage Prevention | Restricts or prohibits uses that cause water or erosion hazards, or that result in damaging increases in erosion or in flood heights; requires that uses vulnerable to floods be protected against flood damage; controls the modification of floodways; regulates activities that may increase flood damage or that could divert floodwaters. |
| 14.33 | Hillside Development Standards | Regulates urban development on hillsides and ridges to protect property against losses from erosion, ground movement and flooding; to protect significant natural features; and to provide for functional and visually pleasing development of the city's hillsides by establishing procedures and standards for the siting and design of physical improvements and site grading. |

Source: City of Folsom 2018b.

## Evaluation of Hydrology and Water Quality

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

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 off- site?
   iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff?
   iv. Impede or redirect flood flows?

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

**Less Than Significant Impact**. Ground disturbing activities associated with construction of the proposed project include demolition of a small community building, pool area, and two tennis courts and clearing and grading of the project site post-demolition. These ground disturbing activities could expose soil to erosion and may result in the transport of sediments which could adversely affect water quality. However, the proposed project would disturb more than one acre of soil and be subject to NPDES permit conditions which include the preparation of a SWPPP. Compliance with various State and local water quality standards would ensure the proposed project would not violate water quality standards or waste discharge permits, or otherwise substantially degrade water quality. The proposed project would also be subject to all of the City's standard code requirements, including conditions for the discharge of urban pollutants and sediments to the storm drainage system, and restrictions on uses that cause water or erosion hazards.

Construction of the proposed project would increase impervious services which may result in an increase in the total volume and peak discharges of stormwater runoff and could potentially degrade water quality associated with urban runoff. However, as mentioned in the Environmental Setting section, the on-site storm drain design would conform to City of Folsom standards and include design features consistent with the Stormwater Quality Design Manual for the Sacramento and South Placer Regions. Low Impact Design features, including a combination of bio-retention swales, basins, and planters, have been identified for each drainage management area within the proposed expansion.

Further, prior to the issuance of grading and building permits, the applicant would be required to submit a drainage plan to the City that shows how project BMP capture storm water runoff during project operations. Compliance with these requirements would ensure that water quality standards and discharge requirements would not be violated, and water quality in the project area is protected.

Therefore, impacts would be less than significant, and no mitigation would be necessary for questions a), c), and e).

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

**Less Than Significant Impact.** Implementation of the proposed project would not result in the use of groundwater supplies because domestic water in the City is provided solely from surface water sources from the Folsom Reservoir. While the proposed project would result in additional impervious surfaces on the site that could affect groundwater recharge, the site is not known to be important to groundwater recharge. Further, because the proposed project would not rely on groundwater for domestic water and irrigation purposes, and the site is not an important area of groundwater recharge, the proposed project would not deplete groundwater supplies or interfere substantially with groundwater recharge that would result in a net deficit in aquifer volume or a lowering of the local groundwater table. Therefore, impacts to groundwater supplies and recharge would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

**Less Than Significant Impact.** The project site is not located within a 100-year floodplain, and based on topographic and lithologic data, the risk of seiches, tsunami, flooding, landslides, or mudflow at the project site is considered low to negligible (ENGEO 2017). Therefore, potential impacts would be less than significant.

# XI. LAND USE AND PLANNING

| LAND USE AND PLANNING: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Physically divide an established community? | ☐ | ☐ | ■ | ☐ |
| b) Cause 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? | ☐ | ☐ | ■ | ☐ |

## Environmental Setting

Land use in the project area is regulated by the City of Folsom through the various plans and ordinances adopted by the City. These include the City of Folsom General Plan and the City of Folsom Municipal Code, including the Zoning Code. The project site is designated as Multi-Family Low Density (MLD) in the City of Folsom General Plan. However, the proposed land use for the project is Multi-Family Medium Density (MMD). A General Plan Amendment would be required for the proposed development.

The project site is currently zoned for Residential Multi-Family Dwelling District (R-M), but a Rezone and Planned Development Permit would be required for the proposed development to change the zoning to Residential Multi-Family Planned Development (RM-PD).

## Evaluation of Land Use and Planning

a) Physically divide an established community?

**Less Than Significant Impact.** The project site is currently developed and located within the existing Canyon Terrace Apartment community. The eight new proposed apartment buildings would be located along the eastern property boundary of the existing apartment community. The proposed project would expand an existing community and not divide an established community. Therefore, impacts would be less than significant.

b) Cause significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

**Less Than Significant Impact.** The City of Folsom General Plan land use designation for the project site is Multi-Family Low Density (MLD), which is inconsistent with the proposed land use for the proposed project. Therefore, a General Plan Amendment would be required to change the land use designation for the project site to Multi-Family Medium Density (MMD). However, the proposed project is consistent with the 2035 General Plan Land Use Policy LU 1.1.12, *Infill Development*, which encourages infill development in key parcels north of U.S. Highway 50 and contributes to the overall goal to retain and enhance Folsom's quality of life, unique identity, and sense of community while continuing to grow and change (City of Folsom 2018a).

The project site is currently zoned for Residential Multi-Family Dwelling District (R-M), which is inconsistent with the proposed land use. A Rezone and Planned Development Permit would be required for the proposed development to change the zoning to Residential Multi-Family Planned Development (RM-PD).

City approval of the General Plan Amendment, Rezone, and Planned Development Permit would resolve the land use inconsistencies, and impacts would be less than significant.

# XII. MINERAL RESOURCES

| MINERAL RESOURCES: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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? | ☐ | ☐ | ☐ | ■ |

## Environmental Setting

The Folsom area regional geologic structure is defined by the predominantly northwest- to southeast-trending belt of metamorphic rocks and the strike-slip faults that bound them. The structural trend influences the orientation of the feeder canyons into the main canyons of the North and South Forks of the American River. This trend is interrupted where the granodiorite plutons outcrop (north and west of Folsom Lake) and where the metamorphic rocks are blanketed by younger sedimentary layers (west of Folsom Dam) (Wagner et al. 1981 in Geotechnical Consultants 2003). The four primary rock divisions found in the area are: ultramafic intrusive, metamorphic, granodiorite intrusive, and volcanic mud flows (Geotechnical Consultants 2003).

The presence of mineral resources within the City has led to a long history of gold extraction, primarily placer gold. No areas of the City are currently designated for mineral resource extraction.

## Evaluation of Mineral Resources

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?

**No Impact.** The proposed project is not located in a zone of known mineral or aggregate resources. No active mining operations are present on or near the site. Implementation of the project would not interfere with the extraction of any known mineral resources. Thus, no impacts would result, and no mitigation would be necessary for questions a) and b).

# XIII. NOISE

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

A project-specific acoustical analysis was prepared for the project and is included as **Appendix G** (J.C. Brennan & Associates 2018).

## Environmental Setting

The project site is located southwest of the intersection of Oak Avenue Parkway and American River Canyon Drive, within the existing Canyon Terrace Apartment community. The proposed project includes the construction of 96 apartment units within eight, three-story buildings. Noise-sensitive land uses are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors (receivers) are individual locations that may be affected by noise. Noise-sensitive land uses in the project vicinity include adjacent multi-family residences within the existing apartment community and the Odyssey Learning Center approximately 350 feet to the west.

## Regulatory Framework

### *City of Folsom General Plan*

The City of Folsom 2035 General Plan Safety and Noise Element provides the following goals and policies relative to noise.

GOAL SN 6.1: Protect the citizens of Folsom from the harmful effects of exposure to excessive noise and to protect the economic base of Folsom by preventing the encroachment of incompatible land uses within areas affected by existing noise-producing uses.

- SN 6.1.2 Noise Mitigation Measures: Require effective noise mitigation for new development of residential or other sensitive land uses to reduce noise levels as follows:
    - For noise due to traffic on public roadways, railroad line operations, and aircraft; achieve compliance with the performance standards within Table SN-2 (**Table 15** of this report).

**Table 15. Noise Compatibility Standards**

| Land Use | Exterior Noise Level Standard for Outdoor Activity Areas[a] | Interior Noise Level Standard | |
|---|---|---|---|
| | $L_{dn}$/CNEL, dB | $L_{dn}$/CNEL, dB | $L_{eq}$, dB[b] |
| Residential (Low Density Residential, Duplex, Mobile Homes) | 60[c] | 45 | N/A |
| Residential (Multi Family) | 65[d] | 45 | N/A |
| Transient Lodging (Motels/Hotels) | 65[d] | 45 | N/A |
| Mixed-Use Developments | 70 | 45 | N/A |
| Schools, Libraries, Churches, Hospitals, Nursing Homes, Museums | 70 | 45 | N/A |
| Theaters, Auditoriums | 70 | N/A | 35 |
| Playgrounds, Neighborhood Parks | 70 | N/A | N/A |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | 75 | N/A | N/A |
| Office Buildings, Business Commercial and Professional | 70 | N/A | 45 |
| Industrial, Manufacturing, and Utilities | 75 | N/A | 45 |

Notes: Where a proposed use is not specifically listed on this table, the use shall comply with the noise exposure standards for the nearest similar use as determined by the Community Development Department.

a. Outdoor activity areas for residential developments are considered to be the back yard patios or decks of single-family residential units, and the patios or common areas where people generally congregate for multifamily development. Outdoor activity areas for nonresidential developments are considered to be those common areas where people generally congregate, including outdoor seating areas. Where the location of outdoor activity areas is unknown, the exterior noise standard shall be applied to the property line of the receiving land use.
b. As determined for a typical worst-case hour during periods of use.
c. Where it is not possible to reduce noise in outdoor activity areas to 60 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 65 dB, Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
d. Where it is not possible to reduce noise in outdoor activity areas to 65 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 70 dB, Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

### *Folsom Municipal Code*

Chapter 8.42 of the City of Folsom Municipal Code, entitled NOISE CONTROL, provides exterior noise level performance standards for stationary noise sources. In addition, this chapter also provides noise source exemptions which are applicable to this project.

8.42.040 Exterior noise standards.

A. It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise, on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level when measured at any affected single- or multiple-family residence, school church, hospital or public library situated in either the incorporated or unincorporated area to exceed the noise level standards as set forth in **Table 16** below.

**Table 16. Exterior Noise Level Standards**

| Noise Level Category | Cumulative Number of minutes in any 1-hour time period | Daytime (dB) (7 a.m. – 10 p.m.) | Nighttime (dB) (10 p.m. – 7 a.m.) |
|---|---|---|---|
| 1 | 30 | 50 | 45 |
| 2 | 15 | 55 | 50 |
| 3 | 5 | 60 | 55 |
| 4 | 1 | 65 | 60 |
| 5 | 0 | 70 | 65 |

Note: dB = A-weighted decibels
Source: City of Folsom Code, Noise Control 1993.

B. In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring noises.

D. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be measured, the noise level measured while the source is in operation shall be the noise level standards as specified above.

Noise Source Exemptions (Section 8.42.060)

Section 8.42.060 of the City of Folsom Municipal Code establishes the following activities that are considered exempt from the associated exterior noise provisions:

A. Activities conducted in unlighted public parks, public playgrounds and public or private school grounds, during the hours of 7 a.m. to dusk, and in lighted public parks, public playgrounds and public or private school grounds, during the hours of 7 a.m. to 11 p.m., including but not limited to school athletic and school entertainment events;

B. Any mechanical device, apparatus, or equipment used, related to or connected with emergency activities or emergency work;

C. Noise sources associated with construction, provided such activities do not take place before 7 a.m. or after 6 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday;

D. Noise sources associated with the maintenance of residential property provided such activities take place between the hours of seven a.m. to dusk on any day except Saturday or Sunday, between the hours of 8 a.m. to dusk on Saturday or Sunday;

E. Noise sources associated with agricultural activities on agricultural property;

F. (Section Expired)

G. Noise sources associated with the collection of waste or garbage from property devoted to commercial or industrial uses;

H. Any activity to the extent regulation thereof has been preempted by state or Federal law.

*Terminology*

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol $L_{EQ}$, with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting.

## Traffic Noise Prediction Methodology

Prediction of traffic noise levels was accomplished using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA RD-77-108). The model is based upon the CALVENO noise emission factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

## Ambient Noise Measurements

Continuous hourly ambient noise level measurements were conducted for a period of 24-hours on the project site from January 20th to January 21st, 2016. The noise level measurements were conducted to determine typical background average ($L_{eq}$), median ($L_{50}$) and maximum ($L_{max}$) noise levels, and to determine the effective day/night distribution of roadway traffic for inclusion in the traffic noise prediction methodology. Instrumentation consisted of a Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter, which was calibrated in the field before and after use with an LDL Model CAL200 acoustical calibrator. **Table 17** shows the results of the continuous hourly ambient noise level measurements.

**Table 17. Summary of Measured Ambient Noise Levels on January 20th and 21st, 2016**

| Site | Measured Ldn | Average Hourly Daytime & Evening (7:00am – 10:00pm) | | | Average Hourly Nighttime (10:00pm – 7:00 am) | | |
|---|---|---|---|---|---|---|---|
| | | Leq | L50 | Lmax | Leq | L50 | Lmax |
| A | 64 dBA | 58 dBA | 53 dBA | 79 dBA | 57 dBA | 38 dBA | 68 dBA |

Source: J.C. Brennan & Associates, Inc. 2018.

On Friday, June 2, 2017, short-term noise level measurements and concurrent counts of traffic on American River Canyon Drive were conducted adjacent to the project site. The purpose of the short-term traffic noise level measurements was to determine the accuracy of the FHWA model in describing the existing noise environment on the project site, while accounting for existing site conditions such as intervening structures, actual travel speeds, and roadway grade.

Noise measurement results were compared to the FHWA model results by entering the observed traffic volume, speed, and distance as inputs to the FHWA model. The FHWA model over-predicted the traffic noise levels in comparison to the measured levels. Therefore, no adjustments were made to the FHWA traffic noise prediction model.

## Noise Analysis

Traffic volume predictions provided by GHD were utilized to determine the existing plus project traffic noise levels on the project site and adjacent roadways. **Table 18** shows the predicted existing plus project traffic noise levels at the nearest building facades and the common outdoor activity areas.

**Table 18. Predicted American River Canyon Drive Existing Plus Project Traffic Noise Levels**

| Segment | Traffic Noise Level (Ldn) | Distance to Noise Contours (ft) | |
|---|---|---|---|
| | | 60 dB Ldn | 65 dB Ldn |
| Apartments North of River Ridge Way | 60 dB | 101 | 47 |
| Apartments South of River Ridge Way | 62 dB | 93 | 43 |
| Pool Area | 43 dB | 22 | 10 |

Sources: J.C. Brennan & Associates 2018, GHD, and FHWA RD-77-108.

## Evaluation of Noise

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

**Less Than Significant Impact.** Construction of the proposed project would generate elevated noise levels that may disrupt nearby noise-sensitive land uses including the nearby apartment residents. The magnitude of the impact would depend on the type of construction activity, equipment, duration of each construction phase, distance between the noise source and receiver, and any intervening structures.

Construction noise would be regulated by Section 8.42.060 of the City's Municipal Code (Noise Ordinance), which states that construction activities are exempt from noise standards if they take place during daytime hours between 7 a.m. and 6 p.m. on weekdays and between 8 a.m. and 5 p.m. on Saturdays and Sundays. Project construction would only occur during these exempted hours. Construction noise impacts would be short-term and temporary.

Continuous hourly ambient noise level measurements were conducted on the project site from January 20 to January 21, 2016. Table 17 shows the measured $L_{dn}$ from the measurement location along the northern boundary of the project site was 64 dBA without the project. The data presented in **Table 18** indicates that the existing plus project traffic noise levels at the nearest building facades would not exceed the 65 dB $L_{dn}$ exterior noise level standard.

The proposed project is anticipated to comply with the City of Folsom 65 dB $L_{dn}$ exterior and 45 dB $L_{dn}$ interior noise level standards. Standard construction practices would be implemented and typically reduce exterior-to-interior noise levels by approximately 25 dB. The predicted existing plus project traffic noise levels for 1st floor residential facades facing American River Canyon Drive, north of River Ridge Way and south of River Ridge Way, are 60 dB $L_{dn}$ and 62 dB $L_{dn}$ respectively. Therefore, the interior noise levels are expected to comply with the interior noise standard of 45 dB $L_{dn}$. However, due to the loss of ground attenuation, a plus 3 dB offset is generally applied to the 2nd floor building facades. The predicted exterior traffic noise levels for 2nd floor building facades of the first row of buildings facing American River Canyon Drive are 63 dB $L_{dn}$ and 65 dB $L_{dn}$. Therefore, it is not anticipated that 2nd floor units of the first row of buildings facing American River Canyon Drive would exceed the 45 dB $L_{dn}$ interior noise level standard (J.C. Brennan & Associates 2018). Therefore, the proposed project would not have a substantial temporary or permanent increase in ambient noise levels, and impacts would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

**Less Than Significant Impact.** An on-site source of vibration during project construction would be a vibratory roller (primarily used to achieve soil compaction as part of the foundation and paving construction). A vibratory roller creates approximately 0.210 inches per second peak particle velocity (PPV) at a distance of 25 feet. The City has not adopted specific standards in the General Plan or Municipal Code regarding construction vibration standards. However, Caltrans standards for construction vibration impacts use a criterion of 0.4 inches per second PPV at 25 feet (Caltrans 2013). Using these standards, the approximately 0.210 inches per second PPV vibration impact would be less than what is considered a “severe” impact. Although nearby residents may be exposed to groundborne vibration, impacts associated with the use of a vibratory roller (and other potential equipment) during construction would temporary and short-term. Therefore, impacts would be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

**No Impact.** No public airports or private airstrips are located within two miles of the project site. Therefore, residents of the proposed project would not be exposed to excessive noise levels from air activity, and no impact would occur.

# XIV. POPULATION AND HOUSING

| POPULATION AND HOUSING: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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? | ☐ | ☐ | ☐ | ■ |

## Environmental Setting

The proposed project includes the construction of ninety-six new apartment units within eight new apartment buildings in the existing Canyon Terrace Apartment community. The Canyon Terrace Apartment community currently consists of 200 existing apartment units allocated among 25 two-story apartment buildings. The proposed apartment buildings would be three-stories tall and feature garages on the first level of the buildings.

A small community building, pool area, and two tennis courts would be demolished as part of the proposed project. Parking areas throughout the apartment community would be retained, except in areas of the new development where displaced parking spaces would be replaced with the proposed infill project. No residential units would be demolished as part of this project.

## Evaluation of Population and Housing

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)?

**Less Than Significant Impact.** Implementation of the proposed expansion project would result in the construction of 96 apartment units within the existing Canyon Terrace Apartment community. It is assumed that the majority of the individuals relocating to the apartment community would be from the area. Existing infrastructure and roads in the area would not be expanded or extended as a result of the project. The proposed project would accommodate the demand for multi-family housing and would not induce substantial growth in the City of Folsom. Therefore, impacts from project implementation would be less than significant, and no mitigation would be required.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

**No Impact.** The proposed project would demolish a small community building, pool area, and two tennis courts to expand the existing apartment community. The eight proposed apartment buildings would be

constructed along the eastern property boundary of the existing apartment community and would not displace existing housing or people. Therefore, no impact would occur.

## XV. PUBLIC SERVICES

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

### Environmental Setting

The proposed project is in an area currently served by urban levels of all utilities and services. Public services provided by the City of Folsom in the project area include fire, police, school, library, and park services. The site is served by all public utilities including domestic water, wastewater treatment, and storm water utilities.

The City of Folsom Fire Department provides fire protection services. There are four fire stations providing fire/rescue and emergency medical services within the City of Folsom with a fifth station planned near the eastern city limits. Station 36 is nearest to the project site and is located at 9700 Oak Avenue, approximately 0.3-mile east of the project site. The Fire Department responds to over 6,000 requests for service annually with an average of 16.4 per day (City of Folsom 2018c). The City of Folsom Police Department is located at 46 Natoma Street, approximately 1.7-miles southeast of the project site.

The project site is located within the Folsom Cordova Unified School District and is within the attendance area for Carl Sundahl Elementary School, Sutter Middle School, and Folsom High School. There are several parks near the project site, including the Negro Bar State Park, Lew Howard Park, and Bud and Artie Davies Park.

The Sacramento Municipal Utilities District (SMUD) would supply electricity to the project site. Pacific Gas & Electric (PG&E) provides natural gas to the area and would provide natural gas to the project site.

The City of Folsom has a program of maintaining and upgrading existing utility and public services within the City. Similarly, all private utilities maintain and upgrade their systems as necessary for public convenience and necessity, and as technology changes.

## Evaluation of Public Services

a) Fire protection?

**Less Than Significant Impact.** On-site fire water would connect to the City of Folsom water supply on American River Canyon Drive at the existing north and south driveways and would include two double detector check valves (one on each end of the looped system), providing fire water to the proposed hydrants, exterior Fire Department Connection assemblies, and fire riser rooms. Emergency vehicle access would be maintained throughout the project site to meet the Fire Department standards for fire truck maneuvering, location of fire truck to fight a fire, rescue access to the units, and fire hose access to all sides of the building. The propose project would not significantly increase fire service demands or render the current service level to be inadequate, and impacts would be less than significant.

b) Police protection?

c) Schools?

**Less Than Significant Impact.** The project site is within an urbanized area of Folsom, and there is no indication that police services or nearby schools could not adequately support the proposed project. Because there are no unique aspects of the project that would increase service demands or render the current service level to be inadequate, no new public facilities would be necessary to serve the proposed project. Potential impacts from implementation of the proposed project would be less than significant for questions b) and c).

d) Parks?

e) Other public facilities?

**Less Than Significant Impact.** The proposed project includes the construction of a swimming pool area, gym, club, leasing facility, and landscaping for use by residents. These facilities are for use by the residents of the entire Canyon Terrace Apartment community and would not be open to the public. Construction and operation of the proposed project would not require the construction or expansion of parks and other public facilities or result in the degradation of those facilities. Potential impacts would be less than significant, and mitigation would not be necessary for questions d) and e).

# XVI. RECREATION

| RECREATION: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) 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? | ☐ | ☐ | ■ | ☐ |

## Environmental Setting

The Folsom Parks and Recreation Department provides and maintains a full range of recreational activities and park facilities for the community. There are several parks near the project site, including the Negro Bar State Park, Lew Howard Park, and Bud and Arties Davies Park. The proposed project additionally includes the construction of a swimming pool area, gym, club, leasing facility, and landscaping for use by the residents.

## Evaluation of Recreation

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

**Less Than Significant Impact.** The residents of the proposed project would likely to be relocating from the general area and would not result in a substantial increase in population in relation to the overall City of Folsom. Therefore, the proposed project would not result in a substantial increase in the use or demand for neighborhood or regional parks. Further, the proposed project would include a swimming pool area, gym, club, leasing facility, and landscaping for use by residents. Impacts on existing neighborhood and regional parks or other recreational facilities would be less than significant, and no mitigation is necessary.

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?

**Less Than Significant Impact.** The proposed project includes construction of a swimming pool area, gym, club, leasing facility, and landscaping for use by residents. These facilities are for use by the residents of the entire Canyon Terrace Apartment community and would not be open to the public. Construction and operation of the facilities would not have an adverse impact on the environment, and construction of the proposed project would not require the construction or expansion of other recreational facilities that might have an adverse impact on the environment. Therefore, impacts would be less than significant, and mitigation would not be necessary.

# XVII. TRANSPORTATION

| TRANSPORTATION AND TRAFFIC: | 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) Would the project conflict or be inconsistent with CEQA Guidelines section 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? | ☐ | ☐ | ■ | ☐ |

Transportation and traffic were evaluated in a project-specific Traffic Impact Analysis Report included as **Appendix H** (GHD 2019).

## Environmental Setting

### Parking and Access

The existing residential development at Canyon Terrace Apartments contains 200 multi-family dwelling units and 324 parking spaces. Construction of the proposed project would add 233 new parking spaces to the existing Canyon Terrace Apartment community to accommodate the additional 96 residential units proposed for development. The additional parking proposed would be allocated as follows:

- 127 surface stalls (including three ADA compliant spaces)
- 79 garage stalls
- 27 carport stalls

Vehicular access to the Canyon Terrace Apartment community is provided by two existing driveways at American Canyon Drive.

### Roadway System

Brief descriptions of the key roadways serving the project site are provided below.

*Oak Avenue Parkway* is a 4-6 lane, undivided arterial that operates at a posted speed limit of 45 mph. Oak Avenue Parkway traverses the cities of Citrus Heights and Folsom in the east-west direction and intersects with American River Canyon Drive in the project vicinity. Long term improvements to Oak Avenue Parkway include the extension of this roadway to the south, and a creation of the Oak Avenue Parkway interchange with US Highway 50 (known as the Lincoln Highway).

*American River Canyon Drive* is a 4-lane, divided collector facility that operates at a posted speed limit of 40 mph within the project vicinity. American River Canyon Drive intersects with Oak Avenue Parkway at its northern terminus and with Greenback Lane at its southern terminus. Throughout its entirety, American River Canyon Drive traverses through suburban residential developments, and provides access to neighborhood streets.

**Transit, Bicycle, and Pedestrian Facilities**

Transit services in the City of Folsom are provided by the Folsom Stage Line bus service operated by the City of Folsom Transit Division. The Folsom Stage Line bus service provides both Fixed-Route and Dial-A-Ride services exclusively within the Folsom city limits, Monday through Friday.

The following bus route operates along northbound American River Canyon Drive along the project frontage:

- Folsom Stage Line Fixed Route 10
    - Provides connectivity to light rail stations and bus services operated by Sacramento Regional transit District.
    - Notable stops served by Route 10 includes historic Folsom, East Bidwell, the Broadstone Market Place, Broadstone Plaza, the Folsom Aquatics Center, Folsom Lake College, Intel, Kaiser Permanente and Folsom Premium Outlets.
    - This route provides only weekday service from 6:00 a.m. and 9:00 p.m.
    - Bus stops for Route 10 are located at the following intersections along American River Canyon Drive:
        - American River Canyon Drive (Northbound) and Oak Avenue Parkway
        - American River Canyon Drive (Northbound) and River Ridge Way

The following discussion presents the off-site and on-site bicycle facilities present at the proposed project site.

***Off-Site Bicycle Facilities***

There are Class II bicycle facilities on both easterly and westerly sides of American River Canyon Drive along the project frontage.

The proposed project is anticipated to generate moderate bicycle traffic along roadways within the project vicinity. According to the City of Folsom Bikeways Master Plan (released July 2007), no new Class I or II bike facilities are proposed along Oak Avenue Parkway, American River Canyon Drive, or Greenback Lane.

***On-Site Bicycle Facilities***

There are no bike facilities within the existing apartment community and no on-site improvements are proposed as part of the project.

The following section presents the off-site and on-site pedestrian facilities present at the proposed project site.

***Off-Site Pedestrian Facilities***

Existing conditions indicate the presence of continuous sidewalks along the easterly and westerly sides of American River Canyon Drive along the project frontage.

At the time of the study, the proposed project is anticipated to generate moderate pedestrian traffic. As existing conditions indicate the presence of adequate pedestrian infrastructure within the project vicinity, no off-site improvements are proposed along the project frontage.

***On-Site Pedestrian Facilities***

Pedestrian facilities with ADA compliant features are provided adjacent to the residential and community recreation facilities of the existing apartment complex.

The proposed project includes the construction of new on-site sidewalks and pedestrian pathways containing ADA compliant features to provide connectivity between the proposed buildings, community recreation facilities and the parking lots.

**Airports**

No private or public airports are located within the City of Folsom. The nearest public airfield is Mather Airport, located approximately 10.5 miles southwest of the project site. Cameron Airpark is a public use airport located approximately 11 miles southeast of the project site, and McClellan Airport is a privately-owned public use airport located approximately 11 miles west of the project site.

**Emergency Access**

The City of Folsom identifies most major streets in the City as emergency evacuation routes. The proposed project would not modify any major street and/or preclude their continued use as an emergency evacuation route.

**Existing Intersection Operations**

The Existing Conditions analysis reflects the current operations at the study locations. This establishes baseline conditions. Existing weekday AM and PM peak hour intersection traffic operations were quantified utilizing the existing traffic volumes and intersection lane geometrics and control types.

Existing intersection operations are presented in **Table 19**.

**Table 19. Existing Intersection Operations**

| # | Intersection | Traffic Control[1,2] | Target LOS | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| 1 | Oak Ave Pkwy/American River Canyon Dr | Signal | D | 17.7 | B | 14.5 | B |
| 2 | Canyon Terrace Ln (North)/American River Canyon Dr [North Dwy] | TWSC | D | 10.4 | B | 10.0 | B |
| 3 | River Ridge Way (North)/American River Canyon Dr | TWSC | D | 11.5 | B | 10.8 | B |
| 4 | Canyon Terrace Ln (South)/American River Canyon Dr [South Dwy] | TWSC | D | 10.0 | B | 9.3 | A |
| 5 | River Ridge Way (South) & Oak Canyon Way/American River Canyon Dr | TWSC | D | 10.2 | B | 10.4 | B |
| 6 | Crow Canyon Dr (North)/American River Canyon Dr | TWSC | D | 11.3 | B | 10.1 | B |
| 7 | Crow Canyon Dr (South)/ American River Canyon Dr | AWSC | D | 8.6 | A | 8.2 | A |
| 8 | Greenback Ln/American River Canyon Dr | Signal | D | 11.1 | B | 18.2 | B |
| 9 | Santa Juanita Ave/Oak Ave (West) | AWSC | D | 11.8 | B | 15.2 | C |
| 10 | Santa Juanita Ave/Oak Ave (East) | AWSC | D | 15.1 | C | 19.4 | C |
| **11** | **Oak Ave Pkwy/Baldwin Dam Rd** | **TWSC** | **D** | **35.7** | **E** | **28.1** | **D** |
| 12 | Folsom Auburn Rd/Oak Ave Pkwy | Signal | D | 50.2 | D | 53.5 | D |

Source: GHD 2019 (Appendix H).
Notes:
[1]AWSC = All Way Stop Control; TWSC = Two/Three-Way Stop Control
[2]LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal
**Bold** = Unacceptable Conditions

As presented in Table 19, all intersections included in the study currently operate at acceptable LOS except the Oak Avenue Parkway and Baldwin Dam Road intersection.

**Trip Generation**

The average trip rates developed from existing conditions were used to derive the total weekday AM and PM peak hour trips for the expanded apartment complex containing a total of 296 dwelling units (i.e., addition of 96 net new dwelling units). Per the guidelines set forth in the Institute of Transportation Engineers (ITE) Trip Generation Manual 9th Edition, local data should be used when available, and the methodology used to determine project trip generation is consistent with the ITE guidelines. **Table 20** presents a summary of the project trip generation for the proposed addition of 96 dwelling units to the existing apartment community.

**Table 20. Project Trip Generation**

| Land Use Category (ITE Code) | Unit[1] | Daily Trip Rate/Unit[2] | AM Peak Hour Trip Rate/Unit | | | PM Peak Hour Trip Rate/Unit | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | In % | Out % | Total | In % | Out % |
| Apartment (220) | DU | 7.35 | 0.53 | 20 | 80 | 0.73 | 65 | 35 |
| **Project Name** | **Quantity (Units)** | **Daily Trips** | **AM Peak Hour Trips** | | | **PM Peak Hour Trips** | | |
| | | | **Total** | **In** | **Out** | **Total** | **In** | **Out** |
| Canyon Terrace Apartments (Net New Project Trips) | 96 | 705 | 51 | 10 | 41 | 70 | 46 | 25 |

Source: GHD 2019 (Appendix H).
Notes:
[1] DU = dwelling unit
[2]Trip rates based on ITE Trip Generation Manual 9th edition fitted-curve equations

As presented in Table 20 above, the proposed project would generate approximately 51 AM and 70 PM peak hour trips in total.

**Trip Distribution and Assignment**

The directional trip distribution for the proposed project and the specific assignment of project-generated trips were established based on an understanding of existing and projected future traffic flows and travel patterns within the vicinity of the project site. Approximately 40 percent of the traffic from the project site is south bound on American River Canyon Drive. However, only 30 percent of the project traffic is expected to travel to the American River Canyon Drive/Greenback Lane intersection, which would add approximately 22 trips to the intersection in the PM peak period when the project generates the highest volume of trips. A review of the available data (2014) from the City of Folsom on the segment of Greenback Lane in the vicinity of this intersection indicated that this segment carries approximately 3,400 PM peak vehicles per hour. The project is expected to add less than 1 percent to this intersection and was therefore not included in the analysis.

From a land use perspective, the segment of American River Canyon Drive would be considered built out. Furthermore, American River Canyon Drive is not a route of regional significance. As such, traffic on this segment is expected to increase marginally and is further substantiated by the City of Folsom Travel Demand Model data which predicts a less than 1 percent per year growth for this segment. As such, use of same distribution patterns is appropriate for this study.

## Evaluation of Transportation and Traffic

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

**Less Than Significant Impact.** The Existing Plus Project conditions is the analysis scenario in which trips generated by the proposed project are superimposed on existing traffic volumes and existing intersection geometries. Existing Plus Project intersection delay and LOS were calculated for the study intersections and are presented in **Table 21** below.

**Table 21. Existing Plus Project Intersection Operations**

| # | Intersection | Traffic Control[1,2] | Target LOS | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| 1 | Oak Ave Pkwy/American River Canyon Dr | Signal | D | 18.1 | B | 14.7 | B |
| 2 | Canyon Terrace Ln (North)/American River Canyon Dr [North Dwy] | TWSC | D | 10.7 | B | 10.3 | B |
| 3 | River Ride Way (North)/American River Canyon Dr | TWSC | D | 11.6 | B | 11.0 | B |
| 4 | Canyon Terrace Ln (South)/American River Canyon Dr [South Dwy] | TWSC | D | 10.2 | B | 9.5 | A |
| 5 | River Ridge Way (South) & Oak Canyon Way/American River Canyon Dr | TWSC | D | 10.3 | B | 10.7 | B |
| 6 | Crow Canyon Dr (North)/American River Canyon Dr | TWSC | D | 11.5 | B | 10.2 | B |
| 7 | Crow Canyon Dr (south) American River Canyon Dr | AWSC | D | 8.8 | A | 8.3 | A |
| 8 | Greenback Ln/American River Canyon Dr | Signal | D | 11.5 | B | 19.7 | B |
| 9 | Santa Juanita Ave/Oak Ave (West) | AWSC | D | 12.0 | B | 15.6 | C |
| 10 | Santa Juanita Ave/Oak Ave (East) | AWSC | D | 15.4 | C | 20.3 | C |
| **11** | **Oak Ave Pkwy/Baldwin Dam Rd** | **TWSC** | **D** | **37.9** | **E** | **30.4** | **D** |
| 12 | Folsom Auburn Rd/Oak Ave Pkwy | Signal | D | 52.0 | D | 54.9 | D |

Source: GHD 2019 (Appendix H).
Notes:
[1]AWSC = All Way Stop Control; TWSC = Two/Three-Way Stop Control
[2]LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal
**Bold** = Unacceptable Conditions

As presented in Table 21, all intersections included in the study currently operate at acceptable LOS except the Oak Avenue Parkway and Baldwin Dam Road intersection. The intersection of Oak Avenue Parkway and Baldwin Dam Road was found to be currently operating at an unacceptable LOS of E under Existing Conditions during the AM peak hour. The addition of the project traffic increases the delay at this intersection by 2.2 seconds in the AM peak hour. The project does not trigger the peak hour warrant to be met nor does it increase the delay by more than the five seconds threshold for unsignalized intersections.

Additionally, the proposed project includes the construction of new on-site sidewalks and pedestrian pathways containing ADA compliant features to provide connectivity between the proposed buildings, community recreation facilities, and the parking lots. The sidewalks would adhere to California Title 24 code requirements regarding site accessibility with vertical slopes no greater than five percent and cross

slopes no greater than two percent. The proposed project would not conflict with or decrease the performance or safety of the existing bicycle, pedestrian, and public transit network in the area.

Therefore, project impacts would be less than significant impact for questions a) and 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)?

**Less Than Significant Impact.** Access to the project site would continue to be provided by two existing driveways located on the west side of American River Canyon Drive. A new paved drive lane would be constructed within the existing apartment community that would run parallel to American River Canyon Drive and would not introduce any sharp curves or dangerous intersections or be incompatible with the existing road network within the apartment community. Therefore, impacts would be less than significant.

d) Result in inadequate emergency access?

**Less Than Significant Impact.** Emergency vehicle access would be maintained throughout the project site to meet the Fire Department standards for fire truck maneuvering, location of fire truck to fight a fire, rescue access to the units, and fire hose access to all sides of the building. Therefore, impacts would be less than significant.

## XVIII. TRIBAL CULTURAL RESOURCES

| TRIBAL CULTURAL RESOURCES: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | ☐ | ■ | ☐ | ☐ |

### Environmental Setting

As amended in 2014, Assembly Bill (AB 52), requires that the City of Folsom (City) provide notice to any California Native American tribes that have requested notice of projects subject to CEQA review and consult with tribes that responded to the notice within 30 days of receipt with a request for consultation. Section 21073 of the Public Resources Code (PRC) defines California Native American tribes as “a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004.” This includes both federally and non-federally recognized tribes. For the City of Folsom, these include the following tribes that previously submitted general request letters, requesting such noticing:

- Wilton Rancheria (letter dated July 1, 2015 and received August 24, 2015);
- Ione Band of Miwok Indians (letter dated March 2, 2016); and,
- United Auburn Indian Community (UAIC) of the Auburn Rancheria (letter dated November 23, 2015).

The purpose of consultation is to identify Tribal Cultural Resources (TCR) that may be significantly impacted by the proposed project and to allow the City to avoid or mitigate significant impacts prior to project approval and implementation. Section 21074(a) of the PRC defines TCRs, for the purpose of CEQA, as: Sites, features, places, cultural landscapes (geographically defined in terms of the size and

scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

a) Included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
b) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
c) 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria A and B also meet the definition of a Historical Resource under CEQA, a TCR may also require additional consideration as a Historical Resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators and can only be identified by a culturally-affiliated tribe, which has been determined under State law to be the subject matter expert for TCRs (ECORP 2018).

**City Consultation**

On September 6, 2018, the City of Folsom sent project notification letters to the three California Native American tribes named above. The only tribe to respond was the UAIC, who requested consultation on the project, copies of all existing cultural resources assessments, and GIS shapefiles for the project boundaries. UAIC also provided a suggested mitigation measure for unanticipated discoveries that the project may encounter during project construction. On September 27, 2018, the City received a follow-up letter requesting copies of documentation and tribal monitors if resources are present.

On September 21, 2018, which was within 30 days of receiving the response, the City initiated consultation with UAIC. The City invited the tribe to a consultation meeting in mid-October. On October 3, 2018, the tribe responded to the City by e-mail to indicate they were no longer interested in meeting, and instead, requested that their standard mitigation measure for sensitivity training, unanticipated discoveries, construction notification, and site inspection be adopted by the City. The tribe did not provide any information about TCRs to the City (ECORP 2018). All information relevant to the City's AB 52 consultation process is documented in **Appendix D**.

## Evaluation of Tribal Cultural Resources

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)?
   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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

**Less Than Significant with Mitigation.** After a review of the totality of information submitted by UAIC, the thresholds under PRC Section 21074(a)(1) have not been met and the project would not cause a significant adverse change in significance of a TCR (see Appendix D for complete record). The City made a determination that there are no known TCRs located within the project area, and that the proposed project would have a less than significant impact on unforeseeable TCRs with the incorporation of mitigation measures to address unanticipated discoveries. The three mitigation measures provided by the tribe have been tailored to this specific project and incorporated in this CEQA document for the project. With implementation of the mitigation measures identified below, the project impacts would be less than significant.

**Mitigation Measure TCR-01: Avoid and minimize impacts to previously unknown Tribal Cultural Resources.**

If potential tribal cultural resources or human remains are discovered by Native American Representatives or Monitors from interested Native American Tribes, qualified cultural resources specialists or other Project personnel during construction activities, work will cease in the immediate vicinity of the find (based on the apparent distribution of cultural resources), whether or not a Native American Monitor from an interested Native American Tribe is present. The City shall immediately notify a qualified archaeologist and interested Native American Tribes to consult on the significance of the find and make recommendations for further evaluation and treatment as necessary. These recommendations and actions taken (or not taken) based on consultation will be documented in the project record. If the discovery includes human remains, the procedures in Mitigation Measure CUL-02 shall be implemented.

**Mitigation Measure TCR-02: Accommodate a post-ground disturbance field visit for interested tribes.**

A minimum of seven days prior to beginning earthwork or other soil disturbance activities, the applicant shall notify the City of the proposed earthwork start-date, in order to provide the City representative sufficient time to contact the United Auburn Indian Community (UAIC). A UAIC tribal representative shall be invited to inspect the project location, including any soil piles, trenches, or other disturbed areas, within the first five days of ground-breaking activity. Construction activity may be ongoing during this time. Should the tribe choose not to perform a field visit within the first five days, construction activities may continue as scheduled, as long as the notification was made.

**Mitigation Measure TCR-03: Provide construction personnel with procedures for unanticipated discoveries during ground-disturbing activities.**

A construction worker tribal cultural resources awareness brochure and training program for personnel involved in project implementation will be developed by a qualified professional prior to the initiation of construction activities on the project. The brochure will be distributed during a training session that will be conducted by a qualified professional. Native American representatives and monitors from culturally affiliated and interested Native American tribes will be given the opportunity to contribute information to include in the program, if they so desire. The program will include relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The construction worker tribal cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources that have the potential to be located on the project property and will outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. The program will also underscore the requirement for confidentiality and culturally-appropriate treatment of any discovery

that is determined by the City, in consultation with tribes, to be of significance to Native American tribal values.

## XIX. UTILITIES AND SERVICE SYSTEMS

| UTILITIES AND SERVICE SYSTEMS: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Require or result in the relocation or construction of new water or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction 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? | ☐ | ☐ | ■ | ☐ |

### Environmental Setting

Existing utilities on the project site include SMUD for electricity, PG&E underground gas lines, City of Folsom for solid waste disposal, and City of Folsom water. On-site domestic water would connect to the existing (looped) water system on-site. All domestic water pipelines include a 20-foot wide easement for service by San Juan Water District. The on-site sewer system would be privately owned, operated, and maintained. The proposed sewer system would run south to north across the project site to Canyon Terrace Lane, then east to west to the connection to the public sewer system in the northwest corner of the Canyon Terrace Apartment community. The proposed sewer line would function as a standalone system (no tie-ins from the existing network) until it would connect to the outgoing manhole in the northwest corner of the property. All new proposed trash enclosures would include a drain that connects to the sanitary sewer system in conformance with Storm Water Quality Guidance.

The City of Folsom employs a design process that includes coordination with potentially affected utilities as part of project development. The City of Folsom coordinates with the appropriate utility companies to plan and potentially expand existing utilities in the project area, including water, sewer, telephone, gas, electricity, and cable television lines. Based on the results of an initial request for comments from the utility providers, all utility services are able to accommodate the proposed project.

## Evaluation of Utilities and Service Systems

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

**Less Than Significant Impact.** Implementation of the proposed project would require the construction of new utilities to accommodate the expansion of the existing apartment complex. On-site domestic water would connect to the existing (looped) water system on-site. All domestic water pipelines include a 20-foot wide SJSWD easement for service.

On-site fire water would connect to the City of Folsom water supply on American River Canyon Drive at the existing north and south driveways and would include two double detector check valves (one on each end of the looped system), providing fire water to the proposed hydrants, exterior Fire Department Connection (FDC) assemblies, and fire riser rooms.

The on-site sewer system would be privately owned, operated, and maintained. The proposed sewer system would run south to north across the project site to Canyon Terrace Lane, then east to west to the connection to the public sewer system in the northwest corner of the Canyon Terrace Apartment community. The proposed sewer line would function as a standalone system (no tie-ins from the existing network) until it would connect to the outgoing manhole in the northwest corner of the property. Additionally, all new proposed trash enclosures would include a drain that connects to the sanitary sewer system in conformance with Storm Water Quality Guidance.

Folsom's Public Works Department is responsible for stormwater management in the City, from design and construction of the storm drain system to operation and maintenance to urban runoff pollution prevention. The on-site storm drain design would conform to City of Folsom standards and include design features consistent with the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (updated June 2007). Low Impact Design features, including a combination of bio-retention swales, basins, and planters, have been identified for each drainage management area within the proposed expansion.

