

**RESOLUTION NO. 2023-187**

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ELK GROVE  
ADOPTING THE ADDENDUM TO THE LAGUNA RIDGE SPECIFIC PLAN  
REVISED ENVIRONMENTAL IMPACT REPORT  
FOR THE GUARDIAN MADEIRA APARTMENTS PROJECT  
PROJECT NO. PLNG22-063  
LOCATED AT THE SOUTHWEST CORNER OF BIG HORN BOULEVARD  
AND POPPY RIDGE ROAD  
APNS: 132-0050-170 AND 132-0050-171**

**WHEREAS**, the Development Services Department of the City of Elk Grove (the “City”) received an application on December 22, 2022, from Guardian Investment Capital, LLC (the “Applicant”) requesting a General Plan Amendment, Specific Plan Amendment, Rezone, and Major Design Review for the Guardian Madeira Apartments Project (the “Project”); and

**WHEREAS**, the proposed Project is located on real property in the incorporated portions of the City more particularly described as APNs: 132-0050-170 and -171; and

**WHEREAS**, the Project qualifies as a project under the California Environmental Quality Act (CEQA), Public Resource Code §§ 21000 et seq.; and

**WHEREAS**, Section 15164 (Addendum to an Environmental Impact Report (EIR) or Negative Declaration) of Title 14 of the California Code of Regulations (State CEQA Guidelines) provides that a lead agency may prepare and Addendum to a previously certified EIR; and

**WHEREAS**, a Revised EIR (REIR) was certified by the City Council for the adoption of the Laguna Ridge Specific Plan (LRSP) Area (State Clearinghouse No. 2000082139); and

**WHEREAS**, the REIR analyzed the overall development of the LRSP area and adopted mitigation measures including, but not limited to, potential Project impacts including those related to traffic, air quality, and biological resources; and

**WHEREAS**, the Addendum found that the Project would not generate any new impacts; and

**WHEREAS**, the Planning Commission held a duly-noticed public hearing on July 20, 2023, as required by law to consider all of the information presented by staff, information presented by the Applicant, and public testimony presented in writing and at the meeting, and voted 5-0 to recommend approval of the Project to the City Council; and

**WHEREAS**, the City Council held a duly-noticed public hearing on August 9, 2023, as required by law to consider all of the information presented by staff, information presented by the Applicant, and public testimony presented in writing and at the meeting.

**NOW, THEREFORE, BE IT RESOLVED**, that the City Council of the City of Elk Grove hereby finds the Addendum prepared for the Laguna Ridge Specific Plan REIR to be the appropriate environmental review pursuant to Section 15164 of the State CEQA Guidelines and adopts the Addendum, attached hereto as Exhibit A and incorporated herein by reference, based upon the following findings:

## CEQA

Finding: The proposed Project will not have a significant adverse impact on the environment and all potentially significant effects have been adequately analyzed in the Laguna Ridge Specific Plan (LRSP) REIR. The LRSP REIR, along with the Housing Element EIR, adequately addresses all environmental issues related to the development of the subject property, and there are no new subsequent significant environmental impacts as a result of this Project. None of the conditions calling for the preparation of a subsequent EIR are present.

Evidence: The California Environmental Quality Act (CEQA) requires analysis of agency approvals of discretionary "projects." A "project," under CEQA, is defined as "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." The proposed project is a project under CEQA.

The Laguna Ridge Special Plan Area was approved and an REIR certified by the City Council on June 16, 2004 (State Clearinghouse No. 2000082139). The LRSP REIR is available for reference below:

*Revised Draft LRSP EIR*: [https://www.elkgrovecity.org/sites/default/files/city-files/Departments/Planning/Projects/laguna\\_ridge\\_RDEIR.pdf](https://www.elkgrovecity.org/sites/default/files/city-files/Departments/Planning/Projects/laguna_ridge_RDEIR.pdf)

*Revised Final LRSP EIR*: [https://www.elkgrovecity.org/sites/default/files/city-files/Departments/Planning/Projects/LRSP\\_Revised\\_FEIR.pdf](https://www.elkgrovecity.org/sites/default/files/city-files/Departments/Planning/Projects/LRSP_Revised_FEIR.pdf)

In conjunction with the certification of the REIR, a Mitigation Monitoring and Reporting Program (MMRP) was adopted for the Specific Plan.

Section 15164 of the State CEQA Guidelines describes the conditions under which an Addendum to a previously certified EIR is appropriate. These conditions are as follows:

- (A) The lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.

Section 15162 of the State CEQA Guidelines describes the situations when a Subsequent EIR (SEIR), or negative declaration should be prepared. These conditions include:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, shows any of the following:

- (a) The project will have one or more significant effects not discussed in the previous EIR;
- (b) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
- (c) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives; or
- (d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

- (B) An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.
- (C) An addendum need not be circulated for public review but can be included in or attached to the final EIR.
- (D) The decision-making body shall consider the addendum with the final EIR prior to making a decision on the project.
- (E) A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in an addendum to an EIR, the lead agency's findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

Based on the analysis provided through the attached Addendum, the above Conditions A and C-E are satisfied. Condition B is not applicable as this is an addendum to an EIR and not a negative declaration. Therefore the Addendum prepared to the SEPA EIR is the appropriate environmental review document.

**PASSED AND ADOPTED** by the City Council of the City of Elk Grove this 9<sup>th</sup> day of August 2023




BOBBIE SINGH-ALLEN, MAYOR of the  
CITY OF ELK GROVE

ATTEST:



JASON LINDGREN, CITY CLERK

APPROVED AS TO FORM:



JONATHAN P. HOBBS,  
CITY ATTORNEY

EXHIBIT A

# GUARDIAN MADEIRA APARTMENTS

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## CEQA ADDENDUM

PREPARED FOR

**CITY OF ELK GROVE**



JULY 2023

PREPARED BY



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**Guardian Madeira Apartments  
(PLNG22-063)  
CEQA Addendum**

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July 2023

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- Appendix A: Air Quality and Greenhouse Gas Modeling Results
- Appendix B: Preliminary Hydrologic and Water Quality Study
- Appendix C: VMT Analysis

# GUARDIAN MADEIRA APARTMENTS ADDENDUM

## A. INTRODUCTION AND BACKGROUND

The City of Elk Grove adopted the Laguna Ridge Specific Plan (LRSP) and certified the associated Revised Environmental Impact Report (REIR) on June 16, 2004.<sup>1,2</sup> In 2019, the City adopted an amended version of the LRSP to reflect the City's updated General Plan.<sup>3</sup> The LRSP area is comprised of approximately 1,904 acres within the City limits and is generally bounded by Elk Grove Boulevard to the north, State Route (SR) 99 to the east, Poppy Ridge Road and Bilby Road to the south, and Bruceville Road to the west. At the time of the City's adoption of the LRSP, the plan area included a variety of agricultural activities generally consisting of irrigated and non-irrigated pastureland, residential land uses, and industrial land uses.

Historic agricultural uses have previously disturbed and altered the natural features of the LRSP area, which is relatively flat. Natural features within the LRSP area are limited to isolated stands of valley oak, interior live oak, coast live oak, blue oak, oracle oak, California black walnut, California sycamore and two significant groves of blue gum eucalyptus. Water features within the LRSP area consist of perennial marsh and open water (irrigation canals and stock ponds). The adopted LRSP provides for the development of residential, commercial, park, public school, and mixed-use land uses within the plan area. The land uses and zoning districts facilitated by the LRSP are summarized in Table 1.

As shown in Figure 3-1, Land Use Plan, of the LRSP, within the overall plan area, the LRSP designated a 1.11-acre parcel (Parcel I), located immediately south of Poppy Ridge Road and identified by Assessor's Parcel Number (APN) 132-0050-170, as Low Density Residential (LDR) and Parkways and Open Space (P/OS) (see Figure 1). In addition, the LRSP designated a 12.2-acre parcel (Parcel II), located immediately southwest of the Poppy Ridge Road/Big Horn Boulevard intersection and identified by APN 132-0050-171, as High Density Residential (HDR) (see Figure 3-1, Land Use Plan, of the LRSP). Parcels I and II are contiguous, and potential environmental impacts that could occur through development of the parcels with the aforementioned uses was evaluated as part of the LRSP REIR.

Subsequent to the adoption of the LRSP, the City of Elk Grove rezoned Parcel II from Agricultural Minimum 20 Gross Acres (AG-20) to Residential District 25 Dwelling Units Per Acre (RD-25) as part of adoption of the City's 2013-2021 Housing Element and certification of an associated EIR.<sup>4</sup> As part of the adoption of the City's 2021-2029 Housing Element, for which an associated Subsequent EIR (SEIR) was certified, the City rezoned Parcel II from RD-25 to the parcel's current zoning designation of Residential District 30 Dwelling Units Per Acre (RD-30).<sup>5</sup>

<sup>1</sup> City of Elk Grove. *Laguna Ridge Specific Plan*. Adopted June 16, 2004.

<sup>2</sup> City of Elk Grove. *Laguna Ridge Specific Plan Revised Environmental Impact Report*. Certified June 16, 2004.

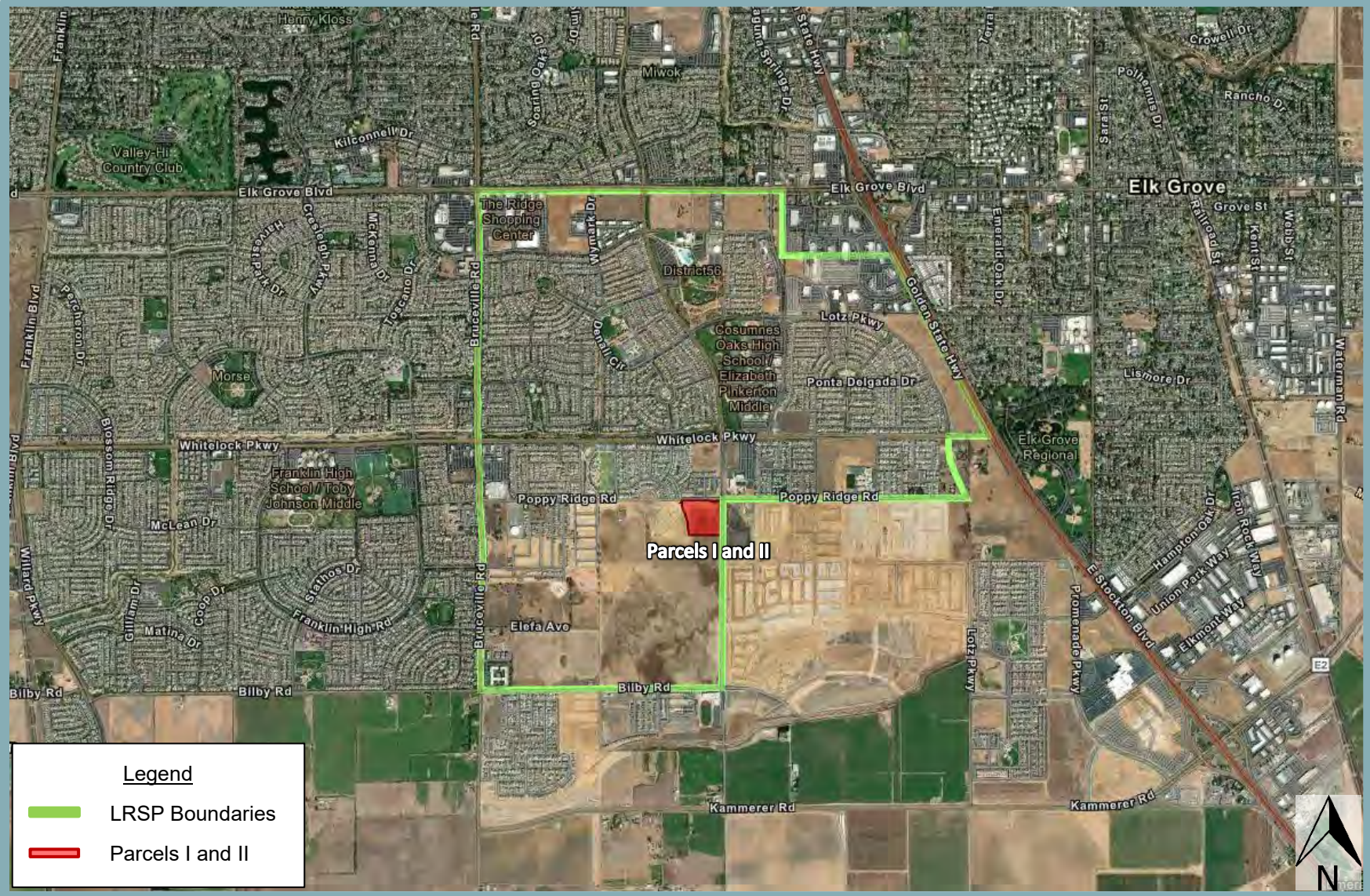
<sup>3</sup> City of Elk Grove. *Laguna Ridge Specific Plan Revised Environmental Impact Report*. Amended December 11, 2019.

<sup>4</sup> City of Elk Grove. *City of Elk Grove 2013-2021 Housing Element*. Adopted February 12, 2014. See also, City of Elk Grove. *City of Elk Grove 2013-2021 Housing Element Environmental Impact Report*. Certified February 12, 2014.

<sup>5</sup> City of Elk Grove. *City of Elk Grove Housing Element and Safety Element Update Subsequent Environmental Impact Report*. Certified May 12, 2021.



**Figure 1**  
**Laguna Ridge Specific Plan Boundaries**





<b>Table 1 Laguna Ridge Specific Plan Land Use Summary</b>		
<b>Land Use</b>	<b>Zoning</b>	<b>Approximate Acreage</b>
Low Density Residential	RD-4	110.33
Low Density Residential	RD-5	473.28
Low Density Residential	RD-6	81.70
Low Density Residential	RD-7	137.15
Medium Density Residential	RD-8	17.21
Medium Density Residential	RD-15	18.37
High Density Residential	RD-20	41.42
High Density Residential	RD-25	11.15
Auto Commercial	AC	72.57
Office Park	BP	61.49
Shopping Commercial	SC	121.32
Village Center Mixed-Use	VCMU	20.42
Schools	ES-MS-HS	127.00
Parks	CIVIC CTR, Parks	153.83
Parkways or Open Space	PKY-OS	86.14
Water Treatment Facility	WTF-FS	16.01
Roadways	--	354.17
<b>Total</b>		<b>1,904</b>
<i>Source: Laguna Ridge Specific Plan Update, 2019.</i>		

On December 12, 2022, an application to develop Parcels I and II was submitted to the City of Elk Grove Development Services Department for a development Project known as the Guardian Madeira Apartments Project (the “Project”) PLNG22-063. A detailed description of proposed Project is provided in the following sections.

**B. SUBSEQUENT ENVIRONMENTAL REVIEW**

This Addendum to the LRSP REIR has been prepared in accordance with the California Environmental Quality Act of 1970, Public Resources Code (PRC) Section 21000 et seq., as amended (CEQA) and the Guidelines for Implementation of the California Environmental Quality Act, California Code of Regulations (CCR) Title 14, Section 15000 et seq. (CEQA Guidelines). Pursuant to CEQA Guidelines Section 15164(a), a lead agency or responsible agency shall prepare an Addendum to a previously certified EIR if some changes or additions are necessary, but none of the conditions described in Section 15162 calling for preparation of a SEIR or Negative Declaration have occurred. Pursuant to CEQA Guidelines Section 15164(b), an Addendum to a certified EIR may be prepared if only minor technical changes or additions are necessary.

The analysis within this document demonstrates that the proposed modifications to development of the Project site with the proposed uses do not trigger the criteria set forth in CEQA Guidelines Section 15162. Thus, an Addendum is the appropriate CEQA document. See Section F below for further discussion on this topic.

**Scope of the Addendum**

This Addendum includes the following sections that will address various aspects about the proposed Project:

- Project Background;
- Project Description, including a discussion of the Project location, existing setting, surrounding land uses, and Project components;

- Required Public Approvals;
- CEQA Analysis Approach; and
- Environmental Impact Comparison to the LRSP REIR, using the criteria established by the current CEQA Guidelines.

## **C. PROJECT DESCRIPTION**

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

### **Project Location, Existing Setting, and Surrounding Land Uses**

The 13.31-acre Project site is located immediately southwest of the Poppy Ridge Road/Big Horn Boulevard intersection within the LRSP area in the City of Elk Grove, California (see Figure 2 and Figure 3). The site, which currently consists of undeveloped land that is routinely mowed, is bounded by Poppy Ridge Road to the north, Big Horn Boulevard to the east, and the future Mount Pico Way to the west. The LRSP land use map designates Parcel I as LDR and P/OS and Parcel II as HDR, while the Elk Grove General Plan designates Parcel I as LDR and Parcel II as HDR.<sup>6</sup> The entirety of Parcel I is zoned Residential District Five Dwelling Units Per Acre (RD-5). Parcel II is zoned RD-30.