An existing 5-foot Sacramento Municipal Utility District easement runs through the western portion of the subject property, and the electrical for the newly constructed buildings would tie into the existing electrical infrastructure.

Construction of the additional utilities would occur on previously disturbed land and would tie into existing systems with adequate capacity to accommodate the proposed project. Therefore, environmental impacts from constructing new utilities would be less than significant.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

**Less Than Significant Impact.** Folsom's Water Treatment Plant has a capacity of 50 million gallons per day. According to the City of Folsom General Plan Housing Element, the combination of treated and untreated water demands (through the time frame of the Housing Element which is 2021) are not anticipated to exceed the City's current water entitlements of 34,000 acre-feet annually (City of Folsom 2013). Because sufficient supplies are available, no additional facilities would need to be constructed or expanded, and impacts would be less than significant.

Water Supply and the Drought

While the General Plan identifies sufficient water supplies for build out of projects identified in the General Plan (including the proposed project), the State has been in a severe drought and continued growth in the City has generated concern from many residents. Folsom City Manager, Evert Palmer explained that "Folsom has rights to 34,000 acre-feet of water from Folsom Lake and consumes less than two percent of the water that passes through Folsom Dam each year. Last year, the City used just over half of its allocated supply. Folsom's new housing demand, including the development south of [US-]50, is also relatively low, comprising just four percent of the planned housing in the entire Sacramento region through 2036" (Folsom Telegraph 2015a). Implementation of the project would result in the construction of 96 additional residential units within the existing Canyon Terrace Apartment community. This increase in residential units and residents would not result in a substantial increase in water demand on the City.

Water Conservation Efforts

The City actively implements water conservation actions in response to the drought. Standards and regulations issued by the State Water Resources Control Board that came into effect June 1, 2015, require the City to reduce water consumption by 32 percent. In response, the City developed a water reduction plan to reduce water consumption and conserve water in the City.

City actions include reducing watering in parks by one third, removing turf and retrofitting irrigation in more than 30 medians citywide, turn off irrigation in ornamental streetscapes that do not have trees, prohibiting new homes and buildings from irrigating with potable water unless water-efficient drip systems are used, replacing and upgrading sprinklers and irrigation systems with water-efficient systems, and suspending operation of water features throughout the City. The City also implemented water restrictions and rebate programs for residents of the City. Folsom residents successfully reduced water consumption by 21 percent in 2014. The City reduced water consumption in parks by 27 percent, and 31 percent in Landscape and Lighting Districts. This was among the highest conservation rates statewide (Folsom Telegraph 2015b).

Construction of the proposed project would replace the existing landscape design with a landscape concept focused on water conservation. The proposed landscape design would replace large existing areas of high water use lawn grass with a combination of low to medium water use shrub/ground cover areas and a low water use native grass mix. The native grass mix would look like long meadow grass and be retained in a green state year-round with low volume irrigation.

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?

**Less Than Significant Impact.** The proposed project would include a privately owned, operated, and maintained on-site sewer system. The proposed sewer system would run south to north across the project site to Canyon Terrace Lane, then east to west to the connection to the public sewer system in the northwest corner of the Canyon Terrace Apartment community. The proposed sewer line would function as a standalone system (no tie-ins from the existing network) until it would connect to the outgoing manhole in the northwest corner of the property. The City of Folsom is responsible for managing and maintaining its wastewater collection system, including 267-miles of pipeline and nine lift stations. This system ultimately discharges into the Sacramento Regional County Sanitation District

interceptor sewer system. Wastewater is treated at the Sacramento Regional Wastewater Treatment Plant, located in Elk Grove.

In compliance with the 2006 SWRCB General Waste Discharge Requirements for Sanitary Sewer Systems, the City of Folsom adopted a Sewer System Management Plan on July 28, 2009. The plan outlines how the municipality operates and maintains the collection system, and the reporting of all Sanitary Sewer Overflows (SSO) to the SWRCB's online SSO database. Because the City has sufficient capacity to accommodate any additional demand that could result from implementation of the proposed project, and because the City is in compliance with statutes and regulations related to wastewater collection and treatment, impacts to the wastewater treatment provider would be less than significant.

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?

**Less Than Significant Impact.** The City of Folsom provides solid waste, recycling, and hazardous materials collection services to its residential and business communities. In order to meet the State mandated 50 percent landfill diversion requirements stipulated under AB 939, the City has instituted several community-based programs. The City offers a door-to-door collection program for household hazardous and electronic waste, in addition to six "drop off" recycling locations within the City.

After processing, solid waste is taken to the Kiefer Landfill, the primary municipal solid waste disposal facility in Sacramento County. The landfill facility sits on a 1,084-acre site in the community of Sloughhouse and has a remaining capacity of 112.9 million cubic yards. The estimated cease operation date for the landfill is January 1, 2064 (CalRecycle 2018). Kiefer Landfill has sufficient capacity to accommodate the solid waste disposal needs of the City of Folsom, and solid waste impacts from the proposed project would be less than significant for questions d) and e).

## XX. WILDFIRE

| | | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No 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? | ☐ | ☐ | ☐ | ■ |

### Environmental Setting

The project site is not located in or near a state responsibility area or lands classified as very high fire hazard severity zones (CAL FIRE 2019; City of Folsom 2018a).

### Evaluation of Wildfire

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?

**No Impact.** The project site is not located in or near a state responsibility area or lands classified as very high fire hazard severity zones. Therefore, no impact would occur for questions a) through d).

## XXI. MANDATORY FINDINGS OF SIGNIFICANCE

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

### Evaluation of Mandatory Findings of Significance

a) Does the project have the potential to 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?

**Less Than Significant Impact.** The preceding analysis indicates that the proposed project has the potential to adversely affect biological, cultural, and tribal cultural resources. See Sections 9.IV, 9.V, and 9.XVIII of this Initial Study for discussion of the proposed project's potential impacts on these environmental issue areas. With implementation of the mitigation measures identified in those Sections, and compliance with City programs and requirements identified in this report, impacts would be reduced to a less than significant level. No significant or potentially significant impacts would remain.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?

**Less Than Significant Impact with Mitigation.** While the project would indirectly contribute to cumulative impacts associated with increased urban development in the City and region, these impacts

have previously been evaluated by the City and considered in development of the City's General Plan as set forth in this Initial Study. Key areas of concern are discussed in detail below.

*Evaluation of cumulative biological resources impacts*: Implementation of the proposed project, with continued growth within Folsom and implementation of the Folsom South of U.S. Highway 50 Specific Plan, would contribute to continued loss of habitat for biological resources by converting undeveloped areas to developed uses. The project site is disturbed, and no special status species have the potential to occur in the project site. However, the project site contains potentially suitable nesting habitat for common bird species protected under the MBTA and/or Fish and Game Code. Cumulative impacts to nesting birds may result in an overall effect on the viability of certain species. With implementation of Mitigation Measure BIO-01, the impacts would be reduced to a less than significant level and potentially cumulative impacts to protected common bird species would be avoided.

*Evaluation of cumulative cultural resources impacts*: A database records search was conducted for the project site, including a 0.5-mile buffer area, at the North Central Information Center at Sacramento State University. Additionally, a pedestrian survey of the project site was conducted by HELIX senior archaeologist, Carrie Wills. Although no evidence of cultural resources of significance were noted on project site, the City recognizes that sensitive and/or protected resources could be unintentionally discovered during project demolition and construction. With implementation of Mitigation Measures CUL-01 and CUL-02, the impacts would be reduced to a less than significant level and potentially cumulative impacts would be avoided.

*Evaluation of cumulative hazards and hazardous materials impacts*: Due to the age of the existing structures slated to be demolished, it is assumed that asbestos-containing materials and lead-based paint are present. The Hazardous Mitigation Measure HAZ-01 requires that the project applicant conduct asbestos and lead-based paint surveys prior to demolition activities. If hazards are present, the project applicant would have a licensed contractor dispose of these hazardous materials in accordance with federal, state, and local laws. Implementation of Mitigation Measure HAZ-01 would reduce impacts to a less than significant level and potentially cumulative impacts would be avoided.

*Evaluation of cumulative transportation impacts:* Year 2035 Conditions analyze the scenario that would exist with the buildout of land uses consistent with the City of Folsom 2035 Travel Demand Model (TDM). Year 2035 Conditions represent the long term, future year scenarios used in the evaluation of traffic operations. The projected turning movement volumes at the intersections were developed using the City of Folsom 2035 TDM. Year 2035 Plus Project Conditions were simulated by superimposing traffic generated by full build-out of the proposed project onto Year 2035 No Project traffic volumes (See Appendix H for the Year 2035 No Project traffic volumes).

**Table 22. Year 2035 Plus Project Intersection Operations**

| # | Intersection | Traffic Control[1,2] | Target LOS | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| 1 | Oak Ave Pkwy/American River Canyon Dr | Signal | D | 19.0 | B | 15.2 | B |
| 2 | Canyon Terrace Ln (North)/American River Canyon Dr [North Dwy] | TWSC | D | 10.5 | B | 10.2 | B |
| 3 | River Ridge Way (North)/American River Canyon Dr | TWSC | D | 11.5 | B | 11.0 | B |

| # | Intersection | Traffic Control[1,2] | Target LOS | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| 4 | Canyon Terrace Ln (South)/American River Canyon Dr [South Dwy] | TWSC | D | 10.1 | B | 9.4 | A |
| 5 | River Ridge Way (South) & Oak Canyon Way/American River Canyon Dr | TWSC | D | 10.5 | B | 10.8 | B |
| 6 | Crow Canyon Dr (North)/American River Canyon Dr | TWSC | D | 11.9 | B | 10.5 | B |
| 7 | Crow Canyon Dr (South)/ American River Canyon Dr | AWSC | D | 8.8 | A | 8.4 | A |
| 8 | Greenback Ln/American River Canyon Dr | Signal | D | 14.2 | B | 45.2 | D |
| 9 | Santa Juanita Ave/Oak Ave (West) | AWSC | D | 12.5 | B | 16.0 | C |
| 10 | Santa Juanita Ave/Oak Ave (East) | AWSC | D | 16.3 | C | 21.1 | C |
| **11** | **Oak Ave Pkwy/Baldwin Dam Rd** | **TWSC** | **D** | **36.6** | **E** | **38.7** | **E** |
| **12** | **Folsom Auburn Rd/Oak Ave Pkwy** | **Signal** | **D** | **62.8** | **E** | **63.5** | **E** |

Source: GHD 2019 (Appendix H).
Notes:
[1]AWSC = All Way Stop Control; TWSC = Two/Three-Way Stop Control
[2]LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal
**Bold** = Unacceptable Conditions

The intersection of Folsom Auburn Road and Oak Avenue Parkway is projected to operate at unacceptable LOS E under Cumulative conditions (build-out of the 2035 General Plan). The addition of the project traffic to these Cumulative conditions increases the delay at this intersection by 2.4 seconds in the AM peak hour and 2.1 seconds in the PM peak hour. The increase in delay is less than the five seconds threshold for signalized intersections.

The intersection of Oak Avenue Parkway and Baldwin Dam Road currently operates at an unacceptable LOS of E under Existing conditions in the AM peak hour and continues to operate at that LOS after the addition of the project. The intersection is projected to operate at an acceptable level of LOS D in the AM peak hour and an unacceptable LOS of E during PM peak hour under Cumulative conditions (build-out of the 2035 General Plan). The addition of the project traffic to the 2035 General Plan build-out conditions results in a return to the existing LOS of E in the AM peak hour and increases the delay at this intersection by 3.2 seconds in the PM peak hour. While the project causes the intersection LOS to go from acceptable to unacceptable and a return to the existing LOS condition in the circumstances described, the project does not cause the peak hour warrant to be met in the AM peak hour, nor does it increase the delay by more than the five seconds threshold for unsignalized intersections in the PM peak hour. Therefore, transportation related impacts would be less than significant and potentially cumulative impacts would be avoided.

*Evaluation of cumulative tribal cultural resources impacts*: The City of Folsom sent project notification letters to three California Native American tribes, and the only tribe to respond was the UAIC, who requested consultation on the project and provided a suggested mitigation measure for unanticipated discoveries that the project may encounter during project construction. On October 3, 2018, the tribe

responded to the City to indicate they were no longer interested in a consultation meeting, and instead, requested that their standard mitigation measure for sensitivity training, unanticipated discoveries, construction notification, and site inspection be adopted by the City. Although there is no evidence of tribal cultural resources occurring or having the potential to occur on the project site, the City recognizes that sensitive and/or protected resources could be unintentionally discovered during project demolition and construction. With implementation of Mitigation Measures TCR-01 through TCR-03, the impacts would be reduced to a less than significant level and potentially cumulative impacts would be avoided.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

**Less Than Significant Impact.** Because of site conditions, existing City regulations, and regulation of potential environmental impacts by other agencies, the proposed project would not have the potential to cause substantial adverse effects on human beings as demonstrated in the evaluation contained in this Initial Study. Therefore, impacts would be less than significant.

# 10.0 MITIGATION MONITORING AND REPORTING PROGRAM

A Mitigation Monitoring and Reporting Program (MMRP) has been prepared by the City per Section 15097 of the CEQA Guidelines and is presented in **Appendix I**.

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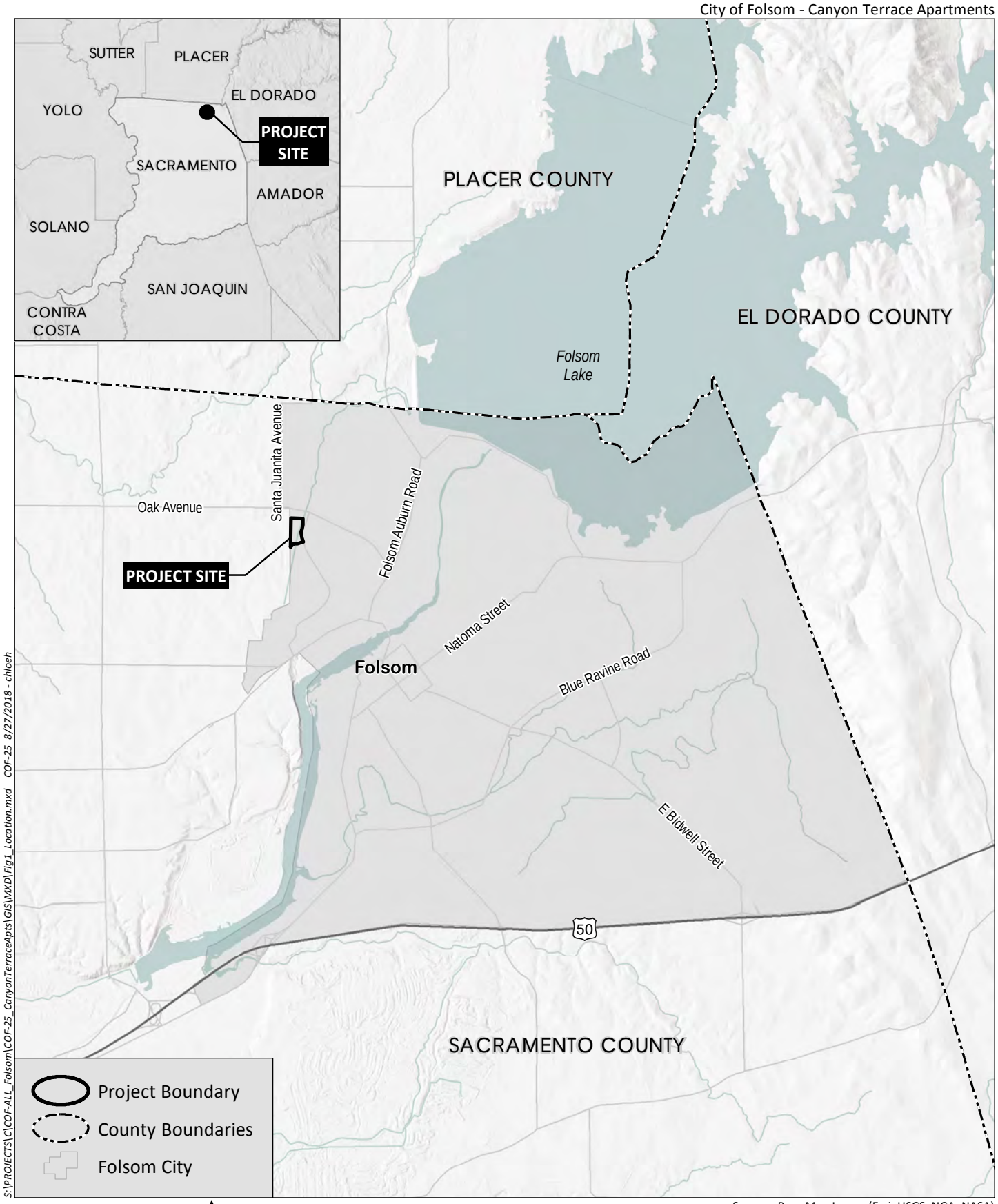
# Appendix A

## Figures

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Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

# Regional Location

Figure 1

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Source: Base Map Layers (Esri)

HELIX Environmental Planning

# Aerial Map

Figure 2

S:\PROJECTS\C\COF-ALL_Folsom\COF-25_CanyonTerraceApts\GIS\MG\Figure3_SiteDesignPlan.indd ABC-01 04/17/17 -!!

Source: MVE Partners 2019

# Site Design Plan

Figure 3

# Appendix B

## Air Quality and Greenhouse Gas Analysis for the Canyon Terrace Apartments Project

# AIR QUALITY AND GREENHOUSE GAS ANALYSIS

FOR THE

# CANYON TERRACE APARTMENTS PROJECT

FEBRUARY 11, 2019

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# AIR QUALITY AND GREENHOUSE GAS ANALYSIS

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## Appendices

Appendix A – Summer Emissions (CalEEMod)
Appendix B – Winter Emissions (CalEEMod)
Appendix C – Annual Emissions (CalEEMod)
Appendix D – Appendix F: Energy Conservation Calculations
Appendix E – EMFAC 2014: Year 2018 Sacramento County Vehicle Emissions Output

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## 1.1 INTRODUCTION

This Air Quality and Greenhouse Gas Analysis identifies and analyzes the potential impacts from the Canyon Terrace Apartments Project (hereinafter "proposed project") related to air quality and greenhouse gas (GHG) emissions. The information and analysis in this document is prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) Guidelines and the Sacramento Metropolitan Air Quality Management District (SMAQMD) requirements. The modeling efforts utilized the California Emission Estimator Model (CalEEMod)™ (v.2016.3.2). Modeling outputs are provided in the Appendix. This study is organized as follows:

- Chapter 1 Introduction
- Chapter 2 Air Quality Analysis
- Chapter 3 Greenhouse Gas Emissions Analysis
- Chapter 4 References

The Air Quality Analysis and Greenhouse Gas Emissions Analysis each include an environmental setting, regulatory setting, thresholds of significance, impacts, and mitigation (as applicable).

## 1.2 PROJECT SUMMARY

The proposed project would expand the existing Canyon Terrace Apartments complex. The expansion of the Canyon Terrace Apartments is projected to construct 96 new residential units and 233 new parking spaces. The proposed parking would be allocated as follows:

- 127 surface stalls (including 3 ADA compliant spaces
- 79 garage stalls
- 27 carport stalls

The proposed project would include the demolition of an existing tennis court, swimming pool, leasing office, and associated parking, driveway, and walkway areas, in the northern portion of the project site. The existing leasing office that would be demolished is approximately 1,200 square feet. The remaining area that would require demolition would be approximately 18,900 square feet (asphalt from parking areas and driveways, and concrete from the pool, courts, and walkways). Fugitive dust emissions would be generated from the demolished material, and other air emissions would be generated from hauling of the demolished material to nearby landfills (as calculated by CalEEMod).

The proposed project would be located within an existing developed portion of the City of Folsom, approximately 360 feet south of the existing intersection of Oak Avenue Parkway and American River Canyon Drive. The proposed project site currently maintains a gentle downward slope from both east to west and from south to north. Vehicular access would be provided via two existing driveways on American River Canyon Drive, with both left-in and right-in entry permitted at each driveway. There are some existing trees located on the proposed project site, some of which may be removed during development of the proposed project. The surrounding land uses include multi-

family residential uses to the east, single-family residential uses to the west, and both single- and multi-family residences to the south. A retail commercial shopping center (Village Shopping Center) is located to the north of the proposed project site.

This chapter describes the regional air quality, current attainment status of the air basin, local sensitive receptors, emission sources, and impacts that are likely to result from project implementation. This section is based in part on the following technical studies: *Air Quality and Land Use Handbook: A Community Health Perspective* (California Air Resources Board, 2005)*, Guide to Air Quality Assessment in Sacramento County (CEQA Guide)* (SMAQMD, 2016), *SMAQMD Operational Screening Levels* (SMAQMD, 2018), *Sacramento County General Plan* (Sacramento County, 2017), City of Folsom General Plan (City of Folsom, 2018) and the California Emission Estimator Model (CalEEMod)™ (v.2016.3.2) (California Air Pollution Control Officers Association, 2018). The Greenhouse Gases and Climate Change analysis is located in Chapter 3.

## 2.1 EXISTING SETTING

### SACRAMENTO VALLEY AIR BASIN

The City of Folsom is located within the Sacramento Valley Air Basin (SVAB). The SVAB is the northern half of California's Great Valley and is bordered on three sides (west, north, and east) by mountain ranges, with peaks in the eastern range above 9,000 feet. The SVAB is approximately 13,700 square miles and essentially a smooth valley floor with elevations ranging from 40 to 500 feet. The rolling valley is interrupted by the Sutter Buttes, an area of 80 square miles in northern Sutter County, which rise abruptly to more than 2,100 feet above the valley floor.

#### Climate

The climate in the project area is considered Mediterranean, which is characterized by hot, dry summers and cool, wet winters. Within the project area, temperatures range from an average January low of approximately 36°F to an average July high of approximately 96°F. Between mid-April and mid-October, significant precipitation is unlikely and high temperatures often peak at over 100 degrees Fahrenheit (F) with lows in the high 50s and low 60s.

Winters are fairly mild, with the most rainfall coming in January. Rainfall in the project area averages approximately 26 inches annually and occurs predominantly from October to May. During the winter, highs are typically in the 60s with lows in the 30s. "Tule fog" (thick ground fog) is often present during the autumn and winter months. The typical seasonal pattern is for North Pacific cyclonic storms to periodically sweep into the area from October through April and for high pressure to dominate over the area and to deflect storms from May to October.

#### Air Movement

As with all of Central California, climate in the project area is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell over the northeastern Pacific Ocean. Climate is also affected by the temperature moderating effects of the nearby oceanic heat reservoir. Warm summers, cool winters, rainfall, daytime onshore breezes, and moderate humidity characterize regional climatic conditions.

In summer, when the high-pressure cell is strongest, temperatures are very warm and humidity is low. The daily incursion of the sea breeze into the Central Valley, however, creates persistent

breezes that moderate the summer heat. In winter, when the high-pressure cell is weakest, conditions are characterized by occasional rainstorms interspersed with stagnant conditions and sometimes heavy fog.

Airflow patterns in the basin can be characterized by one of eight directional types, the most frequent being northwesterly, that is to say, predominant surface wind flows in the project area are from the south/southeast. These wind flows generally occur at speeds of approximately 9-10 mph. The northwesterly flow is predominant in spring and summer, but seasonal variations do occur. Calm conditions dominate the winter months.

Inversions occur in the SVAB with great frequency in all seasons. The most stable inversions occur in late summer and fall. The summertime inversions are often the result of marine air pushing under an overlying warm air mass. These are termed “marine inversions” and are generally accompanied by brisk afternoon winds, which provide good air circulation.

In contrast, many autumn inversions are the result of warm air subsiding in a high-pressure cell where accompanying light winds do not provide adequate dispersion. Autumn inversions limit vertical mixing, creating a very stable layer of air with very light or calm winds. These inversions are usually present on clear cold nights during late fall and winter. In the morning, these ground based inversions are weakened and eventually eliminated by solar heating. As a result, they are strongest in the late night and early morning, when ground-level temperatures are coldest and solar radiation is low.

## Seasonal Pollution Variations

Carbon monoxide, oxides of nitrogen, particulate matters, and lead particulate concentrations in the late fall and winter are highest when there is little interchange of air between the valley and the coast and when humidity is high following winter rains. This type of weather is associated with radiation fog, known as tule fog, when temperature inversions at ground level persist over the entire valley for several weeks and air movement is virtually absent.

Pollution potential in the project area is relatively high due to the combination of air pollutant emissions sources, transport of pollutants into the area and meteorological conditions that are conducive to high levels of air pollution. Elevated levels of particulate matter (primarily fine particulates or $PM_{2.5}$) and ground-level ozone are of most concern to regional air quality officials.

Local carbon monoxide “hot spots” are important to a lesser extent. Ground-level ozone, the principal component of smog, is not directly emitted into the atmosphere but is formed by the reaction of reactive organic gases (ROG) and nitrogen oxides (NOx) (known as ozone precursor pollutants) in the presence of strong sunlight. Ozone levels are highest in the project area during late spring through early fall, when weather conditions are conducive and emissions of the precursor pollutants are highest.

Surface-based inversions that form during late fall and winter nights cause localized air pollution problems ($PM_{10}$ and carbon monoxide) near the emission sources because of poor dispersion

conditions. Emission sources are primarily from automobiles. Conditions are exacerbated during drought-year winters.

## CRITERIA POLLUTANTS

The United States Environmental Protection Agency (EPA) uses six "criteria pollutants" as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). Each criteria pollutant is described below.

**Ozone ($O_3$)** is a photochemical oxidant and the major component of smog. While ozone in the upper atmosphere is beneficial to life by shielding the earth from harmful ultraviolet radiation from the sun, high concentrations of ozone at ground level are a major health and environmental concern. Ozone is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx) in the presence of sunlight. These reactions are stimulated by sunlight and temperature so that peak ozone levels occur typically during the warmer times of the year. Both VOCs and NOx are emitted by transportation and industrial sources. VOCs are emitted from sources as diverse as autos, chemical manufacturing, dry cleaners, paint shops and other sources using solvents.

The reactivity of ozone causes health problems because it damages lung tissue, reduces lung function and sensitizes the lungs to other irritants. Scientific evidence indicates that ambient levels of ozone not only affect people with impaired respiratory systems, such as asthmatics, but healthy adults and children as well. Exposure to ozone for several hours at relatively low concentrations has been found to significantly reduce lung function and induce respiratory inflammation in normal, healthy people during exercise. This decrease in lung function generally is accompanied by symptoms including chest pain, coughing, sneezing and pulmonary congestion.

**Carbon monoxide (CO)** is a colorless, odorless and poisonous gas produced by incomplete burning of carbon in fuels. When CO enters the bloodstream, it reduces the delivery of oxygen to the body's organs and tissues. Health threats are most serious for those who suffer from cardiovascular disease, particularly those with angina or peripheral vascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability and performance of complex tasks.

**Nitrogen dioxide ($NO_2$)** is a brownish, highly reactive gas that is present in all urban atmospheres. $NO_2$ can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Nitrogen oxides are an important precursor both to ozone ($O_3$) and acid rain, and may affect both terrestrial and aquatic ecosystems. The major mechanism for the formation of $NO_2$ in the atmosphere is the oxidation of the primary air pollutant nitric oxide. NOx plays a major role, together with VOCs, in the atmospheric reactions that produce ozone. NOx forms when fuel is burned at high temperatures. The two major emission sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

**Sulfur dioxide ($SO_2$)** affects breathing and may aggravate existing respiratory and cardiovascular disease in high doses. Sensitive populations include asthmatics, individuals with bronchitis or

emphysema, children and the elderly. $SO_2$ is also a primary contributor to acid deposition, or acid rain, which causes acidification of lakes and streams and can damage trees, crops, historic buildings and statues. In addition, sulfur compounds in the air contribute to visibility impairment in large parts of the country. Ambient $SO_2$ results largely from stationary sources such as coal and oil combustion, steel mills, refineries, pulp and paper mills and from nonferrous smelters.

**Particulate matter (PM)** includes dust, dirt, soot, smoke and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires and natural windblown dust. Particles formed in the atmosphere by condensation or the transformation of emitted gases such as $SO_2$ and VOCs are also considered particulate matter.

Based on studies of human populations exposed to high concentrations of particles (sometimes in the presence of $SO_2$) and laboratory studies of animals and humans, there are major effects of concern for human health. These include effects on breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular disease, alterations in the body's defense systems against foreign materials, damage to lung tissue, carcinogenesis and premature death.

*Respirable particulate matter ($PM_{10}$)* consists of small particles, less than 10 microns in diameter, of dust, smoke, or droplets of liquid which penetrate the human respiratory system and cause irritation by themselves, or in combination with other gases. Particulate matter is caused primarily by dust from grading and excavation activities, from agricultural activities (as created by soil preparation activities, fertilizer and pesticide spraying, weed burning and animal husbandry), and from motor vehicles, particularly diesel-powered vehicles. $PM_{10}$ causes a greater health risk than larger particles, since these fine particles can more easily penetrate the defenses of the human respiratory system.

*Fine particulate matter ($PM_{2.5}$)* consists of fine particles, which are less than 2.5 microns in size. Similar to $PM_{10}$, these particles are primarily the result of combustion in motor vehicles, particularly diesel engines, as well as from industrial sources and residential/agricultural activities such as burning. It is also formed through the reaction of other pollutants. As with $PM_{10}$, these particulates can increase the chance of respiratory disease, and cause lung damage and cancer. In 1997, the EPA created new Federal air quality standards for $PM_{2.5}$.

The major subgroups of the population that appear to be most sensitive to the effects of particulate matter include individuals with chronic obstructive pulmonary or cardiovascular disease or influenza, asthmatics, the elderly and children. Particulate matter also impacts soils and damages materials, and is a major cause of visibility impairment.

**Lead (Pb)** exposure can occur through multiple pathways, including inhalation of air and ingestion of Pb in food, water, soil or dust. Excessive Pb exposure can cause seizures, mental retardation and/or behavioral disorders. Low doses of Pb can lead to central nervous system damage. Recent studies have also shown that Pb may be a factor in high blood pressure and subsequent heart disease.

## ODORS

Typically odors are regarded as a nuisance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another.

It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

## SENSITIVE RECEPTORS

A sensitive receptor is a location where human populations, especially children, seniors, and sick persons, are present and where there is a reasonable expectation of continuous human exposure to pollutants. Examples of sensitive receptors include residences, hospitals and schools. The proposed project includes residences that presumably will have sensitive receptors.

## AMBIENT AIR QUALITY

Both the U.S. EPA and the CARB have established ambient air quality standards for common pollutants. These ambient air quality standards represent safe levels of contaminants that avoid specific adverse health effects associated with each pollutant.

The federal and California state ambient air quality standards are summarized in **Table 2-1** for important pollutants. The federal and state ambient standards were developed independently, although both processes attempted to avoid health-related effects. As a result, the federal and state

standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone, $PM_{2.5}$, and $PM_{10}$.

***TABLE 2-1: FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS***

| POLLUTANT | AVERAGING TIME | FEDERAL PRIMARY STANDARD | STATE STANDARD |
|---|---|---|---|
| Ozone | 1-Hour<br>8-Hour | --<br>0.070 ppm | 0.09 ppm<br>0.070 ppm |
| Carbon Monoxide | 8-Hour<br>1-Hour | 9.0 ppm<br>35.0 ppm | 9.0 ppm<br>20.0 ppm |
| Nitrogen Dioxide | Annual<br>1-Hour | 0.053 ppm<br>0.100 ppm | 0.03 ppm<br>0.18 ppm |
| Sulfur Dioxide | Annual<br>24-Hour<br>1-Hour | 0.03 ppm<br>0.14 ppm<br>0.075 ppm | --<br>0.04 ppm<br>0.25 ppm |
| $PM_{10}$ | Annual<br>24-Hour | --<br>150 ug/m$^3$ | 20 ug/m$^3$<br>50 ug/m$^3$ |
| $PM_{2.5}$ | Annual<br>24-Hour | 12 ug/m$^3$<br>35 ug/m$^3$ | 12 ug/m$^3$<br>-- |
| Lead | 30-Day Avg.<br>3-Month Avg. | --<br>0.15 ug/m$^3$ | 1.5 ug/m$^3$<br>-- |

*NOTES: PPM = PARTS PER MILLION, µG/M$^3$ = MICROGRAMS PER CUBIC METER*
*SOURCE: CALIFORNIA AIR RESOURCES BOARD, 2017A.*

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

Existing air quality concerns within the project area are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to TACs, odors, and increases in greenhouse gas emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles which account for 70 percent of the ozone in the region. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

## Attainment Status

In accordance with the California Clean Air Act (CCAA), the CARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria.

Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data do not support either an attainment or nonattainment status. The CCAA divides districts into moderate, serious, and severe

air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for ozone ($O_3$), carbon monoxide (CO), and nitrogen dioxide ($NO_2$) as "does not meet the primary standards," "cannot be classified," or "better than national standards." For sulfur dioxide ($SO_2$), areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used.

Sacramento County has a state designation of nonattainment for Ozone and $PM_{10}$, and is either unclassified or attainment for all other criteria pollutants. Sacramento County has a national designation of nonattainment for ozone and $PM_{2.5}$. The County is designated either attainment or unclassified for all other criteria pollutants. **Table 2-2** presents the state and nation attainment status for Sacramento County.

***TABLE 2-2: STATE AND NATIONAL ATTAINMENT STATUS***

| *CRITERIA POLLUTANTS* | *STATE DESIGNATIONS* | *NATIONAL DESIGNATIONS* |
|---|---|---|
| Ozone | Nonattainment | Nonattainment |
| $PM_{10}$ | Nonattainment | Attainment |
| $PM_{2.5}$ | Attainment | Nonattainment |
| Carbon Monoxide | Attainment | Unclassified/Attainment |
| Nitrogen Dioxide | Attainment | Unclassified/Attainment |
| Sulfur Dioxide | Attainment | Unclassified |
| Sulfates | Attainment | N/A |
| Lead | Attainment | Unclassified/Attainment |
| Hydrogen Sulfide | Unclassified | N/A |
| Visibility Reducing Particles | Unclassified | N/A |

*SOURCES: CALIFORNIA AIR RESOURCES BOARD, 2017B.*

## Sacramento County Monitoring

CARB maintains numerous air quality monitoring sites throughout Sacramento County to measure ozone and $PM_{2.5}$. CARB also maintains numerous air quality monitoring site throughout the SVAB to monitor $PM_{10}$. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards. Data obtained from the monitoring sites in Sacramento County between 2015 and 2017 is summarized in **Tables 2-3 through 2-4**, and data in the SVAB between 2015 and 2017 is summarized in **Table 2-5**.

***TABLE 2-3 SACRAMENTO COUNTY AMBIENT AIR QUALITY MONITORING DATA SUMMARY - OZONE 2014-2016***

| Year | Days > Standard | | | | 1-Hour Observations | | | 8-Hour Averages | | | | Year Coverage | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | State | | National | | | State | Nat'l | State | | National | | | |
| | 1-Hr | 8-Hr | 1-Hr | 8-Hr | Max. | D.V.[1] | D.V.[2] | Max. | D.V.[1] | Max. | D.V.[2] | Min | Max |
| 2017 | 6 | 21 | 0 | 18 | 0.121 | 0.11 | 0.107 | 0.092 | 0.089 | 0.091 | 0.082 | 20 | 98 |
| 2016 | 10 | 33 | 0 | 33 | 0.111 | 0.11 | 0.107 | 0.095 | 0.093 | 0.094 | 0.083 | 87 | 100 |
| 2015 | 6 | 20 | 0 | 20 | 0.122 | 0.10 | 0.101 | 0.094 | 0.088 | 0.094 | 0.080 | 88 | 99 |

*NOTES: ALL CONCENTRATIONS EXPRESSED IN PARTS PER MILLION. THE NATIONAL 1-HOUR OZONE STANDARD WAS REVOKED IN JUNE 2005 AND IS NO LONGER IN EFFECT. STATISTICS RELATED TO THE REVOKED STANDARD ARE SHOWN IN ITALICS. D.V. [1]= STATE DESIGNATION VALUE. D.V. [2]= NATIONAL DESIGN VALUE.*

*SOURCE: CARB AEROMETRIC DATA ANALYSIS AND MANAGEMENT SYSTEM (ADAM) AIR POLLUTION SUMMARIES, 2017.*

***TABLE 2-4 SACRAMENTO COUNTY AMBIENT AIR QUALITY MONITORING DATA SUMMARY - $PM_{2.5}$ 2015-2017***

| Year | Est. Days > Nat'l '06 Std. | Annual Average | | Nat'l Ann. Std. D.V.[1] | State Annual D.V.[2] | Nat'l '06 Std. 98th Percentile | Nat'l '06 24-Hr Std. D.V.[1] | High 24-Hour Average | | Year Coverage | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nat'l | State | | | | | Nat'l | State | Min. | Max |
| 2017 | 6.2 | 9.7 | 14.0 | 9.6 | 14 | 34.9 | 34 | 46.9 | 46.9 | 94 | 98 |
| 2016 | 3.3 | 8.8 | 9.8 | 9.3 | 12 | 28.2 | 31 | 46.8 | 57.5 | 8 | 96 |
| 2015 | 8.7 | 10.4 | 12.3 | 10.2 | 12 | 37.8 | 35 | 54.5 | 54.5 | 91 | 99 |

*NOTES: ALL CONCENTRATIONS EXPRESSED IN PARTS PER MILLION. STATE AND NATIONAL STATISTICS MAY DIFFER FOR THE FOLLOWING REASONS: STATE STATISTICS ARE BASED ON CALIFORNIA APPROVED SAMPLERS, WHEREAS NATIONAL STATISTICS ARE BASED ON SAMPLERS USING FEDERAL REFERENCE OR EQUIVALENT METHODS. STATE AND NATIONAL STATISTICS MAY THEREFORE BE BASED ON DIFFERENT SAMPLERS. STATE CRITERIA FOR ENSURING THAT DATA ARE SUFFICIENTLY COMPLETE FOR CALCULATING VALID ANNUAL AVERAGES ARE MORE STRINGENT THAN THE NATIONAL CRITERIA. D.V. [1]= STATE DESIGNATION VALUE. D.V. [2]= NATIONAL DESIGN VALUE*

*SOURCE: CARB AEROMETRIC DATA ANALYSIS AND MANAGEMENT SYSTEM (ADAM) AIR POLLUTION SUMMARIES, 2017.*

***TABLE 2-5: SVAB AMBIENT AIR QUALITY MONITORING DATA SUMMARY - $PM_{10}$ 2015-2017***

| Year | Est. Days > Std. | | Annual Average | | 3-Year Average | | High 24-Hr Average | | Year Coverage |
|---|---|---|---|---|---|---|---|---|---|
| | Nat'l | State | Nat'l | State | Nat'l | State | Nat'l | State | |
| 2017 | 6.1 | 19.3 | 26.4 | 22.0 | 24 | 23 | 237.7 | 242.0 | 0-100 |
| 2016 | * | 12.2 | 24.2 | 20.6 | 23 | 25 | 88.5 | 88.9 | 0-100 |
| 2015 | 0.0 | 25.2 | 27.0 | 24.9 | 20 | 25 | 114.6 | 118.0 | 0-100 |

*NOTES: THE NATIONAL ANNUAL AVERAGE $PM_{10}$ STANDARD WAS REVOKED IN DECEMBER 2006 AND IS NO LONGER IN EFFECT. AN EXCEEDANCE IS NOT NECESSARILY A VIOLATION. STATISTICS MAY INCLUDE DATA THAT ARE RELATED TO AN EXCEPTIONAL EVENT. STATE AND NATIONAL STATISTICS MAY DIFFER FOR THE FOLLOWING REASONS: STATE STATISTICS ARE BASED ON CALIFORNIA APPROVED SAMPLERS, WHEREAS NATIONAL STATISTICS ARE BASED ON SAMPLERS USING FEDERAL REFERENCE OR EQUIVALENT METHODS. STATE AND NATIONAL STATISTICS MAY THEREFORE BE BASED ON DIFFERENT SAMPLERS. NATIONAL STATISTICS ARE BASED ON STANDARD CONDITIONS. STATE CRITERIA FOR ENSURING THAT DATA ARE SUFFICIENTLY COMPLETE FOR CALCULATING VALID ANNUAL AVERAGES ARE MORE STRINGENT THAN THE NATIONAL CRITERIA.*

*SOURCE: CARB AEROMETRIC DATA ANALYSIS AND MANAGEMENT SYSTEM (ADAM) AIR POLLUTION SUMMARIES, 2017.*

## 2.2 REGULATORY SETTING

### FEDERAL

#### Clean Air Act

The Federal Clean Air Act (FCAA) was first signed into law in 1970. In 1977, and again in 1990, the law was substantially amended. The FCAA is the foundation for a national air pollution control effort,

and it is composed of the following basic elements: NAAQS for criteria air pollutants, hazardous air pollutant standards, state attainment plans, motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The EPA is responsible for administering the FCAA. The FCAA requires the EPA to set NAAQS for several problem air pollutants based on human health and welfare criteria. Two types of NAAQS were established: primary standards, which protect public health, and secondary standards, which protect the public welfare from non-health-related adverse effects such as visibility reduction.

The law recognizes the importance for each state to locally carry out the requirements of the FCAA, as special consideration of local industries, geography, housing patterns, etc. are needed to have full comprehension of the local pollution control problems. As a result, the EPA requires each state to develop a State Implementation Plan (SIP) that explains how each state will implement the FCAA within their jurisdiction. A SIP is a collection of rules and regulations that a particular state will implement to control air quality within their jurisdiction. CARB is the state agency that is responsible for preparing and implementing the California SIP.

## Transportation Conformity

Transportation conformity requirements were added to the FCAA in the 1990 amendments, and the EPA adopted implementing regulations in 1997. See §176 of the FCAA (42 U.S.C. §7506) and 40 CFR Part 93, Subpart A. Transportation conformity serves much the same purpose as general conformity: it ensures that transportation plans, transportation improvement programs, and projects that are developed, funded, or approved by the United States Department of Transportation or that are recipients of funds under the Federal Transit Act or from the Federal Highway Administration (FHWA), conform to the SIP as approved or promulgated by EPA.

Currently, transportation conformity applies in nonattainment areas and maintenance areas. Under transportation conformity, a determination of conformity with the applicable SIP must be made by the agency responsible for the project, such as the Metropolitan Planning Organization, the Council of Governments, or a federal agency. The agency making the determination is also responsible for all the requirements relating to public participation. Generally, a project will be considered in conformance if it is in the transportation improvement plan and the transportation improvement plan is incorporated in the SIP. If an action is covered under transportation conformity, it does not need to be separately evaluated under general conformity.

## Transportation Control Measures

One particular aspect of the SIP development process is the consideration of potential control measures as a part of making progress towards clean air goals. While most SIP control measures are aimed at reducing emissions from stationary sources, some are typically also created to address mobile or transportation sources. These are known as transportation control measures (TCMs). TCM strategies are designed to reduce vehicle miles traveled and trips, or vehicle idling and associated air pollution. These goals are achieved by developing attractive and convenient alternatives to single-occupant vehicle use. Examples of TCMs include ridesharing programs, transportation

infrastructure improvements such as adding bicycle and carpool lanes, and expansion of public transit.

## STATE

### CARB Mobile-Source Regulation

The State of California is responsible for controlling emissions from the operation of motor vehicles in the state. Rather than mandating the use of specific technology or the reliance on a specific fuel, the CARB's motor vehicle standards specify the allowable grams of pollution per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved. Towards this end, the CARB has adopted regulations which required auto manufacturers to phase in less polluting vehicles.

### California Clean Air Act

The California Clean Air Act (CCAA) was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state's air quality goals, planning and regulatory strategies, and performance. CARB is the agency responsible for administering the CCAA. CARB established ambient air quality standards pursuant to the California Health and Safety Code Section §39606(b), which are similar to the federal standards.

### Air Quality Standards

NAAQS are determined by the U.S. EPA. The standards include both primary and secondary ambient air quality standards. Primary standards are established with a safety margin. Secondary standards are more stringent than primary standards and are intended to protect public health and welfare. States have the ability to set standards that are more stringent than the federal standards. As such, California established more stringent ambient air quality standards.

Federal and state ambient air quality standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulates ($PM_{10}$) and lead. In addition, California has created standards for pollutants that are not covered by federal standards. The state and federal primary standards for major pollutants are shown in Table 2-1.