Surrounding existing land uses include existing single-family residences to the north (Reflections at Poppy Lane and Madeira South Lot A), across Poppy Ridge Road; Cosumnes River College buildings to the northeast, across the Poppy Ridge Road/Big Horn Boulevard intersection; undeveloped land and barn structures to the east, across Big Horn Boulevard; undeveloped land to the south and west. It should be noted that the undeveloped lots north of the site are planned for development with single-family residences as part of the City-approved Madeira South Lot A community and undeveloped land south and west of the site is planned for development with single-family residences as part of the City-approved Madeira South Village 5 community. Village 5 will include construction of the Mount Pico Way extension south of Poppy Ridge Road. Upon construction, the Mount Pico Way extension will form the western boundary of Parcel I.

### **Project Components**

In general, the Project would consist of a 13-building multi-family residential development, comprised of 324 units; on-site amenities; access improvements; surface parking areas; associated utility improvements; new landscaping; and frontage improvements. The Project would require City approval of a General Plan Amendment, Specific Plan Amendment, Rezone, Major Design Review, and a future Boundary Line Adjustment. The following section provides further details regarding the overall Project.

### **Multi-Family Residences**

The Project would primarily consist of a 13-building multi-family residential development, comprised of 11 residential buildings and two clubhouse buildings and totaling 324 units (see Figure 4). The residential units would be constructed across 11 three-story buildings, which, overall, would feature 122 one-bedroom units, ranging in size from 739 square feet (sf) to 756 sf; 151 two-bedroom units, ranging in size from 1,060 sf to 1,134 sf; and 51 three-bedroom units, ranging in size from 1,379 sf to 1,395 sf. In addition to living/dining areas, kitchens, and laundry areas, each unit would also feature a private balcony.

<sup>6</sup> City of Elk Grove. *Elk Grove General Plan*. Amended October 2022.







**Figure 3**  
**Project Site Boundaries**









The building exteriors would be composed of various materials, including, but not limited to, wood barge board, board and batten, wood fascia, welded metal mesh panels, cementitious panels, metal railing, stucco, vinyl windows, and tubular steel columns (see Figure 5).

In addition to the apartment buildings, the proposed Project would include two clubhouse buildings, totaling 10,711 sf, that would offer various on-site amenities and would be located in the northeast corner of the Project site. The first floor of the westerly clubhouse building would contain a leasing lobby, staff offices, mail room, club room, hospitality bar, covered patios, a pool and spa, a fitness room, a workshop, and an outdoor fitness lawn with synthetic turf (see Figure 6). The second floor would provide an entertainment room, decks, and additional restrooms (see Figure 7). An elevator would be provided, as well as exterior stairs. The easterly clubhouse would include a gym/golf room and vaulted ceilings.

Additional amenities associated with the two clubhouse buildings would include an outdoor, covered area, featuring barbecue grills, a fire pit, picnic tables, dart boards and lounge furniture. The outdoor, covered area would be sited immediately south of the pool and spa. With respect to other amenities located in the overall Project site, a dog park, featuring shade, benches, a drinking fountain with dog bowl, and five-foot-tall puppy fencing, would be sited adjacent to the Parcel I western boundary. The five-foot-tall fencing would encompass the northern, eastern, and southern perimeters of the dog park. The western dog park perimeter would be composed of six-foot-tall metal tubular fencing, discussed below. Picnic areas with barbecue grills and tables would be located in the southeast corner and adjacent to the western boundary of the site. A shaded picnic area, featuring a cornhole set and foosball table, as well as a playground and a fire pit patio, would be centrally located to the south of Buildings 5 and 6.

Fencing would be installed along the project site boundaries consistent with applicable standards set forth by the Elk Grove Citywide Design Guidelines, the LRSP Supplemental Design Guidelines, and any conditions of approval imposed upon the Project. In addition, pedestrian gates would be sited at various locations, including near the two proposed site entrances (discussed further below), as well as at other locations, to facilitate pedestrian access for residents. The pedestrian gates would primarily be six feet in height and composed of 1.5-inch rails and welded gate paneling. Along the majority of the southern site boundary, the Project would also include a tan concrete masonry unit wall with split face on the public side.

### **Access, Circulation, and Parking**

Vehicle access to the Project site would be provided from Poppy Ridge Road and Big Horn Boulevard (see Figure 4). With respect to access from Poppy Ridge Road, a new 35-foot-wide driveway would be constructed directly south of the existing Poppy Ridge Road/Sea Turtle Street intersection from which a new interior drive aisle would extend. The drive aisle would extend southward into the Project site and would contain three vehicle lanes. With respect to access from Big Horn Boulevard, a new 35-foot-wide driveway would be constructed along the west of the roadway from which an interior drive aisle would extend. The drive aisle would extend westward into the site and would contain two vehicle lanes. Vehicle access to the apartment buildings and internal surface parking areas would be restricted by a six-foot-tall entry swing gate positioned along each drive aisle. Additionally, as discussed further below under the Frontage Improvements subsection, the Project would include construction of a new 11-foot-wide vehicle lane and a seven-foot-wide bus lane along portions of the Big Horn Boulevard frontage.

**Figure 5**  
**Apartment Building Elevation and Exterior**





**Figure 7**  
**Clubhouse Building Second Floor Plan**



With respect to parking, the proposed Project would include a total of 543 parking stalls, which would be located throughout the Project site within proximity to the apartment buildings and clubhouse building (see Figure 4). The parking total would consist of 332 covered carport spaces, 157 uncovered spaces, and 54 guest spaces. In addition, 14 parking spaces would be compliant with the Americans with Disabilities Act (ADA), 56 spaces would be electric vehicle capable (EVC), 123 spaces would be electric vehicle ready (EVR), and 22 spaces would include an electric vehicle charger (EVCS).

In regard to pedestrian access, new seven-foot-wide sidewalks would be constructed along the northern and eastern Project site boundaries, which would be shaded by new landscaping trees. The westerly sidewalk would be four feet in width. In addition, the proposed Project would include new sidewalks parallel to the apartment buildings and clubhouse building, as well as in areas planned for outdoor amenities, such as the picnic areas in the southeast corner and western boundary of the site. As previously discussed, pedestrians would be provided access from the sidewalks along the site boundaries to the more interior sidewalks by way of pedestrian gates stationed at various locations along the site perimeters.

With respect to bicycle parking and facilities, a total of 108 spaces for bike parking would be provided on-site by way of steel-tube bike racks installed at the corners of most of the apartment buildings, as well as adjacent to the clubhouse building. As discussed further below under the Frontage Improvements subsection, the Project would also include construction of new Class II bicycle lanes along the Big Horn Boulevard frontage that would range in width from four to five feet.