### Tanner Air Toxics Act

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and has adopted the U.S. EPA's list of HAPs as TACs. Most recently, diesel PM was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

The AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

## LOCAL

### Air Quality Attainment Plans

Each of the attainment plans currently in effect for the SVAB are discussed in further detail below.

#### *2017 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*

The Sacramento region is classified as a severe-15 nonattainment area for the 2008 NAAQS. The Sacramento Air Quality Management District (SMAQMD), along with the other air districts in the region, prepared the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan in December 2008. The CARB determined that the Plan met CAA requirements and approved the plan on March 26, 2009 as a revision to the SIP. An update to the plan, 2017 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (*2017 Ozone Attainment Plan*), has been prepared and was approved and adopted by the CARB on November 16, 2017. A further update to the plan, *2018 Updates to the California State Implementation Plan*, was adopted by the CARB on October 25, 2018.

#### *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area*

The U.S. EPA promulgated a new 24-hour standard for $PM_{2.5}$ in October 2006, which strengthened the daily standard from 65 µg/m$^3$ to 35 µg/m$^3$ to protect the general public from health effects caused by exposure to fine particulate matter. Although the Sacramento area had attained the prior $PM_{2.5}$ standards, the area did not meet the new standards and the U.S. EPA Administrator established $PM_{2.5}$ nonattainment designations for the 2006 standard, which became effective on December 14, 2009. In the U.S. EPA's final designation, a multi-county $PM_{2.5}$ nonattainment area was created in the Sacramento region.

However, the Sacramento federal $PM_{2.5}$ Nonattainment Area attained the federal $PM_{2.5}$ health standards on December 31, 2011. To be re-designated, the area must, among other things, show that attainment was achieved by permanent and enforceable reductions and that the area would remain below the standard for 10 years after accounting for emissions growth. The $PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area (*$PM_{2.5}$ Implementation/Maintenance Plan*) was prepared to show that the region has met the requirements and requests that the U.S. EPA re-designate the area to attainment. The U.S EPA issued a final rule for Determination of Attainment for the Sacramento Nonattainment Area effective August 14, 2013. The *$PM_{2.5}$ Implementation/Maintenance Plan* would be adopted by the air districts within the nonattainment area, as well as the CARB, as a revision to the SIP. Contents

of the *$PM_{2.5}$ Implementation/Maintenance Plan* include demonstration that the NAAQS was met and that all requirements have been met for a re-designation to attainment, specification of actions to be taken if the standards are violated in the future, and establishment of regional motor vehicle emission budgets.

Sacramento County's nonattainment status for ozone and, although not required, $PM_{10}$. The AQAP also addressed CO. The AQAP was designed to make expeditious progress toward attaining the State ozone standard and contained preliminary implementation schedules for control programs on stationary sources, transportation, indirect sources, and a vehicle/fuels program.

The CCAA also requires that air districts assess their progress toward attaining the CAAQS once every three years. The triennial assessment is to report the extent of air quality improvement and the amounts of emission reductions achieved from control measures for the preceding three-year period. The SMAQMD reviews and revises the AQAP, if necessary, to correct for deficiencies in meeting progress, to incorporate new data or projections, to mitigate ozone transport, and to pursue the expeditious adoption of all feasible control measures. The most recent triennial assessment is the 2009 Triennial Report and Plan Revision. SMAQMD rules included in the Triennial Reports and AQAP Revisions are intended to limit emissions from stationary sources. Programs are also proposed to provide incentives for mobile heavy-duty vehicles/engines, CEQA mitigation for construction and land use development, and a Spare the Air program to reduce vehicle trips. Additional rules include, but may not be limited to, rules that would reduce emissions from degreasing and solvent cleaning operations, adhesives and sealants, solvents and unspecified coatings.

### *1991 Air Quality Attainment Plan and Triennial Reports*

In addition to the federal attainment plans discussed above for meeting NAAQS, the CCAA of 1988 requires air districts to endeavor to achieve and maintain the CAAQS and develop plans for attainment. Sacramento County meets the CAAQS for sulfur dioxide, nitrogen dioxide, and carbon monoxide, but is designated nonattainment for the State ozone and particulate matter standards. In compliance with the CCAA, the SMAQMD prepared and submitted the 1991 Air Quality Attainment Plan (AQAP) to mainly address Sacramento County's nonattainment status for ozone and, although not required, $PM_{10}$. The AQAP also addressed CO. The AQAP was designed to make expeditious progress toward attaining the State ozone standard and contained preliminary implementation schedules for control programs on stationary sources, transportation, indirect sources, and a vehicle/fuels program.

The CCAA also requires that air districts assess their progress toward attaining the CAAQS once every three years. The triennial assessment is to report the extent of air quality improvement and the amounts of emission reductions achieved from control measures for the preceding three-year period. The SMAQMD reviews and revises the AQAP, if necessary, to correct for deficiencies in meeting progress, to incorporate new data or projections, to mitigate ozone transport, and to pursue the expeditious adoption of all feasible control measures. The most recent triennial assessment is the 2009 Triennial Report and Plan Revision. SMAQMD rules included in the Triennial Reports and AQAP Revisions are intended to limit emissions from stationary sources. Programs are also proposed to provide incentives for mobile heavy duty vehicles/engines, CEQA mitigation for

construction and land use development, and a Spare the Air program to reduce vehicle trips. Additional rules include, but may not be limited to, rules that would reduce emissions from degreasing and solvent cleaning operations, adhesives and sealants, solvents and unspecified coatings.

## Sacramento Metropolitan Air Quality Management District (SMAQMD)

At the county level, air quality is managed through land use and development planning practices that are implemented by Sacramento County and the incorporated Cities and through permitted source controls that are implemented by the Sacramento County Air Quality Management District.

The SMAQMD is responsible for (1) implementing air quality regulations, including developing plans and control measures for stationary sources of air pollution to meet the NAAQS and CAAQS, (2) implementing permit programs for the construction, modification, and operation of sources of air pollution, and (3) enforcing air pollution statutes and regulations governing stationary sources. With CARB oversight, the SMAQMD administers local regulations.

SMAQMD also has a set of rules and regulations applicable to construction, of which the following are relevant to this project:

- **Rule 402: Nuisance**. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

- **Rule 403: Fugitive Dust**. The responsible person or entity is required to implement every reasonable method to control dust emissions from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation to prevent fugitive dust generated through those activities from escaping the project site. Actions include but are not limited to application of water or chemicals, asphalt, and/or oil depending on the dust-generating activity.

- **Rule 442: Architectural Coatings**. The responsible person or entity may not use a coating with a VOC content in excess of the corresponding limits specified in this rule.

- **Rule 453**: **Cutback and Emulsified Asphalt Paving Materials**: Asphalt paving operations that may be associated with implementation of the project would be subject to Rule 453. This rule applies to the manufacture and use of cutback asphalt and emulsified asphalt for paving and maintenance operation

## City of Folsom General Plan

The City of Folsom General Plan (2018) establishes the following goals and policies relative to air quality in the General Plan:

**Goal NCR 3.1** Improve the air quality in Folsom by meeting State and Federal standards, minimizing public exposure to hazardous air pollutants, reducing particulate matter in the atmosphere, and minimizing odors.

*Policy NCR 3.1.1* Regional Cooperation: Coordinate with surrounding jurisdictions, the Sacramento Metropolitan Air Quality Management District (SMAQMD), the California Air Resources Board (ARB), CALTRANS, and the U.S. Environmental Protection Agency toward the development of a consistent and effective approach to the regional air pollution problem.

*Policy NCR 3.1.2* Coordinate on Review of Air Quality Impacts: Coordinate with ARB and SMAQMD to use consistent and accurate procedures in the review of projects which may have air quality impacts. Comments on the analysis shall be solicited from SMAQMD and ARB.

*Policy NCR 3.1.3* Reduce Vehicle Miles Traveled: Encourage efforts to reduce the amount of vehicle miles traveled (VMT). These efforts could include encouraging mixed-use development promoting a jobs/housing balance, and encouraging alternative transportation such as walking, cycling, and public transit.

*Policy NCR 3.1.4* Maintain Ambient Air Quality Standards: Work with the California Air Resources Board (ARB) and the Sacramento Metropolitan Air Quality Management District (SMAQMD) to meet State and National ambient air quality standards in order to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location from the health effects of air pollution.

*Policy NCR 3.1.5* Emission Reduction Threshold for New Development: Require all new development projects that exceed SMAQMD's thresholds of significance to incorporate design, construction material, and/or other operational features that will result in a minimum of 15 percent reduction in emissions when compared to an "unmitigated baseline" project.

*Policy NCR 3.1.6* Sensitive Uses: Coordinate with SMAQMD in evaluating exposure of sensitive receptors to toxic air contaminants and odors, and impose appropriate conditions on projects to protect public health and safety so as to comply with the requirements of SMAQMD for the exposure of sensitive receptors to toxic air contaminants and odors.

**Goal NCR 3.2** Improve the sustainability of the community through continued local efforts to reduce GHG emissions.

*Policy NCR 3.2.1* Community Greenhouse Gas Reductions: Reduce community GHG emissions by 15 percent below 2005 baseline levels by 2020, and further reduce community emissions by:

- 40 percent below the 2020 target by 2030;
- 51 percent below the 2020 target by 2040, and
- 80 percent below the 2020 target by 2050.

*Policy NCR 3.2.2* Municipal Greenhouse Gas Reductions: Reduce municipal GHG emissions by 15 percent below 2005 baseline levels by 2020, and further reduce municipal emissions by:

- 40 percent below the 2020 target by 2030;
- 51 percent below the 2020 target by 2040, and
- 80 percent below the 2020 target by 2050.

*Policy NCR 3.2.3* Greenhouse Gas Reduction in New Development: Reduce greenhouse gas emissions from new development by encouraging development that lowers vehicle miles traveled (VMT), and discouraging auto-dependent sprawl and dependence on the private automobile; promoting development that is compact, mixed-use, pedestrian friendly, and transit oriented; promoting energy-efficient building design and site planning; improving the jobs/housing ratio; and other methods of reducing emissions while maintaining the balance of housing types Folsom is known for.

*Policy NCR 3.2.4* Additional GHG Emission Programs: Continue to evaluate the feasibility and effectiveness of new policies, programs, and regulations that contribute to achieving the City's long-term GHG emissions reduction goals (see Policies NCR 3.2.1 and 3.2.2).

*Policy NCR 3.2.5* Climate Change Assessment and Monitoring: Continue to assess and monitor performance of GHG emissions reduction efforts for 2020, 2030, and beyond, including progress toward meeting longer-term GHG emissions reduction goals for 2035 and 2050 by reporting on the City's progress annually, updating the GHG inventory and forecasts at least every five years, and preparing updates to the GHG Strategy in the General Plan, as appropriate; as well as assess and monitor the effects of climate change and associated levels of risk in order to plan a community that can adapt to changing climate conditions and be resilient to negative changes and impacts.

*Policy NCR 3.2.6* Coordination with SMAQMD: Coordinate with SMAQMD to ensure projects incorporate feasible mitigation measures to reduce GHG emissions and air pollution from both construction and operations, if not already provided for through project design.

*Policy NCR 3.2.7* Preference for Reduced-Emission Equipment: Require contractors to use reduced-emission equipment for City construction projects and contracts for services.

*Policy NCR 3.2.8* GHG Analysis Streamlining for Projects Consistent with the General Plan: Projects subject to environmental review under CEQA may be eligible for tiering and streamlining the analysis of GHG emissions, provided they are consistent with the GHG reduction measures included in the General Plan and EIR. The City may review such projects to determine whether the following criteria are met:

- Proposed project is consistent with the General Plan land use designation for the project site;
- Proposed project incorporates all applicable GHG reduction measures (documented in the Climate Change Technical Appendix to the General Plan EIR) as enforceable mitigation measures in the CEQA document prepared for the project; and,
- Proposed project clearly demonstrates the method, timing and process for which the project will comply with applicable GHG reduction measures and/or conditions of approval, (e.g., using a CAP/GHG reduction measures consistency checklist, mitigation monitoring and reporting plan, or other mechanism for monitoring and enforcement as appropriate).

## 2.3 IMPACTS AND MITIGATION MEASURES

### THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project will have a significant impact on the environment associated with air quality if it will:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Cause a violation of any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people.

### ANALYSIS METHODOLOGY

Potential air quality impacts associated with short-term construction and long-term operations were evaluated in accordance with SMAQMD-recommended and ARB-approved methodologies. Construction and operational emissions of criteria air pollutants were compared with the applicable thresholds of significance (described below) to determine potential impacts. SMAQMD's significance thresholds serve as a proxy for determining whether the project could violate air quality

standards, cause a substantial contribution to an existing or projected air quality violation, and conflict with any applicable air quality plan.

Construction-related emissions were modeled using the California Emissions Estimator Model California Emission Estimator Model (CalEEMod)™ (v.2016.3.2) (California Air Pollution Control Officers, 2018). Project-specific construction parameters were used as inputs in the air quality analysis (to the extent information was available). Construction is assumed to begin in September 2019 and last approximately 18 months, through March 2021. Where project-specific information was not available, default parameters provided by each model were used. It should be noted that default assumptions in the models are typically conservative to avoid underestimating emissions when project-specific information is not available. Modeled construction-related emissions are compared with the applicable SMAQMD thresholds to determine significance.

Following construction, operation of the proposed project would generate air pollutant emissions. CalEEMod was also used to estimate these long-term operational emissions, as well as emissions associated with area and energy sources (i.e., natural gas combustion, landscape maintenance, periodic architectural coating, and consumer products). Operational emissions associated with day-to-day activities of the proposed project were quantified using CalEEMod and trip generation rates were based upon the traffic study prepared (Omni Means 2017). Mobile sources would involve vehicle trips, including construction trucks and passenger cars. The analysis of mobile-source emissions compares the gross mobile-source emissions with the SMAQMD thresholds of significance for project operations. CO impacts were evaluated using the screening-level procedures provided by SMAQMD (2016).

The impact analysis does not directly evaluate airborne lead. Neither construction nor future operations would generate quantifiable lead emissions because of regulations that require unleaded fuel and that prohibit lead in new building materials.

TAC emissions associated with project construction that could affect surrounding areas are evaluated qualitatively. SMAQMD has not provided guidance or adopted a threshold of significance regarding how to evaluate TAC emissions from construction equipment. The potential for the proposed project operations to expose residents to TAC emissions that would exceed applicable health standards is also discussed qualitatively.

Lastly, SMAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis must determine if the proposed project would result in excessive nuisance odors, as defined under California Code of Regulations, Health and Safety Code Section 41700, Air Quality Public Nuisance.

## IMPACTS AND MITIGATION MEASURES

### Impact 2-1: Project operations have the potential to cause a violation of an air quality standard, contribute substantially to an existing or projected air quality violation, or conflict with or obstruct implementation of the applicable air quality plan (less than significant with mitigation)

The proposed project would be a direct and indirect source of air pollution, in that it would generate and attract vehicle trips in the region (mobile source emissions) and it would increase area source emissions and energy consumption. The mobile source emissions would be entirely from vehicles, while the area source emissions would be primarily from the use of natural gas fuel combustion, hearth fuel combustion, landscape fuel combustion, consumer products, and architectural coatings.

SMAQMD provides operational screening levels for projects based on their land use type. Those projects that meet the SMAQMD-specified criteria do not require modelling for project operations. For low-rise apartments, for which the proposed project qualifies, the operational precursor screening level for ozone is 682 dwelling units, and for PM is 1,385 units (SMAQMD, 2018). Projects that develop low-rise apartments that are below these criteria do not require modelling for project operations. Since the proposed project would develop 96 new residential dwelling units and it would consist of low-rise apartments, the proposed project would not require modelling for project operations. However, in order to comply with this screening table, the proposed project is required to included best management practices (BMPs) for PM emissions, and project trip generation rates cannot be higher than the default trip rates in CalEEMod (note: CalEEMod trips rates are based on standard rates from the Institute of Transportation Engineers Trip Generation Manual).

Although it is not expected that the proposed project trip rates would be higher than the default trip rates in CalEEMod, out of an abundance of caution, proposed project operational emissions were modelled using CalEEMod (v.2016.3.2), and compared to the SMAQMD operational thresholds of significance.

**Table 2-6** provides the project-level operational threshold of significance for ROG, NOX, and $PM_{10}$. Thresholds are provided in pounds per day (lbs/day) and/or tons/year. There is no threshold established for $PM_{2.5}$.

***TABLE 2-6: PROJECT-LEVEL OPERATIONAL EMISSION THRESHOLDS***

| | ROG | NOx | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|
| Threshold | 65 lbs/day | 65 lbs/day | 80 lbs/day*;<br>14.6 tons per year* | 82 lbs/day*;<br>15 tons/year* |

*SOURCE: SMAQMD GUIDE TO AIR QUALITY ASSESSMENT IN SACRAMENTO COUNTY (CEQA GUIDE) (2016)*

**ASSUMES ALL FEASIBLE BACT/BMPS ARE APPLIED FOR PM.*

As previously described, CalEEMod (v.2016.3.2) was used to estimate project-level operational emissions for the proposed project. **Table 2-7** shows proposed project operational emissions (in maximum pounds per day), which include mobile source, area source, and energy emissions of

criteria pollutants that would result from operations of the proposed project. **Table 2-8** shows project operational emissions in tons per year.

***TABLE 2-7: OPERATIONAL EMISSIONS (UNMITIGATED MAXIMUM DAILY LBS/DAY)***

| | ROG | NOx | $PM_{10}$ Total | $PM_{2.5}$ Total |
|---|---|---|---|---|
| ***Summer*** | | | | |
| Area | 2.6240 | 0.0916 | 0.0438 | 0.0438 |
| Energy | 0.0343 | 0.2933 | 0.0237 | 0.0237 |
| Mobile | 0.4082 | 1.3399 | 1.0296 | 0.2823 |
| **Total** | **3.0666** | **1.7248** | **1.0971** | **0.3497** |
| ***Winter*** | | | | |
| Area | 2.6240 | 0.0916 | 0.0438 | 0.0438 |
| Energy | 0.0343 | 0.2933 | 0.0237 | 0.0237 |
| Mobile | 0.3078 | 1.4401 | 1.0298 | 0.2824 |
| **Total** | **2.9662** | **1.8250** | **1.0972** | **0.3499** |

*SOURCE: CALEEMOD (V.2016.3.2)*

***TABLE 2-8: OPERATIONAL EMISSIONS (UNMITIGATED MAXIMUM ANNUAL TONS/YEAR)***

| | ROG | NOx | $PM_{10}$ Total | $PM_{2.5}$ Total |
|---|---|---|---|---|
| ***Annual*** | | | | |
| Area | 0.4651 | 0.0115 | 0.00547 | 0.00547 |
| Energy | 0.00626 | 0.0535 | 0.00433 | 0.00433 |
| Mobile | 0.0590 | 0.2545 | 0.1811 | 0.0498 |
| **Total** | **0.5304** | **0.3195** | **0.1909** | **0.0596** |

*SOURCE: CALEEMOD (V.2016.3.2)*

As shown in the Table 2-7 and Table 2-8, operational ROG, NOx, $PM_{10}$ and $PM_{2.5}$ emissions are below the thresholds of significance for the individual emission categories (i.e. area, energy, and mobile sources), as well as the total for these categories. Since the SMAQMD relies on consistency with the SMAQMD mass emissions thresholds to determine whether a project would conflict with or obstruct implementation of applicable air quality plans,[1] the proposed project would not conflict with or obstruct implementation of the applicable air quality plans (including the *2018 Updates to the California State Implementation Plan*, the *$PM_{2.5}$ Implementation/Maintenance Plan*, and the *2009 Triennial Report and Plan Revision)* during project operation. Furthermore, the proposed project is consistent with all applicable SMAQMD rules and regulations, including Rule 402, Rule 403, Rule 442, and Rule 453. The proposed project is also consistent with the goals and policies contained within the City of Folsom General Plan (2018), as provided under the Regulatory Setting in this Chapter (above).

As shown Table 2-7 and Table 2-8, all emissions are reduced to a level that does not exceed the project-level operational thresholds of significance. However, as previously stated, the SMAQMD requires all projects within its jurisdiction to implement all feasible BACT/BMPs for PM. The

[1] See pg. 4-3 of the SMAQMD's *Guide to Air Quality Assessment in Sacramento County (CEQA Guide)* (2016).

following mitigation measures are provided based on the list of BMPs for operational PM emissions for land use developments projects contained in the SMAQMD CEQA Guide (SMAQMD, 2016). The proposed project would have a ***less than significant*** impact relative to this topic.

### MITIGATION MEASURES

***Mitigation Measure 2-1****: The project applicant shall ensure the project operations meet all requirements of SMAQMD District Rule 403 (Fugitive Dust).*

***Mitigation Measure 2-2****: The project applicant shall ensure that project operations comply with the mandatory measures contained in the California Building Energy Efficiency Standards (Title 24, Part 6) that pertain to efficient use of natural gas for space and water heating and other uses.*

***Mitigation Measure 2-3****: The project applicant shall ensure the project operations comply with the mandatory measures contained in the California Green Building Code (Title 24, Part 11). Current mandatory measures related to operational PM include requirements for electric vehicle charging and fireplaces.*

## Impact 2-2: Project construction has the potential to cause a violation of an air quality standard, contribute substantially to an existing or projected air quality violation, or conflict with or obstruct implementation of the applicable air quality plan (less than significant with mitigation)

Construction activities would result in temporary short-term emissions associated with vehicle trips from construction workers, operation of construction equipment, and the dust generated during construction activities. These temporary and short-term emissions would generate additional ozone precursors (ROG and NOx) as well as $PM_{10}$ and $PM_{2.5}$. **Table 2-9** provides the thresholds of significance for ROG, NOX, $PM_{10}$ and $PM_{2.5}$. There is no threshold established for ROG.

***TABLE 2-9: CONSTRUCTION EMISSION THRESHOLDS***

| *Year* | *ROG* | *NOx* | *$PM_{10}$* | *$PM_{2.5}$* |
|---|---|---|---|---|
| Threshold | N/A | 85 lbs/day | 80 lbs/day*;<br>14.6 tons per year* | 82 lbs/day*;<br>15 tons/year* |

*SOURCE: SMAQMD GUIDE TO AIR QUALITY ASSESSMENT IN SACRAMENTO COUNTY (CEQA GUIDE) (2016)*

**ASSUMES ALL FEASIBLE BACT/BMPS ARE APPLIED FOR PM.*

Construction was assumed to occur from year 2019 through year 2021. **Table 2-10** provides the construction phases assumed for proposed project construction. The proposed project would include demolition, site preparation, grading, building construction, paving, and architectural coating phases. Demolition was assumed to occur over two phases (for the purposes of modeling), based on how CalEEMod treats the demolition of buildings versus non-buildings.

The demolition phases would include demolition of the existing tennis courts, swimming pool, leasing office, and the associated parking, driveway, and walkway areas (in the northern portion of the project site). The leasing office was assumed to be 1,200 square feet. The tonnage of concrete

and asphalt for the swimming pool, tennis courts, and associated parking, driveway, and walkway areas were estimated by measuring the size of each of these areas, and then assuming 4-inch depth for the asphalt in the parking and driveway area, 12-inch depth gunite/concrete for the swimming pool, and 6-inch depth concrete for the courts and walkways. Tonnage was estimated based on an asphalt density of 145 pounds per cubic foot, and a concrete density of 150 pounds per cubic foot.[2] It was also assumed that any rock base under the asphalt and concrete will be lost onsite in the grading of the site. Fugitive dust emissions would be generated from the demolished material, and other air emissions would be generated from hauling of the demolished material to nearby landfills (as calculated by CalEEMod).

***TABLE 2-10: CONSTRUCTION PHASING***

| *Phase Name* | *Phase Type* | *Start Date* | *End Date* | *Number of Days* |
|---|---|---|---|---|
| Demolition (Leasing Building) | Demolition | 9/1/2019 | 9/27/2019 | 20 |
| Demolition (Pool, Courts, Parking) | Demolition | 9/28/2019 | 10/25/2019 | 20 |
| Site Preparation | Site Preparation | 10/26/2019 | 11/8/2o019 | 10 |
| Grading | Grading | 11/9/2019 | 12/6/2019 | 20 |
| Building Construction | Building Construction | 12/7/2019 | 10/23/2020 | 230 |
| Paving | Paving | 10/24/2020 | 12/2/2020 | 28 |
| Architectural Coasting | Architectural Coating | 12/3/2020 | 3/2/2021 | 64 |

*SOURCE: CALEEMOD (V.2016.3.2)*

CalEEMod (v.2016.3.2) was used to estimate construction emissions for the proposed project. Construction emissions for the construction years 2019 through 2021 in maximum daily pounds per day are shown in **Table 2-11**. **Table 2-12** shows construction emissions for 2019 through 2021 in tons per year.

***TABLE 2-11: CONSTRUCTION EMISSIONS (UNMITIGATED MAXIMUM DAILY LBS/DAY)***

| | *ROG* | *NOx* | *$PM_{10}$ Total* | *$PM_{2.5}$ Total* |
|---|---|---|---|---|
| 2019 (Summer) | 4.4194 | 45.6191 | 20.5945 | 12.1670 |
| 2019 (Winter) | 4.4126 | 45.6300 | 20.5945 | 12.1670 |
| 2020 (Summer) | 19.0743 | 20.4420 | 1.7115 | 1.2157 |
| 2020 (Winter) | 19.0695 | 20.5016 | 1.7117 | 1.2159 |
| 2021 (Summer) | 19.0468 | 1.5556 | 0.2013 | 0.1230 |
| 2021 (Winter) | 19.0423 | 1.5623 | 0.2013 | 0.1230 |

[2] National Asphalt Pavement Association: https://homeguides.sfgate.com/calculate-asphalt-weight-per-yard-81825.html;

Concrete Sawing and Drilling Association: https://c.ymcdn.com/sites/www.csda.org/resource/resmgr/imported/TST155WeightofConcrete.pdf

*SOURCE: CALEEMOD (V.2016.3.2)*

***TABLE 2-12: CONSTRUCTION EMISSIONS (UNMITIGATED MAXIMUM TONS/YEAR)***

| | ROG | NOx | $PM_{10}$ Total | $PM_{2.5}$ Total |
|---|---|---|---|---|
| 2019 | 0.1428 | 1.4198 | 0.2538 | 0.1558 |
| 2020 | 0.4772 | 2.3968 | 0.1945 | 0.1405 |
| 2021 | 0.4093 | 0.0335 | 0.00425 | 0.00263 |

*SOURCE: CALEEMOD (V.2016.3.2)*

As shown in the table above, the construction emissions in the 2019 through 2021 construction season (winter and summer) do not exceed the SMAQMD thresholds of significance. Since the SMAQMD relies on consistency with the SMAQMD mass emissions thresholds to determine whether a project would conflict with or obstruct implementation of applicable air quality plans,[3] the proposed project would not conflict with or obstruct implementation of any applicable air quality plans (including the *2018 Updates to the California State Implementation Plan*, the *$PM_{2.5}$ Implementation/Maintenance Plan*, and the *2009 Triennial Report and Plan Revision*) during project construction. Furthermore, the proposed project is consistent with all applicable SMAQMD rules and regulations, including Rule 402, Rule 403, Rule 442, and Rule 453. The proposed project is also consistent with the goals and policies contained within the City of Folsom General Plan (2018), as provided under the Regulatory Setting in this Chapter (above).

However, as previously stated, the SMAQMD requires all projects within its jurisdiction to implement all feasible BACT/BMPs for PM. Implementation of Mitigation Measure 2-4 would ensure that the proposed project would have a ***less than significant*** impact.

### MITIGATION MEASURES

***Mitigation Measure 2-4****: The project applicant shall ensure the project construction activities meet all requirements of SMAQMD District Rule 403 (Fugitive Dust). The project applicant shall coordinate with SMAQMD Air Quality Engineer to ensure all feasible BACT/BMPs are implemented during the construction phase of the proposed project.*

## Impact 2-3: Project operations have the potential to cumulatively contribute to a violation of an air quality standard (less than significant with mitigation)

The SMAQMD *Guide to Air Quality Assessment in Sacramento County (CEQA Guide)* provides guidance on how to assess cumulative air quality impacts within its jurisdiction. The following analysis is based on the guidance for cumulative impacts provided in Chapter 8 of the C*EQA Guide* (SMAQMD 2016).

[3] See pg. 3-3 of the SMAQMD's *Guide to Air Quality Assessment in Sacramento County (CEQA Guide)* (2016).

### *Ozone (Construction)*

Since the proposed project would not result in emissions that exceed the applicable ozone precursor project-level thresholds of significance (as described under Impact 2-2), the proposed project would have a ***less than significant*** impact relative to the potential for the proposed project to have a cumulatively considerable contribution to construction-related ozone.

### *Ozone (Operation)*

Since the proposed project would not result in emissions that exceed the applicable ozone precursor project-level thresholds of significance (as described under Impact 2-1), the proposed project would have a ***less than significant*** impact relative to the potential for the proposed project to have a cumulatively considerable contribution to operational-related ozone.

### *Particulate Matter (PM) (Construction)*

The SMAQMD has adopted thresholds of significance to maintain and/or attain the federal $PM_{10}$ and $PM_{2.5}$ standards and to strive to meet state standards. PM directly emitted from a project is generally regarded as having regional and localized impacts, however, $PM_{10}$ and $PM_{2.5}$ are the largest concern during construction (e.g. site preparation phase) of a proposed project.

The proposed project would not result in emissions that exceed the applicable construction-related PM precursor project-level thresholds of significance (as described under Impact 2-2, above). Additionally, the proposed project would incorporate basic construction emissions control practices, as provided by Mitigation Measure 2-4. Therefore, the proposed project would have a ***less than significant*** impact relative to the potential for the proposed project to have a cumulatively considerable contribution to construction-related PM.

### *Particulate Matter (PM) (Operation)*

Operational emissions of PM from a project are mainly from mobile sources. The SMAQMD thresholds of significance for $PM_{10}$ and $PM_{2.5}$ are in place to reduce PM contribution from new development, including cumulative contributions.

The proposed project would not result in emissions that exceed the applicable operation-related PM precursor project-level thresholds of significance (as described under Impact 2-1, above). Additionally, the proposed project would incorporate basic construction emissions control practices, as provided by Mitigation Measures 2-1 through 2-3. Therefore, the proposed project would have a ***less than significant*** impact relative to the potential for the proposed project to a cumulatively considerable contribution to construction-related PM.

#### CONCLUSION

With the implementation of the following mitigation measure the proposed project would have a ***less than significant*** impact relative to this topic.

#### MITIGATION MEASURES

*Implement* ***Mitigation Measure 2-1, 2-2, 2-3, and 2-4****.*

## Impact 2-4: Carbon monoxide hotspot impacts (less than significant)

Project traffic would increase concentrations of carbon monoxide along streets providing access to the project site. Carbon monoxide is a local pollutant (i.e., high concentrations are normally only found very near sources). The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations (i.e. hotspots), therefore, are usually only found near areas of high traffic volume and congestion.

Long-distance transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific meteorological conditions and traffic conditions, CO concentrations at receptors located near roadway intersections may reach unhealthy levels, when combined with background CO level.

Emissions and ambient concentrations of CO have decreased dramatically in the SVAB with the introduction of the catalytic converter emission control technology for on-road motor vehicles in 1975 and reformulated fuels required by the 1990 Clean Air Act amendments. No exceedances of the CAAQS or NAAQS for CO have been recorded at a monitoring station in Sacramento County since 1993. Both CARB and EPA have redesignated the Sacramento Valley Air Basin as an attainment area for CO, for the CAAQS in 1997 and the NAAQS on June 1, 1998, respectively. However, elevated localized concentrations of CO still warrant consideration in the environmental review process. Occurrences of localized CO concentrations (i.e., “hotspots”) are often associated with heavy traffic congestion, which most frequently occur at signalized intersections of high-volume roadways.

The preliminary screening methodology provided by the SMAQMD provides lead agencies with a conservative indication of whether project-generated vehicle trips will result in the generation of CO emissions that contribute to an exceedance of the thresholds of significance. The SMAQMD’s recommended screening criteria are divided into two tiers. The screening criteria have been developed to help lead agencies analyze potential CO impacts and identify when site-specific CO dispersion modeling is not necessary.

According to the SMAQMD, a proposed project will result in a less than significant impact to air quality for local CO if:

- Traffic generated by the proposed project will not result in deterioration of intersection level of service (LOS) to LOS E or F; and
- The project will not contribute to additional traffic to an intersection that already operates at LOS of E or F.

According to the *Canyon Terrace Apartments Traffic Impact Analysis Report* (Omni Means 2017), the proposed project would not result in a deterioration of intersection LOS to LOS E or F, and would not contribute to additional traffic to an intersection that already operates at LOS E or F. Therefore, the potential for a carbon monoxide hotspot impact represents a ***less than significant*** impact.

## Impact 2-5: Potential for public exposure to toxic air contaminants (less than significant)

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at very low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards.

The California Air Resources Board (CARB) published the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide information to local planners and decision-makers about land use compatibility issues associated with emissions from industrial, commercial and mobile sources of air pollution. The CARB Handbook indicates that mobile sources continue to be the largest overall contributors to the State's air pollution problems, representing the greatest air pollution health risk to most Californians. The most serious pollutants on a statewide basis include diesel exhaust particulate matter (diesel PM), benzene, and 1,3-butadiene, all of which are emitted by motor vehicles. These mobile source air toxics are largely associated with freeways and high traffic roads. Non-mobile source air toxics are largely associated with industrial and commercial uses. **Table 2-13** provides the California Air Resources Board minimum separation recommendations on siting sensitive land uses.

***TABLE 2-13: CARB MINIMUM SEPARATION RECOMMENDATIONS ON SITING SENSITIVE LAND USES***

| *Source Category* | *Advisory Recommendations* |
|---|---|
| Freeways and High-Traffic Roads | • Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.[1] |
| Distribution Centers | • Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points. |
| Rail Yards | • Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches. |
| Ports | • Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the CARB on the status of pending analyses of health risks. |
| Refineries | • Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation. |
| Chrome Platers | • Avoid siting new sensitive land uses within 1,000 feet of a chrome plater. |
| Dry Cleaners Using Perchloro- ethylene | • Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district.<br>• Do not site new sensitive land uses in the same building with perc dry cleaning operations. |
| Gasoline Dispensing Facilities | • Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities. |

*SOURCES: AIR QUALITY AND LAND USE HANDBOOK: A COMMUNITY HEALTH PERSPECTIVE" (CARB 2007)*

The proposed project is a residential development project and does not include any of the source categories listed in **Table 2-13**. The proposed project is located an area containing primarily residential and light commercial uses. There were also no source categories identified within Table 2-12 as being within the minimum recommended separation distance provided in **Table 2-13**.

There are no source categories located in the vicinity. Implementation of the proposed project would not result in any known increased exposure of sensitive receptors to localized concentrations of TACs. This proposed project would have a ***less than significant*** relative to this topic.

## Impact 2-6: Potential for exposure to odors (less than significant)

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SMAQMD. The general nuisance rule (Heath and Safety Code §41700) is the basis for the threshold.

Examples of facilities that are known producers of odors include: Wastewater Treatment Facilities, Chemical Manufacturing, Sanitary Landfill, Fiberglass Manufacturing, Transfer Station, Painting/Coating Operations (e.g. auto body shops), Composting Facility, Food Processing Facility, Petroleum Refinery, Feed Lot/Dairy, Asphalt Batch Plant, and Rendering Plant. **Table 2-14** provides

the SMAQMD's recommended odor screening distances and suggested buffer distances for a variety of odor-generating facilities.

***TABLE 2-14: SMAQMD ODOR SCREENING DISTANCES***

| *Land Use/Type of Operation* | *Project Screening Distance* |
|---|---|
| Wastewater Treatment Plant | 2 miles |
| Wastewater Pumping Facilities | 1 mile |
| Sanitary Landfill | 2 miles |
| Transfer Station | 1 mile |
| Composting Facility | 1 mile |
| Petroleum Refinery | 2 miles |
| Asphalt Batch Plant | 2 miles |
| Chemical Manufacturing | 2 miles |
| Fiberglass Manufacturing | 1 mile |
| Painting/Coating Operations | 1 mile |
| Rendering Plant | 2 miles |
| Coffee Roaster | 1 mile |
| Food Processing Facility | 1 mile |
| Confined Animal Facility/Feed Lot/Dairy | 1 mile |
| Green Waste and Recycling Operations | 1 mile |
| Metal Smelting Plants | 2 miles |

*SOURCE: SMAQMD: CEQA GUIDE TO AIR QUALITY ASSESSMENT, CHAPTER 7, ODORS / RECOMMENDED ODOR SCREENING DISTANCES.*

If a project would locate receptors and known odor sources in proximity to each other further analysis may be warranted; however, if a project would not locate receptors and known odor sources in proximity to each other, then further analysis is not warranted. The proposed project is not located in proximity to a known odor source and does not warrant further analysis. Additionally, implementation of the proposed project would not directly create or generate objectionable odors. This impact is considered ***less than significant***.

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This chapter discusses regional greenhouse gas (GHG) emissions, climate change, and energy conservation impacts that could result from implementation of the proposed project. This section provides a background discussion of greenhouse gases and climate change linkages and effects of global climate change. This section is organized with an existing setting, regulatory setting, approach/methodology, and impact analysis. The analysis and discussion of the GHG, climate change, and energy conservation impacts in this section focuses on the proposed project's consistency with local, regional, and statewide climate change planning efforts and discusses the context of these planning efforts as they relate to the proposed project. Disclosure and discussion of the project's estimated energy usage and greenhouse gas emissions are provided.

## 3.1 EXISTING SETTING

### GREENHOUSE GASES AND CLIMATE CHANGE LINKAGES

Various gases in the Earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the Earth's surface temperature. Solar radiation enters Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation.

Naturally occurring greenhouse gases include water vapor ($H_2O$), carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), and ozone ($O_3$). Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but they are, for the most part, solely a product of industrial activities. Although the direct greenhouse gases $CO_2$, $CH_4$, and $N_2O$ occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. From the pre-industrial era (i.e., ending about 1750) to 2011, concentrations of these three greenhouse gases have increased globally by 40, 150, and 20 percent, respectively (IPCC, 2013).

Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are $CO_2$, $CH_4$, $O_3$, water vapor, $N_2O$, and chlorofluorocarbons (CFCs).

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by the industrial sector (California Energy Commission, 2018a).

As the name implies, global climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California produced approximately 440 million gross metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2016 (California Energy Commission, 2018a). By 2020, California is projected to produce 509 $MMTCO_2e$ per year (California Air Resources Board, 2015).

Carbon dioxide equivalents are a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only $CO_2$ were being emitted.

Consumption of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2016, accounting for 41% of total GHG emissions in the state. This category was followed by the industrial sector (23%), the electricity generation sector (including both in-state and out of-state sources) (16%), the agriculture sector (8%), the residential energy consumption sector (7%), and the commercial energy consumption sector (5%) (California Energy Commission, 2018a).

## EFFECTS OF GLOBAL CLIMATE CHANGE

The effects of increasing global temperature are far-reaching and extremely difficult to quantify. The scientific community continues to study the effects of global climate change. In general, increases in the ambient global temperature as a result of increased GHGs are anticipated to result in rising sea levels, which could threaten coastal areas through accelerated coastal erosion, threats to levees and inland water systems and disruption to coastal wetlands and habitat.

If the temperature of the ocean warms, it is anticipated that the winter snow season would be shortened. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the state. The snowpack portion of the supply could potentially decline by 50% to 75% by the end of the 21st century (National Resources Defense Council, 2014). This phenomenon could lead to significant challenges securing an adequate water supply for a growing state population. Further, the increased ocean temperature could result in increased moisture flux into the state; however, since this would likely increasingly come in the form of rain rather than snow in the high elevations, increased precipitation could lead to increased potential and severity of flood events, placing more pressure on California's levee/flood control system.

Sea level has risen approximately seven inches during the last century and it is predicted to rise an additional 22 to 35 inches by 2100, depending on the future GHG emissions levels (California Environmental Protection Agency, 2010). If this occurs, resultant effects could include increased coastal flooding, saltwater intrusion and disruption of wetlands. As the existing climate throughout California changes over time, mass migration of species, or failure of species to migrate in time to adapt to the perturbations in climate, could also result. Under the emissions scenarios of the Climate Scenarios report (California Environmental Protection Agency, 2010), the impacts of global warming in California are anticipated to include, but are not limited to, the following.

## Public Health

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation are projected to increase from 25% to 35% under the lower warming range and to 75% to 85% under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55% more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

## Water Resources

A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snow pack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snow pack, increasing the risk of summer water shortages.

The state's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta, a major state fresh water supply. Global warming is also projected to seriously affect agricultural areas, with California farmers projected to lose as much as 25% of the water supply they need; decrease the potential for hydropower production within the state (although the effects on hydropower are uncertain); and seriously harm winter tourism. Under the lower warming range, the snow dependent winter recreational season at lower elevations could be reduced by as much as one month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing, snowboarding, and other snow dependent recreational activities.

If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snow pack by as much as 70% to 90%. Under the lower warming scenario, snow pack losses are expected to be only half as large as those expected if temperatures were to rise to the higher warming range. How much snow pack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snow pack would pose

challenges to water managers, hamper hydropower generation, and nearly eliminate all skiing and other snow-related recreational activities.

## Agriculture

Increased GHG emissions are expected to cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. Although higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.

Crop growth and development will be affected, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

In addition, continued global warming will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species, while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

## Forests and Landscapes

Global warming is expected to alter the distribution and character of natural vegetation thereby resulting in a possible increased risk of large of wildfires. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55%, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. For example, if precipitation increases as temperatures rise, wildfires in southern California are expected to increase by approximately 30% toward the end of the century. In contrast, precipitation decreases could increase wildfires in northern California by up to 90%.

Moreover, continued global warming will alter natural ecosystems and biological diversity within the state. For example, alpine and sub-alpine ecosystems are expected to decline by as much as 60% to 80% by the end of the century as a result of increasing temperatures. The productivity of the state's forests is also expected to decrease as a result of global warming.

### Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the state's coastal regions. Under the higher warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

## ENERGY CONSUMPTION

Energy is California is consumed from a wide variety of sources. Fossil fuels (including gasoline and diesel fuel, natural gas, and energy used to generate electricity) are most widely used form of energy in the State. However, renewable sources of energy (such as solar and wind) are growing in proportion to California's overall energy mix. A large driver of renewable sources of energy in California is the State's current Renewable Portfolio Standard (RPS), which requires the State to derive at least 33% of electricity generated from renewable resources by 2020, and 60 percent by 2030, and to achieve zero-carbon emissions by 2045 (as passed in September 1018, under SB 100).

Overall, in 2013, California's per capita energy usage was ranked 48$^{th}$ in the nation (U.S. Energy Information Administration, 2016). Additionally, California's per capita rate of energy usage has remained relatively constant since the 1970's. Many State regulations since the 1970's, including new building energy efficiency standards, vehicle fleet efficiency measures, as well as growing public awareness, have helped to keep per capita energy usage in the State in check.

The consumption of nonrenewable energy (primarily gasoline and diesel fuel) associated with the operation of passenger, public transit, and commercial vehicles results in GHG emissions that ultimately result in global climate change. Other fuels such as natural gas, ethanol, and electricity (unless derived from solar, wind, nuclear, or other energy sources that do not produce carbon emissions) also result in GHG emissions and contribute to global climate change.

### Electricity Consumption

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. In 2016, more than one-fourth of the electricity supply comes from facilities outside of the state. Much of the power delivered to California from states in the Pacific Northwest was generated by wind. States in the Southwest delivered power generated at coal-fired power plants, at natural gas-fired power plants, and from nuclear generating stations (U.S. EIA, 2017a). In 2016, approximately 50 percent of California's utility-scale net electricity generation was fueled by natural gas. In addition, about 25 percent of the state's utility-scale net electricity generation came from non-hydroelectric renewable technologies, such as solar, wind, geothermal, and biomass. Another 14 percent of the state's utility-scale net electricity generation came from hydroelectric generation, and nuclear energy powered an additional 11 percent. The amount of electricity generated from coal was negligible (approximately 0.2 percent) (U.S. EIA, 2017a). The percentage of renewable resources as a proportion of California's overall energy portfolio is increasing over time, as directed the State's RPS.

According to the California Energy Commission (CEC), total statewide electricity consumption increased from 166,979 gigawatt-hours (GWh) in 1980 to 228,038 GWh in 1990, which is an estimated annual growth rate of 3.66 percent. The statewide electricity consumption in 1997 was 246,225 GWh, reflecting an annual growth rate of 1.14 percent between 1990 and 1997 (U.S. EIA, 2017b). Statewide consumption was 290,567 GWh in 2016, an annual growth rate of 0.8 percent between 1997 and 2016.

### Oil

The primary energy source for the United States is oil, which is refined to produce fuels like gasoline, diesel, and jet fuel. Oil is a finite, nonrenewable energy source. World consumption of petroleum products has grown steadily in the last several decades. As of 2016, world consumption of oil had reached 96 million barrels per day. The United States, with approximately five percent of the world's population, accounts for approximately 19 percent of world oil consumption, or approximately 18.6 million barrels per day (International Energy Agency, 2018). The transportation sector relies heavily on oil. In California, petroleum-based fuels currently provide approximately 96 percent of the state's transportation energy needs (California Energy Commission, 2012).

### Natural Gas/Propane

The state produces approximately 12 percent of its natural gas, while obtaining 22 percent from Canada and 65 percent from the Rockies and the Southwest (California Energy Commission, 2012). Total natural gas demand in California in 2012 was 2,313, billion cubic feet of natural gas (California Energy Commission, 2012).

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## CITY OF FOLSOM GHG EMISSIONS

In 2009, Sacramento County developed a Greenhouse Gas Emissions Inventory for Sacramento County (Sacramento County, 2009). The report included a baseline year 2005 greenhouse gas inventory for the City of Folsom. Folsom opted to join the International Council for Local

Environmental Initiatives (ICLEI) program. Folsom committed to conduct an inventory of emissions within its jurisdiction as part of the county-wide effort to account for emissions generated within Sacramento County. This inventory is the first step in the county-wide effort to reduce GHG emissions, consistent with State policy and current regulation from AB 32.

The community-wide GHG Inventory encompasses emissions from commercial, industrial, and residential activities within the city limits. Table 3-1 quantifies the contributions of each sector to total 2005 city-wide emissions. On-road emissions accounted for 41.1% of overall emissions and is the largest contributing sector to overall emissions.

***TABLE 3-1: GHG EMISSIONS INVENTORY FOR BASELINE YEAR 2005***

| *Sector* | *Metric Tons $CO_2e$* | *% Change* |
|---|---|---|
| Residential | 131,409 | 21.6 |
| Commercial and Industrial | 146,236 | 24.0 |
| Industrial Specific | 0 | -- |
| On-Road Transportation | 249,991 | 41.1 |
| Off-road Vehicle Use | 29,270 | 4.8 |
| Waste | 14,147 | 2.3 |
| Wastewater Treatment | 6,734 | 1.1 |
| Water-Related | 2,514 | 0.4 |
| Agriculture | 390 | 0.1 |
| High GWP GHGs | 28,318 | 4.7 |
| **Total** | **609,009** | **100.0** |

*SOURCE: GREENHOUSE GAS EMISSIONS INVENTORY FOR SACRAMENTO COUNTY (2009)*

Total GHG emissions in 2005 for the City of Folsom amounted to 609,009 Metric Tons (MT) CO2e, the third-largest incorporated city contributor in Sacramento County. Electricity, natural gas, gasoline, and diesel are the largest overall contributors to GHG emissions in the City of Folsom.

## 3.2 REGULATORY SETTING

### FEDERAL

#### Clean Air Act

The Federal Clean Air Act (FCAA) was first signed into law in 1970. In 1977, and again in 1990, the law was substantially amended. The FCAA is the foundation for a national air pollution control effort, and it is composed of the following basic elements: NAAQS for criteria air pollutants, hazardous air pollutant standards, state attainment plans, motor National Ambient Air Quality Standards (NAAQS) vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The EPA is responsible for administering the FCAA. The FCAA requires the EPA to set NAAQS for several problem air pollutants based on human health and welfare criteria. Two types of NAAQS

were established: primary standards, which protect public health, and secondary standards, which protect the public welfare from non-health-related adverse effects such as visibility reduction.

## Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards.

Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

## Energy Policy Act of 1992 (EPAct)

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

## Energy Policy Act of 2005

The Energy Policy Act of 2005 was signed into law on August 8, 2005. Generally, the act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for a clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

## Intermodal Surface Transportation Efficiency Act (ISTEA)

ISTEA (49 U.S.C. § 101 et seq.) promoted the development of intermodal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that metropolitan planning organizations (MPOs), such as SACOG, were to address

in developing transportation plans and programs, including some energy-related factors. To meet the ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values that were to guide transportation decisions in that metropolitan area. The planning process was then to address these policies. Another requirement was to consider the consistency of transportation planning with federal, state, and local energy goals. Through this requirement, energy consumption was expected to become a criterion, along with cost and other values that determine the best transportation solution.

## The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)

SAFETEA-LU (23 U.S.C. § 507), renewed the Transportation Equity Act for the 21st Century (TEA-21) of 1998 (23 U.S.C.; 49 U.S.C.) through FY 2009. SAFETEA-LU authorized the federal surface transportation programs for highways, highway safety, and transit. SAFETEA-LU addressed the many challenges facing our transportation system today—such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment—as well as laying the groundwork for addressing future challenges. SAFETEA-LU promoted more efficient and effective federal surface transportation programs by focusing on transportation issues of national significance, while giving state and local transportation decision makers more flexibility to solve transportation problems in their communities. SAFETEA-LU was extended in March of 2010 for nine months, and expired in December of the same year. In June 2012, SAFETEA-LU was replaced by the Moving Ahead for Progress in the 21st Century Act (MAP-21), which took effect October 1, 2012.

## Federal Climate Change Policy

According to the EPA, "the United States government has established a comprehensive policy to address climate change" that includes slowing the growth of emissions; strengthening science, technology, and institutions; and enhancing international cooperation. To implement this policy, "the Federal government is using voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science." The federal government's goal is to reduce the greenhouse gas (GHG) intensity (a measurement of GHG emissions per unit of economic activity) of the American economy by 18 percent over the 10-year period from 2002 to 2012. In addition, the EPA administers multiple programs that encourage voluntary GHG reductions, including "ENERGY STAR", "Climate Leaders", and Methane Voluntary Programs. However, as of this writing, there are no adopted federal plans, policies, regulations, or laws directly regulating GHG emissions.

## Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of $CO_2$ per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil

fuels and industrial greenhouse gases along with vehicle and engine manufacturers will report at the corporate level. An estimated 85% of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

## STATE

### Assembly Bill 1493

In response to AB 1493, CARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961), and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016. For passenger cars and light-duty trucks 3,750 pounds or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 pounds gross vehicle weight (GVW), GHG emissions are reduced approximately 24 percent between 2009 and 2016.

CARB requested a waiver of federal preemption of California's Greenhouse Gas Emissions Standards. The intent of the waiver is to allow California to enact emissions standards to reduce carbon dioxide and other greenhouse gas emissions from automobiles in accordance with the regulation amendments to the CCRs that fulfill the requirements of AB 1493. The EPA granted a waiver to California to implement its greenhouse gas emissions standards for cars.

### Assembly Bill 1007

Assembly Bill 1007, (Pavley, Chapter 371, Statutes of 2005) directed the CEC to prepare a plan to increase the use of alternative fuels in California. As a result, the CEC prepared the State Alternative Fuels Plan in consultation with the state, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce greenhouse gas emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

### Bioenergy Action Plan – Executive Order #S-06-06

Executive Order #S-06-06 establishes targets for the use and production of biofuels and biopower and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by

2010, 40 percent by 2020, and 75 percent by 2050. The executive order also calls for the state to meet a target for use of biomass electricity.

## California Executive Orders S-3-05 and S-20-06, and Assembly Bill 32

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80% below the 1990 levels by the year 2050.

In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

## Assembly Bill 32- Climate Change Scoping Plan

**2008 Climate Change Scoping Plan**: On December 11, 2008 ARB adopted its *Climate Change Scoping Plan* (2008 Scoping Plan), which functions as a roadmap of ARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. The 2008 Scoping Plan contains the main strategies California has implemented to reduce $CO_2e$ emissions by 169 million metric tons (MMT), or approximately 30 percent, from the state's projected 2020 emissions level of 596 MMT of $CO_2e$ under a business-as-usual scenario. (This is a reduction of 42 MMT $CO_2e$, or almost 10 percent, from 2002–2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.) The 2008 Scoping Plan also breaks down the amount of GHG emissions reductions ARB recommends for each emissions sector of the state's GHG inventory. The 2008 Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT $CO_2e$),
- the Low-Carbon Fuel Standard (15.0 MMT $CO_2e$),
- energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT $CO_2e$), and
- a renewable portfolio standard for electricity production (21.3 MMT $CO_2e$).

The CARB updated the Scoping Plan in 2013 (*First Update to the Scoping Plan*) and again in 2017 (the *Final Scoping Plan*). The 2013 Update built upon the initial Scoping Plan with new strategies and recommendations, and also set the groundwork to reach the long-term goals set forth by the state. The 2017 Update expands the scope of the plan further by focusing on the strategy for achieving the state's 2030 GHG target of 40 percent emissions reductions below 1990 levels (to achieve the target codified into law by SB 32).

## California Strategy to Reduce Petroleum Dependence (AB 2076)

In response to the requirements of AB 2076 (Chapter 936, Statutes of 2000), the CEC and the CARB developed a strategy to reduce petroleum dependence in California. The strategy, *Reducing California's Petroleum Dependence*, was adopted by the CEC and CARB in 2003. The strategy recommends that California reduce on-road gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future; the Governor and Legislature work to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and sport utility vehicles (SUVs); and increase the use of non- petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

## Climate Action Program at Caltrans

The California Department of Transportation, Business, Transportation, and Housing Agency, prepared a Climate Action Program in response to new regulatory directives. The goal of the Climate Action Program is to promote clean and energy efficient transportation, and provide guidance for mainstreaming energy and climate change issues into business operations. The overall approach to lower fuel consumption and $CO_2$ from transportation is twofold: (1) reduce congestion and improve efficiency of transportation systems through smart land use, operational improvements, and Intelligent Transportation Systems; and (2) institutionalize energy efficiency and GHG emission reduction measures and technology into planning, project development, operations, and maintenance of transportation facilities, fleets, buildings, and equipment.

The reasoning underlying the Climate Action Program is the conclusion that "the most effective approach to addressing GHG reduction, in the short-to-medium term, is strong technology policy and market mechanisms to encourage innovations. Rapid development and availability of alternative fuels and vehicles, increased efficiency in new cars and trucks (light and heavy duty), and super clean fuels are the most direct approach to reducing GHG emissions from motor vehicles (emission performance standards and fuel or carbon performance standards)."

## Governor's Low Carbon Fuel Standard (Executive Order #S-01-07)

Executive Order #S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through establishment of a Low Carbon Fuel Standard. The Low Carbon Fuel Standard is incorporated into the State Alternative Fuels Plan and is one of the proposed discrete early action GHG reduction measures identified by CARB pursuant to AB 32.

## Senate Bill 97 (SB 97)

Senate Bill 97 (Chapter 185, 2007) required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the State CEQA Guidelines for addressing greenhouse gas emissions. OPR prepared its recommended amendments to the State CEQA Guidelines to provide guidance to public agencies regarding the analysis and mitigation of greenhouse gas emissions and the effects of greenhouse gas emissions in draft CEQA documents. The Amendments became effective on March 18, 2010.

## Senate Bill 375

Sen. Bill No. 375 (Stats. 2008, ch. 728) (SB 375) was built on AB 32 (California's 2006 climate change law). SB 375's core provision is a requirement for regional transportation agencies to develop a Sustainable Communities Strategy (SCS) in order to reduce GHG emissions from passenger vehicles. The SCS is one component of the Regional Transportation Plan (RTP).

The SCS outlines the region's plan for combining transportation resources, such as roads and mass transit, with a realistic land use pattern, in order to meet a state target for reducing GHG emissions. The strategy must take into account the region's housing needs, transportation demands, and protection of resource and farmlands.

Additionally, SB 375 modified the state's Housing Element Law to achieve consistency between the land use pattern outlined in the SCS and the Regional Housing Needs Assessment allocation. The legislation also substantially improved cities' and counties' accountability for carrying out their housing element plans.

Finally, SB 375 amended the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) to ease the environmental review of developments that help reduce the growth of GHG emissions.

Established in 2002 under Senate Bill 1078, California's Renewables Portfolio Standard (RPS) was accelerated in 2006 under Senate Bill 107 by requiring that 20 percent of electricity retail sales be served by renewable energy resources by 2010. Subsequent recommendations in California energy policy reports advocated a goal of 33 percent by 2020, and on November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08 requiring that "...[a]ll retail sellers of electricity shall serve 33 percent of their load with renewable energy by 2020." Senate Bill X1-2 was signed by Governor Edmund G. Brown, Jr., in April 2011 setting the RPS target at 33% by 2020. This new RPS applied to all electricity retailers in the state including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities had to adopt the new RPS goals of 20 percent of retails sales from renewables by the end of 2013, 25 percent by the end of 2016, and the 33 percent requirement being met by the end of 2020. More recently, SB 100 (passed in September 2018) established an RPS of 60% by 2030 and 100% (zero-carbon) by 2045.

## Senate Bill 32 (SB 32)

Senate Bill 32, which passed into law in 2016, sets the target of reducing greenhouse gas emissions to 40 percent below the 1990 level by the year 2030. SB 32 extends the original set of greenhouse gas targets provided by the passage of AB 32 (the Global Warmings Solutions Act of 2006). This new target sets an aggressive goalpost, helping the State along its pathway to achieve its longer term goal of an 80 percent reduction in greenhouse gas emissions by the year 2050.

## California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards, was established in 1978 in response to a legislative mandate to reduce California's energy

consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. On January 1, 2010, the California Building Standards Commission adopted CALGreen and became the first state in the United States to adopt a statewide green building standards code. CALGreen requires new buildings to reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low pollutant-emitting materials.

### CEQA Guidelines Appendix F

In order to assure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. The goal of conserving energy implies the wise and efficient use of energy.

## LOCAL

### City of Folsom General Plan

The City of Folsom General Plan (2018) establishes the following goals and policies relative to greenhouse gases in the General Plan:

**Goal NCR 3.2** Improve the sustainability of the community through continued local efforts to reduce GHG emissions.

*Policy NCR 3.2.1* Community Greenhouse Gas Reductions: Reduce community GHG emissions by 15 percent below 2005 baseline levels by 2020, and further reduce community emissions by:

- 40 percent below the 2020 target by 2030;
- 51 percent below the 2020 target by 2040, and
- 80 percent below the 2020 target by 2050.

*Policy NCR 3.2.2* Municipal Greenhouse Gas Reductions: Reduce municipal GHG emissions by 15 percent below 2005 baseline levels by 2020, and further reduce municipal emissions by:

- 40 percent below the 2020 target by 2030;
- 51 percent below the 2020 target by 2040, and
- 80 percent below the 2020 target by 2050.

*Policy NCR 3.2.3* Greenhouse Gas Reduction in New Development: Reduce greenhouse gas emissions from new development by encouraging development that lowers vehicle miles traveled (VMT), and discouraging auto-dependent sprawl and dependence on the private automobile; promoting development that is compact, mixed-use, pedestrian friendly, and transit oriented; promoting energy-efficient building design and site planning; improving the

jobs/housing ratio; and other methods of reducing emissions while maintaining the balance of housing types Folsom is known for.

*Policy NCR 3.2.4* Additional GHG Emission Programs: Continue to evaluate the feasibility and effectiveness of new policies, programs, and regulations that contribute to achieving the City's long-term GHG emissions reduction goals (see Policies NCR 3.2.1 and 3.2.2).

*Policy NCR 3.2.5* Climate Change Assessment and Monitoring: Continue to assess and monitor performance of GHG emissions reduction efforts for 2020, 2030, and beyond, including progress toward meeting longer-term GHG emissions reduction goals for 2035 and 2050 by reporting on the City's progress annually, updating the GHG inventory and forecasts at least every five years, and preparing updates to the GHG Strategy in the General Plan, as appropriate; as well as assess and monitor the effects of climate change and associated levels of risk in order to plan a community that can adapt to changing climate conditions and be resilient to negative changes and impacts.

*Policy NCR 3.2.6* Coordination with SMAQMD: Coordinate with SMAQMD to ensure projects incorporate feasible mitigation measures to reduce GHG emissions and air pollution from both construction and operations, if not already provided for through project design.

*Policy NCR 3.2.7* Preference for Reduced-Emission Equipment: Require contractors to use reduced-emission equipment for City construction projects and contracts for services.

*Policy NCR 3.2.8* GHG Analysis Streamlining for Projects Consistent with the General Plan: Projects subject to environmental review under CEQA may be eligible for tiering and streamlining the analysis of GHG emissions, provided they are consistent with the GHG reduction measures included in the General Plan and EIR. The City may review such projects to determine whether the following criteria are met:

- Proposed project is consistent with the General Plan land use designation for the project site;
- Proposed project incorporates all applicable GHG reduction measures (documented in the Climate Change Technical Appendix to the General Plan EIR) as enforceable mitigation measures in the CEQA document prepared for the project; and,
- Proposed project clearly demonstrates the method, timing and process for which the project will comply with applicable GHG reduction measures and/or conditions of approval, (e.g., using a CAP/GHG reduction measures consistency checklist, mitigation monitoring and

reporting plan, or other mechanism for monitoring and enforcement as appropriate).

## 3.3 IMPACTS AND MITIGATION MEASURES

### GREENHOUSE GAS EMISSIONS THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, climate change-related impacts are considered significant if implementation of the proposed project would do any of the following:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The SMAQMD has the following greenhouse gas thresholds, as provided in the SMAQMD Thresholds of Significance Table (SMAQMD, 2015):

- Construction Phase: 1,100 MT/year
- Operational Phase: 1,100 MT/year

Additionally, if a project's emissions exceed either of these thresholds of significance, then the project emissions may also have a cumulative environmental impact.

For projects that exceed the SMAQMD's threshold of significance, SMAQMD advises that lead agencies implement all feasible mitigation to reduce GHG emissions.

### ENERGY CONSERVATION THRESHOLDS OF SIGNIFICANCE

Additionally, per Appendix F of the State CEQA Guidelines, the proposed project would result in a significant impact on energy use if it would:

- Result in significant adverse impacts related to Project energy requirements, energy use inefficiencies, and/or energy intensiveness of materials by amount and fuel type for each stage of the Project including construction, operations, maintenance, and/or removal;
- Result in significant adverse impacts on local and regional energy supplies and on requirements for additional capacity;
- Result in significant adverse impacts on peak and base period demands for electricity and other forms of energy;
- Fail to comply with existing energy standards;
- Result in significant adverse impacts on energy resources;
- Result in significant adverse impacts related to transportation energy use requirements of the project and use of transportation alternatives; or

- Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to energy conservation.

In order to determine whether or not the proposed project would result in a significant impact on energy use, this EIR includes an analysis of proposed project energy use, provided below.

## IMPACTS AND MITIGATION MEASURES

### Impact 3-1: Potential to generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment or potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases (less than significant)

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. Implementation of the proposed project would contribute to increases of GHG emissions that are associated with global climate change. Estimated GHG emissions attributable to future development would be primarily associated with increases of $CO_2$ and other GHG pollutants, such as methane ($CH_4$) and nitrous oxide ($N_2O$), from mobile sources and utility usage.

The proposed project's short-term construction-related and long-term operational GHG emissions were estimated using the California Emission Estimator Model (CalEEMod)™ (v.2016.3.2). CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Emissions are expressed in annual metric tons of $CO_2$ equivalent units of measure (i.e., MT $CO_2e$), based on the global warming potential of the individual pollutants. Chapter 2 (Air Quality) provides further detail on the construction phasing and parameters assumed for the purposes of modeling (including assumptions relating to demolition activities).

**Short-Term Construction GHG Emissions:** Estimated increases in GHG emissions associated with construction of the proposed project are summarized in Table 3-2.

***TABLE 3-2: CONSTRUCTION GHG EMISSIONS (UNMITIGATED METRIC TONS/YEAR)***

| | *Bio-$CO_2$* | *Non-Bio- $CO_2$* | *Total $CO_2$* | *$CH_4$* | *$N_2O$* | *$CO_2e$* |
|---|---|---|---|---|---|---|
| 2019 | 0 | 142.5 | 142.5 | <0.1 | 0 | 143.5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2020 | 0 | 352.7 | 352.7 | 0.1 | 0 | 354.5 |
| 2021 | 0 | 7.4 | 7.4 | <0.1 | 0 | 7.4 |
| **Maximum** | **0** | **352.7** | **352.7** | **0.1** | **0** | **354.5** |

*SOURCES: CALEEMOD (V.2016.3.2)*

As presented in the table, short-term construction emissions of GHG associated are estimated to be a maximum of 354.5 MT $CO_2e$ in a single year. Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change in the long-term. Emissions from construction are below the SMAQMD construction phase threshold of 1,100 MT $CO_2e$/year. Therefore, proposed project GHG during the construction phase of the proposed project would have a ***less than significant*** impact relative to this topic.

**Long-Term Operational GHG Emissions:** The long-term operational GHG emissions estimate for the proposed project incorporates the project's potential area source and vehicle emissions, and emissions associated with utility and water usage, and wastewater and solid waste generation. The modeling also reflects a loss of carbon sequestration from the loss of existing trees and vegetation; however, it does not reflect any benefits of carbon sequestration from the installation of new landscaping. As a conservative estimate, the loss of existing trees and vegetation was estimated to generate a one-time loss (from carbon sequestration) of approximately 17.2 MT $CO_2e$ (see Appendix C of this Air Quality and Greenhouse Gas Analysis for further detail)[1]. If amortized over a 30-year period, this loss represents an approximate loss of 0.5733 MT $CO_2e$/year. This loss is in addition to the proposed project unmitigated operational GHG emissions as provided in Table 3-3.

As described previously, the SMAQMD operational GHG threshold is 1,100 MT $CO_2e$/year. The proposed project unmitigated operational GHG emissions (excluding the emissions associated with the loss of carbon sequestration) is provided in Table 3-3.

***TABLE 3-3: OPERATIONAL GHG EMISSIONS (UNMITIGATED METRIC TONS/YEAR)***

| *Category* | *Bio-$CO_2$* | *Non-Bio- $CO_2$* | *Total $CO_2$* | *$CH_4$* | *$N_2O$* | *$CO_2e$* |
|---|---|---|---|---|---|---|
| Area | 0 | 1.6 | 1.6 | <0.1 | 0 | 1.7 |
| Energy | 0 | 187.5 | 187.5 | <0.1 | <0.1 | 188.4 |
| Mobile | 0 | 195.0 | 195.0 | <0.1 | 0 | 195.3 |
| Waste | 9.0 | 0 | 9.0 | 0.5 | 0 | 22.2 |
| Water | 2.2 | 13.1 | 15.3 | <0.1 | <0.1 | 17.0 |
| **Total** | **11.2** | **397.2** | **408.4** | **0.6** | **<0.1** | **424.5** |

*SOURCE: CALEEMOD (V.2016.3.2)*

As shown in Table 3-3, the proposed project's operational GHG emissions would equal approximately 424.5 MT $CO_2e$/year under the unmitigated scenario. If combined with the modeled estimate for the loss of carbon sequestration from existing trees and vegetation over a 30-year

[1] Note: for the purposes of modeling, it was assumed that approximately one-third of the site is currently "Forest Land" and the remaining two-thirds of the site is currently "Grassland". The proposed project was assumed to remove half of the existing "Forest Land" and three-quarters of the existing "Grassland" on the project site.

period, the proposed project's operational GHG emissions would equal approximately 425.0 MT $CO_2e$/year (424.5 + 0.5733 MT $CO_2e$/year) (note: these numbers are approximate due to rounding; see Appendix C of this Air Quality and Greenhouse Gas Analysis for further detail). This is less than the SMAQMD 1,100 MT $CO_2e$/year operational threshold. Therefore, proposed project GHG emissions during the operational phase of the proposed project would have a ***less than significant*** impact relative to this topic.

**Conclusion:** Short-term construction and long-term operational GHG emissions are subject to the SMAQMD GHG threshold of 1,100 MT $CO_2e$/year. Both operational and construction GHG emissions would be below this thresholds, as shown in Tables 3-2 and 3-3 (above). The proposed project would not hinder the State's ability to reach the GHG reduction target nor conflict with any applicable plan, policy, or regulation related to GHG reduction, and impacts related to GHG emissions and global climate change would be considered ***less than significant***.

## Impact 3.2: Project implementation may result in the inefficient, wasteful, or unnecessary use of energy resources (less than significant)

Appendix F of the State CEQA Guidelines requires consideration of the potentially significant energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient and unnecessary" energy usage (Public Resources Code Section 21100, subdivision [b][3]). According to Appendix F of the CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. In particular, the proposed project would be considered "wasteful, inefficient, and unnecessary" if it were to violate state and federal energy standards and/or result in significant adverse impacts related to project energy requirements, energy inefficiencies, energy intensiveness of materials, cause significant impacts on local and regional energy supplies or generate requirements for additional capacity, fail to comply with existing energy standards, otherwise result in significant adverse impacts on energy resources, or conflict or create an inconsistency with applicable plan, policy, or regulation.

The proposed project is primarily a residential development, with eight new apartment buildings, 96 residential units and 233 new parking spaces. Demolition would be required to remove an existing tennis court, swimming pool, leasing office, and some associated parking, driveway, and walkway areas. The amount of energy used at the residential uses within the project site would directly correlate to the number and size of residential units, the energy consumption of associated unit appliances, garage usage, and outdoor lighting, landscape maintenance, and other energy uses associated with project site activities. Other proposed project energy uses include fuel used by vehicle trips generated by the project during its construction and operation, and fuel used by off-road construction vehicles during construction. The following discussion provides calculated levels of energy use expected for the proposed Project, based on modelling (i.e. CalEEMod v.2016.3.2 and the California Air Resource Board's EMFAC2014). It should be noted that many of the assumptions provided by CalEEMod are conservative relative to the proposed project. Therefore, this discussion provides conservative estimates of proposed project emissions.

### *ELECTRICITY AND NATURAL GAS*

Electricity and natural gas used by the proposed project would be used primarily for residential housing end uses. Additionally, the energy required to pump water and wastewater to and within the project site is included under electricity usage. Total annual unmitigated electricity (kWh) and natural gas (kBTU) usage associated with the operation of the proposed project is shown in Table 3.4, below (as provided by CalEEMod).

***TABLE 3.4: PROJECT OPERATIONAL NATURAL GAS AND ELECTRICITY USAGE (UNMITIGATED SCENARIO)***

| *EMISSIONS* | *NATURAL GAS (KBTU/YEAR)* | *ELECTRICITY (KWH/YEAR)* |
|---|---|---|
| Apartments Low Rise | 1,161,480 | 431,447 |
| **Total** | **1,561,740** | **431,447** |

*SOURCE: CALEEMOD (V.2016.3.2)*

According to CalEEMod's *Appendix A: Calculation Details for CalEEMod*, CalEEMod uses the California Commercial End Use Survey (CEUS) database to develop energy intensity value for non-residential buildings. The energy use from residential land uses is calculated based on the Residential Appliance Saturation Survey (RASS). Similar to CEUS, this is a comprehensive energy use assessment that includes the end use for various climate zones in California.

### *ON-ROAD VEHICLES (OPERATION)*

The proposed project would generate vehicle trips during its operational phase. According to the traffic data provided for the proposed project, the proposed project would generate approximately 179 daily vehicle trips (Omni Means, 2017). In order to calculate operational on-road vehicle energy usage and emissions, default trip lengths generated by CalEEMod were used, which are based on the proposed project location and urbanization level parameters selected within CalEEMod (i.e. "Sacramento County" Air District and "Urban" urbanization level). These values are provided by the individual districts or use a default average for the state, depending on the location of the proposed project (ENVIRON, 2013). Based on default factors provided by CalEEMod, the weighted average distance per trip is assumed to be approximately 7.55 miles. Therefore, the proposed project would generate at total of approximately 1,351 average daily vehicle miles travelled (Average Daily VMT). Using fleet mix data provided by CalEEMod (v.2016.3.2), and Year 2018 gasoline and diesel MPG (miles per gallon) factors for individual vehicle classes as provided by EMFAC2014, De Novo derived weighted MPG factors of approximately 24.0 for gasoline and 12.6 for diesel. With this information, De Novo calculated that the unmitigated proposed project would generate vehicle trips that would use a total of approximately 53 gallons of gasoline and six gallons of diesel fuel per day, on average, or 19,353 gallons of gasoline and 2,326 annual gallons of diesel fuel per year.

### *ON-ROAD VEHICLES (CONSTRUCTION)*

The proposed project would also generate on-road vehicle trips during project construction (from construction workers and vendors). Estimates of vehicle fuel consumed were derived based on the assumed construction schedule, vehicle trip lengths and number of workers per construction phase as provided by CalEEMod, and Year 2018 gasoline MPG factors provided by EMFAC2014. For the

purposes of simplicity, it was assumed that all on-road worker vehicles generated by the construction phase of the project would use gasoline as a fuel source (as opposed to diesel fuel or alternative sources). Additionally, it was assumed that all on-road vendor trucks generated by the construction phase would use diesel fuel. Table 3.5, below, describes gasoline and diesel fuel used by on-road mobile sources during each phase of the construction schedule. As shown, the vast majority of on-road mobile vehicle fuel used during the construction of the proposed project would occur during the building construction phase. See Appendix D of this study for detailed calculations of on-road mobile fuel generated during the project construction period.

***TABLE 3.5: ON-ROAD MOBILE FUEL GENERATED BY PROJECT CONSTRUCTION ACTIVITIES – BY PHASE***

| *CONSTRUCTION PHASE* | *# OF DAYS* | *TOTAL DAILY WORKER TRIPS[(A)]* | *TOTAL DAILY VENDOR TRIPS[(A)]* | *GALLONS OF GASOLINE FUEL[(B)]* | *GALLONS OF DIESEL FUEL[(B)]* |
|---|---|---|---|---|---|
| Demolition | 20 | 15 | - | 128 | - |
| Site Preparation | 10 | 18 | - | 38 | - |
| Grading | 20 | 15 | - | 51 | - |
| Building Construction | 230 | 69 | 10 | 8,034 | 2,615 |
| Paving | 28 | 15 | - | 141 | - |
| Architectural Coating | 64 | 14 | - | 107 | - |
| **Total** | **352** | **131** | **10** | **8,499** | **2,615** |

*NOTE: [(A)] PROVIDED BY CALEEMOD. [(B)]SEE APPENDIX D FOR FURTHER DETAIL. NOTE: NUMBERS MAY NOT EXACTLY ADD UP DUE TO ROUNDING.*
*SOURCE: CALEEMOD (V.2016.3.2); EMFAC2014.*

### *OFF-ROAD VEHICLES (CONSTRUCTION)*

Off-road construction vehicles would use diesel fuel during the construction phase of the proposed project. A non-exhaustive list of off-road constructive vehicles that could be used during the construction phase of the proposed project includes: cranes, forklifts, generator sets, tractors, excavators, and dozers. It is assumed that the vast majority of $CO_2$ emissions generated by the off-road mobile vehicles during the construction phase of the proposed project would occur during the site preparation and grading phases. Based on the total amount of $CO_2$ emissions expected to be generated by the off-road mobile vehicles during these proposed project construction phases (as provided by the CalEEMod output), and a $CO_2$ to diesel fuel conversion factor (provided by the U.S. Energy Information Administration), it is estimated that the proposed project would use a total of approximately 7,876 gallons of diesel fuel for off-road construction vehicles during project construction. Detailed calculations are provided in Appendix D.

### *OTHER*

Proposed project landscape maintenance activities would generally require the use of fossil fuel (i.e. gasoline) energy. For example, lawn mowers require the use of fuel for power. As an approximation, it is estimated that gasoline-powered landscape care maintenance would occur 0.25 hours per week for each residential unit proposed. Given a total of 92 dwelling units, landscape maintenance would occur for 1,196 hours per year. With a conservative estimate of approximately 0.5 gallons of gasoline used per person-hour of landscape maintenance, the proposed project would require the use of approximately 598 gallons of gasoline per year to power landscape maintenance equipment for

residential uses. The energy used to power landscape maintenance equipment would not differ substantially from the energy required for landscape maintenance for similar types of projects.

The proposed project could also use other sources of energy not identified here. Examples of other energy sources include alternative and/or renewable energy (such as solar PV) and/or on-site stationary sources (such as on-site diesel generators) for electricity generation. However, these sources of energy are not currently planned to be utilized by the proposed project.

*CONCLUSION*

The proposed project would use energy resources for the operation of project buildings (i.e electricity and natural gas), for on-road vehicle trips (i.e. gasoline and diesel fuel) generated by the proposed project, and from off-road vehicles (i.e. diesel fuel). Each of these activities would require the use of energy resources. The proposed project would be responsible for conserving energy, to the extent feasible, and relies heavily on reducing per capita energy consumption to achieve this goal, including through Statewide and local measures.

The proposed project would be in compliance with all applicable federal, state, and local regulations regulating energy usage. For example, PG&E is responsible for the mix of energy resources used to provide electricity for its customers, and it is in the process of implementing the Statewide Renewable Portfolio Standard (RPS) to increase the proportion of renewable energy (e.g. solar and wind) within its energy portfolio. Based on this requirement, PG&E is expected to procure at least 33% of its electricity resources from renewable energy resources by 2020, and 60% by 2030. Other statewide measures, including those intended to improve the energy efficiency of the statewide passenger and heavy-duty truck vehicle fleet (e.g. the Pavley Bill and the Low Carbon Fuel Standard), would improve vehicle fuel economies, thereby conserving gasoline and diesel fuel. These energy savings would continue to accrue over time. Furthermore, as described previously, the incorporation of the mitigation measure described previously in this section would further reduce project energy. The proposed project would also be in compliance with the planning documents described previously within this section.

As a result, the proposed project would not result in any significant adverse impacts related to proposed project energy requirements, energy use inefficiencies, and/or the energy intensiveness of materials by amount and fuel type for each stage of the project including construction, operations, maintenance, and/or removal. PG&E, the electricity and natural gas provider to the site, maintains sufficient capacity to serve the proposed project. The proposed project would comply with all existing energy standards, including those established by the City of Folsom, and would not result in significant adverse impacts on energy resources. Although improvements to City's pedestrian, bicycle, and public transit systems would provide further opportunities for alternative transit, the proposed project would be linked closely with existing networks that, in large part, are sufficient for most residents of the proposed project and the City of Folsom as a whole. For these reasons, and others described previously, the proposed project would not be expected to cause an inefficient, wasteful, or unnecessary use of energy resources or exceed any threshold as described by Appendix F of the *CEQA Guidelines*. This is a ***less than significant*** impact.

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# SUMMER EMISSIONS (CALEEMOD)

# Canyon Terrace Apartments (City of Folsom)

**Sacramento County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 96.00 | Dwelling Unit | 6.00 | 96,000.00 | 256 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 3.5 | **Precipitation Freq (Days)** | 58 |
| **Climate Zone** | 6 | | | **Operational Year** | 2021 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on project size. Demolition split into two phases - one for the building, the other for the pool, courts, and parking lot.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Demolition -

Vehicle Trips - 1.95 trip rate/unit, as provided by the Omni-Means Traffic Report

Sequestration -

Land Use Change - Assumed that approximately two thirds (4 acres) of existing site is 'Grassland' vegetation type, and one third 'Forest Land - Trees' (2 acres). Project would remove up to one acre of 'Forest Land - Trees' and three acres of 'Grassland'.

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 20.00 | 64.00 |
| tblConstructionPhase | NumDays | 20.00 | 28.00 |
| tblLandUseChange | CO2peracre | 111.00 | 4.31 |
| tblTripsAndVMT | HaulingTripNumber | 5.00 | 0.00 |
| tblTripsAndVMT | HaulingTripNumber | 138.00 | 0.00 |
| tblVehicleTrips | ST_TR | 7.16 | 1.95 |
| tblVehicleTrips | SU_TR | 6.07 | 1.95 |
| tblVehicleTrips | WD_TR | 6.59 | 1.95 |

## 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 | | | | | |
| 2019 | 4.4194 | 45.6191 | 22.7129 | 0.0400 | 18.2032 | 2.3913 | 20.5945 | 9.9670 | 2.2000 | 12.1670 | 0.0000 | 3,939.6956 | 3,939.6956 | 1.1963 | 0.0000 | 3,966.3380 |
| 2020 | 19.0743 | 20.4420 | 19.3965 | 0.0349 | 0.5851 | 1.1264 | 1.7115 | 0.1566 | 1.0592 | 1.2157 | 0.0000 | 3,364.2424 | 3,364.2424 | 0.7174 | 0.0000 | 3,380.5795 |
| 2021 | 19.0468 | 1.5556 | 2.2364 | 4.0500e-003 | 0.1065 | 0.0948 | 0.2013 | 0.0283 | 0.0948 | 0.1230 | 0.0000 | 388.7551 | 388.7551 | 0.0222 | 0.0000 | 389.3094 |
| **Maximum** | **19.0743** | **45.6191** | **22.7129** | **0.0400** | **18.2032** | **2.3913** | **20.5945** | **9.9670** | **2.2000** | **12.1670** | **0.0000** | **3,939.6956** | **3,939.6956** | **1.1963** | **0.0000** | **3,966.3380** |

### 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 | | | | | |
| 2019 | 4.4194 | 45.6191 | 22.7129 | 0.0400 | 18.2032 | 2.3913 | 20.5945 | 9.9670 | 2.2000 | 12.1670 | 0.0000 | 3,939.6956 | 3,939.6956 | 1.1963 | 0.0000 | 3,966.3379 |
| 2020 | 19.0743 | 20.4420 | 19.3965 | 0.0349 | 0.5851 | 1.1264 | 1.7115 | 0.1566 | 1.0592 | 1.2157 | 0.0000 | 3,364.2424 | 3,364.2424 | 0.7174 | 0.0000 | 3,380.5795 |
| 2021 | 19.0468 | 1.5556 | 2.2364 | 4.0500e-003 | 0.1065 | 0.0948 | 0.2013 | 0.0283 | 0.0948 | 0.1230 | 0.0000 | 388.7551 | 388.7551 | 0.0222 | 0.0000 | 389.3094 |
| **Maximum** | **19.0743** | **45.6191** | **22.7129** | **0.0400** | **18.2032** | **2.3913** | **20.5945** | **9.9670** | **2.2000** | **12.1670** | **0.0000** | **3,939.6956** | **3,939.6956** | **1.1963** | **0.0000** | **3,966.3379** |

Canyon Terrace Apartments (City of Folsom) - Sacramento County, 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** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **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 | 2.6240 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | 0.0000 | 14.2610 | 14.2610 | 0.0138 | 0.0000 | 14.6065 |
| Energy | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| Mobile | 0.4082 | 1.3399 | 4.3211 | 0.0126 | 1.0192 | 0.0104 | 1.0296 | 0.2725 | 9.7700e-003 | 0.2823 | | 1,278.1453 | 1,278.1453 | 0.0597 | | 1,279.6382 |
| **Total** | **3.0666** | **1.7248** | **12.3832** | **0.0149** | **1.0192** | **0.0779** | **1.0971** | **0.2725** | **0.0772** | **0.3497** | **0.0000** | **1,666.7745** | **1,666.7745** | **0.0807** | **6.8600e-003** | **1,670.8375** |

### 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 | 2.6240 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | 0.0000 | 14.2610 | 14.2610 | 0.0138 | 0.0000 | 14.6065 |
| Energy | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| Mobile | 0.4082 | 1.3399 | 4.3211 | 0.0126 | 1.0192 | 0.0104 | 1.0296 | 0.2725 | 9.7700e-003 | 0.2823 | | 1,278.1453 | 1,278.1453 | 0.0597 | | 1,279.6382 |
| **Total** | **3.0666** | **1.7248** | **12.3832** | **0.0149** | **1.0192** | **0.0779** | **1.0971** | **0.2725** | **0.0772** | **0.3497** | **0.0000** | **1,666.7745** | **1,666.7745** | **0.0807** | **6.8600e-003** | **1,670.8375** |

| | ROG | NOx | 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** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition (Building) | Demolition | 9/1/2019 | 9/27/2019 | 5 | 20 | |
| 2 | Demolition (Pool, Courts, Parking) | Demolition | 9/28/2019 | 10/25/2019 | 5 | 20 | |
| 3 | Site Preparation | Site Preparation | 10/26/2019 | 11/8/2019 | 5 | 10 | |
| 4 | Grading | Grading | 11/9/2019 | 12/6/2019 | 5 | 20 | |
| 5 | Building Construction | Building Construction | 12/7/2019 | 10/23/2020 | 5 | 230 | |
| 6 | Paving | Paving | 10/24/2020 | 12/2/2020 | 5 | 28 | |
| 7 | Architectural Coating | Architectural Coating | 12/3/2020 | 3/2/2021 | 5 | 64 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 10**

**Acres of Paving: 0**

**Residential Indoor: 194,400; Residential Outdoor: 64,800; 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 |
|---|---|---|---|---|---|
| Demolition (Building) | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition (Building) | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition (Building) | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Demolition (Pool, Courts, Parking) | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition (Pool, Courts, Parking) | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition (Pool, Courts, Parking) | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 1 | 8.00 | 158 | 0.38 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 3 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition (Building) | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Demolition (Pool, Courts, Parking) | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 18.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 9 | 69.00 | 10.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 14.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition (Building) - 2019

**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 | | | | | 0.0616 | 0.0000 | 0.0616 | 9.3200e-003 | 0.0000 | 9.3200e-003 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.5134 | 35.7830 | 22.0600 | 0.0388 | | 1.7949 | 1.7949 | | 1.6697 | 1.6697 | | 3,816.8994 | 3,816.8994 | 1.0618 | | 3,843.4451 |
| **Total** | **3.5134** | **35.7830** | **22.0600** | **0.0388** | **0.0616** | **1.7949** | **1.8565** | **9.3200e-003** | **1.6697** | **1.6790** | | **3,816.8994** | **3,816.8994** | **1.0618** | | **3,843.4451** |

## 3.2 Demolition (Building) - 2019

### 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 | 0.0703 | 0.0386 | 0.5416 | 1.2300e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 122.7963 | 122.7963 | 3.8600e-003 | | 122.8929 |
| **Total** | **0.0703** | **0.0386** | **0.5416** | **1.2300e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **122.7963** | **122.7963** | **3.8600e-003** | | **122.8929** |

### 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 | | | | | 0.0616 | 0.0000 | 0.0616 | 9.3200e-003 | 0.0000 | 9.3200e-003 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.5134 | 35.7830 | 22.0600 | 0.0388 | | 1.7949 | 1.7949 | | 1.6697 | 1.6697 | 0.0000 | 3,816.8994 | 3,816.8994 | 1.0618 | | 3,843.4451 |
| **Total** | **3.5134** | **35.7830** | **22.0600** | **0.0388** | **0.0616** | **1.7949** | **1.8565** | **9.3200e-003** | **1.6697** | **1.6790** | **0.0000** | **3,816.8994** | **3,816.8994** | **1.0618** | | **3,843.4451** |

## 3.2 Demolition (Building) - 2019

**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 | 0.0703 | 0.0386 | 0.5416 | 1.2300e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 122.7963 | 122.7963 | 3.8600e-003 | | 122.8929 |
| **Total** | **0.0703** | **0.0386** | **0.5416** | **1.2300e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **122.7963** | **122.7963** | **3.8600e-003** | | **122.8929** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

**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 | | | | | 1.5595 | 0.0000 | 1.5595 | 0.2361 | 0.0000 | 0.2361 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.5134 | 35.7830 | 22.0600 | 0.0388 | | 1.7949 | 1.7949 | | 1.6697 | 1.6697 | | 3,816.8994 | 3,816.8994 | 1.0618 | | 3,843.4451 |
| **Total** | **3.5134** | **35.7830** | **22.0600** | **0.0388** | **1.5595** | **1.7949** | **3.3544** | **0.2361** | **1.6697** | **1.9058** | | **3,816.8994** | **3,816.8994** | **1.0618** | | **3,843.4451** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