## **Utilities**

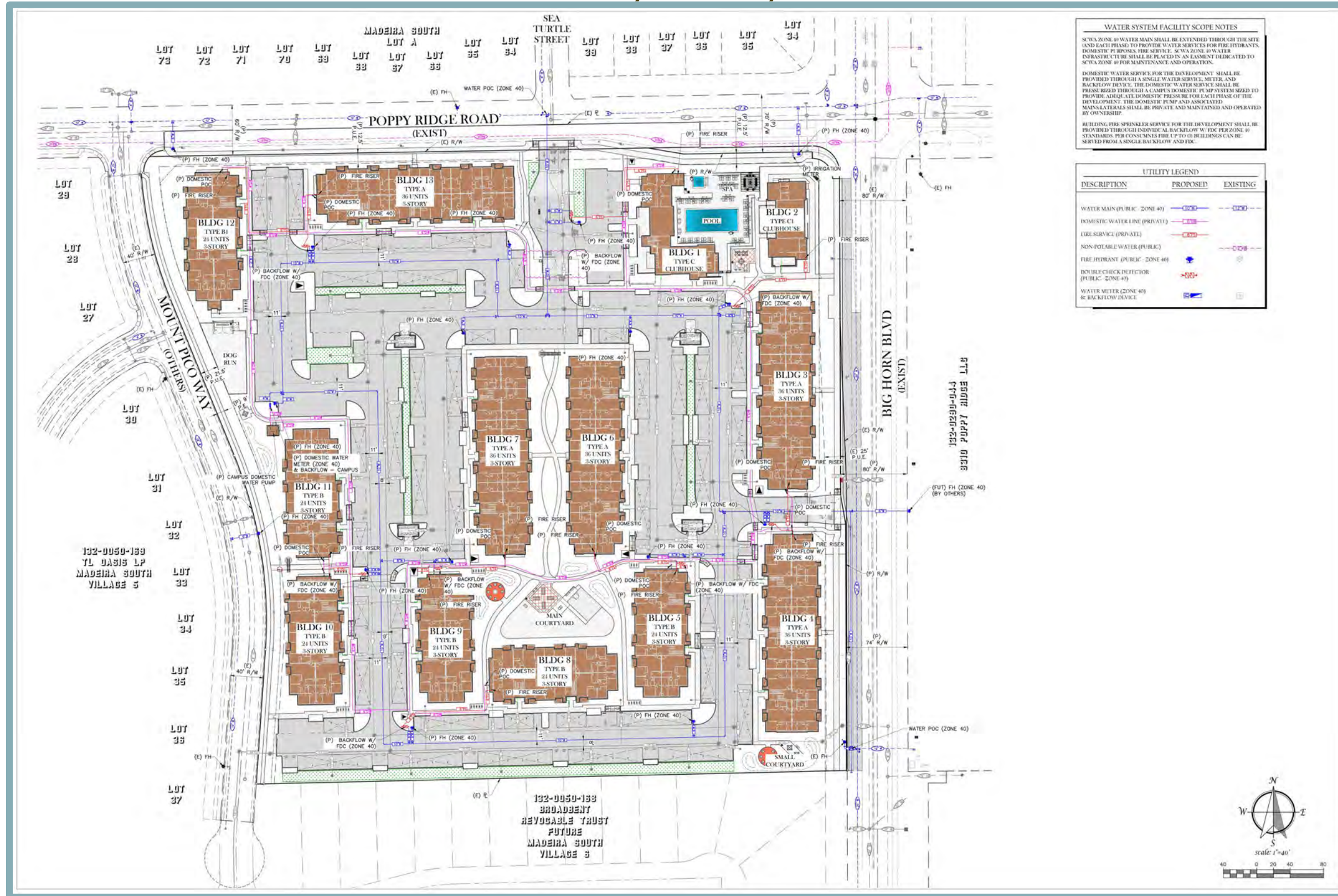
Water service for the proposed Project would be provided by the Sacramento County Water Agency (SCWA), as the Project site is located within the SCWA Zone 40 service area. An existing 12-inch water line is located within the Poppy Ridge Road right-of-way (ROW) and an existing 20-inch water line is located within the Big Horn Boulevard ROW (see Figure 8). From the existing water lines, a new 10-inch water line would extend into the Project site within the proposed driveways and internal drive aisles, to which each building would connect through either a two-inch or six-inch water lateral. In addition, each proposed structure would receive fire flow through new six-inch water lines.

With respect to wastewater, the proposed Project would be provided sanitary sewer conveyance services by the Sacramento Area Sewer District (SASD). An existing eight-inch sewer line is located within the Big Horn Boulevard ROW (see Figure 9). From the existing line, a new eight-inch sewer line would extend into the Project site from the site's southeast corner within the proposed internal drive aisles. Each building would connect to the new internal sewer line by way of new six-inch sewer laterals.

In regard to storm drainage facilities, the proposed Project would be provided storm drain services by the City of Elk Grove Public Works Department. As discussed further in Section X, Hydrology and Water Quality, of this Addendum, the proposed Project would divide the Project site into 12 Drainage Management Areas (DMAs) (see Figure 10). Stormwater runoff from new impervious surfaces within each DMA would be directed to drain inlets within paved areas and bioretention and landscaped areas located throughout the site. Runoff captured within bioretention areas would be provided preliminary treatment. From the drain inlets, flows would be released to new 10-inch, 12-inch, and 15-inch storm drain lines, which would then convey to a new 18-inch storm drain line in the southwest corner of the site.

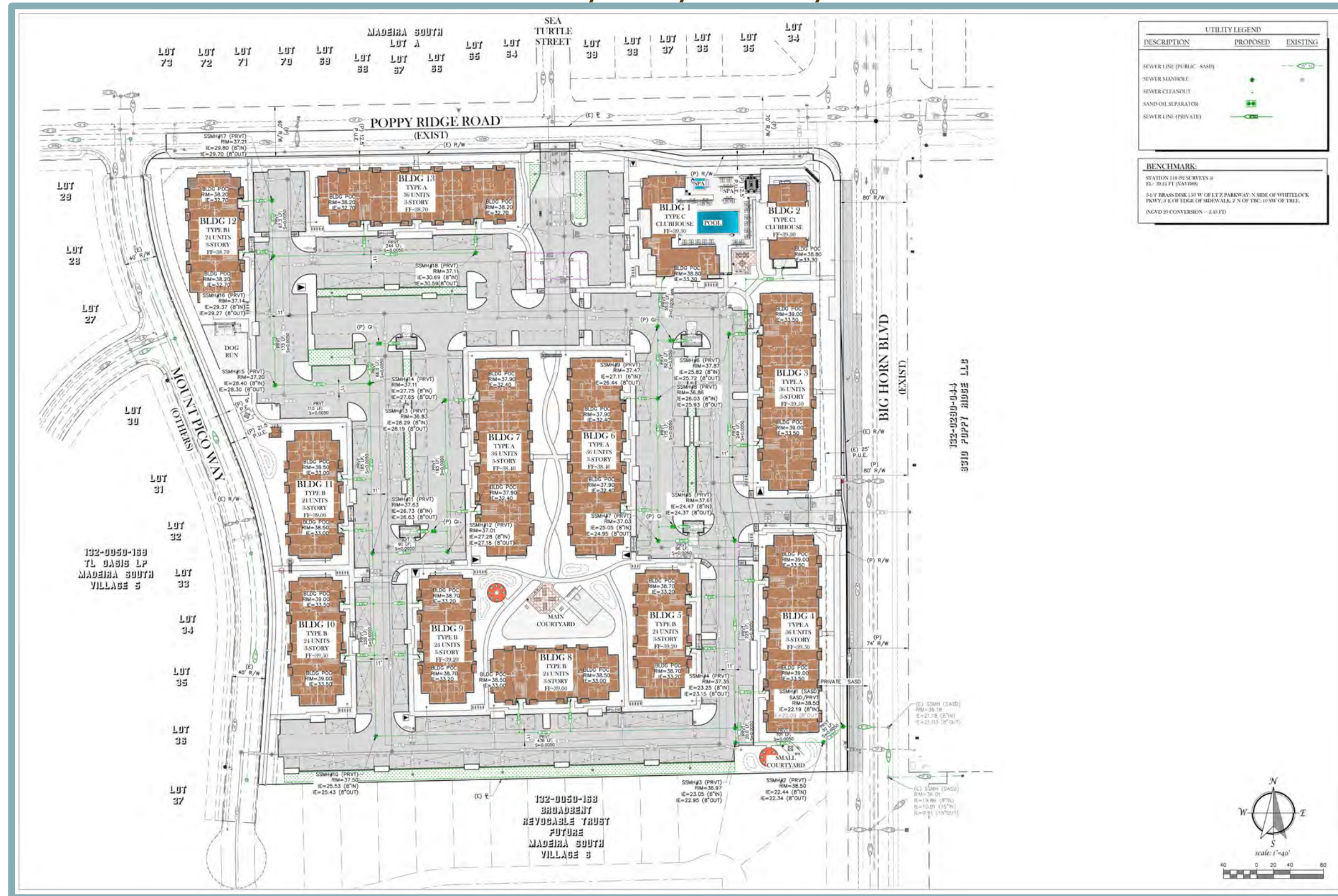


**Figure 8**  
**Preliminary Water Utility Plan**



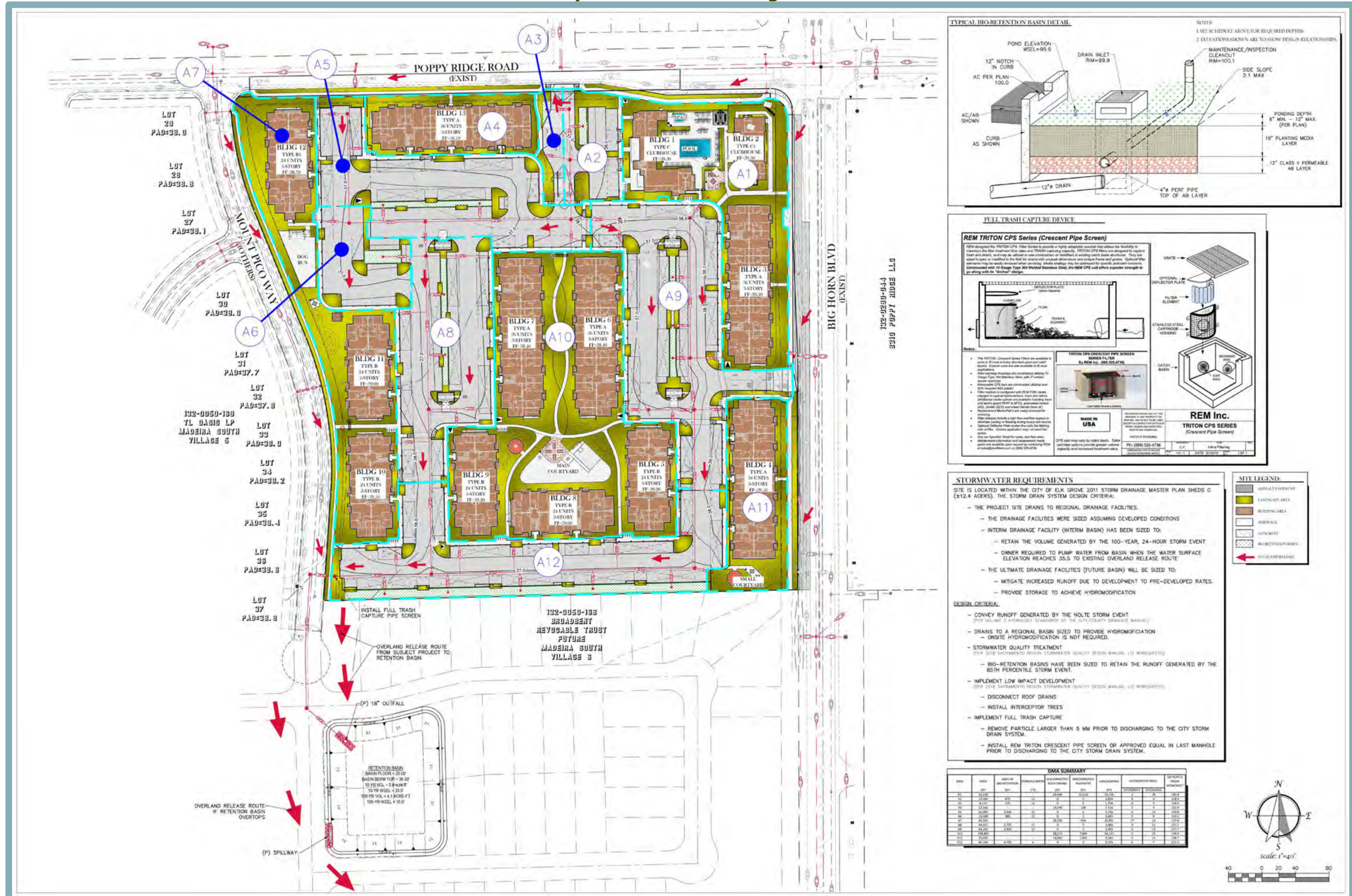


**Figure 9**  
**Preliminary Sanitary Sewer Utility Plan**





**Figure 10**  
**Preliminary Stormwater Management Plan**





From the 18-inch storm drain line, flows would ultimately be discharged to a new interim retention basin designed to retain runoff generated by a 100-year, 24-hour storm event. Peak flows exceeding the interim basin's capacity would be pumped to an existing overland release route to the south of the Project site. An ultimate drainage basin would be constructed in the future to drain runoff at pre-development levels.

Finally, electricity would be provided to the proposed Project by Sacramento Municipal Utility District (SMUD). As required by Elk Grove Municipal Code Section 23.63.020, the existing overhead utility lines would be undergrounded, to which the proposed Project would connect. Natural gas would be provided to the Project by Pacific Gas & Electric Co. (PG&E).

### **Landscaping**

Although the LRSP EIR identifies trees within the LRSP boundaries, the Project site does not currently contain trees. New landscaping would be provided, as required by Elk Grove Municipal Code Section 23.54.030. Plant selection would be in accordance with Section 23.54.040 of the Municipal Code. As shown in Figure 11, new tree vegetation would consist of 24-inch box trees, including October glory red maple, Chinese pistache, red oak, true green lacebark elm, and village green sawleaf zelkova, and 15-gallon trees, including, but not limited to redpointe maple, red crape myrtle, Saratoga hybrid laurel, little gem dwarf magnolia, fern pine, and wireless Japanese zelkova. In addition, the Project would provide new shrub vegetation, including, but not limited to, little John weeping bottlebrush, orchid rockrose, Japanese blueberry tree dwarf, and gold flower, and new groundcover, including emerald carpet manzanita, verde vista creeping coprosmat, lowfast bearberry cotoneaster, breeze mat rush, and germander.

### **Frontage Improvements**

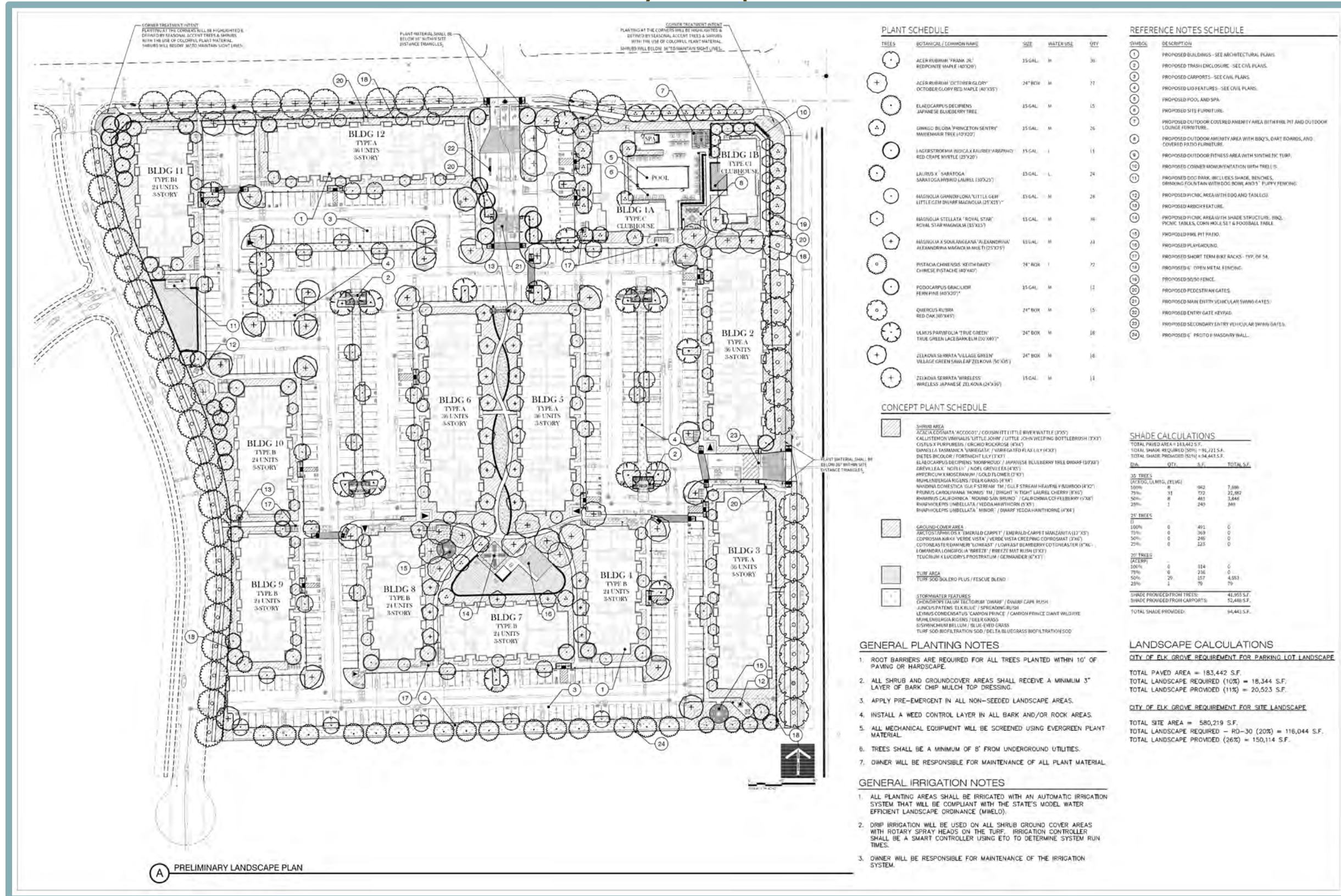
The proposed Project would include frontage improvements along a portion of the Project's Big Horn Boulevard boundary (see Figure 12). In accordance with Elk Grove Standard Construction Specifications, the Project would include dedication, design, and improvement of the westerly half-section of Big Horn Boulevard. The improvements would include 36 feet of improvements from the approved centerline of the road, based on a 72-foot-wide arterial street, and include a 25-foot-wide landscape corridor and a seven-foot-wide detached sidewalk. All improvements would be designed in accordance with applicable improvement standards set forth by the LRSP. The Project would additionally include appropriate road transitions, including all necessary signing and striping, to the satisfaction of the City.