### 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 | 0.0703 | 0.0386 | 0.5416 | 1.2300e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 122.7963 | 122.7963 | 3.8600e-003 | | 122.8929 |
| **Total** | **0.0703** | **0.0386** | **0.5416** | **1.2300e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **122.7963** | **122.7963** | **3.8600e-003** | | **122.8929** |

### 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 | | | | | 1.5595 | 0.0000 | 1.5595 | 0.2361 | 0.0000 | 0.2361 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.5134 | 35.7830 | 22.0600 | 0.0388 | | 1.7949 | 1.7949 | | 1.6697 | 1.6697 | 0.0000 | 3,816.8994 | 3,816.8994 | 1.0618 | | 3,843.4451 |
| **Total** | **3.5134** | **35.7830** | **22.0600** | **0.0388** | **1.5595** | **1.7949** | **3.3544** | **0.2361** | **1.6697** | **1.9058** | **0.0000** | **3,816.8994** | **3,816.8994** | **1.0618** | | **3,843.4451** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

**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 | 0.0703 | 0.0386 | 0.5416 | 1.2300e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 122.7963 | 122.7963 | 3.8600e-003 | | 122.8929 |
| **Total** | **0.0703** | **0.0386** | **0.5416** | **1.2300e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **122.7963** | **122.7963** | **3.8600e-003** | | **122.8929** |

## 3.4 Site Preparation - 2019

**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 | 4.3350 | 45.5727 | 22.0630 | 0.0380 | | 2.3904 | 2.3904 | | 2.1991 | 2.1991 | | 3,766.4529 | 3,766.4529 | 1.1917 | | 3,796.2445 |
| **Total** | **4.3350** | **45.5727** | **22.0630** | **0.0380** | **18.0663** | **2.3904** | **20.4566** | **9.9307** | **2.1991** | **12.1298** | | **3,766.4529** | **3,766.4529** | **1.1917** | | **3,796.2445** |

## 3.4 Site Preparation - 2019

### 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 | 0.0843 | 0.0463 | 0.6499 | 1.4800e-003 | 0.1369 | 9.8000e-004 | 0.1379 | 0.0363 | 9.0000e-004 | 0.0372 | | 147.3555 | 147.3555 | 4.6400e-003 | | 147.4714 |
| **Total** | **0.0843** | **0.0463** | **0.6499** | **1.4800e-003** | **0.1369** | **9.8000e-004** | **0.1379** | **0.0363** | **9.0000e-004** | **0.0372** | | **147.3555** | **147.3555** | **4.6400e-003** | | **147.4714** |

### 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 | | | | | 18.0663 | 0.0000 | 18.0663 | 9.9307 | 0.0000 | 9.9307 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.3350 | 45.5727 | 22.0630 | 0.0380 | | 2.3904 | 2.3904 | | 2.1991 | 2.1991 | 0.0000 | 3,766.4529 | 3,766.4529 | 1.1917 | | 3,796.2445 |
| **Total** | **4.3350** | **45.5727** | **22.0630** | **0.0380** | **18.0663** | **2.3904** | **20.4566** | **9.9307** | **2.1991** | **12.1298** | **0.0000** | **3,766.4529** | **3,766.4529** | **1.1917** | | **3,796.2445** |

## 3.4 Site Preparation - 2019

**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 | 0.0843 | 0.0463 | 0.6499 | 1.4800e-003 | 0.1369 | 9.8000e-004 | 0.1379 | 0.0363 | 9.0000e-004 | 0.0372 | | 147.3555 | 147.3555 | 4.6400e-003 | | 147.4714 |
| **Total** | **0.0843** | **0.0463** | **0.6499** | **1.4800e-003** | **0.1369** | **9.8000e-004** | **0.1379** | **0.0363** | **9.0000e-004** | **0.0372** | | **147.3555** | **147.3555** | **4.6400e-003** | | **147.4714** |

## 3.5 Grading - 2019

**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 | | | | | 6.5523 | 0.0000 | 6.5523 | 3.3675 | 0.0000 | 3.3675 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.5805 | 28.3480 | 16.2934 | 0.0297 | | 1.3974 | 1.3974 | | 1.2856 | 1.2856 | | 2,936.8068 | 2,936.8068 | 0.9292 | | 2,960.0361 |
| **Total** | **2.5805** | **28.3480** | **16.2934** | **0.0297** | **6.5523** | **1.3974** | **7.9497** | **3.3675** | **1.2856** | **4.6531** | | **2,936.8068** | **2,936.8068** | **0.9292** | | **2,960.0361** |

## 3.5 Grading - 2019

### 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 | 0.0703 | 0.0386 | 0.5416 | 1.2300e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 122.7963 | 122.7963 | 3.8600e-003 | | 122.8929 |
| **Total** | **0.0703** | **0.0386** | **0.5416** | **1.2300e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **122.7963** | **122.7963** | **3.8600e-003** | | **122.8929** |

### 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 | | | | | 6.5523 | 0.0000 | 6.5523 | 3.3675 | 0.0000 | 3.3675 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.5805 | 28.3480 | 16.2934 | 0.0297 | | 1.3974 | 1.3974 | | 1.2856 | 1.2856 | 0.0000 | 2,936.8068 | 2,936.8068 | 0.9292 | | 2,960.0361 |
| **Total** | **2.5805** | **28.3480** | **16.2934** | **0.0297** | **6.5523** | **1.3974** | **7.9497** | **3.3675** | **1.2856** | **4.6531** | **0.0000** | **2,936.8068** | **2,936.8068** | **0.9292** | | **2,960.0361** |

## 3.5 Grading - 2019

**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 | 0.0703 | 0.0386 | 0.5416 | 1.2300e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 122.7963 | 122.7963 | 3.8600e-003 | | 122.8929 |
| **Total** | **0.0703** | **0.0386** | **0.5416** | **1.2300e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **122.7963** | **122.7963** | **3.8600e-003** | | **122.8929** |

## 3.6 Building Construction - 2019

**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 | 2.3612 | 21.0788 | 17.1638 | 0.0269 | | 1.2899 | 1.2899 | | 1.2127 | 1.2127 | | 2,591.5802 | 2,591.5802 | 0.6313 | | 2,607.3635 |
| **Total** | **2.3612** | **21.0788** | **17.1638** | **0.0269** | | **1.2899** | **1.2899** | | **1.2127** | **1.2127** | | **2,591.5802** | **2,591.5802** | **0.6313** | | **2,607.3635** |

## 3.6 Building Construction - 2019

### 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 | 0.0473 | 1.1978 | 0.3576 | 2.5100e-003 | 0.0602 | 8.6400e-003 | 0.0688 | 0.0173 | 8.2700e-003 | 0.0256 | | 265.2509 | 265.2509 | 0.0159 | | 265.6494 |
| Worker | 0.3233 | 0.1776 | 2.4913 | 5.6800e-003 | 0.5249 | 3.7400e-003 | 0.5286 | 0.1392 | 3.4500e-003 | 0.1427 | | 564.8628 | 564.8628 | 0.0178 | | 565.3072 |
| **Total** | **0.3706** | **1.3754** | **2.8490** | **8.1900e-003** | **0.5851** | **0.0124** | **0.5975** | **0.1566** | **0.0117** | **0.1683** | | **830.1137** | **830.1137** | **0.0337** | | **830.9566** |

### 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 | 2.3612 | 21.0788 | 17.1638 | 0.0269 | | 1.2899 | 1.2899 | | 1.2127 | 1.2127 | 0.0000 | 2,591.5802 | 2,591.5802 | 0.6313 | | 2,607.3635 |
| **Total** | **2.3612** | **21.0788** | **17.1638** | **0.0269** | | **1.2899** | **1.2899** | | **1.2127** | **1.2127** | **0.0000** | **2,591.5802** | **2,591.5802** | **0.6313** | | **2,607.3635** |

## 3.6 Building Construction - 2019

**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 | 0.0473 | 1.1978 | 0.3576 | 2.5100e-003 | 0.0602 | 8.6400e-003 | 0.0688 | 0.0173 | 8.2700e-003 | 0.0256 | | 265.2509 | 265.2509 | 0.0159 | | 265.6494 |
| Worker | 0.3233 | 0.1776 | 2.4913 | 5.6800e-003 | 0.5249 | 3.7400e-003 | 0.5286 | 0.1392 | 3.4500e-003 | 0.1427 | | 564.8628 | 564.8628 | 0.0178 | | 565.3072 |
| **Total** | **0.3706** | **1.3754** | **2.8490** | **8.1900e-003** | **0.5851** | **0.0124** | **0.5975** | **0.1566** | **0.0117** | **0.1683** | | **830.1137** | **830.1137** | **0.0337** | | **830.9566** |

## 3.6 Building Construction - 2020

**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 | 2.1198 | 19.1860 | 16.8485 | 0.0269 | | 1.1171 | 1.1171 | | 1.0503 | 1.0503 | | 2,553.0631 | 2,553.0631 | 0.6229 | | 2,568.6345 |
| **Total** | **2.1198** | **19.1860** | **16.8485** | **0.0269** | | **1.1171** | **1.1171** | | **1.0503** | **1.0503** | | **2,553.0631** | **2,553.0631** | **0.6229** | | **2,568.6345** |

## 3.6 Building Construction - 2020

### 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 | 0.0377 | 1.0980 | 0.2951 | 2.4900e-003 | 0.0602 | 5.7200e-003 | 0.0659 | 0.0173 | 5.4800e-003 | 0.0228 | | 263.6554 | 263.6554 | 0.0149 | | 264.0289 |
| Worker | 0.2975 | 0.1579 | 2.2529 | 5.5000e-003 | 0.5249 | 3.6500e-003 | 0.5285 | 0.1392 | 3.3600e-003 | 0.1426 | | 547.5239 | 547.5239 | 0.0157 | | 547.9161 |
| **Total** | **0.3352** | **1.2559** | **2.5480** | **7.9900e-003** | **0.5851** | **9.3700e-003** | **0.5944** | **0.1566** | **8.8400e-003** | **0.1654** | | **811.1794** | **811.1794** | **0.0306** | | **811.9450** |

### 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 | 2.1198 | 19.1860 | 16.8485 | 0.0269 | | 1.1171 | 1.1171 | | 1.0503 | 1.0503 | 0.0000 | 2,553.0631 | 2,553.0631 | 0.6229 | | 2,568.6345 |
| **Total** | **2.1198** | **19.1860** | **16.8485** | **0.0269** | | **1.1171** | **1.1171** | | **1.0503** | **1.0503** | **0.0000** | **2,553.0631** | **2,553.0631** | **0.6229** | | **2,568.6345** |

## 3.6 Building Construction - 2020

**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 | 0.0377 | 1.0980 | 0.2951 | 2.4900e-003 | 0.0602 | 5.7200e-003 | 0.0659 | 0.0173 | 5.4800e-003 | 0.0228 | | 263.6554 | 263.6554 | 0.0149 | | 264.0289 |
| Worker | 0.2975 | 0.1579 | 2.2529 | 5.5000e-003 | 0.5249 | 3.6500e-003 | 0.5285 | 0.1392 | 3.3600e-003 | 0.1426 | | 547.5239 | 547.5239 | 0.0157 | | 547.9161 |
| **Total** | **0.3352** | **1.2559** | **2.5480** | **7.9900e-003** | **0.5851** | **9.3700e-003** | **0.5944** | **0.1566** | **8.8400e-003** | **0.1654** | | **811.1794** | **811.1794** | **0.0306** | | **811.9450** |

## 3.7 Paving - 2020

**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 | 1.3566 | 14.0656 | 14.6521 | 0.0228 | | 0.7528 | 0.7528 | | 0.6926 | 0.6926 | | 2,207.7334 | 2,207.7334 | 0.7140 | | 2,225.5841 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.3566** | **14.0656** | **14.6521** | **0.0228** | | **0.7528** | **0.7528** | | **0.6926** | **0.6926** | | **2,207.7334** | **2,207.7334** | **0.7140** | | **2,225.5841** |

## 3.7 Paving - 2020

### 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 | 0.0647 | 0.0343 | 0.4898 | 1.2000e-003 | 0.1141 | 7.9000e-004 | 0.1149 | 0.0303 | 7.3000e-004 | 0.0310 | | 119.0269 | 119.0269 | 3.4100e-003 | | 119.1122 |
| **Total** | **0.0647** | **0.0343** | **0.4898** | **1.2000e-003** | **0.1141** | **7.9000e-004** | **0.1149** | **0.0303** | **7.3000e-004** | **0.0310** | | **119.0269** | **119.0269** | **3.4100e-003** | | **119.1122** |

### 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 | 1.3566 | 14.0656 | 14.6521 | 0.0228 | | 0.7528 | 0.7528 | | 0.6926 | 0.6926 | 0.0000 | 2,207.7334 | 2,207.7334 | 0.7140 | | 2,225.5841 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.3566** | **14.0656** | **14.6521** | **0.0228** | | **0.7528** | **0.7528** | | **0.6926** | **0.6926** | **0.0000** | **2,207.7334** | **2,207.7334** | **0.7140** | | **2,225.5841** |

## 3.7 Paving - 2020

**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 | 0.0647 | 0.0343 | 0.4898 | 1.2000e-003 | 0.1141 | 7.9000e-004 | 0.1149 | 0.0303 | 7.3000e-004 | 0.0310 | | 119.0269 | 119.0269 | 3.4100e-003 | | 119.1122 |
| **Total** | **0.0647** | **0.0343** | **0.4898** | **1.2000e-003** | **0.1141** | **7.9000e-004** | **0.1149** | **0.0303** | **7.3000e-004** | **0.0310** | | **119.0269** | **119.0269** | **3.4100e-003** | | **119.1122** |

## 3.8 Architectural Coating - 2020

**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 | 18.7718 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2422 | 1.6838 | 1.8314 | 2.9700e-003 | | 0.1109 | 0.1109 | | 0.1109 | 0.1109 | | 281.4481 | 281.4481 | 0.0218 | | 281.9928 |
| **Total** | **19.0139** | **1.6838** | **1.8314** | **2.9700e-003** | | **0.1109** | **0.1109** | | **0.1109** | **0.1109** | | **281.4481** | **281.4481** | **0.0218** | | **281.9928** |

## 3.8 Architectural Coating - 2020

### 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 | 0.0604 | 0.0320 | 0.4571 | 1.1200e-003 | 0.1065 | 7.4000e-004 | 0.1072 | 0.0283 | 6.8000e-004 | 0.0289 | | 111.0918 | 111.0918 | 3.1800e-003 | | 111.1714 |
| **Total** | **0.0604** | **0.0320** | **0.4571** | **1.1200e-003** | **0.1065** | **7.4000e-004** | **0.1072** | **0.0283** | **6.8000e-004** | **0.0289** | | **111.0918** | **111.0918** | **3.1800e-003** | | **111.1714** |

### 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 | 18.7718 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2422 | 1.6838 | 1.8314 | 2.9700e-003 | | 0.1109 | 0.1109 | | 0.1109 | 0.1109 | 0.0000 | 281.4481 | 281.4481 | 0.0218 | | 281.9928 |
| **Total** | **19.0139** | **1.6838** | **1.8314** | **2.9700e-003** | | **0.1109** | **0.1109** | | **0.1109** | **0.1109** | **0.0000** | **281.4481** | **281.4481** | **0.0218** | | **281.9928** |

## 3.8 Architectural Coating - 2020

**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 | 0.0604 | 0.0320 | 0.4571 | 1.1200e-003 | 0.1065 | 7.4000e-004 | 0.1072 | 0.0283 | 6.8000e-004 | 0.0289 | | 111.0918 | 111.0918 | 3.1800e-003 | | 111.1714 |
| **Total** | **0.0604** | **0.0320** | **0.4571** | **1.1200e-003** | **0.1065** | **7.4000e-004** | **0.1072** | **0.0283** | **6.8000e-004** | **0.0289** | | **111.0918** | **111.0918** | **3.1800e-003** | | **111.1714** |

## 3.8 Architectural Coating - 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 | | | | | |
| Archit. Coating | 18.7718 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | | 281.4481 | 281.4481 | 0.0193 | | 281.9309 |
| **Total** | **18.9907** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | | **281.4481** | **281.4481** | **0.0193** | | **281.9309** |

## 3.8 Architectural Coating - 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 | 0.0561 | 0.0287 | 0.4188 | 1.0800e-003 | 0.1065 | 7.2000e-004 | 0.1072 | 0.0283 | 6.6000e-004 | 0.0289 | | 107.3071 | 107.3071 | 2.8600e-003 | | 107.3785 |
| **Total** | **0.0561** | **0.0287** | **0.4188** | **1.0800e-003** | **0.1065** | **7.2000e-004** | **0.1072** | **0.0283** | **6.6000e-004** | **0.0289** | | **107.3071** | **107.3071** | **2.8600e-003** | | **107.3785** |

### 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 | 18.7718 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | 0.0000 | 281.4481 | 281.4481 | 0.0193 | | 281.9309 |
| **Total** | **18.9907** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | **0.0000** | **281.4481** | **281.4481** | **0.0193** | | **281.9309** |

## 3.8 Architectural Coating - 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 | 0.0561 | 0.0287 | 0.4188 | 1.0800e-003 | 0.1065 | 7.2000e-004 | 0.1072 | 0.0283 | 6.6000e-004 | 0.0289 | | 107.3071 | 107.3071 | 2.8600e-003 | | 107.3785 |
| **Total** | **0.0561** | **0.0287** | **0.4188** | **1.0800e-003** | **0.1065** | **7.2000e-004** | **0.1072** | **0.0283** | **6.6000e-004** | **0.0289** | | **107.3071** | **107.3071** | **2.8600e-003** | | **107.3785** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | 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 | 0.4082 | 1.3399 | 4.3211 | 0.0126 | 1.0192 | 0.0104 | 1.0296 | 0.2725 | 9.7700e-003 | 0.2823 | | 1,278.1453 | 1,278.1453 | 0.0597 | | 1,279.6382 |
| Unmitigated | 0.4082 | 1.3399 | 4.3211 | 0.0126 | 1.0192 | 0.0104 | 1.0296 | 0.2725 | 9.7700e-003 | 0.2823 | | 1,278.1453 | 1,278.1453 | 0.0597 | | 1,279.6382 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 187.20 | 187.20 | 187.20 | 480,376 | 480,376 |
| Total | 187.20 | 187.20 | 187.20 | 480,376 | 480,376 |

## 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 |
| Apartments Low Rise | 10.00 | 5.00 | 6.50 | 46.50 | 12.50 | 41.00 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.555851 | 0.039752 | 0.205040 | 0.120748 | 0.020349 | 0.005402 | 0.018507 | 0.022668 | 0.002052 | 0.002157 | 0.005939 | 0.000618 | 0.000915 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | 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 | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| NaturalGas Unmitigated | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |

## 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 | | | | | |
| Apartments Low Rise | 3182.13 | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| **Total** | | **0.0343** | **0.2933** | **0.1248** | **1.8700e-003** | | **0.0237** | **0.0237** | | **0.0237** | **0.0237** | | **374.3681** | **374.3681** | **7.1800e-003** | **6.8600e-003** | **376.5928** |

## 5.2 Energy by Land Use - NaturalGas

**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 | | | | | |
| Apartments Low Rise | 3.18213 | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| **Total** | | **0.0343** | **0.2933** | **0.1248** | **1.8700e-003** | | **0.0237** | **0.0237** | | **0.0237** | **0.0237** | | **374.3681** | **374.3681** | **7.1800e-003** | **6.8600e-003** | **376.5928** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | 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 | 2.6240 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | 0.0000 | 14.2610 | 14.2610 | 0.0138 | 0.0000 | 14.6065 |
| Unmitigated | 2.6240 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | 0.0000 | 14.2610 | 14.2610 | 0.0138 | 0.0000 | 14.6065 |

## 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 | 0.3292 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 2.0544 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.2405 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | | 14.2610 | 14.2610 | 0.0138 | | 14.6065 |
| **Total** | **2.6240** | **0.0916** | **7.9373** | **4.2000e-004** | | **0.0438** | **0.0438** | | **0.0438** | **0.0438** | **0.0000** | **14.2610** | **14.2610** | **0.0138** | **0.0000** | **14.6065** |

## 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 | 0.3292 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 2.0544 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.2405 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | | 14.2610 | 14.2610 | 0.0138 | | 14.6065 |
| **Total** | **2.6240** | **0.0916** | **7.9373** | **4.2000e-004** | | **0.0438** | **0.0438** | | **0.0438** | **0.0438** | **0.0000** | **14.2610** | **14.2610** | **0.0138** | **0.0000** | **14.6065** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

# 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

# WINTER EMISSIONS (CALEEMOD)

# Canyon Terrace Apartments (City of Folsom)

**Sacramento County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 96.00 | Dwelling Unit | 6.00 | 96,000.00 | 256 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 3.5 | **Precipitation Freq (Days)** | 58 |
| **Climate Zone** | 6 | | | **Operational Year** | 2021 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on project size. Demolition split into two phases - one for the building, the other for the pool, courts, and parking lot.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Demolition -

Vehicle Trips - 1.95 trip rate/unit, as provided by the Omni-Means Traffic Report

Sequestration -

Land Use Change - Assumed that approximately two thirds (4 acres) of existing site is 'Grassland' vegetation type, and one third 'Forest Land - Trees' (2 acres). Project would remove up to one acre of 'Forest Land - Trees' and three acres of 'Grassland'.

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 20.00 | 64.00 |
| tblConstructionPhase | NumDays | 20.00 | 28.00 |
| tblLandUseChange | CO2peracre | 111.00 | 4.31 |
| tblTripsAndVMT | HaulingTripNumber | 5.00 | 0.00 |
| tblTripsAndVMT | HaulingTripNumber | 138.00 | 0.00 |
| tblVehicleTrips | ST_TR | 7.16 | 1.95 |
| tblVehicleTrips | SU_TR | 6.07 | 1.95 |
| tblVehicleTrips | WD_TR | 6.59 | 1.95 |

## 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 | | | | | |
| 2019 | 4.4126 | 45.6300 | 22.6222 | 0.0399 | 18.2032 | 2.3913 | 20.5945 | 9.9670 | 2.2000 | 12.1670 | 0.0000 | 3,924.7494 | 3,924.7494 | 1.1958 | 0.0000 | 3,951.3807 |
| 2020 | 19.0695 | 20.5016 | 19.1170 | 0.0342 | 0.5851 | 1.1266 | 1.7117 | 0.1566 | 1.0594 | 1.2159 | 0.0000 | 3,290.8284 | 3,290.8284 | 0.7170 | 0.0000 | 3,307.1497 |
| 2021 | 19.0423 | 1.5623 | 2.1748 | 3.9200e-003 | 0.1065 | 0.0948 | 0.2013 | 0.0283 | 0.0948 | 0.1230 | 0.0000 | 375.6910 | 375.6910 | 0.0218 | 0.0000 | 376.2367 |
| **Maximum** | **19.0695** | **45.6300** | **22.6222** | **0.0399** | **18.2032** | **2.3913** | **20.5945** | **9.9670** | **2.2000** | **12.1670** | **0.0000** | **3,924.7494** | **3,924.7494** | **1.1958** | **0.0000** | **3,951.3807** |

**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 | | | | | |
| 2019 | 4.4126 | 45.6300 | 22.6222 | 0.0399 | 18.2032 | 2.3913 | 20.5945 | 9.9670 | 2.2000 | 12.1670 | 0.0000 | 3,924.7494 | 3,924.7494 | 1.1958 | 0.0000 | 3,951.3807 |
| 2020 | 19.0695 | 20.5016 | 19.1170 | 0.0342 | 0.5851 | 1.1266 | 1.7117 | 0.1566 | 1.0594 | 1.2159 | 0.0000 | 3,290.8284 | 3,290.8284 | 0.7170 | 0.0000 | 3,307.1497 |
| 2021 | 19.0423 | 1.5623 | 2.1748 | 3.9200e-003 | 0.1065 | 0.0948 | 0.2013 | 0.0283 | 0.0948 | 0.1230 | 0.0000 | 375.6910 | 375.6910 | 0.0218 | 0.0000 | 376.2367 |
| **Maximum** | **19.0695** | **45.6300** | **22.6222** | **0.0399** | **18.2032** | **2.3913** | **20.5945** | **9.9670** | **2.2000** | **12.1670** | **0.0000** | **3,924.7494** | **3,924.7494** | **1.1958** | **0.0000** | **3,951.3807** |

Canyon Terrace Apartments (City of Folsom) - Sacramento County, 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** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **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 | 2.6240 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | 0.0000 | 14.2610 | 14.2610 | 0.0138 | 0.0000 | 14.6065 |
| Energy | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| Mobile | 0.3078 | 1.4401 | 3.9871 | 0.0114 | 1.0192 | 0.0106 | 1.0298 | 0.2725 | 9.9100e-003 | 0.2824 | | 1,154.3739 | 1,154.3739 | 0.0590 | | 1,155.8492 |
| **Total** | **2.9662** | **1.8250** | **12.0492** | **0.0137** | **1.0192** | **0.0780** | **1.0972** | **0.2725** | **0.0774** | **0.3499** | **0.0000** | **1,543.0030** | **1,543.0030** | **0.0800** | **6.8600e-003** | **1,547.0486** |

### 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 | 2.6240 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | 0.0000 | 14.2610 | 14.2610 | 0.0138 | 0.0000 | 14.6065 |
| Energy | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| Mobile | 0.3078 | 1.4401 | 3.9871 | 0.0114 | 1.0192 | 0.0106 | 1.0298 | 0.2725 | 9.9100e-003 | 0.2824 | | 1,154.3739 | 1,154.3739 | 0.0590 | | 1,155.8492 |
| **Total** | **2.9662** | **1.8250** | **12.0492** | **0.0137** | **1.0192** | **0.0780** | **1.0972** | **0.2725** | **0.0774** | **0.3499** | **0.0000** | **1,543.0030** | **1,543.0030** | **0.0800** | **6.8600e-003** | **1,547.0486** |

| | ROG | NOx | 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** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition (Building) | Demolition | 9/1/2019 | 9/27/2019 | 5 | 20 | |
| 2 | Demolition (Pool, Courts, Parking) | Demolition | 9/28/2019 | 10/25/2019 | 5 | 20 | |
| 3 | Site Preparation | Site Preparation | 10/26/2019 | 11/8/2019 | 5 | 10 | |
| 4 | Grading | Grading | 11/9/2019 | 12/6/2019 | 5 | 20 | |
| 5 | Building Construction | Building Construction | 12/7/2019 | 10/23/2020 | 5 | 230 | |
| 6 | Paving | Paving | 10/24/2020 | 12/2/2020 | 5 | 28 | |
| 7 | Architectural Coating | Architectural Coating | 12/3/2020 | 3/2/2021 | 5 | 64 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 10**

**Acres of Paving: 0**

**Residential Indoor: 194,400; Residential Outdoor: 64,800; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Canyon Terrace Apartments (City of Folsom) - Sacramento County, Winter

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition (Building) | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition (Building) | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition (Building) | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Demolition (Pool, Courts, Parking) | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition (Pool, Courts, Parking) | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition (Pool, Courts, Parking) | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 1 | 8.00 | 158 | 0.38 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 3 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition (Building) | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Demolition (Pool, Courts, Parking) | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 18.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 9 | 69.00 | 10.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 14.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition (Building) - 2019

**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 | | | | | 0.0616 | 0.0000 | 0.0616 | 9.3200e-003 | 0.0000 | 9.3200e-003 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.5134 | 35.7830 | 22.0600 | 0.0388 | | 1.7949 | 1.7949 | | 1.6697 | 1.6697 | | 3,816.8994 | 3,816.8994 | 1.0618 | | 3,843.4451 |
| **Total** | **3.5134** | **35.7830** | **22.0600** | **0.0388** | **0.0616** | **1.7949** | **1.8565** | **9.3200e-003** | **1.6697** | **1.6790** | | **3,816.8994** | **3,816.8994** | **1.0618** | | **3,843.4451** |

## 3.2 Demolition (Building) - 2019

### 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 | 0.0647 | 0.0477 | 0.4660 | 1.0800e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 107.8500 | 107.8500 | 3.4200e-003 | | 107.9356 |
| **Total** | **0.0647** | **0.0477** | **0.4660** | **1.0800e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **107.8500** | **107.8500** | **3.4200e-003** | | **107.9356** |

### 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 | | | | | 0.0616 | 0.0000 | 0.0616 | 9.3200e-003 | 0.0000 | 9.3200e-003 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.5134 | 35.7830 | 22.0600 | 0.0388 | | 1.7949 | 1.7949 | | 1.6697 | 1.6697 | 0.0000 | 3,816.8994 | 3,816.8994 | 1.0618 | | 3,843.4451 |
| **Total** | **3.5134** | **35.7830** | **22.0600** | **0.0388** | **0.0616** | **1.7949** | **1.8565** | **9.3200e-003** | **1.6697** | **1.6790** | **0.0000** | **3,816.8994** | **3,816.8994** | **1.0618** | | **3,843.4451** |

## 3.2 Demolition (Building) - 2019

**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 | 0.0647 | 0.0477 | 0.4660 | 1.0800e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 107.8500 | 107.8500 | 3.4200e-003 | | 107.9356 |
| **Total** | **0.0647** | **0.0477** | **0.4660** | **1.0800e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **107.8500** | **107.8500** | **3.4200e-003** | | **107.9356** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

**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 | | | | | 1.5595 | 0.0000 | 1.5595 | 0.2361 | 0.0000 | 0.2361 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.5134 | 35.7830 | 22.0600 | 0.0388 | | 1.7949 | 1.7949 | | 1.6697 | 1.6697 | | 3,816.8994 | 3,816.8994 | 1.0618 | | 3,843.4451 |
| **Total** | **3.5134** | **35.7830** | **22.0600** | **0.0388** | **1.5595** | **1.7949** | **3.3544** | **0.2361** | **1.6697** | **1.9058** | | **3,816.8994** | **3,816.8994** | **1.0618** | | **3,843.4451** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

### 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 | 0.0647 | 0.0477 | 0.4660 | 1.0800e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 107.8500 | 107.8500 | 3.4200e-003 | | 107.9356 |
| **Total** | **0.0647** | **0.0477** | **0.4660** | **1.0800e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **107.8500** | **107.8500** | **3.4200e-003** | | **107.9356** |

### 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 | | | | | 1.5595 | 0.0000 | 1.5595 | 0.2361 | 0.0000 | 0.2361 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.5134 | 35.7830 | 22.0600 | 0.0388 | | 1.7949 | 1.7949 | | 1.6697 | 1.6697 | 0.0000 | 3,816.8994 | 3,816.8994 | 1.0618 | | 3,843.4451 |
| **Total** | **3.5134** | **35.7830** | **22.0600** | **0.0388** | **1.5595** | **1.7949** | **3.3544** | **0.2361** | **1.6697** | **1.9058** | **0.0000** | **3,816.8994** | **3,816.8994** | **1.0618** | | **3,843.4451** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

**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 | 0.0647 | 0.0477 | 0.4660 | 1.0800e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 107.8500 | 107.8500 | 3.4200e-003 | | 107.9356 |
| **Total** | **0.0647** | **0.0477** | **0.4660** | **1.0800e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **107.8500** | **107.8500** | **3.4200e-003** | | **107.9356** |

## 3.4 Site Preparation - 2019

**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 | 4.3350 | 45.5727 | 22.0630 | 0.0380 | | 2.3904 | 2.3904 | | 2.1991 | 2.1991 | | 3,766.4529 | 3,766.4529 | 1.1917 | | 3,796.2445 |
| **Total** | **4.3350** | **45.5727** | **22.0630** | **0.0380** | **18.0663** | **2.3904** | **20.4566** | **9.9307** | **2.1991** | **12.1298** | | **3,766.4529** | **3,766.4529** | **1.1917** | | **3,796.2445** |

## 3.4 Site Preparation - 2019

### 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 | 0.0776 | 0.0573 | 0.5591 | 1.3000e-003 | 0.1369 | 9.8000e-004 | 0.1379 | 0.0363 | 9.0000e-004 | 0.0372 | | 129.4200 | 129.4200 | 4.1100e-003 | | 129.5227 |
| **Total** | **0.0776** | **0.0573** | **0.5591** | **1.3000e-003** | **0.1369** | **9.8000e-004** | **0.1379** | **0.0363** | **9.0000e-004** | **0.0372** | | **129.4200** | **129.4200** | **4.1100e-003** | | **129.5227** |

### 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 | | | | | 18.0663 | 0.0000 | 18.0663 | 9.9307 | 0.0000 | 9.9307 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.3350 | 45.5727 | 22.0630 | 0.0380 | | 2.3904 | 2.3904 | | 2.1991 | 2.1991 | 0.0000 | 3,766.4529 | 3,766.4529 | 1.1917 | | 3,796.2445 |
| **Total** | **4.3350** | **45.5727** | **22.0630** | **0.0380** | **18.0663** | **2.3904** | **20.4566** | **9.9307** | **2.1991** | **12.1298** | **0.0000** | **3,766.4529** | **3,766.4529** | **1.1917** | | **3,796.2445** |

## 3.4 Site Preparation - 2019

**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 | 0.0776 | 0.0573 | 0.5591 | 1.3000e-003 | 0.1369 | 9.8000e-004 | 0.1379 | 0.0363 | 9.0000e-004 | 0.0372 | | 129.4200 | 129.4200 | 4.1100e-003 | | 129.5227 |
| **Total** | **0.0776** | **0.0573** | **0.5591** | **1.3000e-003** | **0.1369** | **9.8000e-004** | **0.1379** | **0.0363** | **9.0000e-004** | **0.0372** | | **129.4200** | **129.4200** | **4.1100e-003** | | **129.5227** |

## 3.5 Grading - 2019

**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 | | | | | 6.5523 | 0.0000 | 6.5523 | 3.3675 | 0.0000 | 3.3675 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.5805 | 28.3480 | 16.2934 | 0.0297 | | 1.3974 | 1.3974 | | 1.2856 | 1.2856 | | 2,936.8068 | 2,936.8068 | 0.9292 | | 2,960.0361 |
| **Total** | **2.5805** | **28.3480** | **16.2934** | **0.0297** | **6.5523** | **1.3974** | **7.9497** | **3.3675** | **1.2856** | **4.6531** | | **2,936.8068** | **2,936.8068** | **0.9292** | | **2,960.0361** |

## 3.5 Grading - 2019

### 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 | 0.0647 | 0.0477 | 0.4660 | 1.0800e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 107.8500 | 107.8500 | 3.4200e-003 | | 107.9356 |
| **Total** | **0.0647** | **0.0477** | **0.4660** | **1.0800e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **107.8500** | **107.8500** | **3.4200e-003** | | **107.9356** |

### 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 | | | | | 6.5523 | 0.0000 | 6.5523 | 3.3675 | 0.0000 | 3.3675 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.5805 | 28.3480 | 16.2934 | 0.0297 | | 1.3974 | 1.3974 | | 1.2856 | 1.2856 | 0.0000 | 2,936.8068 | 2,936.8068 | 0.9292 | | 2,960.0361 |
| **Total** | **2.5805** | **28.3480** | **16.2934** | **0.0297** | **6.5523** | **1.3974** | **7.9497** | **3.3675** | **1.2856** | **4.6531** | **0.0000** | **2,936.8068** | **2,936.8068** | **0.9292** | | **2,960.0361** |

## 3.5 Grading - 2019

**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 | 0.0647 | 0.0477 | 0.4660 | 1.0800e-003 | 0.1141 | 8.1000e-004 | 0.1149 | 0.0303 | 7.5000e-004 | 0.0310 | | 107.8500 | 107.8500 | 3.4200e-003 | | 107.9356 |
| **Total** | **0.0647** | **0.0477** | **0.4660** | **1.0800e-003** | **0.1141** | **8.1000e-004** | **0.1149** | **0.0303** | **7.5000e-004** | **0.0310** | | **107.8500** | **107.8500** | **3.4200e-003** | | **107.9356** |

## 3.6 Building Construction - 2019

**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 | 2.3612 | 21.0788 | 17.1638 | 0.0269 | | 1.2899 | 1.2899 | | 1.2127 | 1.2127 | | 2,591.5802 | 2,591.5802 | 0.6313 | | 2,607.3635 |
| **Total** | **2.3612** | **21.0788** | **17.1638** | **0.0269** | | **1.2899** | **1.2899** | | **1.2127** | **1.2127** | | **2,591.5802** | **2,591.5802** | **0.6313** | | **2,607.3635** |

## 3.6 Building Construction - 2019

### 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 | 0.0497 | 1.2271 | 0.4068 | 2.4500e-003 | 0.0602 | 8.8800e-003 | 0.0691 | 0.0173 | 8.4900e-003 | 0.0258 | | 258.5858 | 258.5858 | 0.0173 | | 259.0176 |
| Worker | 0.2976 | 0.2196 | 2.1434 | 4.9900e-003 | 0.5249 | 3.7400e-003 | 0.5286 | 0.1392 | 3.4500e-003 | 0.1427 | | 496.1101 | 496.1101 | 0.0158 | | 496.5038 |
| **Total** | **0.3473** | **1.4466** | **2.5502** | **7.4400e-003** | **0.5851** | **0.0126** | **0.5977** | **0.1566** | **0.0119** | **0.1685** | | **754.6959** | **754.6959** | **0.0330** | | **755.5214** |

### 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 | 2.3612 | 21.0788 | 17.1638 | 0.0269 | | 1.2899 | 1.2899 | | 1.2127 | 1.2127 | 0.0000 | 2,591.5802 | 2,591.5802 | 0.6313 | | 2,607.3635 |
| **Total** | **2.3612** | **21.0788** | **17.1638** | **0.0269** | | **1.2899** | **1.2899** | | **1.2127** | **1.2127** | **0.0000** | **2,591.5802** | **2,591.5802** | **0.6313** | | **2,607.3635** |

## 3.6 Building Construction - 2019

**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 | 0.0497 | 1.2271 | 0.4068 | 2.4500e-003 | 0.0602 | 8.8800e-003 | 0.0691 | 0.0173 | 8.4900e-003 | 0.0258 | | 258.5858 | 258.5858 | 0.0173 | | 259.0176 |
| Worker | 0.2976 | 0.2196 | 2.1434 | 4.9900e-003 | 0.5249 | 3.7400e-003 | 0.5286 | 0.1392 | 3.4500e-003 | 0.1427 | | 496.1101 | 496.1101 | 0.0158 | | 496.5038 |
| **Total** | **0.3473** | **1.4466** | **2.5502** | **7.4400e-003** | **0.5851** | **0.0126** | **0.5977** | **0.1566** | **0.0119** | **0.1685** | | **754.6959** | **754.6959** | **0.0330** | | **755.5214** |

## 3.6 Building Construction - 2020

**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 | 2.1198 | 19.1860 | 16.8485 | 0.0269 | | 1.1171 | 1.1171 | | 1.0503 | 1.0503 | | 2,553.0631 | 2,553.0631 | 0.6229 | | 2,568.6345 |
| **Total** | **2.1198** | **19.1860** | **16.8485** | **0.0269** | | **1.1171** | **1.1171** | | **1.0503** | **1.0503** | | **2,553.0631** | **2,553.0631** | **0.6229** | | **2,568.6345** |

## 3.6 Building Construction - 2020

### 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 | 0.0397 | 1.1205 | 0.3395 | 2.4300e-003 | 0.0602 | 5.9200e-003 | 0.0661 | 0.0173 | 5.6600e-003 | 0.0230 | | 256.9123 | 256.9123 | 0.0162 | | 257.3165 |
| Worker | 0.2738 | 0.1951 | 1.9290 | 4.8300e-003 | 0.5249 | 3.6500e-003 | 0.5285 | 0.1392 | 3.3600e-003 | 0.1426 | | 480.8531 | 480.8531 | 0.0138 | | 481.1987 |
| **Total** | **0.3135** | **1.3156** | **2.2685** | **7.2600e-003** | **0.5851** | **9.5700e-003** | **0.5946** | **0.1566** | **9.0200e-003** | **0.1656** | | **737.7654** | **737.7654** | **0.0300** | | **738.5152** |

### 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 | 2.1198 | 19.1860 | 16.8485 | 0.0269 | | 1.1171 | 1.1171 | | 1.0503 | 1.0503 | 0.0000 | 2,553.0631 | 2,553.0631 | 0.6229 | | 2,568.6345 |
| **Total** | **2.1198** | **19.1860** | **16.8485** | **0.0269** | | **1.1171** | **1.1171** | | **1.0503** | **1.0503** | **0.0000** | **2,553.0631** | **2,553.0631** | **0.6229** | | **2,568.6345** |

## 3.6 Building Construction - 2020

**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 | 0.0397 | 1.1205 | 0.3395 | 2.4300e-003 | 0.0602 | 5.9200e-003 | 0.0661 | 0.0173 | 5.6600e-003 | 0.0230 | | 256.9123 | 256.9123 | 0.0162 | | 257.3165 |
| Worker | 0.2738 | 0.1951 | 1.9290 | 4.8300e-003 | 0.5249 | 3.6500e-003 | 0.5285 | 0.1392 | 3.3600e-003 | 0.1426 | | 480.8531 | 480.8531 | 0.0138 | | 481.1987 |
| **Total** | **0.3135** | **1.3156** | **2.2685** | **7.2600e-003** | **0.5851** | **9.5700e-003** | **0.5946** | **0.1566** | **9.0200e-003** | **0.1656** | | **737.7654** | **737.7654** | **0.0300** | | **738.5152** |

## 3.7 Paving - 2020

**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 | 1.3566 | 14.0656 | 14.6521 | 0.0228 | | 0.7528 | 0.7528 | | 0.6926 | 0.6926 | | 2,207.7334 | 2,207.7334 | 0.7140 | | 2,225.5841 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.3566** | **14.0656** | **14.6521** | **0.0228** | | **0.7528** | **0.7528** | | **0.6926** | **0.6926** | | **2,207.7334** | **2,207.7334** | **0.7140** | | **2,225.5841** |

## 3.7 Paving - 2020

### 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 | 0.0595 | 0.0424 | 0.4194 | 1.0500e-003 | 0.1141 | 7.9000e-004 | 0.1149 | 0.0303 | 7.3000e-004 | 0.0310 | | 104.5333 | 104.5333 | 3.0100e-003 | | 104.6084 |
| **Total** | **0.0595** | **0.0424** | **0.4194** | **1.0500e-003** | **0.1141** | **7.9000e-004** | **0.1149** | **0.0303** | **7.3000e-004** | **0.0310** | | **104.5333** | **104.5333** | **3.0100e-003** | | **104.6084** |

### 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 | 1.3566 | 14.0656 | 14.6521 | 0.0228 | | 0.7528 | 0.7528 | | 0.6926 | 0.6926 | 0.0000 | 2,207.7334 | 2,207.7334 | 0.7140 | | 2,225.5841 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.3566** | **14.0656** | **14.6521** | **0.0228** | | **0.7528** | **0.7528** | | **0.6926** | **0.6926** | **0.0000** | **2,207.7334** | **2,207.7334** | **0.7140** | | **2,225.5841** |

## 3.7 Paving - 2020

**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 | 0.0595 | 0.0424 | 0.4194 | 1.0500e-003 | 0.1141 | 7.9000e-004 | 0.1149 | 0.0303 | 7.3000e-004 | 0.0310 | | 104.5333 | 104.5333 | 3.0100e-003 | | 104.6084 |
| **Total** | **0.0595** | **0.0424** | **0.4194** | **1.0500e-003** | **0.1141** | **7.9000e-004** | **0.1149** | **0.0303** | **7.3000e-004** | **0.0310** | | **104.5333** | **104.5333** | **3.0100e-003** | | **104.6084** |

## 3.8 Architectural Coating - 2020

**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 | 18.7718 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2422 | 1.6838 | 1.8314 | 2.9700e-003 | | 0.1109 | 0.1109 | | 0.1109 | 0.1109 | | 281.4481 | 281.4481 | 0.0218 | | 281.9928 |
| **Total** | **19.0139** | **1.6838** | **1.8314** | **2.9700e-003** | | **0.1109** | **0.1109** | | **0.1109** | **0.1109** | | **281.4481** | **281.4481** | **0.0218** | | **281.9928** |

## 3.8 Architectural Coating - 2020

### 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 | 0.0556 | 0.0396 | 0.3914 | 9.8000e-004 | 0.1065 | 7.4000e-004 | 0.1072 | 0.0283 | 6.8000e-004 | 0.0289 | | 97.5644 | 97.5644 | 2.8100e-003 | | 97.6345 |
| **Total** | **0.0556** | **0.0396** | **0.3914** | **9.8000e-004** | **0.1065** | **7.4000e-004** | **0.1072** | **0.0283** | **6.8000e-004** | **0.0289** | | **97.5644** | **97.5644** | **2.8100e-003** | | **97.6345** |

### 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 | 18.7718 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2422 | 1.6838 | 1.8314 | 2.9700e-003 | | 0.1109 | 0.1109 | | 0.1109 | 0.1109 | 0.0000 | 281.4481 | 281.4481 | 0.0218 | | 281.9928 |
| **Total** | **19.0139** | **1.6838** | **1.8314** | **2.9700e-003** | | **0.1109** | **0.1109** | | **0.1109** | **0.1109** | **0.0000** | **281.4481** | **281.4481** | **0.0218** | | **281.9928** |

## 3.8 Architectural Coating - 2020

**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 | 0.0556 | 0.0396 | 0.3914 | 9.8000e-004 | 0.1065 | 7.4000e-004 | 0.1072 | 0.0283 | 6.8000e-004 | 0.0289 | | 97.5644 | 97.5644 | 2.8100e-003 | | 97.6345 |
| **Total** | **0.0556** | **0.0396** | **0.3914** | **9.8000e-004** | **0.1065** | **7.4000e-004** | **0.1072** | **0.0283** | **6.8000e-004** | **0.0289** | | **97.5644** | **97.5644** | **2.8100e-003** | | **97.6345** |

## 3.8 Architectural Coating - 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 | | | | | |
| Archit. Coating | 18.7718 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | | 281.4481 | 281.4481 | 0.0193 | | 281.9309 |
| **Total** | **18.9907** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | | **281.4481** | **281.4481** | **0.0193** | | **281.9309** |

## 3.8 Architectural Coating - 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 | 0.0517 | 0.0355 | 0.3572 | 9.5000e-004 | 0.1065 | 7.2000e-004 | 0.1072 | 0.0283 | 6.6000e-004 | 0.0289 | | 94.2430 | 94.2430 | 2.5100e-003 | | 94.3058 |
| **Total** | **0.0517** | **0.0355** | **0.3572** | **9.5000e-004** | **0.1065** | **7.2000e-004** | **0.1072** | **0.0283** | **6.6000e-004** | **0.0289** | | **94.2430** | **94.2430** | **2.5100e-003** | | **94.3058** |

### 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 | 18.7718 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | 0.0000 | 281.4481 | 281.4481 | 0.0193 | | 281.9309 |
| **Total** | **18.9907** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | **0.0000** | **281.4481** | **281.4481** | **0.0193** | | **281.9309** |

## 3.8 Architectural Coating - 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 | 0.0517 | 0.0355 | 0.3572 | 9.5000e-004 | 0.1065 | 7.2000e-004 | 0.1072 | 0.0283 | 6.6000e-004 | 0.0289 | | 94.2430 | 94.2430 | 2.5100e-003 | | 94.3058 |
| **Total** | **0.0517** | **0.0355** | **0.3572** | **9.5000e-004** | **0.1065** | **7.2000e-004** | **0.1072** | **0.0283** | **6.6000e-004** | **0.0289** | | **94.2430** | **94.2430** | **2.5100e-003** | | **94.3058** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | 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 | 0.3078 | 1.4401 | 3.9871 | 0.0114 | 1.0192 | 0.0106 | 1.0298 | 0.2725 | 9.9100e-003 | 0.2824 | | 1,154.3739 | 1,154.3739 | 0.0590 | | 1,155.8492 |
| Unmitigated | 0.3078 | 1.4401 | 3.9871 | 0.0114 | 1.0192 | 0.0106 | 1.0298 | 0.2725 | 9.9100e-003 | 0.2824 | | 1,154.3739 | 1,154.3739 | 0.0590 | | 1,155.8492 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 187.20 | 187.20 | 187.20 | 480,376 | 480,376 |
| Total | 187.20 | 187.20 | 187.20 | 480,376 | 480,376 |

## 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 |
| Apartments Low Rise | 10.00 | 5.00 | 6.50 | 46.50 | 12.50 | 41.00 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.555851 | 0.039752 | 0.205040 | 0.120748 | 0.020349 | 0.005402 | 0.018507 | 0.022668 | 0.002052 | 0.002157 | 0.005939 | 0.000618 | 0.000915 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | 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 | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| NaturalGas Unmitigated | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |

## 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 | | | | | |
| Apartments Low Rise | 3182.13 | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| **Total** | | **0.0343** | **0.2933** | **0.1248** | **1.8700e-003** | | **0.0237** | **0.0237** | | **0.0237** | **0.0237** | | **374.3681** | **374.3681** | **7.1800e-003** | **6.8600e-003** | **376.5928** |

## 5.2 Energy by Land Use - NaturalGas

**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 | | | | | |
| Apartments Low Rise | 3.18213 | 0.0343 | 0.2933 | 0.1248 | 1.8700e-003 | | 0.0237 | 0.0237 | | 0.0237 | 0.0237 | | 374.3681 | 374.3681 | 7.1800e-003 | 6.8600e-003 | 376.5928 |
| **Total** | | **0.0343** | **0.2933** | **0.1248** | **1.8700e-003** | | **0.0237** | **0.0237** | | **0.0237** | **0.0237** | | **374.3681** | **374.3681** | **7.1800e-003** | **6.8600e-003** | **376.5928** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | 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 | 2.6240 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | 0.0000 | 14.2610 | 14.2610 | 0.0138 | 0.0000 | 14.6065 |
| Unmitigated | 2.6240 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | 0.0000 | 14.2610 | 14.2610 | 0.0138 | 0.0000 | 14.6065 |

## 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 | 0.3292 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 2.0544 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.2405 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | | 14.2610 | 14.2610 | 0.0138 | | 14.6065 |
| **Total** | **2.6240** | **0.0916** | **7.9373** | **4.2000e-004** | | **0.0438** | **0.0438** | | **0.0438** | **0.0438** | **0.0000** | **14.2610** | **14.2610** | **0.0138** | **0.0000** | **14.6065** |

## 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 | 0.3292 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 2.0544 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.2405 | 0.0916 | 7.9373 | 4.2000e-004 | | 0.0438 | 0.0438 | | 0.0438 | 0.0438 | | 14.2610 | 14.2610 | 0.0138 | | 14.6065 |
| **Total** | **2.6240** | **0.0916** | **7.9373** | **4.2000e-004** | | **0.0438** | **0.0438** | | **0.0438** | **0.0438** | **0.0000** | **14.2610** | **14.2610** | **0.0138** | **0.0000** | **14.6065** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

# 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

# ANNUAL EMISSIONS (CALEEMOD)

# Canyon Terrace Apartments (City of Folsom)

**Sacramento County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 96.00 | Dwelling Unit | 6.00 | 96,000.00 | 256 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 3.5 | **Precipitation Freq (Days)** | 58 |
| **Climate Zone** | 6 | | | **Operational Year** | 2021 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on project size. Demolition split into two phases - one for the building, the other for the pool, courts, and parking lot.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Demolition -

Vehicle Trips - 1.95 trip rate/unit, as provided by the Omni-Means Traffic Report

Sequestration -

Land Use Change - Assumed that approximately two thirds (4 acres) of existing site is 'Grassland' vegetation type, and one third 'Forest Land - Trees' (2 acres). Project would remove up to one acre of 'Forest Land - Trees' and three acres of 'Grassland'.

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 20.00 | 64.00 |
| tblConstructionPhase | NumDays | 20.00 | 28.00 |
| tblLandUseChange | CO2peracre | 111.00 | 4.31 |
| tblTripsAndVMT | HaulingTripNumber | 5.00 | 0.00 |
| tblTripsAndVMT | HaulingTripNumber | 138.00 | 0.00 |
| tblVehicleTrips | ST_TR | 7.16 | 1.95 |
| tblVehicleTrips | SU_TR | 6.07 | 1.95 |
| tblVehicleTrips | WD_TR | 6.59 | 1.95 |

## 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 | | | | | |
| 2019 | 0.1428 | 1.4198 | 0.8981 | 1.6000e-003 | 0.1808 | 0.0729 | 0.2538 | 0.0881 | 0.0677 | 0.1558 | 0.0000 | 142.5499 | 142.5499 | 0.0383 | 0.0000 | 143.5082 |
| 2020 | 0.4772 | 2.3968 | 2.2653 | 4.0300e-003 | 0.0628 | 0.1317 | 0.1945 | 0.0169 | 0.1237 | 0.1405 | 0.0000 | 352.7268 | 352.7268 | 0.0724 | 0.0000 | 354.5359 |
| 2021 | 0.4093 | 0.0335 | 0.0467 | 8.0000e-005 | 2.2100e-003 | 2.0400e-003 | 4.2500e-003 | 5.9000e-004 | 2.0400e-003 | 2.6300e-003 | 0.0000 | 7.3815 | 7.3815 | 4.3000e-004 | 0.0000 | 7.3922 |
| **Maximum** | **0.4772** | **2.3968** | **2.2653** | **4.0300e-003** | **0.1808** | **0.1317** | **0.2538** | **0.0881** | **0.1237** | **0.1558** | **0.0000** | **352.7268** | **352.7268** | **0.0724** | **0.0000** | **354.5359** |

### 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 | | | | | |
| 2019 | 0.1428 | 1.4198 | 0.8981 | 1.6000e-003 | 0.1808 | 0.0729 | 0.2538 | 0.0881 | 0.0677 | 0.1558 | 0.0000 | 142.5498 | 142.5498 | 0.0383 | 0.0000 | 143.5080 |
| 2020 | 0.4772 | 2.3968 | 2.2653 | 4.0300e-003 | 0.0628 | 0.1317 | 0.1945 | 0.0169 | 0.1237 | 0.1405 | 0.0000 | 352.7265 | 352.7265 | 0.0724 | 0.0000 | 354.5356 |
| 2021 | 0.4093 | 0.0335 | 0.0467 | 8.0000e-005 | 2.2100e-003 | 2.0400e-003 | 4.2500e-003 | 5.9000e-004 | 2.0400e-003 | 2.6300e-003 | 0.0000 | 7.3815 | 7.3815 | 4.3000e-004 | 0.0000 | 7.3922 |
| **Maximum** | **0.4772** | **2.3968** | **2.2653** | **4.0300e-003** | **0.1808** | **0.1317** | **0.2538** | **0.0881** | **0.1237** | **0.1558** | **0.0000** | **352.7265** | **352.7265** | **0.0724** | **0.0000** | **354.5356** |

Canyon Terrace Apartments (City of Folsom) - Sacramento County, 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** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **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** | **9-1-2019** | **11-30-2019** | 1.2682 | 1.2682 |
| **2** | **12-1-2019** | **2-29-2020** | 0.7833 | 0.7833 |
| **3** | **3-1-2020** | **5-31-2020** | 0.7528 | 0.7528 |
| **4** | **6-1-2020** | **8-31-2020** | 0.7523 | 0.7523 |
| **5** | **9-1-2020** | **11-30-2020** | 0.6444 | 0.6444 |
| **6** | **12-1-2020** | **2-28-2021** | 0.6606 | 0.6606 |
| **7** | **3-1-2021** | **5-31-2021** | 0.0147 | 0.0147 |
| | | **Highest** | 1.2682 | 1.2682 |

## 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 | 0.4651 | 0.0115 | 0.9922 | 5.0000e-005 | | 5.4700e-003 | 5.4700e-003 | | 5.4700e-003 | 5.4700e-003 | 0.0000 | 1.6172 | 1.6172 | 1.5700e-003 | 0.0000 | 1.6564 |
| Energy | 6.2600e-003 | 0.0535 | 0.0228 | 3.4000e-004 | | 4.3300e-003 | 4.3300e-003 | | 4.3300e-003 | 4.3300e-003 | 0.0000 | 187.4937 | 187.4937 | 6.8600e-003 | 2.3100e-003 | 188.3539 |
| Mobile | 0.0590 | 0.2545 | 0.6996 | 2.1200e-003 | 0.1792 | 1.9100e-003 | 0.1811 | 0.0481 | 1.7900e-003 | 0.0498 | 0.0000 | 195.0315 | 195.0315 | 9.5800e-003 | 0.0000 | 195.2709 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 8.9641 | 0.0000 | 8.9641 | 0.5298 | 0.0000 | 22.2081 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 2.2130 | 13.0813 | 15.2942 | 8.2100e-003 | 4.9300e-003 | 16.9700 |
| **Total** | **0.5304** | **0.3195** | **1.7145** | **2.5100e-003** | **0.1792** | **0.0117** | **0.1909** | **0.0481** | **0.0116** | **0.0596** | **11.1770** | **397.2237** | **408.4007** | **0.5560** | **7.2400e-003** | **424.4592** |

## 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 | 0.4651 | 0.0115 | 0.9922 | 5.0000e-005 | | 5.4700e-003 | 5.4700e-003 | | 5.4700e-003 | 5.4700e-003 | 0.0000 | 1.6172 | 1.6172 | 1.5700e-003 | 0.0000 | 1.6564 |
| Energy | 6.2600e-003 | 0.0535 | 0.0228 | 3.4000e-004 | | 4.3300e-003 | 4.3300e-003 | | 4.3300e-003 | 4.3300e-003 | 0.0000 | 187.4937 | 187.4937 | 6.8600e-003 | 2.3100e-003 | 188.3539 |
| Mobile | 0.0590 | 0.2545 | 0.6996 | 2.1200e-003 | 0.1792 | 1.9100e-003 | 0.1811 | 0.0481 | 1.7900e-003 | 0.0498 | 0.0000 | 195.0315 | 195.0315 | 9.5800e-003 | 0.0000 | 195.2709 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 8.9641 | 0.0000 | 8.9641 | 0.5298 | 0.0000 | 22.2081 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 2.2130 | 13.0813 | 15.2942 | 8.2100e-003 | 4.9300e-003 | 16.9700 |
| **Total** | **0.5304** | **0.3195** | **1.7145** | **2.5100e-003** | **0.1792** | **0.0117** | **0.1909** | **0.0481** | **0.0116** | **0.0596** | **11.1770** | **397.2237** | **408.4007** | **0.5560** | **7.2400e-003** | **424.4592** |

| | ROG | NOx | 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** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.3 Vegetation

**Vegetation**

| | CO2e |
|---|---|
| Category | MT |
| New Trees | 0.0000 |
| Vegetation Land Change | -17.2400 |
| **Total** | **-17.2400** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition (Building) | Demolition | 9/1/2019 | 9/27/2019 | 5 | 20 | |
| 2 | Demolition (Pool, Courts, Parking) | Demolition | 9/28/2019 | 10/25/2019 | 5 | 20 | |
| 3 | Site Preparation | Site Preparation | 10/26/2019 | 11/8/2019 | 5 | 10 | |
| 4 | Grading | Grading | 11/9/2019 | 12/6/2019 | 5 | 20 | |
| 5 | Building Construction | Building Construction | 12/7/2019 | 10/23/2020 | 5 | 230 | |
| 6 | Paving | Paving | 10/24/2020 | 12/2/2020 | 5 | 28 | |
| 7 | Architectural Coating | Architectural Coating | 12/3/2020 | 3/2/2021 | 5 | 64 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 10**

**Acres of Paving: 0**

**Residential Indoor: 194,400; Residential Outdoor: 64,800; 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 |
|---|---|---|---|---|---|
| Demolition (Building) | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition (Building) | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition (Building) | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Demolition (Pool, Courts, Parking) | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition (Pool, Courts, Parking) | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition (Pool, Courts, Parking) | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 1 | 8.00 | 158 | 0.38 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 3 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition (Building) | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Demolition (Pool, Courts, Parking) | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 18.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 9 | 69.00 | 10.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 14.00 | 0.00 | 0.00 | 10.00 | 6.50 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition (Building) - 2019

**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 | | | | | 6.2000e-004 | 0.0000 | 6.2000e-004 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0351 | 0.3578 | 0.2206 | 3.9000e-004 | | 0.0180 | 0.0180 | | 0.0167 | 0.0167 | 0.0000 | 34.6263 | 34.6263 | 9.6300e-003 | 0.0000 | 34.8672 |
| **Total** | **0.0351** | **0.3578** | **0.2206** | **3.9000e-004** | **6.2000e-004** | **0.0180** | **0.0186** | **9.0000e-005** | **0.0167** | **0.0168** | **0.0000** | **34.6263** | **34.6263** | **9.6300e-003** | **0.0000** | **34.8672** |

## 3.2 Demolition (Building) - 2019

### 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 | 4.3000e-004 | 4.6000e-003 | 1.0000e-005 | 1.1000e-003 | 1.0000e-005 | 1.1100e-003 | 2.9000e-004 | 1.0000e-005 | 3.0000e-004 | 0.0000 | 1.0071 | 1.0071 | 3.0000e-005 | 0.0000 | 1.0078 |
| **Total** | **6.1000e-004** | **4.3000e-004** | **4.6000e-003** | **1.0000e-005** | **1.1000e-003** | **1.0000e-005** | **1.1100e-003** | **2.9000e-004** | **1.0000e-005** | **3.0000e-004** | **0.0000** | **1.0071** | **1.0071** | **3.0000e-005** | **0.0000** | **1.0078** |

### 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 | | | | | 6.2000e-004 | 0.0000 | 6.2000e-004 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0351 | 0.3578 | 0.2206 | 3.9000e-004 | | 0.0180 | 0.0180 | | 0.0167 | 0.0167 | 0.0000 | 34.6263 | 34.6263 | 9.6300e-003 | 0.0000 | 34.8671 |
| **Total** | **0.0351** | **0.3578** | **0.2206** | **3.9000e-004** | **6.2000e-004** | **0.0180** | **0.0186** | **9.0000e-005** | **0.0167** | **0.0168** | **0.0000** | **34.6263** | **34.6263** | **9.6300e-003** | **0.0000** | **34.8671** |

## 3.2 Demolition (Building) - 2019

**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 | 4.3000e-004 | 4.6000e-003 | 1.0000e-005 | 1.1000e-003 | 1.0000e-005 | 1.1100e-003 | 2.9000e-004 | 1.0000e-005 | 3.0000e-004 | 0.0000 | 1.0071 | 1.0071 | 3.0000e-005 | 0.0000 | 1.0078 |
| **Total** | **6.1000e-004** | **4.3000e-004** | **4.6000e-003** | **1.0000e-005** | **1.1000e-003** | **1.0000e-005** | **1.1100e-003** | **2.9000e-004** | **1.0000e-005** | **3.0000e-004** | **0.0000** | **1.0071** | **1.0071** | **3.0000e-005** | **0.0000** | **1.0078** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

**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 | | | | | 0.0156 | 0.0000 | 0.0156 | 2.3600e-003 | 0.0000 | 2.3600e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0351 | 0.3578 | 0.2206 | 3.9000e-004 | | 0.0180 | 0.0180 | | 0.0167 | 0.0167 | 0.0000 | 34.6263 | 34.6263 | 9.6300e-003 | 0.0000 | 34.8672 |
| **Total** | **0.0351** | **0.3578** | **0.2206** | **3.9000e-004** | **0.0156** | **0.0180** | **0.0335** | **2.3600e-003** | **0.0167** | **0.0191** | **0.0000** | **34.6263** | **34.6263** | **9.6300e-003** | **0.0000** | **34.8672** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

### 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 | 4.3000e-004 | 4.6000e-003 | 1.0000e-005 | 1.1000e-003 | 1.0000e-005 | 1.1100e-003 | 2.9000e-004 | 1.0000e-005 | 3.0000e-004 | 0.0000 | 1.0071 | 1.0071 | 3.0000e-005 | 0.0000 | 1.0078 |
| **Total** | **6.1000e-004** | **4.3000e-004** | **4.6000e-003** | **1.0000e-005** | **1.1000e-003** | **1.0000e-005** | **1.1100e-003** | **2.9000e-004** | **1.0000e-005** | **3.0000e-004** | **0.0000** | **1.0071** | **1.0071** | **3.0000e-005** | **0.0000** | **1.0078** |

### 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 | | | | | 0.0156 | 0.0000 | 0.0156 | 2.3600e-003 | 0.0000 | 2.3600e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0351 | 0.3578 | 0.2206 | 3.9000e-004 | | 0.0180 | 0.0180 | | 0.0167 | 0.0167 | 0.0000 | 34.6263 | 34.6263 | 9.6300e-003 | 0.0000 | 34.8671 |
| **Total** | **0.0351** | **0.3578** | **0.2206** | **3.9000e-004** | **0.0156** | **0.0180** | **0.0335** | **2.3600e-003** | **0.0167** | **0.0191** | **0.0000** | **34.6263** | **34.6263** | **9.6300e-003** | **0.0000** | **34.8671** |

## 3.3 Demolition (Pool, Courts, Parking) - 2019

**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 | 4.3000e-004 | 4.6000e-003 | 1.0000e-005 | 1.1000e-003 | 1.0000e-005 | 1.1100e-003 | 2.9000e-004 | 1.0000e-005 | 3.0000e-004 | 0.0000 | 1.0071 | 1.0071 | 3.0000e-005 | 0.0000 | 1.0078 |
| **Total** | **6.1000e-004** | **4.3000e-004** | **4.6000e-003** | **1.0000e-005** | **1.1000e-003** | **1.0000e-005** | **1.1100e-003** | **2.9000e-004** | **1.0000e-005** | **3.0000e-004** | **0.0000** | **1.0071** | **1.0071** | **3.0000e-005** | **0.0000** | **1.0078** |

## 3.4 Site Preparation - 2019

**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 | 0.0217 | 0.2279 | 0.1103 | 1.9000e-004 | | 0.0120 | 0.0120 | | 0.0110 | 0.0110 | 0.0000 | 17.0843 | 17.0843 | 5.4100e-003 | 0.0000 | 17.2195 |
| **Total** | **0.0217** | **0.2279** | **0.1103** | **1.9000e-004** | **0.0903** | **0.0120** | **0.1023** | **0.0497** | **0.0110** | **0.0607** | **0.0000** | **17.0843** | **17.0843** | **5.4100e-003** | **0.0000** | **17.2195** |

## 3.4 Site Preparation - 2019

### 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 | 3.6000e-004 | 2.6000e-004 | 2.7600e-003 | 1.0000e-005 | 6.6000e-004 | 0.0000 | 6.7000e-004 | 1.8000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.6042 | 0.6042 | 2.0000e-005 | 0.0000 | 0.6047 |
| **Total** | **3.6000e-004** | **2.6000e-004** | **2.7600e-003** | **1.0000e-005** | **6.6000e-004** | **0.0000** | **6.7000e-004** | **1.8000e-004** | **0.0000** | **1.8000e-004** | **0.0000** | **0.6042** | **0.6042** | **2.0000e-005** | **0.0000** | **0.6047** |

### 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 | | | | | 0.0903 | 0.0000 | 0.0903 | 0.0497 | 0.0000 | 0.0497 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0217 | 0.2279 | 0.1103 | 1.9000e-004 | | 0.0120 | 0.0120 | | 0.0110 | 0.0110 | 0.0000 | 17.0843 | 17.0843 | 5.4100e-003 | 0.0000 | 17.2195 |
| **Total** | **0.0217** | **0.2279** | **0.1103** | **1.9000e-004** | **0.0903** | **0.0120** | **0.1023** | **0.0497** | **0.0110** | **0.0607** | **0.0000** | **17.0843** | **17.0843** | **5.4100e-003** | **0.0000** | **17.2195** |

## 3.4 Site Preparation - 2019

**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 | 3.6000e-004 | 2.6000e-004 | 2.7600e-003 | 1.0000e-005 | 6.6000e-004 | 0.0000 | 6.7000e-004 | 1.8000e-004 | 0.0000 | 1.8000e-004 | 0.0000 | 0.6042 | 0.6042 | 2.0000e-005 | 0.0000 | 0.6047 |
| **Total** | **3.6000e-004** | **2.6000e-004** | **2.7600e-003** | **1.0000e-005** | **6.6000e-004** | **0.0000** | **6.7000e-004** | **1.8000e-004** | **0.0000** | **1.8000e-004** | **0.0000** | **0.6042** | **0.6042** | **2.0000e-005** | **0.0000** | **0.6047** |

## 3.5 Grading - 2019

**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 | | | | | 0.0655 | 0.0000 | 0.0655 | 0.0337 | 0.0000 | 0.0337 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0258 | 0.2835 | 0.1629 | 3.0000e-004 | | 0.0140 | 0.0140 | | 0.0129 | 0.0129 | 0.0000 | 26.6423 | 26.6423 | 8.4300e-003 | 0.0000 | 26.8530 |
| **Total** | **0.0258** | **0.2835** | **0.1629** | **3.0000e-004** | **0.0655** | **0.0140** | **0.0795** | **0.0337** | **0.0129** | **0.0465** | **0.0000** | **26.6423** | **26.6423** | **8.4300e-003** | **0.0000** | **26.8530** |

## 3.5 Grading - 2019

### 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 | 4.3000e-004 | 4.6000e-003 | 1.0000e-005 | 1.1000e-003 | 1.0000e-005 | 1.1100e-003 | 2.9000e-004 | 1.0000e-005 | 3.0000e-004 | 0.0000 | 1.0071 | 1.0071 | 3.0000e-005 | 0.0000 | 1.0078 |
| **Total** | **6.1000e-004** | **4.3000e-004** | **4.6000e-003** | **1.0000e-005** | **1.1000e-003** | **1.0000e-005** | **1.1100e-003** | **2.9000e-004** | **1.0000e-005** | **3.0000e-004** | **0.0000** | **1.0071** | **1.0071** | **3.0000e-005** | **0.0000** | **1.0078** |

### 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 | | | | | 0.0655 | 0.0000 | 0.0655 | 0.0337 | 0.0000 | 0.0337 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0258 | 0.2835 | 0.1629 | 3.0000e-004 | | 0.0140 | 0.0140 | | 0.0129 | 0.0129 | 0.0000 | 26.6422 | 26.6422 | 8.4300e-003 | 0.0000 | 26.8530 |
| **Total** | **0.0258** | **0.2835** | **0.1629** | **3.0000e-004** | **0.0655** | **0.0140** | **0.0795** | **0.0337** | **0.0129** | **0.0465** | **0.0000** | **26.6422** | **26.6422** | **8.4300e-003** | **0.0000** | **26.8530** |

## 3.5 Grading - 2019

**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 | 4.3000e-004 | 4.6000e-003 | 1.0000e-005 | 1.1000e-003 | 1.0000e-005 | 1.1100e-003 | 2.9000e-004 | 1.0000e-005 | 3.0000e-004 | 0.0000 | 1.0071 | 1.0071 | 3.0000e-005 | 0.0000 | 1.0078 |
| **Total** | **6.1000e-004** | **4.3000e-004** | **4.6000e-003** | **1.0000e-005** | **1.1000e-003** | **1.0000e-005** | **1.1100e-003** | **2.9000e-004** | **1.0000e-005** | **3.0000e-004** | **0.0000** | **1.0071** | **1.0071** | **3.0000e-005** | **0.0000** | **1.0078** |

## 3.6 Building Construction - 2019

**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 | 0.0201 | 0.1792 | 0.1459 | 2.3000e-004 | | 0.0110 | 0.0110 | | 0.0103 | 0.0103 | 0.0000 | 19.9839 | 19.9839 | 4.8700e-003 | 0.0000 | 20.1056 |
| **Total** | **0.0201** | **0.1792** | **0.1459** | **2.3000e-004** | | **0.0110** | **0.0110** | | **0.0103** | **0.0103** | **0.0000** | **19.9839** | **19.9839** | **4.8700e-003** | **0.0000** | **20.1056** |

## 3.6 Building Construction - 2019

### 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 | 4.1000e-004 | 0.0104 | 3.1900e-003 | 2.0000e-005 | 5.0000e-004 | 7.0000e-005 | 5.7000e-004 | 1.4000e-004 | 7.0000e-005 | 2.1000e-004 | 0.0000 | 2.0238 | 2.0238 | 1.3000e-004 | 0.0000 | 2.0269 |
| Worker | 2.3700e-003 | 1.6700e-003 | 0.0180 | 4.0000e-005 | 4.3100e-003 | 3.0000e-005 | 4.3400e-003 | 1.1500e-003 | 3.0000e-005 | 1.1700e-003 | 0.0000 | 3.9376 | 3.9376 | 1.2000e-004 | 0.0000 | 3.9407 |
| **Total** | **2.7800e-003** | **0.0121** | **0.0212** | **6.0000e-005** | **4.8100e-003** | **1.0000e-004** | **4.9100e-003** | **1.2900e-003** | **1.0000e-004** | **1.3800e-003** | **0.0000** | **5.9614** | **5.9614** | **2.5000e-004** | **0.0000** | **5.9676** |

### 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 | 0.0201 | 0.1792 | 0.1459 | 2.3000e-004 | | 0.0110 | 0.0110 | | 0.0103 | 0.0103 | 0.0000 | 19.9838 | 19.9838 | 4.8700e-003 | 0.0000 | 20.1055 |
| **Total** | **0.0201** | **0.1792** | **0.1459** | **2.3000e-004** | | **0.0110** | **0.0110** | | **0.0103** | **0.0103** | **0.0000** | **19.9838** | **19.9838** | **4.8700e-003** | **0.0000** | **20.1055** |

## 3.6 Building Construction - 2019

**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 | 4.1000e-004 | 0.0104 | 3.1900e-003 | 2.0000e-005 | 5.0000e-004 | 7.0000e-005 | 5.7000e-004 | 1.4000e-004 | 7.0000e-005 | 2.1000e-004 | 0.0000 | 2.0238 | 2.0238 | 1.3000e-004 | 0.0000 | 2.0269 |
| Worker | 2.3700e-003 | 1.6700e-003 | 0.0180 | 4.0000e-005 | 4.3100e-003 | 3.0000e-005 | 4.3400e-003 | 1.1500e-003 | 3.0000e-005 | 1.1700e-003 | 0.0000 | 3.9376 | 3.9376 | 1.2000e-004 | 0.0000 | 3.9407 |
| **Total** | **2.7800e-003** | **0.0121** | **0.0212** | **6.0000e-005** | **4.8100e-003** | **1.0000e-004** | **4.9100e-003** | **1.2900e-003** | **1.0000e-004** | **1.3800e-003** | **0.0000** | **5.9614** | **5.9614** | **2.5000e-004** | **0.0000** | **5.9676** |

## 3.6 Building Construction - 2020

**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 | 0.2258 | 2.0433 | 1.7944 | 2.8700e-003 | | 0.1190 | 0.1190 | | 0.1119 | 0.1119 | 0.0000 | 246.6646 | 246.6646 | 0.0602 | 0.0000 | 248.1691 |
| **Total** | **0.2258** | **2.0433** | **1.7944** | **2.8700e-003** | | **0.1190** | **0.1190** | | **0.1119** | **0.1119** | **0.0000** | **246.6646** | **246.6646** | **0.0602** | **0.0000** | **248.1691** |

## 3.6 Building Construction - 2020

### 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 | 4.0800e-003 | 0.1194 | 0.0333 | 2.6000e-004 | 6.2300e-003 | 6.2000e-004 | 6.8500e-003 | 1.8000e-003 | 5.9000e-004 | 2.3900e-003 | 0.0000 | 25.1993 | 25.1993 | 1.4900e-003 | 0.0000 | 25.2366 |
| Worker | 0.0274 | 0.0186 | 0.2034 | 5.3000e-004 | 0.0540 | 3.9000e-004 | 0.0544 | 0.0144 | 3.6000e-004 | 0.0147 | 0.0000 | 47.8193 | 47.8193 | 1.3500e-003 | 0.0000 | 47.8531 |
| **Total** | **0.0314** | **0.1380** | **0.2367** | **7.9000e-004** | **0.0602** | **1.0100e-003** | **0.0612** | **0.0162** | **9.5000e-004** | **0.0171** | **0.0000** | **73.0187** | **73.0187** | **2.8400e-003** | **0.0000** | **73.0898** |

### 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 | 0.2258 | 2.0433 | 1.7944 | 2.8700e-003 | | 0.1190 | 0.1190 | | 0.1119 | 0.1119 | 0.0000 | 246.6643 | 246.6643 | 0.0602 | 0.0000 | 248.1688 |
| **Total** | **0.2258** | **2.0433** | **1.7944** | **2.8700e-003** | | **0.1190** | **0.1190** | | **0.1119** | **0.1119** | **0.0000** | **246.6643** | **246.6643** | **0.0602** | **0.0000** | **248.1688** |

## 3.6 Building Construction - 2020

**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 | 4.0800e-003 | 0.1194 | 0.0333 | 2.6000e-004 | 6.2300e-003 | 6.2000e-004 | 6.8500e-003 | 1.8000e-003 | 5.9000e-004 | 2.3900e-003 | 0.0000 | 25.1993 | 25.1993 | 1.4900e-003 | 0.0000 | 25.2366 |
| Worker | 0.0274 | 0.0186 | 0.2034 | 5.3000e-004 | 0.0540 | 3.9000e-004 | 0.0544 | 0.0144 | 3.6000e-004 | 0.0147 | 0.0000 | 47.8193 | 47.8193 | 1.3500e-003 | 0.0000 | 47.8531 |
| **Total** | **0.0314** | **0.1380** | **0.2367** | **7.9000e-004** | **0.0602** | **1.0100e-003** | **0.0612** | **0.0162** | **9.5000e-004** | **0.0171** | **0.0000** | **73.0187** | **73.0187** | **2.8400e-003** | **0.0000** | **73.0898** |

## 3.7 Paving - 2020

**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 | 0.0190 | 0.1969 | 0.2051 | 3.2000e-004 | | 0.0105 | 0.0105 | | 9.7000e-003 | 9.7000e-003 | 0.0000 | 28.0395 | 28.0395 | 9.0700e-003 | 0.0000 | 28.2662 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0190** | **0.1969** | **0.2051** | **3.2000e-004** | | **0.0105** | **0.0105** | | **9.7000e-003** | **9.7000e-003** | **0.0000** | **28.0395** | **28.0395** | **9.0700e-003** | **0.0000** | **28.2662** |

## 3.7 Paving - 2020

### 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 | 7.8000e-004 | 5.3000e-004 | 5.8100e-003 | 2.0000e-005 | 1.5400e-003 | 1.0000e-005 | 1.5500e-003 | 4.1000e-004 | 1.0000e-005 | 4.2000e-004 | 0.0000 | 1.3666 | 1.3666 | 4.0000e-005 | 0.0000 | 1.3675 |
| **Total** | **7.8000e-004** | **5.3000e-004** | **5.8100e-003** | **2.0000e-005** | **1.5400e-003** | **1.0000e-005** | **1.5500e-003** | **4.1000e-004** | **1.0000e-005** | **4.2000e-004** | **0.0000** | **1.3666** | **1.3666** | **4.0000e-005** | **0.0000** | **1.3675** |

### 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 | 0.0190 | 0.1969 | 0.2051 | 3.2000e-004 | | 0.0105 | 0.0105 | | 9.7000e-003 | 9.7000e-003 | 0.0000 | 28.0395 | 28.0395 | 9.0700e-003 | 0.0000 | 28.2662 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0190** | **0.1969** | **0.2051** | **3.2000e-004** | | **0.0105** | **0.0105** | | **9.7000e-003** | **9.7000e-003** | **0.0000** | **28.0395** | **28.0395** | **9.0700e-003** | **0.0000** | **28.2662** |

## 3.7 Paving - 2020

**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 | 7.8000e-004 | 5.3000e-004 | 5.8100e-003 | 2.0000e-005 | 1.5400e-003 | 1.0000e-005 | 1.5500e-003 | 4.1000e-004 | 1.0000e-005 | 4.2000e-004 | 0.0000 | 1.3666 | 1.3666 | 4.0000e-005 | 0.0000 | 1.3675 |
| **Total** | **7.8000e-004** | **5.3000e-004** | **5.8100e-003** | **2.0000e-005** | **1.5400e-003** | **1.0000e-005** | **1.5500e-003** | **4.1000e-004** | **1.0000e-005** | **4.2000e-004** | **0.0000** | **1.3666** | **1.3666** | **4.0000e-005** | **0.0000** | **1.3675** |

## 3.8 Architectural Coating - 2020

**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 | 0.1971 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.5400e-003 | 0.0177 | 0.0192 | 3.0000e-005 | | 1.1600e-003 | 1.1600e-003 | | 1.1600e-003 | 1.1600e-003 | 0.0000 | 2.6809 | 2.6809 | 2.1000e-004 | 0.0000 | 2.6861 |
| **Total** | **0.1996** | **0.0177** | **0.0192** | **3.0000e-005** | | **1.1600e-003** | **1.1600e-003** | | **1.1600e-003** | **1.1600e-003** | **0.0000** | **2.6809** | **2.6809** | **2.1000e-004** | **0.0000** | **2.6861** |

## 3.8 Architectural Coating - 2020

**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 | 3.7000e-004 | 4.0700e-003 | 1.0000e-005 | 1.0800e-003 | 1.0000e-005 | 1.0900e-003 | 2.9000e-004 | 1.0000e-005 | 2.9000e-004 | 0.0000 | 0.9566 | 0.9566 | 3.0000e-005 | 0.0000 | 0.9573 |
| **Total** | **5.5000e-004** | **3.7000e-004** | **4.0700e-003** | **1.0000e-005** | **1.0800e-003** | **1.0000e-005** | **1.0900e-003** | **2.9000e-004** | **1.0000e-005** | **2.9000e-004** | **0.0000** | **0.9566** | **0.9566** | **3.0000e-005** | **0.0000** | **0.9573** |

**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 | 0.1971 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.5400e-003 | 0.0177 | 0.0192 | 3.0000e-005 | | 1.1600e-003 | 1.1600e-003 | | 1.1600e-003 | 1.1600e-003 | 0.0000 | 2.6809 | 2.6809 | 2.1000e-004 | 0.0000 | 2.6861 |
| **Total** | **0.1996** | **0.0177** | **0.0192** | **3.0000e-005** | | **1.1600e-003** | **1.1600e-003** | | **1.1600e-003** | **1.1600e-003** | **0.0000** | **2.6809** | **2.6809** | **2.1000e-004** | **0.0000** | **2.6861** |

## 3.8 Architectural Coating - 2020

**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 | 3.7000e-004 | 4.0700e-003 | 1.0000e-005 | 1.0800e-003 | 1.0000e-005 | 1.0900e-003 | 2.9000e-004 | 1.0000e-005 | 2.9000e-004 | 0.0000 | 0.9566 | 0.9566 | 3.0000e-005 | 0.0000 | 0.9573 |
| **Total** | **5.5000e-004** | **3.7000e-004** | **4.0700e-003** | **1.0000e-005** | **1.0800e-003** | **1.0000e-005** | **1.0900e-003** | **2.9000e-004** | **1.0000e-005** | **2.9000e-004** | **0.0000** | **0.9566** | **0.9566** | **3.0000e-005** | **0.0000** | **0.9573** |

## 3.8 Architectural Coating - 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 | | | | | |
| Archit. Coating | 0.4036 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.7100e-003 | 0.0328 | 0.0391 | 6.0000e-005 | | 2.0200e-003 | 2.0200e-003 | | 2.0200e-003 | 2.0200e-003 | 0.0000 | 5.4895 | 5.4895 | 3.8000e-004 | 0.0000 | 5.4989 |
| **Total** | **0.4083** | **0.0328** | **0.0391** | **6.0000e-005** | | **2.0200e-003** | **2.0200e-003** | | **2.0200e-003** | **2.0200e-003** | **0.0000** | **5.4895** | **5.4895** | **3.8000e-004** | **0.0000** | **5.4989** |

## 3.8 Architectural Coating - 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 | 1.0400e-003 | 6.8000e-004 | 7.6200e-003 | 2.0000e-005 | 2.2100e-003 | 2.0000e-005 | 2.2300e-003 | 5.9000e-004 | 1.0000e-005 | 6.0000e-004 | 0.0000 | 1.8920 | 1.8920 | 5.0000e-005 | 0.0000 | 1.8933 |
| **Total** | **1.0400e-003** | **6.8000e-004** | **7.6200e-003** | **2.0000e-005** | **2.2100e-003** | **2.0000e-005** | **2.2300e-003** | **5.9000e-004** | **1.0000e-005** | **6.0000e-004** | **0.0000** | **1.8920** | **1.8920** | **5.0000e-005** | **0.0000** | **1.8933** |

**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 | 0.4036 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.7100e-003 | 0.0328 | 0.0391 | 6.0000e-005 | | 2.0200e-003 | 2.0200e-003 | | 2.0200e-003 | 2.0200e-003 | 0.0000 | 5.4895 | 5.4895 | 3.8000e-004 | 0.0000 | 5.4989 |
| **Total** | **0.4083** | **0.0328** | **0.0391** | **6.0000e-005** | | **2.0200e-003** | **2.0200e-003** | | **2.0200e-003** | **2.0200e-003** | **0.0000** | **5.4895** | **5.4895** | **3.8000e-004** | **0.0000** | **5.4989** |

## 3.8 Architectural Coating - 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 | 1.0400e-003 | 6.8000e-004 | 7.6200e-003 | 2.0000e-005 | 2.2100e-003 | 2.0000e-005 | 2.2300e-003 | 5.9000e-004 | 1.0000e-005 | 6.0000e-004 | 0.0000 | 1.8920 | 1.8920 | 5.0000e-005 | 0.0000 | 1.8933 |
| **Total** | **1.0400e-003** | **6.8000e-004** | **7.6200e-003** | **2.0000e-005** | **2.2100e-003** | **2.0000e-005** | **2.2300e-003** | **5.9000e-004** | **1.0000e-005** | **6.0000e-004** | **0.0000** | **1.8920** | **1.8920** | **5.0000e-005** | **0.0000** | **1.8933** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | 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 | 0.0590 | 0.2545 | 0.6996 | 2.1200e-003 | 0.1792 | 1.9100e-003 | 0.1811 | 0.0481 | 1.7900e-003 | 0.0498 | 0.0000 | 195.0315 | 195.0315 | 9.5800e-003 | 0.0000 | 195.2709 |
| Unmitigated | 0.0590 | 0.2545 | 0.6996 | 2.1200e-003 | 0.1792 | 1.9100e-003 | 0.1811 | 0.0481 | 1.7900e-003 | 0.0498 | 0.0000 | 195.0315 | 195.0315 | 9.5800e-003 | 0.0000 | 195.2709 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 187.20 | 187.20 | 187.20 | 480,376 | 480,376 |
| Total | 187.20 | 187.20 | 187.20 | 480,376 | 480,376 |

## 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 |
| Apartments Low Rise | 10.00 | 5.00 | 6.50 | 46.50 | 12.50 | 41.00 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.555851 | 0.039752 | 0.205040 | 0.120748 | 0.020349 | 0.005402 | 0.018507 | 0.022668 | 0.002052 | 0.002157 | 0.005939 | 0.000618 | 0.000915 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | 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 | 125.5129 | 125.5129 | 5.6800e-003 | 1.1700e-003 | 126.0047 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 125.5129 | 125.5129 | 5.6800e-003 | 1.1700e-003 | 126.0047 |
| NaturalGas Mitigated | 6.2600e-003 | 0.0535 | 0.0228 | 3.4000e-004 | | 4.3300e-003 | 4.3300e-003 | | 4.3300e-003 | 4.3300e-003 | 0.0000 | 61.9808 | 61.9808 | 1.1900e-003 | 1.1400e-003 | 62.3492 |
| NaturalGas Unmitigated | 6.2600e-003 | 0.0535 | 0.0228 | 3.4000e-004 | | 4.3300e-003 | 4.3300e-003 | | 4.3300e-003 | 4.3300e-003 | 0.0000 | 61.9808 | 61.9808 | 1.1900e-003 | 1.1400e-003 | 62.3492 |

## 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 | | | | | |
| Apartments Low Rise | 1.16148e+006 | 6.2600e-003 | 0.0535 | 0.0228 | 3.4000e-004 | | 4.3300e-003 | 4.3300e-003 | | 4.3300e-003 | 4.3300e-003 | 0.0000 | 61.9808 | 61.9808 | 1.1900e-003 | 1.1400e-003 | 62.3492 |
| **Total** | | **6.2600e-003** | **0.0535** | **0.0228** | **3.4000e-004** | | **4.3300e-003** | **4.3300e-003** | | **4.3300e-003** | **4.3300e-003** | **0.0000** | **61.9808** | **61.9808** | **1.1900e-003** | **1.1400e-003** | **62.3492** |

## 5.2 Energy by Land Use - NaturalGas

**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 | | | | | |
| Apartments Low Rise | 1.16148e+006 | 6.2600e-003 | 0.0535 | 0.0228 | 3.4000e-004 | | 4.3300e-003 | 4.3300e-003 | | 4.3300e-003 | 4.3300e-003 | 0.0000 | 61.9808 | 61.9808 | 1.1900e-003 | 1.1400e-003 | 62.3492 |
| **Total** | | **6.2600e-003** | **0.0535** | **0.0228** | **3.4000e-004** | | **4.3300e-003** | **4.3300e-003** | | **4.3300e-003** | **4.3300e-003** | **0.0000** | **61.9808** | **61.9808** | **1.1900e-003** | **1.1400e-003** | **62.3492** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments Low Rise | 431447 | 125.5129 | 5.6800e-003 | 1.1700e-003 | 126.0047 |
| **Total** | | **125.5129** | **5.6800e-003** | **1.1700e-003** | **126.0047** |

### 5.3 Energy by Land Use - Electricity

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments Low Rise | 431447 | 125.5129 | 5.6800e-003 | 1.1700e-003 | 126.0047 |
| **Total** | | **125.5129** | **5.6800e-003** | **1.1700e-003** | **126.0047** |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | 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 | 0.4651 | 0.0115 | 0.9922 | 5.0000e-005 | | 5.4700e-003 | 5.4700e-003 | | 5.4700e-003 | 5.4700e-003 | 0.0000 | 1.6172 | 1.6172 | 1.5700e-003 | 0.0000 | 1.6564 |
| Unmitigated | 0.4651 | 0.0115 | 0.9922 | 5.0000e-005 | | 5.4700e-003 | 5.4700e-003 | | 5.4700e-003 | 5.4700e-003 | 0.0000 | 1.6172 | 1.6172 | 1.5700e-003 | 0.0000 | 1.6564 |

## 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 | 0.0601 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.3749 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0301 | 0.0115 | 0.9922 | 5.0000e-005 | | 5.4700e-003 | 5.4700e-003 | | 5.4700e-003 | 5.4700e-003 | 0.0000 | 1.6172 | 1.6172 | 1.5700e-003 | 0.0000 | 1.6564 |
| **Total** | **0.4651** | **0.0115** | **0.9922** | **5.0000e-005** | | **5.4700e-003** | **5.4700e-003** | | **5.4700e-003** | **5.4700e-003** | **0.0000** | **1.6172** | **1.6172** | **1.5700e-003** | **0.0000** | **1.6564** |

## 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 | 0.0601 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.3749 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0301 | 0.0115 | 0.9922 | 5.0000e-005 | | 5.4700e-003 | 5.4700e-003 | | 5.4700e-003 | 5.4700e-003 | 0.0000 | 1.6172 | 1.6172 | 1.5700e-003 | 0.0000 | 1.6564 |
| **Total** | **0.4651** | **0.0115** | **0.9922** | **5.0000e-005** | | **5.4700e-003** | **5.4700e-003** | | **5.4700e-003** | **5.4700e-003** | **0.0000** | **1.6172** | **1.6172** | **1.5700e-003** | **0.0000** | **1.6564** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 15.2942 | 8.2100e-003 | 4.9300e-003 | 16.9700 |
| Unmitigated | 15.2942 | 8.2100e-003 | 4.9300e-003 | 16.9700 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments Low Rise | 6.25479 / 3.94323 | 15.2942 | 8.2100e-003 | 4.9300e-003 | 16.9700 |
| **Total** | | **15.2942** | **8.2100e-003** | **4.9300e-003** | **16.9700** |

### 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments Low Rise | 6.25479 / 3.94323 | 15.2942 | 8.2100e-003 | 4.9300e-003 | 16.9700 |
| **Total** | | **15.2942** | **8.2100e-003** | **4.9300e-003** | **16.9700** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 8.9641 | 0.5298 | 0.0000 | 22.2081 |
| Unmitigated | 8.9641 | 0.5298 | 0.0000 | 22.2081 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments Low Rise | 44.16 | 8.9641 | 0.5298 | 0.0000 | 22.2081 |
| **Total** | | **8.9641** | **0.5298** | **0.0000** | **22.2081** |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments Low Rise | 44.16 | 8.9641 | 0.5298 | 0.0000 | 22.2081 |
| **Total** | | **8.9641** | **0.5298** | **0.0000** | **22.2081** |

## 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

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT | | | |
| Unmitigated | -17.2400 | 0.0000 | 0.0000 | -17.2400 |

## 11.1 Vegetation Land Change

**Vegetation Type**

| | Initial/Final | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| | Acres | MT | | | |
| Grassland | 4 / 1 | -12.9300 | 0.0000 | 0.0000 | -12.9300 |
| Trees | 2 / 1 | -4.3100 | 0.0000 | 0.0000 | -4.3100 |
| **Total** | | **-17.2400** | **0.0000** | **0.0000** | **-17.2400** |

## 11.2 Net New Trees

**Species Class**

| | Number of Trees | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| | | MT | | | |
| Aspen | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

# APPENDIX F: ENERGY CONSERVATION CALCULATIONS

## Off-road Mobile (Construction) Energy Usage

Note: For the sake of simplicity, and as a conservative estimation, it was assumed that all off-road vehicles use diesel fuel as an energy source.
Demolition, site preparation, and grading energy were used as the basis of this calculation.

| | | | | |
|---|---|---|---|---|
| **Given Factor:** | **79.95** | **metric tons** | **CO2** | **(provided in CalEEMod Output File)** |
| Conversion Factor: | 2204.62 | pounds | per metric ton | |
| **Intermediate Result:** | **176,254** | **pounds** | **CO2** | |
| Conversion Factor: | 22.38 | pounds | CO2 per 1 gallon of diesel fuel | (Source: U.S. EIA, 2016. |
| **Final Result:** | **7,875.51** | **gallons** | **diesel fuel** | Website: http://www.eia.gov/tools/faqs/faq.cfm?id=307&t=11) |

# On-road Mobile (Operational) Energy Usage

Note: For the sake of simplicity, it was assumed that passenger vehicles, light duty trucks, motorcycles, and mobile homes use gasoline, and all medium-duty trucks, heavy-duty trucks, and buses use diesel fuel.