### **Discretionary Approvals**

The City of Elk Grove has discretionary authority and is the lead agency for the proposed Project. The Project would require City approval of the following entitlements, which are discussed further below:

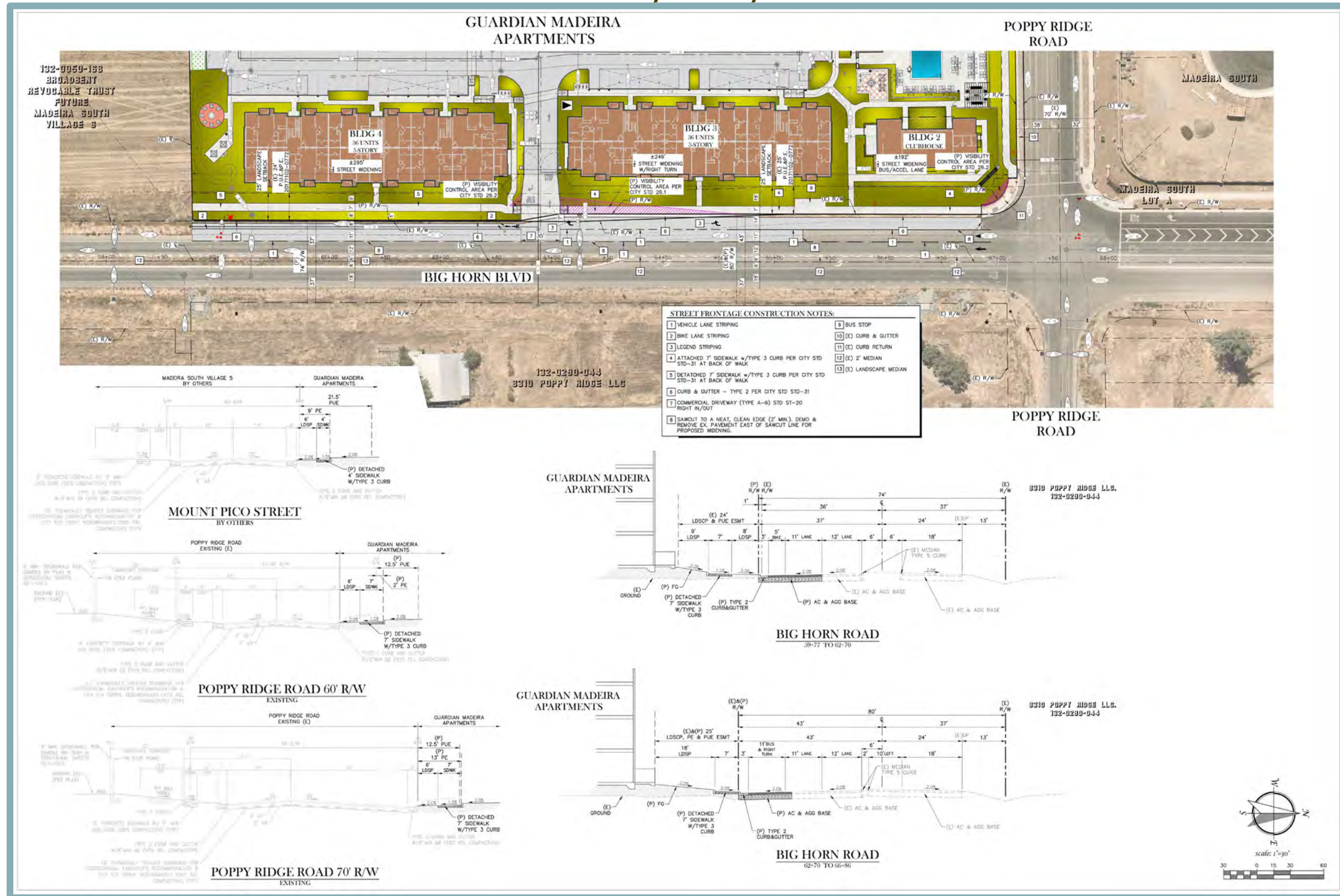
1. General Plan Amendment to redesignate Parcel I from LDR to HDR;
2. Specific Plan Amendment to redesignate Parcel I from LDR and P/OS to HDR/RD-30;
3. Specific Plan Amendment to redesignate Parcel II from HDR/RD-25 to HDR/RD-30;
4. Rezone of Parcel I from RD-5 to RD-30;
5. Major Design Review; and
6. Boundary Line Adjustment.

Figure 11  
Preliminary Landscape Plan





**Figure 12**  
**Preliminary Roadway Plan**



### General Plan Amendment, Specific Plan Amendment, and Rezone

Pursuant to the Elk Grove General Plan, LDR uses are generally characterized by single-family detached residential development, with lot sizes typically ranging from 6,000 to 10,000 sf. The proposed Project would require a General Plan Amendment of Parcel I to HDR, which allows for attached homes, townhomes, garden apartments, and apartments (see Figure 13). In addition, Parcels I and II would require a Specific Plan Amendment to redesignate the parcels to HDR/RD-30 to allow for the proposed structures to be constructed at the City's allowed maximum density (see Figure 14).

Similarly, Parcel I would require a Rezone to RD-30 to allow for construction of the proposed buildings at the allowed maximum density of 30 dwelling units per acre (du/ac) (see Figure 15). Because Parcel II's RD-30 zoning and HDR General Plan designation are consistent with the proposed Project, the parcel does not require a Rezone or General Plan Amendment. Through the Rezone, development of Parcel I with the proposed use would result in a net increase of 19 units relative to the parcel's approved LRSP conditions. The proposed General Plan Amendment, Specific Plan Amendments, and Rezone for Parcel I and Parcel II ensure consistent land use development standards for both sites.

### Major Design Review and Boundary Line Adjustment

As established by Elk Grove Municipal Code Section 23.16.080, the purpose of the Design Review process is to promote the orderly and harmonious growth of the City; to encourage development in keeping with the desired character of the City; to ensure physical, visual, and functional compatibility between uses; and to help prevent the depreciation of land values by ensuring proper attention is given to site and architectural design.

Major Design Review is required for new construction of multi-family residential development consisting of 150 units or more. Pursuant to Elk Grove Municipal Code Section 22.20.036, the Development Services Director is designated as the approval authority for all matters related to a Boundary Line Adjustment.