**Unmitigated:**

Step 1: **Total Net Daily Trips (provided by Omni-Means)**

179

| *Res H-W* | *Res H-S* | *Res H-O* |
|---|---|---|
| **Trip Length (miles) (provided by CalEEMod)** | | |
| 10 | 5 | 6.5 |
| **Trip %** | | |
| 42.60% | 12.50% | 41.00% |

**Average Trip Length (weighted average)**

**7.5500**

Therefore:

**Average Daily VMT:**

**1,351**

Step 2: Given:

**Fleet Mix (provided by CalEEMod v2016.3.2)**

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52.9% | 4.8% | 18.8% | 14.1% | 2.8% | 0.6% | 1.5% | 0.8% | 0.1% | 0.1% | 3.0% | 0.1% | 0.5% |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2018**

| LDA | LDT1 | LDT2 | MDV | MCY | MH | OBUS |
|---|---|---|---|---|---|---|
| 27.19147164 | 22.89247 | 20.25539 | 15.12783416 | 37.03807873 | 6.489482957 | 6.389326 |

**Diesel MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020**

| LHD1 | LHD2 | MHD | HHD | UBUS | SBUS |
|---|---|---|---|---|---|
| 17.07659601 | 15.33739 | 8.136619 | 5.432521594 | 4.800897734 | 7.178678959 |

Therefore:

**Weighted Average MPG Factors**

Gasoline: **24.0** Diesel: **12.6**

Step 3: **Therefore:**

**53 daily gallons of gasoline** **6 daily gallons of diesel**

**or**

| | | | |
|---|---|---|---|
| **19,353** | **annual gallons of gasoline** | **2,326** | **annual gallons of diesel** |

# On-road Mobile (Construction) Energy Usage - Demolition

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

15

**Worker Trip Length (miles) (provided by CalEEMod)**

10

Therefore:

**Average Worker Daily VMT:**

**150**

Step 2: Given:

**Assumed Fleet Mix for Workers (provided by CalEEMod v2016.3.2)**

| **LDA** | **LDT1** | **LDT2** |
|---|---|---|
| 0.3333333 | 0.333333 | 0.333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2018**

| **LDA** | **LDT1** | **LDT2** |
|---|---|---|
| 27.191472 | 22.89247 | 20.25539 |

Therefore:

**Weighted Average Worker MPG Factor**

**23.4**

Step 3: **Therefore:**

**6.4** **Worker daily gallons of gasoline**

Step 4: 20 **# of Days (see CalEEMod)**

Therefore:

**Result:** **128** **Total gallons of gasoline**

# On-road Mobile (Construction) Energy Usage - Site Preparation

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

18

**Worker Trip Length (miles) (provided by CalEEMod)**

10

Therefore:

**Average Worker Daily VMT:**

**180**

Step 2: Given:

**Assumed Fleet Mix for Workers (provided by CalEEMod v2016.3.2)**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.3333333 | 0.333333 | 0.333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2018**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 27.191472 | 22.89247 | 20.25539 |

Therefore:

**Weighted Average Worker MPG Factor**

**23.4**

Step 3: **Therefore:**

**7.7** **Worker daily gallons of gasoline**

Step 4: 5 **# of Days (see CalEEMod)**

Therefore:

**Result:** **38** **Total gallons of gasoline**

# On-road Mobile (Construction) Energy Usage - Grading

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

15

**Worker Trip Length (miles) (provided by CalEEMod)**

10

Therefore:

**Average Worker Daily VMT:**

**150**

Step 2: Given:

**Assumed Fleet Mix for Workers (provided by CalEEMod v2016.3.2)**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.3333333 | 0.333333 | 0.333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2018**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 27.191472 | 22.89247 | 20.25539 |

Therefore:

**Weighted Average Worker MPG Factor**

**23.4**

Step 3: **Therefore:**

**6.4** **Worker daily gallons of gasoline**

Step 4: 8 **# of Days (see CalEEMod)**

Therefore:

**Result:** **51** **Total gallons of gasoline**

## On-road Mobile (Construction) Energy Usage - Building Construction

Step 1:

| Total Daily Worker Trips (provided by CalEEMod) | Total Daily Vendor Trips (provided by CalEEMod) | Total Daily Hauler Trips (provided by CalEEMod) |
|---|---|---|
| 69 | 10 | 0 |

| Worker Trip Length (miles) (provided by CalEEMod) | Vendor Trip Length (miles) (provided by CalEEMod) | Hauling Trip Length (miles) (provided by CalEEMod) |
|---|---|---|
| 10 | 6.5 | 0 |

Therefore:

| Average Worker Daily VMT: | Average Vendor Daily VMT: | Average Hauling Daily VMT: |
|---|---|---|
| **690.00** | **65** | **-** |

Step 2:

Given:

**Assumed Fleet Mix for Workers (provided by CalEEMod v2016.3.2)**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.33333333 | 0.333333 | 0.333333 |

**Assumed Fleet Mix for Vendors (provided by CalEEMod v2016.3.2)**

| MHD | HHD |
|---|---|
| 0.5 | 0.5 |

And:

**MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2018**

**Gasoline:**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 27.1914716 | 22.89247 | 20.25539 |

**Diesel:**

| MHD | HHD |
|---|---|
| 8.136618526 | 5.432522 |

Therefore:

| Weighted Average Worker (Gasoline) MPG Factor | Weighted Average Vendor (Diesel) MPG Factor | Weighted Average Hauling MPG Factor |
|---|---|---|
| **23.4** | **6.8** | **0.0** |

Step 3:

| Therefore: | Therefore: | Therefore: |
|---|---|---|
| **29** Worker daily gallons of gasoline | **10** Vendor daily gallons of diesel | **0.0** |

Step 4:

273 **# of Days (see CalEEMod)**

| Therefore: | Therefore: |
|---|---|
| **8,034** Total gallons of gasoline | **2,615** Total gallons of diesel |

# On-road Mobile (Construction) Energy Usage - Paving

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

15

**Worker Trip Length (miles) (provided by CalEEMod)**

10

Therefore:

**Average Worker Daily VMT:**

**150**

Step 2: Given:

**Assumed Fleet Mix for Workers (provided by CalEEMod v2016.3.2)**

| **LDA** | **LDT1** | **LDT2** |
|---|---|---|
| 0.3333333 | 0.333333 | 0.333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2018**

| **LDA** | **LDT1** | **LDT2** |
|---|---|---|
| 27.191472 | 22.89247 | 20.25539 |

Therefore:

**Weighted Average Worker MPG Factor**

**23.4**

Step 3: **Therefore:**

**6.4** **Worker daily gallons of gasoline**

Step 4: 22 **# of Days (see CalEEMod)**

Therefore:

**Result:** **141** **Total gallons of gasoline**

# On-road Mobile (Construction) Energy Usage - Architectural Coating

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

14

**Worker Trip Length (miles) (provided by CalEEMod)**

10

Therefore:

**Average Worker Daily VMT:**

**140**

Step 2: Given:

**Assumed Fleet Mix for Workers (provided by CalEEMod v2016.3.2)**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.3333333 | 0.333333 | 0.333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2018**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 27.191472 | 22.89247 | 20.25539 |

Therefore:

**Weighted Average Worker MPG Factor**

**23.4**

Step 3: **Therefore:**

**6.0** **Worker daily gallons of gasoline**

Step 4: 18 **# of Days (see CalEEMod)**

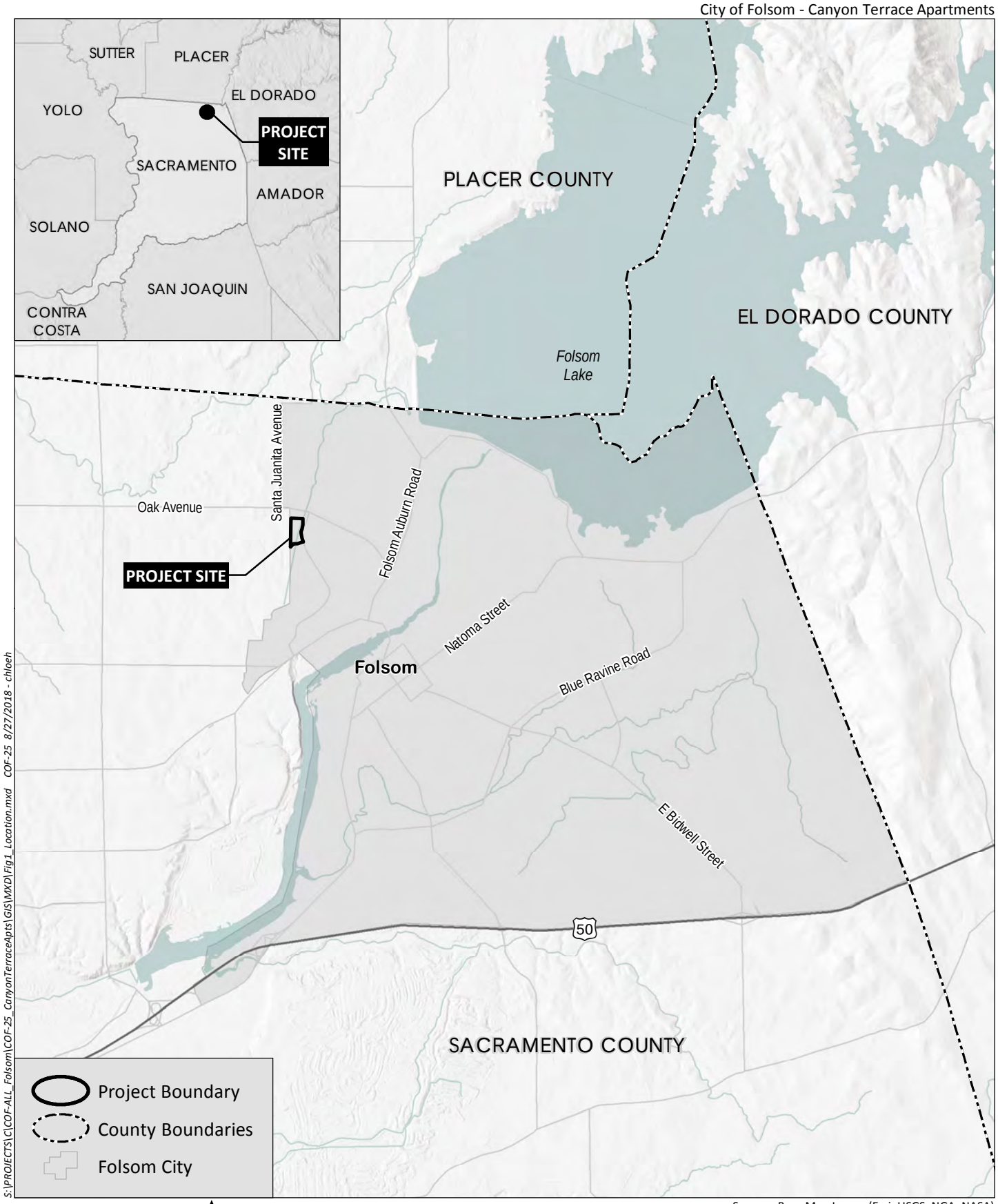
Therefore:

**Result:** **107** **Total gallons of gasoline**

# EMFAC 2014: YEAR 2018 SACRAMENTO COUNTY VEHICLE EMISSIONS OUTPUT

EMFAC2014 (v1.0.7) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2018
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

| Region | CalYr | VehClass | Fuel | VMT | Trips | Fuel_Consumption | MPG (derived) | | |
|---|---|---|---|---|---|---|---|---|---|
| Sacrament | 2018 | All Other Buses | DSL | 22022.63 | 0 | 2.764255328 | | | |
| Sacrament | 2018 | LDA | GAS | 19389304 | 3354318 | 713.0656205 | **27.19147164** | | |
| Sacrament | 2018 | LDA | DSL | 175466.5 | 27319.33 | 4.839280595 | | | |
| Sacrament | 2018 | LDA | ELEC | 250009.6 | 32187.08 | 0 | | | |
| Sacrament | 2018 | LDT1 | GAS | 1599959 | 294575.4 | 69.89017687 | **22.89247119** | | |
| Sacrament | 2018 | LDT1 | DSL | 5456.92 | 1291.866 | 0.205812381 | | | |
| Sacrament | 2018 | LDT1 | ELEC | 2101.567 | 437.7076 | 0 | | | |
| Sacrament | 2018 | LDT2 | GAS | 7333600 | 1209109 | 362.0567723 | **20.25538627** | | |
| Sacrament | 2018 | LDT2 | DSL | 10764.78 | 1476.405 | 0.379016273 | | | |
| Sacrament | 2018 | LHD1 | GAS | 474704 | 229205.9 | 49.73374951 | | | |
| Sacrament | 2018 | LHD1 | DSL | 441704.1 | 163905.6 | 25.86604885 | **17.07659601** | | |
| Sacrament | 2018 | LHD2 | GAS | 73553.13 | 30660.48 | 8.531198494 | | | |
| Sacrament | 2018 | LHD2 | DSL | 145459.3 | 47593.28 | 9.483970012 | **15.33738627** | | |
| Sacrament | 2018 | MCY | GAS | 223807.4 | 61388.78 | 6.042629991 | **37.03807873** | | |
| Sacrament | 2018 | MDV | GAS | 4709083 | 883917.1 | 311.2860194 | **15.12783416** | | |
| Sacrament | 2018 | MDV | DSL | 62872.07 | 8830.852 | 2.87585288 | | | |
| Sacrament | 2018 | MH | GAS | 32017.16 | 385.9444 | 4.9337 | **6.489482957** | | |
| Sacrament | 2018 | MH | DSL | 8049.659 | 90.02752 | 0.85056111 | | | |
| Sacrament | 2018 | Motor Coach | DSL | 16044.14 | 0 | 2.92109018 | | | |
| Sacrament | 2018 | OBUS | GAS | 39977.25 | 14709.44 | 6.256880783 | **6.389326174** | | |
| Sacrament | 2018 | PTO | DSL | 23824.24 | 0 | 4.884692025 | | | |
| Sacrament | 2018 | SBUS | GAS | 6331.818 | 504.8684 | 0.550901827 | | | |
| Sacrament | 2018 | SBUS | DSL | 16477.23 | 0 | 2.295301607 | **7.178678959** | | |
| Sacrament | 2018 | T6 Ag | DSL | 17604.19 | 0 | 2.230900374 | **7.891067671** | **8.136619** | Note: Average of T6 |
| Sacrament | 2018 | T6 CAIRP heavy | DSL | 2440.878 | 0 | 0.29466224 | **8.283648588** | | |
| Sacrament | 2018 | T6 CAIRP small | DSL | 7492.894 | 0 | 0.907323727 | **8.258237055** | | |
| Sacrament | 2018 | T6 instate constru | DSL | 7935.149 | 0 | 0.974414529 | **8.143504439** | | |
| Sacrament | 2018 | T6 instate constru | DSL | 59793.32 | 0 | 7.303348374 | **8.187110467** | | |
| Sacrament | 2018 | T6 instate heavy | DSL | 113538.6 | 0 | 13.86033702 | **8.19162173** | | |
| Sacrament | 2018 | T6 instate small | DSL | 282265.2 | 0 | 34.48391015 | **8.18541812** | | |
| Sacrament | 2018 | T6 OOS heavy | DSL | 1398.532 | 0 | 0.168999473 | **8.275360824** | | |
| Sacrament | 2018 | T6 OOS small | DSL | 4293.147 | 0 | 0.519862397 | **8.258237055** | | |
| Sacrament | 2018 | T6 Public | DSL | 64635.44 | 0 | 8.115433732 | **7.96450883** | | |
| Sacrament | 2018 | T6 utility | DSL | 2701.625 | 0 | 0.343539417 | **7.864089005** | | |
| Sacrament | 2018 | T6TS | GAS | 101996 | 42763.96 | 16.50271669 | | | |
| Sacrament | 2018 | T7 Ag | DSL | 4668.489 | 0 | 0.879763825 | **5.306525419** | **5.432522** | Note: Average of T7 |
| Sacrament | 2018 | T7 CAIRP | DSL | 133116.3 | 0 | 23.25479458 | **5.724250409** | | |
| Sacrament | 2018 | T7 CAIRP construc | DSL | 5629.134 | 0 | 0.98845665 | **5.69487217** | | |
| Sacrament | 2018 | T7 NNOOS | DSL | 165064.3 | 0 | 27.05698173 | **6.100619013** | | |
| Sacrament | 2018 | T7 NOOS | DSL | 52580.89 | 0 | 9.374457966 | **5.608952171** | | |
| Sacrament | 2018 | T7 other port | DSL | 1590.255 | 0 | 0.269567228 | **5.899290464** | | |
| Sacrament | 2018 | T7 POAK | DSL | 3165.448 | 0 | 0.55369467 | **5.716955204** | | |
| Sacrament | 2018 | T7 Public | DSL | 90263.59 | 0 | 18.40896524 | **4.903240767** | | |
| Sacrament | 2018 | T7 Single | DSL | 119983.6 | 0 | 19.91018145 | **6.026245565** | | |
| Sacrament | 2018 | T7 single construc | DSL | 14561.83 | 0 | 2.467570859 | **5.901281273** | | |
| Sacrament | 2018 | T7 SWCV | DSL | 29410.63 | 0 | 12.79407196 | **2.298770102** | | |
| Sacrament | 2018 | T7 tractor | DSL | 88983.59 | 0 | 14.80775376 | **6.009256571** | | |
| Sacrament | 2018 | T7 tractor constru | DSL | 10856.92 | 0 | 1.858463161 | **5.841880826** | | |
| Sacrament | 2018 | T7 utility | DSL | 494.7772 | 0 | 0.097084925 | **5.096333518** | | |
| Sacrament | 2018 | T7IS | GAS | 10367.24 | 2114.564 | 2.396015451 | **4.326866435** | | |
| Sacrament | 2018 | UBUS | GAS | 38784.45 | 1040.504 | 7.93848827 | | | |
| Sacrament | 2018 | UBUS | DSL | 53739.79 | 1445.733 | 11.19369559 | **4.800897734** | | |




S:\PROJECTS\C\COF-ALL_Folsom\COF-25_CanyonTerraceApts\GIS\MXD\Fig1_Location.mxd COF-25 8/27/2018 - chloeh

0 1.25 Miles

Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

# Regional Location

Figure 1

S:\PROJECTS\C\COF-ALL_Folsom\COF-25_CanyonTerraceApts\GIS\MXD\Fig2_Aerial.mxd COF_25 9/13/2018 - LesleyS

0 250 Feet

Source: Base Map Layers (Esri)

HELIX Environmental Planning

# Aerial Map

Figure 2

S:\PROJECTS\C\COF-ALL_Folsom\COF-25_CanyonTerraceApts\GIS\MG\Figure3_SiteDesignPlan.indd ABC-01 04/17/17 -!!

Source: MVE Partners 2019

# Site Design Plan

Figure 3

# Appendix C

## Consulting Arborist Report

ABACUS
CONSULTING ARBORISTS

P.O. Box 4248
Auburn, CA 95604
www.abacus-tree.com (530) 305-0165 Nicole.Abacus@gmail.com

# Consulting Arborist Report

Prepared at the request of:

**Scott Robertson**

Of

## Omni Means, Ltd.

For

## Canyon Terrace Apartments

Located at

1600 Canyon Terrace Lane,
Folsom, CA

**By:**
Nicole Harrison

March 22, 2016

Nicole Harrison © 2016
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## Executive Summary:

Scott Robertson of Omni-Means, the property owner's representative, contacted **ABACUS Consulting Arborists** to inventory and evaluate the protected trees and produce an Arborist Report as the end product. The property is Canyon Terrace Apartments at 1600 Canyon Terrace Lane, in Folsom, California.

Nicole Harrison, ISA Certified Arborist #WE-6500AM, TRAQ, of **ABACUS Consulting Arborists** was on site from February 20th to March 12th, 2016, providing species identification, number of trunks, measurements of DBH and canopy, field condition notes, recommended actions, and ratings.

There are **NO** trees on this property that qualify as "protected trees" by the standards of the Folsom Tree Ordinance. This property contains the following species:

| | |
|---|---|
| Aleppo Pine | London Plane Tree |
| American Sweetgum | Maytens Tree |
| Ash species | Mexican Fan Palm |
| Callery Pear | Purple Leaf Plum |
| Chinese Evergreen Elm | Red Maple |
| Chinese Pistache | Silver Maple |
| Coast Redwood | Tulip Tree |
| Deodar Cedar | White Alder |
| Honey Locust | |

There are 183 total trees inventoried.

The condition of each tree is included in ***Chart B – Tree Inventory.***

## Assignment:

Pursuant to your request, **ABACUS** has completed an inventory of all the trees located on-site. We provided species identification, number of stems, measurements of DBH and canopy, field condition notes, recommended actions, and ratings

## Observations:

Nicole Harrison, *ISA Certified Arborist #WE-6500AM*, evaluated all protected trees that met the requirements of the City of Folsom Tree Ordinance. The fieldwork was performed from February 20th to March 12th, 2016.

The trees (on-site) tagged by **ABACUS** have a numbered tag, placed on each one that is 1-1/8" x 1-3/8", green anodized aluminum, "acorn" shaped, and labeled: **ABACUS**, Auburn, CA with 1/8" pre-stamped tree number, our phone number 530-889-0603, attached with a natural colored aluminum 10d (3") nail, installed at 6 feet above ground level on the north side of the tree. The tag should last ~10 – 20+ years depending on the species, before it is enveloped by the trees' normal growth cycle.

Tree Site Map is by others. All of the other information within this report is by **ABACUS**.

***Chart B*** in this report is an inventory on the trees. The following terms, and ***Chart A*** will further explain our findings on ***Chart B*** and the trees in question.

**Species** of trees is listed by our local and correct common name and botanical name by genus (capitalized) and species (lower case). Oaks frequently cross-pollinate and hybridize, but the identification is towards the strongest characteristics.

**# Stems** refers to the quantity of trunks or stems of a tree that have a significant connection. If one stem or trunk were to be removed, it would cause decay to harm an adjoining stem, making it one tree. All stems must be of the same species. (Also see "Tree SIZE Expressed by Trunk Diameter" at the end of this report)

**DBH** (diameter breast high) is normally measured at 4'6" (above the average ground height for "Urban Forestry"), but if that varies then the location where it is measured is noted here. A Swedish caliper [1] was used to measure the DBH for trees less than 26" in diameter and a steel diameter tape[2] for trees greater than 26"Ø.

**Canopy** is the farthest extent of the crown composed of leaves and small twigs. This measurement further defines the Critical Root Zone (CRZ) or Protection Zone (PZ), which is a circular area around a tree with a radius equal to a tree's largest dripline plus 1'. Our canopy measurement is the longest dripline measurement from the center point of the tree and includes the 1' only on the Tree Site Map.

**Rating** is subjective to condition and is based on both the health and structure of the tree. All of the trees were rated for condition, per the recognized national standard as set up by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture (ISA) on a numeric scale of 5 (being the highest) to 0 (the worst condition, dead) as in Chart A. The rating was done in the field at the time of the measuring and inspection. The scale is as follows:

[1] A large wooden sliding adjustable thickness gauge calibrated in 1/16" increments.

[2] Diameter Tape is used to figure the tree's diameter, by measuring the circumference, whereon the inches are pre- multiplied by 3.14 or π (π called pi) and shown to produce the diameter of the tree directly on the tape.

# Chart A – Ratings Description

| | | |
|---|---|---|
| No problem(s) | 5 | excellent |
| No apparent problem(s) | 4 | good |
| Minor problem(s) | 3 | fair |
| Major problem(s) | 2 | poor |
| Extreme problem(s) | 1 | hazardous, non-correctable |
| Dead | 0 | dead |

There is a very important line drawn between a tree rated a **3** and a **2**. A tree rated **3**, **4**, or **5** is a tree to be preserved, and a tree rated **0**, **1**, or **2** is recommended for removal. On the following tree list **BLACK** marks are field notes and action items on trees that are to remain, and **RED** are trees that are recommended for removal, Trees rated a **2** may be retained but only if the recommendations are followed, otherwise the tree should be removed.

**Rating #0:** This indicates a tree that has no significant sign of life.

**Rating #1:** The problems are extreme. This rating is assigned to a tree that has structural and/or health problems that no amount of work or effort can change. The issues may or may not be considered a dangerous situation.

**Rating #2:** The tree has major problems. If the option is taken to preserve the tree, its condition could be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. If the recommended actions are completed correctly, hazard can be reduced and the rating can be elevated to a 3. If no action is taken the tree is considered a liability and should be removed.

**Rating #3:** The tree is in fair condition. There are some minor structural or health problems that pose no immediate danger. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated.

**Rating #4:** The tree is in good condition and there are no apparent problems that a Certified Arborist can see from a visual ground inspection. If potential structural or health problems are tended to at this stage future hazard can be reduced and more serious health problems can be averted.

**Rating #5:** No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect characteristics for the species. Highly rated trees are not common in natural or developed landscapes. No tree is ever perfect especially with the unpredictability of nature, but with this highest rating, the condition should be considered excellent.

**Notes:** explain why the tree should be removed or preserved. If it is to remain and be preserved the tree may need some form of work to limit future liability from partial or total failure. Lower deadwood may not be an immediate problem, but the same size wood at a much higher location on the trees could be dangerous and might cause a minor injury to a fatal blow if the branch failed.

# Common terms:

**CDL:** **C**o-**D**ominant **L**eader: Stems or trunks of the tree that are equal in size and relative importance.

**CRZ:** **C**ritical **R**oot **Z**one: The canopy is the farthest extent of the crown composed of leaves and small twigs. This measurement further defines the CRZ, which is a circular area around a protected tree with a radius equal to a tree's largest dripline radius. The roots of a tree grow minimally within this canopy measurement and have been found growing 2 to 3 times beyond the farthest branches.

**IB:** **I**ncluded **B**ark: A sharp "V" crotch, usually less than a 45° angle of attachment, between 2 branches where the bark is kept between two narrowly joined branches and the bark is continually turned inward, rather than being pushed out. It is a common point for potential massive structural failure and this hazard can be minimized with properly installed and maintained cabling, bolting or bracing.

**BMT:** **B**roadleaf **M**istletoe infested tree.

**EG:** Epicormic Growth: Shoots that arise from latent buds along the trees trunk or mature branches. This growth is usually a sign that the tree has undergone a stressful period.

**LTD:** Limb Tip Dieback: Generally associated with drought, the tips of scaffold limbs have died.

**NABA:** Narrow Angle Branch Attachment: A sharp "V" crotch, usually less than a 45° angle of attachment. Included bark is explained above and is common in branches with narrow attachments. In addition, these branches may not be attached to the trunk as well as others with wider angles of attachment, and can fail more frequently depending on the size of the branch.

**OPC:** Old Pruning Cuts

**OWL:** Over Weight Limb

**PRZ:** Protected Root Zone: A circular area around a protected tree with a radius equal to a tree's largest dripline radius plus 1'.

**PS**: Poor Structure: These trees have grown with structural imperfections that cannot be corrected and therefore render them hazardous and more likely to fail in the future.

**R4D:** Remove For Development

**RDW:** Remove Dead Wood: All dead wood to be removed over 3" in diameter and if over 2" in diameter when above 25', as this is a potential hazard for people under these limbs and a future health problem for the tree.

**RH:** Remove Hanger: There is a broken or cut branch that is hanging in the tree and needs to be removed.

**RBMT:** Remove Broadleaf Mistletoe: Broadleaf mistletoe, *Phoradendron villosum*, is an evergreen parasitic that grows on many hardwood trees and is spread most commonly by birds excreting the living seeds onto woody branches where they germinate. It is important to stop the spread by correctly removing the mistletoe plant by either pruning off the branch it lives on (if small enough) or by removing its light source and killing the parasite. Pruning: remove the branch at least 12" below the point of attachment to the next lateral using an approved thinning-type cut. Light exclusion: remove the mistletoe to flush with limb or trunk where it is attached and wrap the limb/trunk with 2-3 layers6 mil polyethylene plastic 8" above and below the point of attachment. Tape it with a few wraps of electrical tape to keep all light out to kill the mistletoe, remove in 2-3 years.

**TBR**: To Be Removed: Tree to be removed due to health and/or structural reasons. Removal should be done carefully as to not harm the surrounding trees, branches, and/or trunks above or roots below ground. Do NOT rip out or push over the tree stumps if they are near other trees that are to be preserved. Cut them off close to ground level and leave the stumps and roots to decay, unless they are located within a proposed foundation or area to be paved/concrete surfaced.

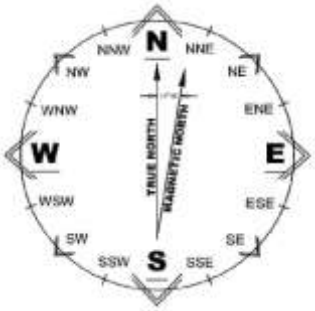
**~**: Tilde: This mark is used in the field in any empty box to indicate that there is no information to enter in that space.

**TMD**: Too Much Decay

**TMDW:** Too Much Dead Wood

**UC**: Unbalanced Canopy: Either the trunk is leaning and/or the canopy is phototropic and overly heavy on one side.

**Compass Points:** These are the standard 16 points of the compass as aligned with Geographic North or True North. In our area, True North (TN) is adjusted for declination 14°49' to the west of Magnetic North (MN).



# Chart B

**BLACK** marks are field notes and action items on trees that are to remain, and **RED** are trees that are recommended for removal.

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| 6144 | Coast Redwood | *Sequoia sempervirens* | 38 | 18 | 2' to curb, grass to west, large surface roots, lifting drive | To be Determined | 4 |
| 6145 | Coast Redwood | *Sequoia sempervirens* | 19 | 15 | **Sparse canopy, curb at 2', bare soil, surface roots with mechanical damage, needle blight** | To be Determined | **2** |
| 6146 | Coast Redwood | *Sequoia sempervirens* | 21 | 13 | Sparse canopy, curb at 2', bare soil, surface roots, needle blight | To be Determined | 3 |
| 6147 | Coast Redwood | *Sequoia sempervirens* | 20 | 14 | Sparse canopy, curb at 2', bare soil, surface roots, needle blight | To be Determined | 3 |
| 6148 | Coast Redwood | *Sequoia sempervirens* | 27 | 16 | Fair leaf surface, curb at 2', bare soil, surface roots, needle blight | To be Determined | 3 |
| 6149 | Coast Redwood | *Sequoia sempervirens* | 30 | 15 | Curb at 2', bare soil, surface roots, needle blight | To be Determined | 3 |
| 6150 | Coast Redwood | *Sequoia sempervirens* | 24 | 15 | Surface roots, bare soil, fair leaf surface | Mulch | 3 |
| 6151 | Coast Redwood | *Sequoia sempervirens* | 25 | 16 | Surface roots, bare soil, fair leaf surface | To be Determined | 3 |
| 6152 | Coast Redwood | *Sequoia sempervirens* | 23 | 14 | Poor growing space, surface roots, bare soil, 2' to curb, needle blight | Add Mulch | 3 |
| 6153 | Coast Redwood | *Sequoia sempervirens* | 21 | 16 | Girdling roots, root pruning at 6" for Irrigation/curb replacement (?), poor growing space | Remove within 3 - 5 years | 3 |
| 6154 | Coast Redwood | *Sequoia sempervirens* | 18 | 13 | Poor growing space, curb at 1', bare soil, fair leaf surface | To be Determined | 3 |
| 6155 | Chinese Pistache | *Pistacia chinensis* | 7 | 15 | Grass at base, co-dominant leader at 6' | Prune for good structure | 3 |
| 6156 | Chinese Pistache | *Pistacia chinensis* | 5 | 10 | **Grass at base, surface roots, lean with correction, poor structure, sparse canopy** | To be Determined | **2** |
| 6157 | Purple leaf Plum | *Prunus cerasifera* | 7 @ 1' | 11 | Island, abnormal root flare, narrow attachment angles, fair leaf surface, needs corrective pruning | Needs corrective pruning | 3 |
| 6158 | Aleppo Pine | *Pinus halepensis* | 12 | 14 | **Very sparse canopy, significant removal of leaf surfaces at last pruning cycle, bare compacted soil at base, poor crown ratio, no space** | **Recommended for removal** | **2** |
| 6158 | Purple leaf Plum | *Prunus cerasifera* | 8 @ 1' | 10 | Island, co-dominant leader at 2' into multistem, narrow attachments, crossing limbs, fair leaf surface | Needs corrective pruning | 3 |
| 6159 | Aleppo Pine | *Pinus halepensis* | 16 | 16 | Co-dominant leader at 6' into 3, rocks, compacted soil, girdling strap roots, fair leaf surface, sequoia pitch moth | To be Determined | 3 |
| 6159 | Purple leaf Plum | *Prunus cerasifera* | 11 @ 2' | 13 | **Grass at base, leans, poor old pruning cuts, very poor structure, crossing limbs, narrow attachments** | **Replace** | **2** |
| 6160 | Coast Redwood | *Sequoia sempervirens* | 24 | 14 | **5' to walk, needle blight, surface roots, grass at base** | **Remove within 2 years** | **2** |
| 6161 | Red Maple | *Acer rubrum* | 10 | 13 | Root flare holds water, good leaf surface, some poor structure, mechanical damage to surface roots | | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| 6162 | Glossy leaf Privet | *Ligustrum lucidum* | | 12 | No tag, unbalanced canopy to east, not evaluated | To be Determined | 3 |
| 6163 | Mexican Fan Palm | *Washingtonia robusta* | 14 | 8 | Rocks at base | To be Determined | 4 |
| 6164 | Aleppo Pine | *Pinus halepensis* | 20 | 18 | Extensive surface roots, bare soil, sequoia pitch moth, gall rust | Mulch to cover roots, remove limbs with rust | 3 |
| 6165 | Coast Redwood | *Sequoia sempervirens* | 9 | 8 | **Dead top, epicormic growth** | **Remove** | **1** |
| 6166 | Coast Redwood | *Sequoia sempervirens* | 11 | 8 | **Dead top, epicormic growth** | **Remove** | **1** |
| 6167 | Ornamental Pear | *Pyrus calleryana* | 15 | 17 | **Extensive surface roots, bare soil, very poor structure, crossing limbs, broadleaf mistletoe** | **Recommended for replacement** | **2** |
| 6168 | Coast Redwood | *Sequoia sempervirens* | 16 | 10 | **Epicormic growth, bare compacted soil, dead top** | **Remove** | **1** |
| 6169 | Coast Redwood | *Sequoia sempervirens* | 18 | 12 | **Bare compacted soil at base, surface roots, very sparse canopy, epicormic growth** | **Remove** | **2** |
| 6170 | Coast Redwood | *Sequoia sempervirens* | 15 | 12 | **Bare compacted soil at base, surface roots, very sparse canopy, epicormic growth** | **Remove** | **2** |
| 6171 | Coast Redwood | *Sequoia sempervirens* | 17 | 14 | **Bare compacted soil at base, surface roots, very sparse canopy** | **Remove** | **2** |
| 6172 | Deodar Cedar | *Cedrus deodara* | 17 | 18 | **Island surrounded by juniper, girdling roots at base, poor health** | **To be Determined** | **2** |
| 6173 | Mexican Fan Palm | *Washingtonia robusta* | 17 | 8 | | To be Determined | 3 |
| 6174 | Mexican Fan Palm | *Washingtonia robusta* | 15 | 8 | | To be Determined | 3 |
| 6175 | Alder | *Alnus sp.* | 15 | 11 | **Diseased, root rot, extensive surface roots** | **Remove** | **1** |
| 6176 | Coast Redwood | *Sequoia sempervirens* | 25 | 15 | Bare soil, surface roots, grass at 3' | To be Determined | 3 |
| 6177 | Coast Redwood | *Sequoia sempervirens* | 23 | 14 | Bare soil, surface roots, lifting path, grass at 3' | To be Determined | 3 |
| 6178 | Coast Redwood | *Sequoia sempervirens* | 20 | 14 | Bare soil, surface roots, grass at 3' | To be Determined | 3 |
| 6179 | Ash | *Fraxinus sp.* | 18 | 22 | **Grass at base, surface roots, narrow attachments, included bark** | **Prune for good structure** | **2** |
| 6180 | Ash | *Fraxinus sp.* | 16 | 17 | **Extensive surface roots, co-dominant leader at 8' with included bark, poor canopy space** | **Consider removal** | **2** |
| 6181 | Ash | *Fraxinus sp.* | 17 | 24 | Extensive surface roots, some with mechanical damage, strap roots, broadleaf mistletoe, structurally better than the others in this group | Remove mistletoe, prune to balance | 3 |
| 6182 | Ash | *Fraxinus sp.* | 18 | 30 | Girdled by roots, grass at base | Regularly reduce weight | 3 |
| 6183 | Ash | *Fraxinus sp.* | 6 | 14 | **Grass at base, poor structure from top failure** | **Needs corrective pruning** | **2** |
| 6184 | Mexican Fan Palm | *Washingtonia robusta* | 17 | 8 | | To be Determined | 3 |
| 6185 | Mexican Fan Palm | *Washingtonia robusta* | 14, 14 | 8 | | To be Determined | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| 6186 | Ornamental Pear | *Pyrus calleryana* | 12 | 22 | **Surface roots, narrow attachment angles, poor structure, broadleaf mistletoe, grass at 3'** | **Recommended for replacment, or add mulch to cover roots** | **2** |
| 6187 | Ornamental Pear | *Pyrus calleryana* | 12 | 23 | **Surface roots, narrow attachment at co-dominant leader, compacted soil at base, strap roots** | **Add mulch to cover roots** | **2** |
| 6188 | Mexican Fan Palm | *Washingtonia robusta* | 17 | 8 | | To be Determined | 3 |
| 6189 | Mexican Fan Palm | *Washingtonia robusta* | 17 | 8 | | To be Determined | 3 |
| 6190 | Mexican Fan Palm | *Washingtonia robusta* | 18 | 8 | | To be Determined | 3 |
| 6191 | Coast Redwood | *Sequoia sempervirens* | 17 | 12 | **Grass at base, girdling roots - poor nursery stock, needle blight, fair leaf surface** | **To be Determined** | **2** |
| 6192 | Ash | *Fraxinus sp.* | 24 | 29 | **Surface roots, poor growing space, co-dominant leader at 8' - crotch has dead wood and multiple stems, old pruning cuts are poor with no callous, narrow attachments and included bark** | **Needs corrective pruning** | **2** |
| 6193 | Coast Redwood | *Sequoia sempervirens* | 22 | 16 | Rocks at base, stairs at 1', strap roots, fair leaf surface | Cut strap roots, replace rocks with mulch | 3 |
| 6194 | Coast Redwood | *Sequoia sempervirens* | 18 | 12 | Rocks at base, slope, surface roots | Replace rocks with mulch | 3 |
| 6195 | Coast Redwood | *Sequoia sempervirens* | 23 | 14 | Rocks at base, good leaf surface | Replace rocks with mulch | 3 |
| 6196 | Coast Redwood | *Sequoia sempervirens* | 28 | 16 | Good leaf surface | Alleviate soil compaction at top by parking, use erosion control to add and retain mulch | 3 |
| 6197 | Coast Redwood | *Sequoia sempervirens* | 15 | 12 | Slope, rocks at base, fair leaf surface | Alleviate soil compaction at top by parking, use erosion control to add and retain mulch | 3 |
| 6198 | Coast Redwood | *Sequoia sempervirens* | 16 | 10 | Slope, rocks at base, fair leaf surface | Alleviate soil compaction at top by parking, use erosion control to add and retain mulch | 3 |
| 6199 | Coast Redwood | *Sequoia sempervirens* | 18 | 11 | Rocks at base, sprouts, broken limbs at 6', fair leaf surface | Alleviate soil compaction at top by parking, use erosion control to add and retain mulch | 3 |
| 6200 | Pine | *Pinus sp.* | 11 | 22 | Rocks at base, surface roots, slope, fair leaf surface, declining, sequoia | Alleviate soil compaction at top | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| | | | | | pitch moth, old pruning cut at 2' | by parking, use erosion control to add and retain mulch | |
| 6201 | | | | | Tag not used | | |
| 6202 | Coast Redwood | *Sequoia sempervirens* | 31 | 16 | Steep slope, strap root to north west, bare soil, needle blight | To be Determined | 3 |
| 6203 | Coast Redwood | *Sequoia sempervirens* | 26 | 15 | Poor growing space - island, walk at 6', burned (?) - dead limbs to south, sparse canopy | Remove dead wood | 3 |
| 6204 | Coast Redwood | *Sequoia sempervirens* | 27 | 17 | Extensive surface roots, bare soil, needle blight | Add mulch to cover roots | 3 |
| 6205 | Coast Redwood | *Sequoia sempervirens* | 27 | 18 | Surface roots, sparse grass | Add mulch to replace grass | 3 |
| 6206 | Coast Redwood | *Sequoia sempervirens* | 32 | 20 | Fair leaf surface, some dead wood, sparse grass at base | Add erosion control and mulch | 3 |
| 6207 | Coast Redwood | *Sequoia sempervirens* | 29 | 16 | Bare compacted soil, needle blight | Add mulch | 3 |
| 6208 | Deodar Cedar | *Cedrus deodara* | 25 | 26 | Rocks, compacted soil at base, slope, sparse canopy | Replace rocks with mulch | 3 |
| 6209 | American Sweetgum | *Liquidambar styraciflua* | 14 | 13 | Surface roots with mechanical damage, poor structure, fair leaf surface | Suppress competing leaders, mulch | 3 |
| 6210 | Silver Maple | *Acer saccharinum* | 9 @ 4' | 18 | **Mechanical damage to buttress and surface roots, moss at base, poor structure, poor pruning cuts** | **Alleviate soil compaction, mulch to replace grass, prune for good structure** | **2** |
| 6211 | American Sweetgum | *Liquidambar styraciflua* | 15 | 20 | **Large girdling root, large surface roots with mechanical damage, co-dominant leader failure, poor structure** | **Remove within 3 years** | **2** |
| 6212 | Ornamental Pear | *Pyrus calleryana* | 17 | 20 | **Slope, compacted soil, surface root cut at path at 5', topping cuts, poor structure, crossing limbs** | **Replace** | **2** |
| 6213 | Ornamental Pear | *Pyrus calleryana* | 18 | 24 | **Recent failure with 3" hanger, very poor structure - not correctible** | **Replace** | **2** |
| 6214 | Purple leaf plum | *Prunus cerasifera* | 12 @ 1' | 16 | **Extensive surface roots, poor structure, poor nursery stocke, stubs with regrowth** | **Replace** | **2** |
| 6215 | Coast Redwood | *Sequoia sempervirens* | 21 | 15 | **Grass at base, very sparse canopy, declining, needle blight** | **Remove within 3 years** | **2** |
| 6216 | Coast Redwood | *Sequoia sempervirens* | 13 | 15 | **Lean with correction, surface roots, very sparse canopy, needle blight** | **Remove** | **1** |
| 6217 | Coast Redwood | *Sequoia sempervirens* | 24 | 15 | **Grass at base, surface roots, needle blight - sparse canopy** | **To be Determined** | **2** |
| 6218 | Coast Redwood | *Sequoia sempervirens* | 24 | 15 | Grass at base, surface roots, needle blight | To be Determined | 3 |
| 6219 | Coast Redwood | *Sequoia sempervirens* | 24 | 15 | Bare compacted soil, needle blight | To be Determined | 3 |
| 6220 | Pine | *Pinus sp.* | 21 @ 3' | 24 | **Surface roots with mechanical damage, grass at base, severe decling** | **Remove** | **1** |
| 6221 | Pine | *Pinus sp.* | 11 | 14 | Surface roots, narrow attachment at 7', declining - will require treatment | Remove narrow attached limb, | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| 6222 | Deodar Cedar | *Cedrus deodara* | 11 | 15 | **Significant lean, exposed roots, girdling roots** | **Remove** | **1** |
| 6223 | Chinese Evergreen Elm | *Ulmus parvifolia* | 7 | 18 | Poor growing space, moss at base, long term problem | Prune for good structure, cut strap root | 3 |
| 6224 | Chinese Evergreen Elm | *Ulmus parvifolia* | 14 | 28 | Leans, poor growing space, strap root, closing wounds | Prune for good structure, cut strap root | 3 |
| 6225 | Honey Locust | *Gleditsia triacanthos* | 8 @ 3' | 16 | Surface roots, bare soil, poor structure, epicormic growth | Crown clean, alleviate compaction, add mulch | 3 |
| 6226 | Honey Locust | *Gleditsia triacanthos* | 10 | 18 | Surface roots, bare compacted soil, over weight limb to southwest, crossing limbs | Crown clean, alleviate compaction, add mulch | 3 |
| 6227 | Honey Locust | *Gleditsia triacanthos* | 8 | 15 | **Bare compacted soil, sap sucker damage, closing split 4 - 8'** | **Crown clean, alleviate compaction, add mulch** | **2** |
| 6228 | Honey Locust | *Gleditsia triacanthos* | 9 | 16 | Abnormal root flare, bare soil, broadleaf mistletoe, crossing limbs | Crown clean, remove mistletoe, alleviate compaction, add mulch | 3 |
| 6229 | Honey Locust | *Gleditsia triacanthos* | 5 | 10 | Bare soil | Crown clean, remove mistletoe, alleviate compaction, add mulch | 3 |
| 6230 | Honey Locust | *Gleditsia triacanthos* | 6 | 10 | Bare compacted soil, co-dominant leader at 5' with included bark, broadleaf mistletoe | Crown clean, alleviate compaction, add mulch | 3 |
| 6231 | Aleppo Pine | *Pinus halepensis* | 20 @ 3' | 15 | **Lean from base with correction at 6', closing old pruning cuts, sequioa pitch moth, abnormal trunk shape below 5'** | **Add Mulch** | **2** |
| 6232 | Aleppo Pine | *Pinus halepensis* | 14 | 18 | **Sparse canopy, bare soil, sequioa pitch moth** | **Add Mulch** | **2** |
| 6233 | Aleppo Pine | *Pinus halepensis* | 17 | 19 | Narrow attachment, sequoia pitch moth, bare soil | Cut strap roots, mulch | 3 |
| 6234 | Aleppo Pine | *Pinus halepensis* | 15 | 18 | **Slope, compacted soil at base, co-dominant leader at 5', large old pruning cuts at 6 - 8', sequoia pitch moth, sparse canopy, north stem topped** | **Add Mulch** | **2** |
| 6235 | Aleppo Pine | *Pinus halepensis* | 19 | 24 | Large surface roots, bare, compacted soil at base | Add Mulch | 3 |
| 6236 | Aleppo Pine | *Pinus halepensis* | 12 | 14 | **Very sparse canopy, significant removal of leaf surfaces at last pruning cycle, bare compacted soil at base, poor crown ratio, no space** | **Recommended for removal** | **2** |
| 6237 | Aleppo Pine | *Pinus halepensis* | 16 | 16 | Co-dominant leader at 6' into 3, rocks, compacted soil, girdling strap | To be Determined | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| | | | | | roots, fair leaf surface, sequoia pitch moth | | |
| 6238 | Aleppo Pine | *Pinus halepensis* | 13 | 14 | **Corrected lean, poor taper - no space** | **Remove** | **2** |
| 6239 | Aleppo Pine | *Pinus halepensis* | 17 | 17 | Surface roots, compacted soil, corrected lean, sequoia pitch moth | To be Determined | 3 |
| 6240 | Ash | *Fraxinus sp.* | 8 | 15 | **Compacted soil at base, surface roots, co-dominant leader at 7' included bark, narrow attachments through out, large dead wood** | **To be Determined** | **2** |
| 6241 | Ash | *Fraxinus sp.* | 8 | 14 | **Poor growing space, lifting walk and parking, co-dominant leader at 7', included bark, narrow attachments, surface roots with mechanical damage, bare compacted soil** | **To be Determined** | **2** |
| 6242 | London Plane Tree | *Platanus acerifolia* | 12 | 17 | Surface roots, compacted soil at base, crossing limbs, old pruning cuts almost closed | To be Determined | 3 |
| 6243 | London Plane Tree | *Platanus acerifolia* | 8 | 13 | Surface roots, compacted soil at base, fair leaf surface | To be Determined | 3 |
| 6244 | London Plane Tree | *Platanus acerifolia* | 7 | 12 | Surface roots, fair leaf surface | To be Determined | 3 |
| 6245 | Coast Redwood | *Sequoia sempervirens* | 16 | 15 | Rocks at base, sparse canopy | To be Determined | 3 |
| 6246 | Coast Redwood | *Sequoia sempervirens* | 14 | 11 | Rocks at base, sparse canopy | To be Determined | 3 |
| 6247 | Coast Redwood | *Sequoia sempervirens* | 17 | 15 | Rocks at base, sparse canopy | To be Determined | 3 |
| 6248 | Coast Redwood | *Sequoia sempervirens* | 23 | 15 | Rocks at base, sparse canopy, mechanical damage to surface roots | To be Determined | 3 |
| 6249 | Coast Redwood | *Sequoia sempervirens* | 22 | 15 | Rocks at base, sparse canopy, mechanical damage to surface roots | To be Determined | 3 |
| 6250 | Coast Redwood | *Sequoia sempervirens* | 24 | 15 | Strap roots, grass at 1', minor flagging | Remove strap roots | 3 |
| 6251 | Coast Redwood | *Sequoia sempervirens* | 29 | 15 | Sparse canopy, need blight | To be Determined | 3 |
| 6252 | Coast Redwood | *Sequoia sempervirens* | 32 | 15 | Good, minor needle blight | To be Determined | 4 |
| 6253 | Coast Redwood | *Sequoia sempervirens* | 25 | 15 | **Rocks at base, sparse canopy, tag to south** | **To be Determined** | **2** |
| 6254 | Coast Redwood | *Sequoia sempervirens* | 30 | 14 | Rocks at base, sprouts at base, sparse canopy, flagging, needle blight | Remove flagging limbs | 3 |
| 6255 | Coast Redwood | *Sequoia sempervirens* | 18 | 125 | Rocks at base, sparse canopy | To be Determined | 3 |
| 6256 | Coast Redwood | *Sequoia sempervirens* | 26 | 15 | Rocks at base, minor flagging, sparse canopy | To be Determined | 3 |
| 6257 | Coast Redwood | *Sequoia sempervirens* | 32 | 19 | Surface roots, rocks at base, minor flagging, sparse canopy | To be Determined | 3 |
| 6258 | Red Maple | *Acer rubrum* | 7 | 15 | **Columnar, girdled with decay under base, grass at 1', good leaf surface** | **Remove** | **2** |
| 6259 | Purple leaf plum | *Prunus cerasifera* | 10 @ 2' | 12 | **Past life span, poor structure, too much decay, conks on all old pruning cuts,** | **Remove** | **2** |
| 6260 | Coast Redwood | *Sequoia sempervirens* | 32 | 17 | Poor growing space, surface roots, path on 2 sides, needle blight | Add Mulch | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| 6261 | Purple leaf plum | *Prunus cerasifera* | 7 @ 1' | 14 | **Rocks at base, surface roots, unbalanced canopy to east** | **Add Mulch** | **2** |
| 6262 | Coast Redwood | *Sequoia sempervirens* | 30 | 15 | **Significant dead wood - from flagging, very sparse canopy** | **To be Determined** | **2** |
| 6263 | Coast Redwood | *Sequoia sempervirens* | 30 | 15 | Surface roots, sparse canopy, flagging | To be Determined | 3 |
| 6264 | Coast Redwood | *Sequoia sempervirens* | 27 | 14 | Surface roots, girdling strap roots | To be Determined | 3 |
| 6265 | Coast Redwood | *Sequoia sempervirens* | 24 | 12 | Slope, needle blight, sparse canopy | To be Determined | 3 |
| 6266 | Coast Redwood | *Sequoia sempervirens* | 25 | 11 | Trunk wound - closed, flagging, sparse canopy | To be Determined | 3 |
| 6267 | Chinese Evergreen Elm | *Ulmus parvifolia* | 14 | 31 | Junipers surrounding, large old pruning cut at 6' to south - poor shape cut with callous | To be Determined | 3 |
| 6268 | Blue Atlas Cedar | *Cedrus atlantica* | 8 | 8 | Dead wood at base, bark peeling, abnormal root flare | To be Determined | 3 |
| 6269 | Coast Redwood | *Sequoia sempervirens* | 24 | 14 | Mechanical damage to surface roots, sparse canopy, diseased | To be Determined | 3 |
| 6270 | Coast Redwood | *Sequoia sempervirens* | 25 | 13 | **Top dying, flagging, very sparse canopy** | **Remove** | **2** |
| 6271 | Deodar Cedar | *Cedrus deodara* | 6 | 10 | Rocks at base, girdled at old stake tie, needs corrective pruning for central leader | To be Determined | 3 |
| 6272 | Deodar Cedar | *Cedrus deodara* | 19 | 25 | Rocks at base, sparse canopy | To be Determined | 3 |
| 6273 | Deodar Cedar | *Cedrus deodara* | 15 | 20 | Rocks at base, fair leaf surface | To be Determined | 3 |
| 6274 | Ash | *Fraxinus sp.* | 4 | 10 | **Too much dead wood, sunburn** | **Replace** | **1** |
| 6275 | Ash | *Fraxinus sp.* | 6 | 10 | **Bench graft, mechanical damage to surface roots, bare compacted soil, large dead wood** | **To be Determined** | **2** |
| 6276 | Ash | *Fraxinus sp.* | 5 | 10 | **Very poor structure, too many failures** | **Replace** | **1** |
| 6277 | London Plane Tree | *Platanus acerifolia* | 14 @ 2' | | Extensive surface roots, lifting sidewalk, good leaf surface | Needs corrective pruning to space limbs | 3 |
| 6278 | London Plane Tree | *Platanus acerifolia* | 17 | 24 | Co-dominant leader at 6', grass at base, mechanical damage to buttress roots, large old pruning cuts with callous | To be Determined | |
| 6279 | Glossy leaf Privet | *Ligustrum lucidum* | 5, 9, 7 | 13 | **Narrow attachment angles, poor species** | **Recommended for removal** | **2** |
| 6280 | London Plane Tree | *Platanus acerifolia* | 21 | 24 | Bare compacted soil, surface roots, good leaf surface | Add mulch, remove limbs ± 5" or less below 7' | 4 |
| 6281 | Blue Atlas Cedar | *Cedrus atlantica* | 18 | 20 | Unbalanced canopy to west, fair leaf surface | Add mulch | 4 |
| 6282 | Blue Atlas Cedar | *Cedrus atlantica* | 21 | 24 | Slope, fair leaf surface | Add mulch | 4 |
| 6283 | Blue Atlas Cedar | *Cedrus atlantica* | 20 | 24 | Slope, surface roots, unbalanced canopy to south - suppressed by tree #6284, fair leaf surface | Add mulch | 4 |
| 6284 | London Plane Tree | *Platanus acerifolia* | 21 @ 2' | 33 | Slope, surface roots, co-dominant leader at 5' | Remove all limbs ±5" below 6', | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| | | | | | | reduce weight or cable to prevent failure | |
| 6285 | Unidentified Shrub | | 3, 6, 6 | 18 | **Very poor structure, unbalanced canopy to north, understory** | **Prune to balance** | **2** |
| 6286 | London Plane Tree | *Platanus acerifolia* | 23 | 30 | Co-dominant leader failure at 8', rip closing with poor growth attached, grass at base, mechanical damage to surface roots, good leaf surface | Reduce (not remove) new growth | 3 |
| 6287 | London Plane Tree | *Platanus acerifolia* | 21 | 25 | Grass at base, mechanical damage to buttress roots, good leaf surface | Remove lower limbs one at a time, reduce weight to south to control extension | 4 |
| 6288 | London Plane Tree | *Platanus acerifolia* | 30 | 32 | At fire hydrant, rocks to east, grass at base, mechanical damage to surface roots, large lower limb to south east at 4 - 10' off the ground (over sidewalk), co-dominant leader at ± 10' | Prune for good structure | 3 |
| 6289 | London Plane Tree | *Platanus acerifolia* | 20 | 27 | Grass at base, mechanical damage to surface roots, irrigation spray on trunk, many closed old pruning cuts | Reduce lower extended limbs | 4 |
| 6290 | London Plane Tree | *Platanus acerifolia* | 22 | 28 | Grass at base, mechanical damage to surface roots - from mower?, good structure, good leaf surface | Protect roots | 4 |
| 6291 | Deodar Cedar | *Cedrus deodara* | 26 | 35 | River rocks at base, mechanical damage to surface roots, slight lean, large prostrate limbs with upright growth, fair leaf surface | Crown clean | 3 |
| 6292 | London Plane Tree | *Platanus acerifolia* | 22 | 26 | Bare compacted soil, surface roots, closing old pruning cuts to north | Reduce south stem by 15% | 4 |
| 6293 | London Plane Tree | *Platanus acerifolia* | 24 | 25 | Co-dominant leader at 7', large rip failure at ± 15', mechanical damage to surface roots, grass at 1' | Reduce canopy over failure by 10%, re-inspect in 3 years | 3 |
| 6294 | London Plane Tree | *Platanus acerifolia* | 19 | 26 | Bare compacted soil, surface roots, good leaf surface, mid canopy narrow attachments | To be Determined | 4 |
| 6295 | London Plane Tree | *Platanus acerifolia* | 15 @ 2' | 23 | Bare compacted soil, surface roots, good leaf surface | Prune or remove lower limbs to limit extension | 4 |
| 6296 | London Plane Tree | *Platanus acerifolia* | 17 | 23 | Bare compacted soil, surface roots, unbalanced canopy to west, narrow attachment at 7', good leaf surface | Cover soil | 3 |
| 6297 | Ash | *Fraxinus sp.* | 13 | 18 | Abnormal trunk shape, co-dominant leader at 7' with included bark, large dead stub to south | Remove dead wood, needs corrective pruning | 3 |
| 6298 | Ash | *Fraxinus sp.* | 6 | 10 | **Significant dead wood, borers** | **Replace** | **2** |
| 6299 | Ash | *Fraxinus sp.* | 4 | 10 | **Planted too deep, root rot, sunburn** | **Replace** | **1** |
| 6300 | Aleppo Pine | *Pinus halepensis* | 37 | 25 | Bare, compacted soil, surface roots, girdling roots, sequoia pitch moth, co-dominant leader at 7', 8' and 10' with included bark | Re-evaluate for cabling by qualified arborist | 3 |
| 6301 | Aleppo Pine | *Pinus* | 23 | 25 | Surface roots, slope to north, lean | Remove dead | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| | | *halepensis* | | | with correction at 3', strap root downhill, fair leaf surface, some dead wood | wood | |
| 6302 | Aleppo Pine | *Pinus halepensis* | 20 | 24 | **Slope, significant lean with correction at 10', extensive surface roots, tension roots exposed, sequioa pitch moth** | **To be Determined** | **2** |
| 6303 | Aleppo Pine | *Pinus halepensis* | 23 | 23 | Canopy raised - new cuts, surface roots, bare compacted soil, co-dominant leader at 7' with included bark, bark rot at 1' from irrigation spraying trunk | Cable, mulch, correct irrigation | 3 |
| 6304 | Chinese Evergreen Elm | *Ulmus parvifolia* | 8 | 18 | Unbalanced canopy to north west, crossing limbs, fair leaf surface | Prune to balance, crown clean | 3 |
| 6305 | London Plane Tree | *Platanus acerifolia* | 12 | 18 | Surface roots, bare compacted soil, unbalanced canopy to east, fair leaf surface, old pruning cuts - mostly closed | Add Mulch | 3 |
| 6306 | London Plane Tree | *Platanus acerifolia* | 14 | 17 | Over extended to south, fair leaf surface, roots lifting sidewalk | Mulch, remove crossing limb at 6' with old pruning cut with cavity at 4' to south west | 3 |
| 6307 | London Plane Tree | *Platanus acerifolia* | 16 | 25 | Fair leaf surface | Reduce to north, prune upper canopy for space | 3 |
| 6308 | American Sweetgum | *Liquidambar styraciflua* | 12 | 21 | Abnormal flare, lean with correction, mechanical damage to surface roots, included bark at 6' and 12' | Crown clean, biennial reduction pruning to prevent failure | 3 |
| 6309 | American Sweetgum | *Liquidambar styraciflua* | 11 | 13 | Abnormal flare, mechanical damage to surface roots, failure stubs | Remove stubs, biennial reduction pruning to prevent failure | 3 |
| 6310 | American Sweetgum | *Liquidambar styraciflua* | 14 | 15 | Abnormal flare, mechanical damage to surface roots, included bark at 9' and 10' | Crown clean, biennial reduction pruning to prevent failure | 3 |
| 6311 | American Sweetgum | *Liquidambar styraciflua* | 13 | 15 | Abnormal flare, mechanical damage to surface roots, included bark at 10' | Crown clean, biennial reduction pruning to prevent failure | 3 |
| 6312 | London Plane Tree | *Platanus acerifolia* | 14 | 22 | Poor growing space, extensive surface roots, good leaf surface | Aerate, mulch | 4 |
| 6313 | London Plane Tree | *Platanus acerifolia* | 14 | 23 | Compacted soil at base, surface roots, strap roots, good leaf surface | Mulch, cut strap roots | 4 |
| 6314 | London Plane Tree | *Platanus acerifolia* | 13 @ 4' | 24 | Drain at 7', bare compacted soil, surface roots pushing curb, mechanical damage to surface roots in grass, crotch at 10' into 3 limbs | To be Determined | 3 |
| 6315 | Deodar Cedar | *Cedrus deodara* | 18 | 29 | Slight lean, canopy over parking, competing leader at top, recent canopy raise | Suppress competing leader | 3 |
| 6316 | Deodar | *Cedrus* | 20 | 28 | Recent canopy raise, surface roots | Suppress | 3 |

| Tree Tag # | Common Name | *Botanical Name* | DBH | Canopy radius | Notes | Actions | Rating |
|---|---|---|---|---|---|---|---|
| | Cedar | *deodara* | | | | competing leader, remove stubs | |
| 6317 | Deodar Cedar | *Cedrus deodara* | 13 | 15 | Sparse canopy., double top, surface roots | To be Determined | 3 |
| 6318 | Deodar Cedar | *Cedrus deodara* | 16 | 16 | Sparse canopy, slope to west, surface roots | To be Determined | 4 |
| 6319 | Deodar Cedar | *Cedrus deodara* | 20 | 24 | Sparse canopy | Suppress competing leaders | 4 |
| 6320 | Coast Redwood | *Sequoia sempervirens* | 17 | 12 | Surface roots, grass at base | Cut strap root, canopy raise not recommended | 3 |
| 6321 | Ash | *Fraxinus sp.* | 16 | 22 | Surface roots, narrow attachment angles, included bark, good leaf surface | Reduce all stems except central leader | 3 |
| 6322 | Tulip Tree | *Liriodendron tulipifera* | 12 | 16 | Top failed with regrowth, surface roots | Top correction by certified arborist, remove dead wood | 3 |
| 6323 | Maytens Tree | *Maytenus boaria* | 6 | 7 | Poor leaf surface, crossing limbs | Crown clean | 3 |
| 6324 | Maytens Tree | *Maytenus boaria* | 5 | 7 | **Poor leaf surface, significant die back** | **Remove dead wood** | **2** |
| 6325 | Coast Redwood | *Sequoia sempervirens* | 32 | 14 | Surface roots with mechanical damage, poor growing space | Alleviate soil compaction, mulch | 4 |

## Testing & Analysis:

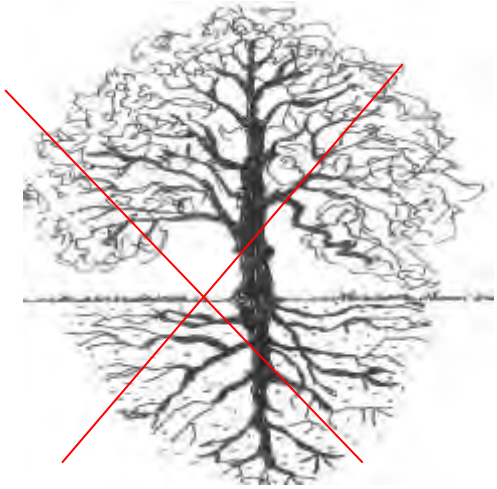
A Level 2 – Basic Visual Assessment was performed in accordance with the International Society of Arboriculture's best management practices. This assessment level is limited to the observation of conditions and defects which are readily visible. No laboratory or chemical testing and analysis was performed, only ground level observations.

A recommended Level 3 – Advanced Assessment should be performed on trees determined during the development process to have a target. Level 3 assessments include aerial inspection and evaluation of the structural defects of a tree including decay and load testing for purposes of risk analysis.

## Discussion:

### Root Structure

The majority of a tree's roots are contained in a radius from the main trunk outward approximately two to three times the canopy of the tree. These roots are located in the top 6" to 3' of soil. It is a common misconception that a tree underground resembles the canopy (see Drawing A below). The correct root structure of a tree is in Drawing B. All plants' roots need both water and air for survival. Surface roots are a common phenomenon with trees grown in compacted soil. Poor canopy development or canopy decline in mature trees is often the result of inadequate root space and/or soil compaction.



***Drawing A***
Common misconception of where tree roots are assumed to be located

***Drawing B***
The reality of where roots are generally located

Roots are the method by which a tree receives water and water-soluble nutrients. The water and nutrients are transported through the tree in the cambium layer, which lies just underneath the bark. Photosynthesis, which occurs in the leaves, requires the water from the roots. In return, the leaves produce sugars to feed the roots. There is a balance between the roots and leaves. There must be enough of each to provide for the other. In re-iteration: <u>The GREEN part of the tree has an equal and more vigorous portion of roots that are unseen below the ground. What you see is a small portion of the tree!</u>

## Canopy Development & Response Growth

Healthy Canopy

Sparse Canopy

Photo by Nicole Harrison

Water is required to maintain each leaf on a tree. The larger a tree becomes, the more water is required to maintain it. If there is not enough water in the soil, the tree will begin to drop leaves to balance the leaf surface to the available water. Our native oaks have adapted to our dry environment and cycle in and out of leaf drop and re-growth phases. Non-native species, however, are not able to adapt to this cycle. In particular, Coast Redwood are notorious for growth to a certain size, a size to which water is available, and then they quickly decline and dye from lack of available water.

Epicormic growth is a trees response to loss of leave surface from either limb drop, over pruning, or stressful conditions. Epicormic growth is simply the release of latent buds, which begin rapid growth in order to provide as much new leaf surface in the shortest period of time to make up for the loss of leave surface. Epicormic growth prevents the death of the tree in stressful times, but creates a need for additional pruning. It is not the formation of a structurally intact new limb. The new limbs are weakly attached and need support and pruning.

Epicormic Growth

Leaves develop on main stems as opposed to on branch tips

Limited space for canopy development produces poor structure in trees. The largest tree in a given area, which is ‘shading’ the other trees, is considered Dominant. The ‘shaded’ trees are considered Suppressed. The following picture illustrates this point. Suppressed trees are more likely to become a potential hazard due to their poor structure.

Dominant Tree

Growth is upright

Canopy is balanced by limbs and foliage equally

Suppressed Tree

Canopy weight all to one side

Limbs and foliage grow away from dominant tree

## Structural Issues

Co-dominant leaders are another common structural problem in trees.

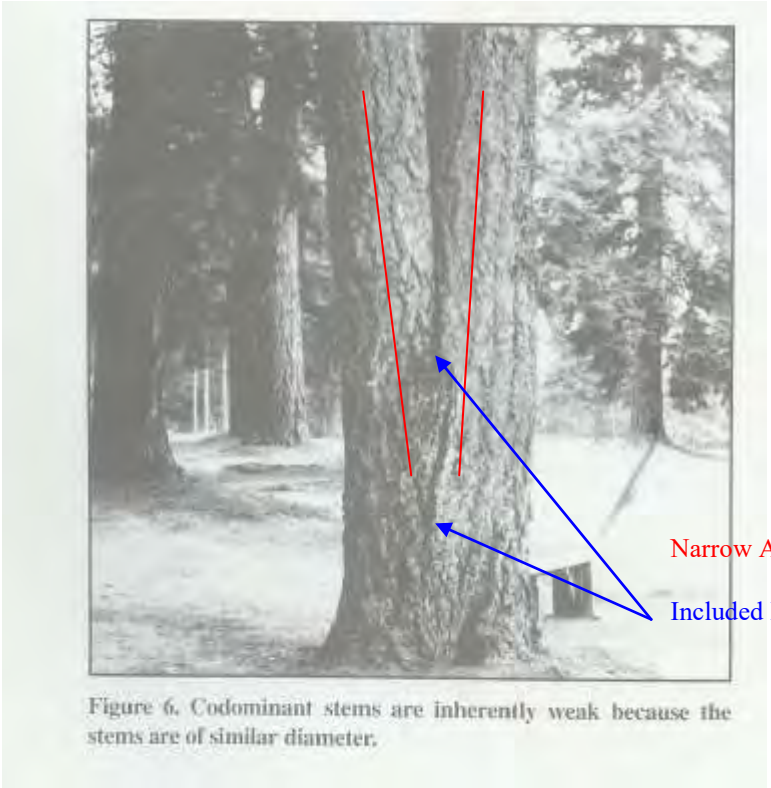
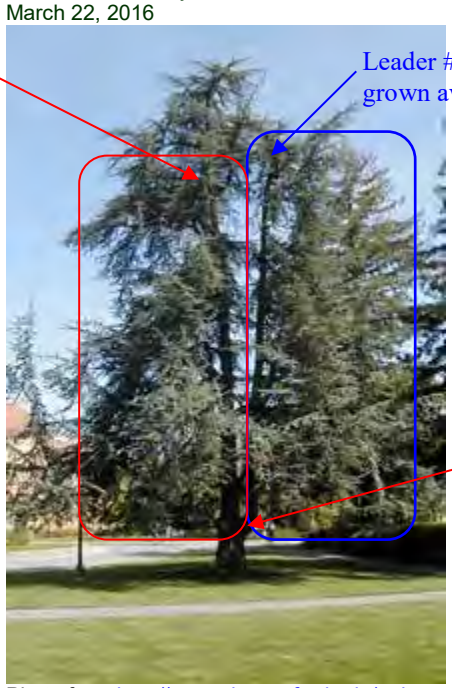



Figure 6. Codominant stems are inherently weak because the stems are of similar diameter.

The tree in this picture has a co-dominant leader at about 3' and included bark up to 7 or 8'. Included bark occurs when two or more limbs have a narrow angle of attachment resulting in bark between the stems – instead of cell to cell structure. This is considered a critical defect in trees and is the cause of many failures.

Photo from Evaluation of Hazard Trees in Urban Areas by Nelda P. Matheny and James R. Clark, 1994 International Society of Arboriculture




In addition, co-dominant leaders phototropically (due to sunlight) suppress each other's growth. All the limbs are grown away from the main trunk to one side. The weight of the foliage of the tree is distributed asymmetrically placing a greater amount of pressure on the already weak union.

Photo from http://grounds.stanford.edu/points/significanttrees/cedrusatlantica.html

Our native oak trees are easily damaged or killed by having the soil within the Critical Root Zone (CRZ) disturbed or compacted. All of the work initially performed around protected trees that will be saved should be done by people rather than by wheeled or track type tractors. Oaks are fragile giants that can take little change in soil grade, compaction, or warm season watering. Don't be fooled into believing that warm season watering has no adverse effects on native oaks. Decline and eventual death can take as long as 5-20 years with poor care and inappropriate watering. Oaks can live hundreds of years if treated properly during construction, as well as later with proper pruning, and the appropriate landscape/irrigation design.

## Conclusion:

There are **No** trees on this property that qualify as "protected trees" by the standards of the Folsom Tree Ordinance.

## Recommendations:

1) Follow all of the recommendations in the action column of ***Chart B*** immediately.

2) Mulch the area under the oaks' branched canopy with arborist type hard wood woodchips (4 – 6" deep), not redwood or cedar bark

3) All trees to be saved shall have their root zones and trunk(s) protected with a four (4') foot high orange or yellow plastic, high visibility exclusionary fence surrounding the trees' root zone. The fence shall be staked 10'o.c. maximum spacing, with 5' steel "T" posts, 2" x 2" square or 2"+ ∅ wood posts. The exclusionary area shall be under the tree's branched canopy and extend out to the tree's longest dripline radius plus one foot, as a circle. Where new construction will be within the Protected Root Zone, the fencing shall be 4' away from the footings, and extend around the rest of the canopy of the tree from that point. The fencing shall be maintained and not removed until the completion of construction. The fencing shall completely surround the Protected Root Zone and not be "U" shaped or open at any point. Whenever possible, include as many trees that are to be saved into one fenced exclusionary Protected Root Zone. The fencing plan will be completed once the developer decides on driveway, utility, and structure placement.

4) As soon as the concrete is poured and the forms are stripped, backfill the footings and stem walls. The protected trees nearby that are to remain should be watered to the point of soil saturation.

5) Care must also be continued after the construction is over to select the right plants to live under and near the native oaks. Watered lawns and any frequent summer watering near California oaks will not mix well over a long period. This will cause the oaks to perish due to *Armillaria mellea* (oak root fungus). The demise of the native oaks due to *Armillaria mellea* may take 5 – 20 years. Oaks should live 200 - 300 years.

6) To help control root damage, utility-trenching paths are to be established away from the roots and branches of the oaks that are to remain.

7) Soil compaction shall be avoided by maintaining the exclusionary Protected Root Zone fencing, keeping material storage, people, portable outhouses, vehicles, and dogs out of this area.

8) Soil contamination shall be avoided by eliminating chemical dumping on the property that may infiltrate into the Protected Root Zone. **No**: washing, dumping, or contaminating the site including but not necessarily limited to the following: concrete from tools or trucks, paint materials, sheetrock mud or stucco materials, other chemicals, solvents, herbicides, etc. Limestone gravel should not be used as base material or for drain rock as it will change the pH to be more alkaline, and may harm the native oaks.

9) Do not nail, tie, screw, or fasten any signs, braces, etc. to the trees that are to remain.

10) The cut and fill material excavated from or added to the lot can kill an oak by removing too many roots, drying or wetting the soil or by suffocating the roots with too much soil. Care must be taken with the added soil as well as with the actual excavation. Roots need air as much as they need water to survive and for the whole tree to live and to flourish. If fill material is needed, properly designed aeration/ventilation systems made to protect the trees and allow for the fill material can be installed.

11) When deciding on a pruning arborist, inquire about a chipper and require them to utilize the chipped branches of the trees to be removed or pruned. The chips are to be used under

the oaks that are to remain, as mulch in the Protected Root Zone. Other mulch may be used of arborist type woodchips (4 – 6" deep), but not redwood or cedar bark.

12) When the recommended pruning is completed, it is only advisable if a qualified ISA Certified Arborist is on site. No cutting of live wood over 2"∅ shall be made. All cutting, pruning, trimming, cabling, guying, bracing, and lightning protection systems shall conform to the most current standards of the American National Standards Institute (ANSI). The current ANSI Tree Care Standards are A300 (Parts 1-4) 2000 to 2002 (copies at: www.ansi.org). The BMPs are "Best Management Practices", as companion publications to the ANSI Tree Care Standards, printed by the International Society of Arboriculture (copies at: www.isa-arbor.com). The BMP booklets explain the details of the ANSI Tree Care Standards and how to follow them correctly. Pruning of branches less than 3" in diameter should be made with sharp hand tools: pruners, loppers, and/or handsaws, not chainsaws.

These important details will greatly increase the likelihood of survival for your protected trees.

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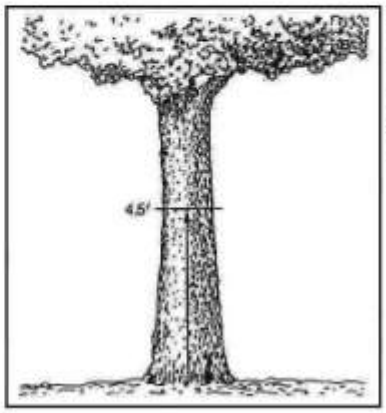
# Tree Size Expressed by Trunk Diameter

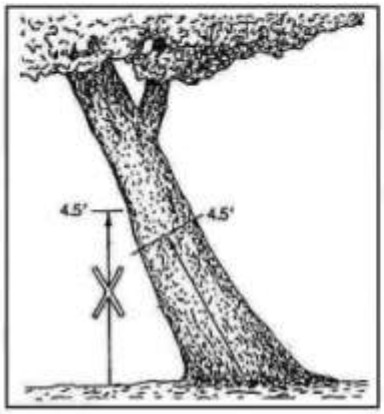
## Tree SIZE Expressed by Trunk Diameter

"The height at which the trunk diameter of a tree is measured depends upon its size. The American Standard for Nursery Stock (ANSI, 1990) state that measurements shall be taken 6 inches (15 cm) above the ground for trunk diameters up to and including 4 inches (10 cm). Larger trees (assumed, but not stated, to be of transplantable size) are to be measured at 12 inches (30 cm). Trees normally considered too large to transplant are to be measured 4.5 feet [4'-6" is also called diameter breast high or dbh] (1.4 m) above the ground. Trees, like conifers, which have branches below 4.5 feet should be measured at a height that most effectively represents the size of the tree." The diameter is calculated by first measuring the circumference divided by 3.14 (π called pi) or by using a "diameter tape" whereon the inches are multiplied by π and shown to produce the diameter directly.

This is the dbh standard for measurement as shown in figure 4-2.



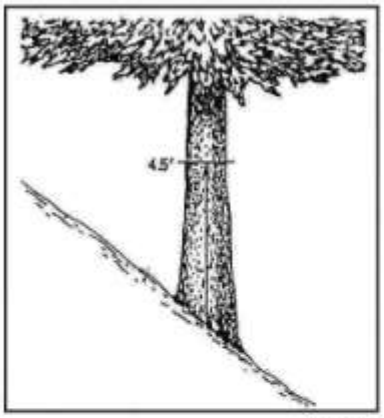

Figures 4-2. Trees with fairly straight, upright trunks with the lowest branch arising on the trunk higher than 6 feet (1.8 m) above the ground should be measured at 4.5 feet (1.4 m).

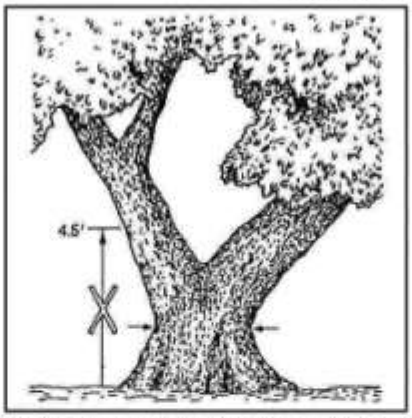



Figures 4-3 (top) and 4-4 (bottom). In each case, the trunk circumference should be measured at right angles to the trunk 4.5 feet (1.4 cm) along the center of the trunk axis so the height is the average of the s hortest and longest sides of the trunk.

There are some exceptions to the dbh standard as shown in the figures 4-3, 4-4, 4-5 & 4-6.

Figure 4-6. In a multi-stem tree, measure the trunk circumference of each trunk at 4.5 feet (1.4 m) above the ground. The area of each trunk is determined and then added together to obtain a trunk area that is representative of the size of the tree and each of the stems contribute its proportionate share to the canopy.



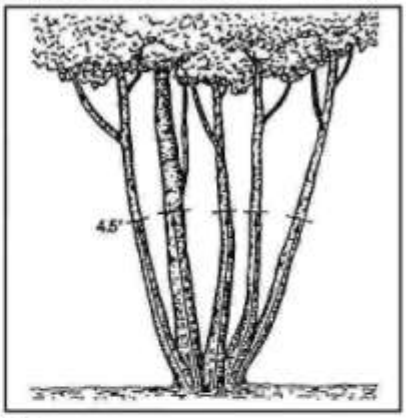




Figure 4-5. When low branches preclude measuring the trunk at 4.5 feet (1.4 m) measure the smallest circumference below the smallest branch. In this example, an alternative would be to determine the sum of the cross-sectional areas of the two stems measured about 12 inches (30 cm) above the crotch; then average the sum of the two branch areas and the smallest cross-sectional area below the branches. This may give a better estimate of tree size. Record the height of measurement(s) and the reasons the height or those heights were chosen.

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**Tree SIZE Expressed by Trunk Diameter**

| Scale: NTS | Drawing: TSE |
|---|---|

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## Disclosure, Assumptions and Disclaimer

**1)** I, Nicole Harrison, *ISA Certified Arborist WE-6500A,* with "**ABACUS**", did personally inspect the site and investigated the tree(s) as mentioned in this report and I performed all aspects of this report unless noted otherwise in the report. Arborist's Assistant was Julie McNamara.

**2)** We have neither financial interest in the tree work that may or may not be done, nor financial interest in the property where the tree(s) is (are) located unless noted within the report.

**3)** All opinions and recommendations expressed herein this report are ours solely. We have used our specialized education, knowledge, training and experience to examine the tree(s) and to make our opinions and recommendations to enhance the beauty; health and longevity, with an attempt to reduce the risk of whom and/or what is near these trees. We cannot guarantee or warranty that a tree will not be healthy or safe under all circumstances, nor for a specific period of time or those problems may not arise in the future.

**4)** Our report with its opinions and recommendations are limited to the tree(s) inspected.

**5)** We attempt to be cognizant of the whole scope of a project, but many matters are beyond the scope of our professional consulting arborist services such as: exact property boundaries, property ownership, site lines, easements, codes, covenants & restrictions (CC&Rs), disputed between neighbors, and other issues.

**6)** We rely on the information disclosed to us and assume the information to be complete, true, and accurate.

**7)** The inspection is limited to visual examination of accessible items of the tree(s), from the ground unless otherwise noted, without excavation, probing, boring, or dissection, unless noted otherwise. Only information covered in this report was examined, and reflects the condition of those inspected items at that specific time.

**8)** Clients may choose to accept or disregard these opinions and recommendations of the arborist or to seek additional advice.

**9)** This report is copyrighted. Any modification or partial use shall nullify the whole report. Do not copy without written permission. This report is for the client and the client's assignees.

**10)** Sketches, diagrams, graphs, drawings, and photographs within this report are intended as visual aids and are not necessarily to scale, and should not be construed as engineering or architectural detail, reports or surveys.

**11)** We shall not attend or give a deposition and/or attend court by reason of this report unless fees are contracted for in advance, according to our standard fee schedule, adjusted yearly, for such services as described.

Signed: _____