## **D. CEQA ANALYSIS APPROACH**

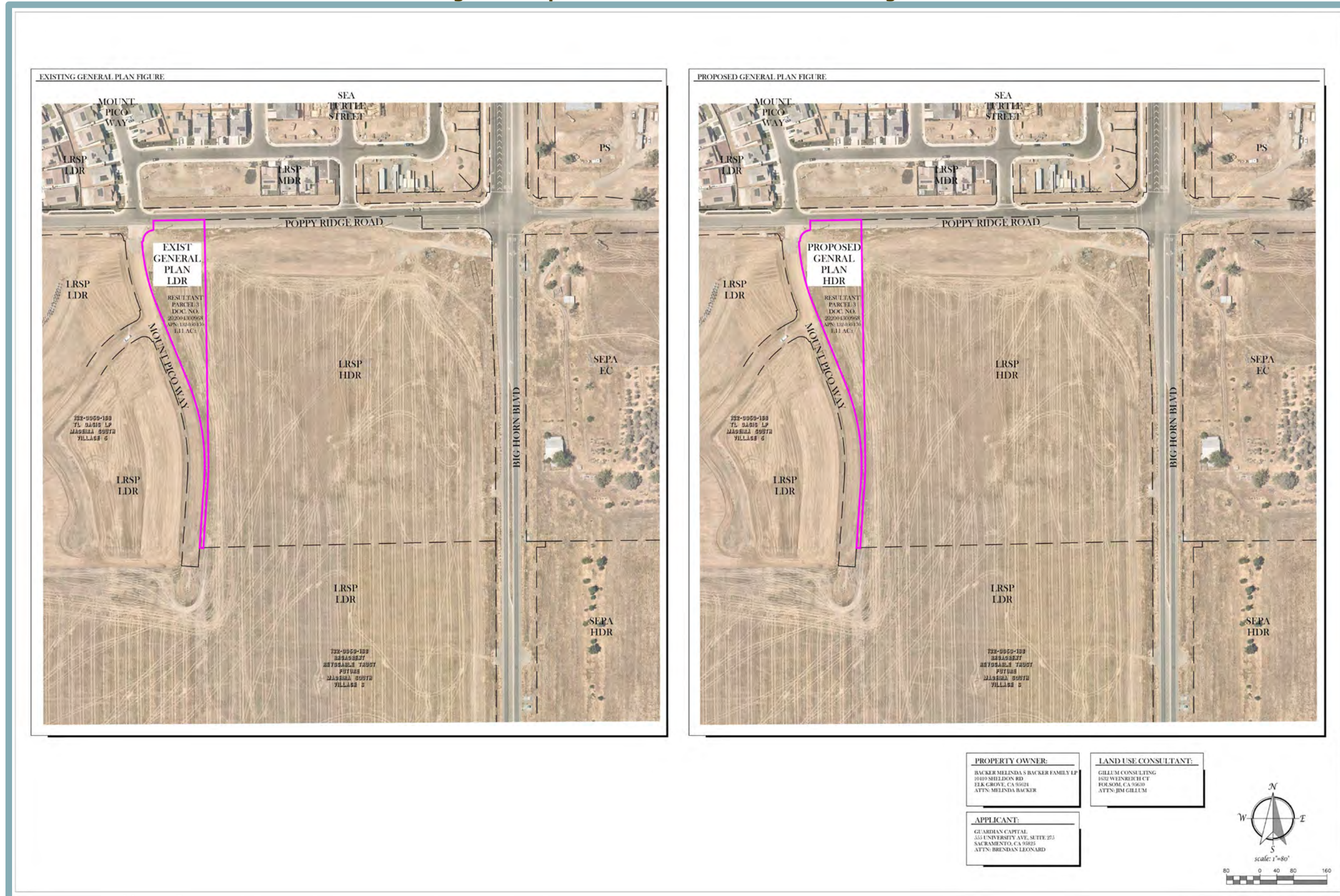
In the case of a project proposal requiring discretionary approval by the City for which the City has certified an EIR for the overall project, the City must determine whether a SEIR is required. The CEQA Guidelines provide guidance in this process by requiring an examination of whether, since the certification of the EIR and approval of the proposed project, changes in the project or conditions have been made to such an extent that the proposal may result in new significant impacts not previously identified or a substantial increase in severity of previously identified significant impacts. If so, the City would be required to prepare a SEIR. The examination of impacts is the first step taken by the City in reviewing the CEQA treatment of the project. The following review proceeds with the requirements of CEQA Guidelines Section 15162 in mind. Section 15162 is discussed in detail below.

An Addendum to a certified EIR may be prepared if only minor technical changes or additions are required, and none of the conditions identified in CEQA Guidelines Section 15162 are present. The following identifies the standards set forth in Section 15162(a) as they relate to the Project:

- (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

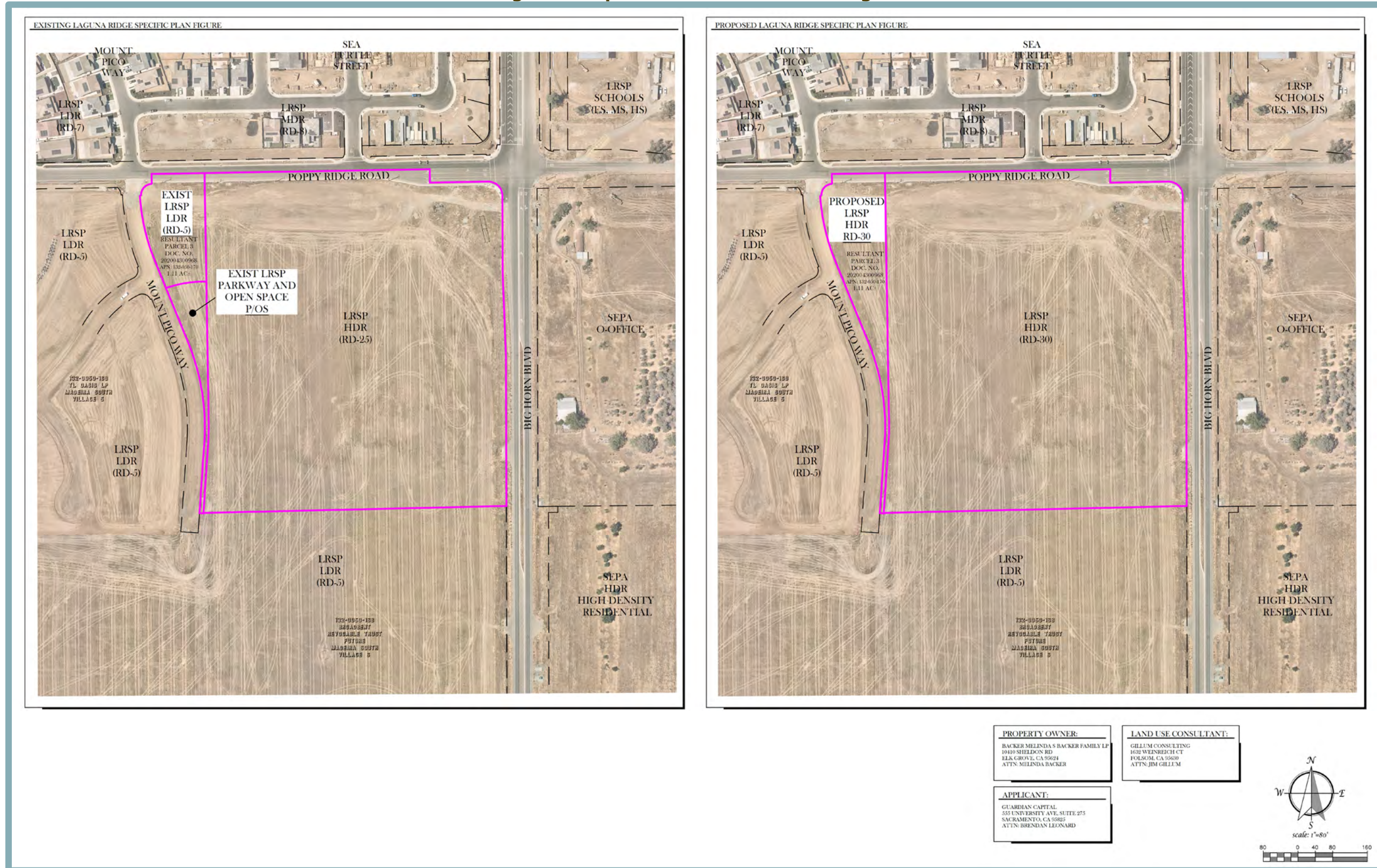


**Figure 13**  
**Existing and Proposed General Plan Land Use Designations**



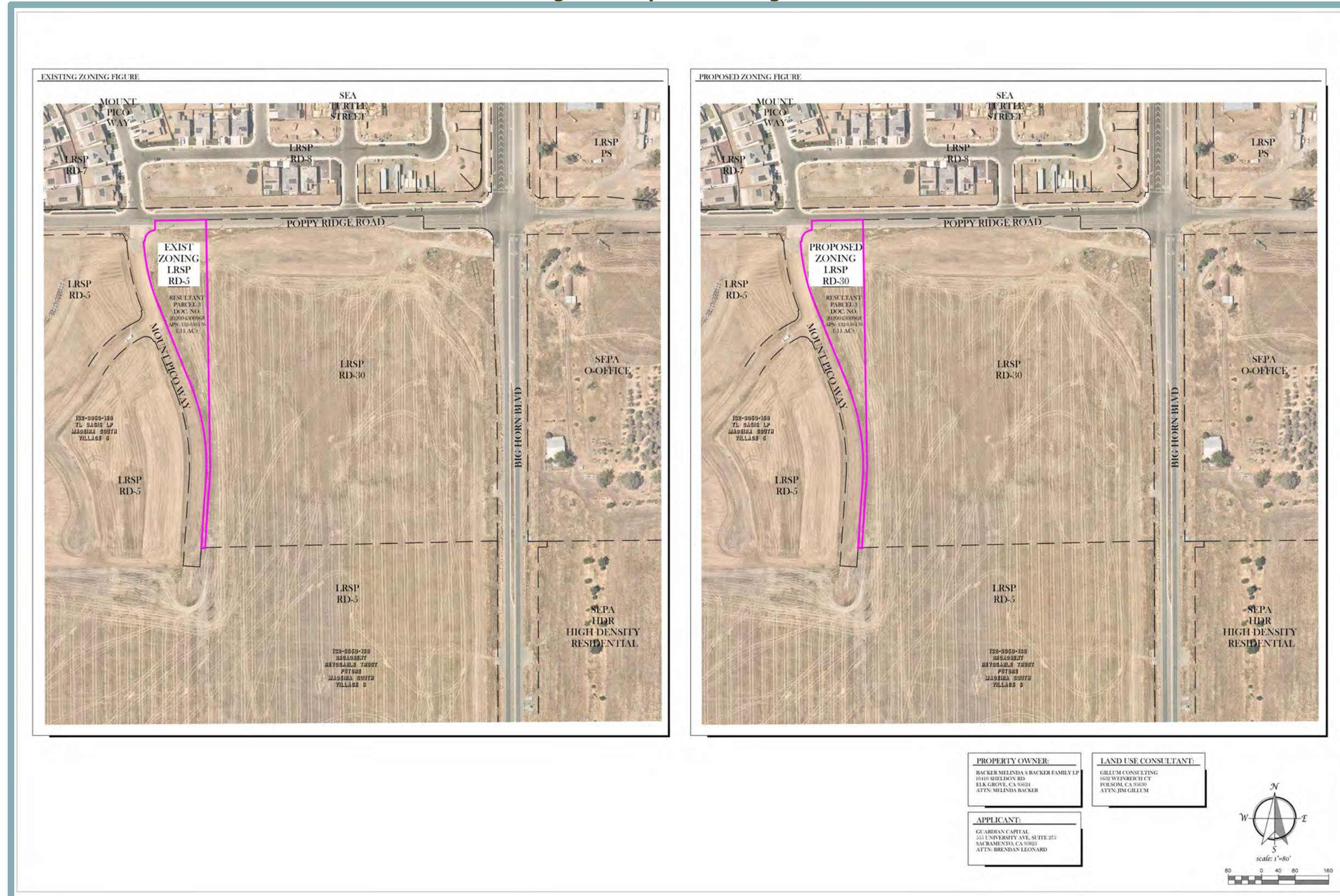


**Figure 14**  
**Existing and Proposed LRSP Land Use Designations**





**Figure 15**  
**Existing and Proposed Zoning Districts**





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

Section 15162 provides that the lead agency's role in project approval is completed upon certification of the EIR or Negative Declaration and approval of the project, unless further discretionary action is required. The approvals requested as part of the Project are considered discretionary actions. Therefore, CEQA review is required.

### **Confirmation of Addendum**

The following discussion confirms that the Project has been evaluated for significant impacts pursuant to CEQA. The discussion is meaningfully different than a determination that the Project is "exempt" from CEQA review, which is not the case. Rather, the determination here is that the Project's impacts have been considered in a previous CEQA document (i.e., the LRSP REIR) that was reviewed and certified by the Elk Grove City Council and deemed a sufficient and adequate analysis of the environmental impacts of the proposed Project. The discussion concludes that the conditions set forth in Section 15162 are not present. As such, an addendum is the appropriate environmental document for the proposed Project, pursuant to CEQA Guidelines Section 15164.

It should be noted that while the discussion below primarily relies upon the analyses and conclusions presented in the LRSP EIR, this Addendum also incorporates information from the 2021 Housing Element SEIR, where applicable. Such instances include this Addendum's evaluation of potential impacts related to vehicle miles traveled (VMT) that could occur as a result of the proposed development of Parcel II.

## **E. ENVIRONMENTAL IMPACT COMPARISON**

The purpose of the comparison is to evaluate the categories in terms of any "**changes**" or "**new information**" that may result in a changed environmental impact evaluation. A "**no**" answer does not necessarily mean that potential impacts do not exist relative to the environmental category, but that a relevant change would not occur in the condition or status of the impact due to its insignificance or its treatment in a previous environmental document.

## **Explanation of Impact Evaluation Categories**

Environmental Issue Area: This column presents the environmental resource area to be discussed and the relevant 2023 CEQA Guidelines Appendix G questions to be analyzed.

Where Impact Was Analyzed in the Previous CEQA Documents: This column provides a reference to the page(s) of the LRSP REIR and/or 2021 Housing Element SEIR (where applicable) where information and analysis may be found relative to the environmental issue listed under each topic.

Do Proposed Changes Involve New or More Severe Impacts? Pursuant to Section 15162(a)(1) of the CEQA Guidelines, this column indicates whether the changes represented by the current Project will result in new significant impacts that have not already been considered and mitigated by a previous EIR or that substantially increase the severity of a previously identified significant impact. If a “yes” answer is given and more severe impacts are specified, additional mitigations will be specified in the discussion section including a statement of impact status after mitigation.

Any New Circumstances Involving New or More Severe Impacts? Pursuant to Section 15162(a)(2) of the CEQA Guidelines, this column indicates whether there have been changes to the Project site or the vicinity (environmental setting) that have occurred subsequent to the certification of an EIR, which would result in the current Project having significant impacts that were not considered or mitigated by that EIR or which substantially increase the severity of a previously identified significant impact.

Any New Information Requiring New Analysis or Verification? Pursuant to Section 15162(a)(3) of the CEQA Guidelines, this column indicates whether new information is available requiring an update to the analysis of a previous EIR to verify that the environmental conclusions and mitigations remain valid. This also applies to any new regulations that might change the nature of analysis or the specifications of a mitigation measure. If additional analysis is conducted as part of this environmental impact comparison and the environmental conclusion remains the same, no new or additional mitigation is necessary. If the analysis indicates that a mitigation requires supplemental specifications, no additional environmental documentation is needed if it is found that the modified mitigation achieves a reduction in impact to the same level as originally intended.

Discussion: A discussion of the elements of the impact is provided for each impact statement in order to support the findings. The discussion provides information about the particular environmental issue, how the Project relates to the issue, and the status of any mitigation that may be required or that has already been implemented.

Conclusion: A conclusion relating to the need for additional environmental documentation is contained in each section.

## **Mitigation Sections**

Mitigation Measures from the Previous CEQA Documents: Applicable mitigation measures from the previous CEQA documents that apply to the changes or new information are referenced under each environmental category.

Modified Mitigation Measures: Where applicable, the mitigation measures from the previous CEQA documents have been modified for application to the Project. The modification of previous

mitigation measures ensures the incorporation of relevant site-specific information to maintain potential project-related impacts at a level equal to those identified in the previous CEQA documents. Deleted text that does not apply to the currently proposed Project is shown as ~~struck through~~. New text that has been added to more specifically address the currently proposed Project components is shown in double underline.

Additional Project-Specific Mitigation Measures: If changes or new information involve new impacts, additional mitigation measures, if available and feasible, are listed under each environmental category. As will be demonstrated below, no additional Project-specific mitigation measures have been identified for the proposed Project.

### **Environmental Factors Potentially Affected**

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a new significant impact or a substantially more severe significant environmental impact than what was previously analyzed in the LRSP REIR and 2021 Housing Element SEIR, as indicated by the discussion on the following pages.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aesthetics                    | <input type="checkbox"/> Agriculture and Forest Resources | <input type="checkbox"/> Air Quality                        |
| <input type="checkbox"/> Biological Resources          | <input type="checkbox"/> Cultural Resources               | <input type="checkbox"/> Energy                             |
| <input type="checkbox"/> Geology and Soils             | <input type="checkbox"/> Greenhouse Gas Emissions         | <input type="checkbox"/> Hazards and Hazardous Materials    |
| <input type="checkbox"/> Hydrology and Water Quality   | <input type="checkbox"/> Land Use and Planning            | <input type="checkbox"/> Mineral Resources                  |
| <input type="checkbox"/> Noise                         | <input type="checkbox"/> Population and Housing           | <input type="checkbox"/> Public Services                    |
| <input type="checkbox"/> Recreation                    | <input type="checkbox"/> Transportation                   | <input type="checkbox"/> Tribal Cultural Resources          |
| <input type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Wildfire                         | <input type="checkbox"/> Mandatory Findings of Significance |

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>I. Aesthetics.</b>				
<i>Would the Project:</i>				
a. Have a substantial adverse effect on a scenic vista?	LRSP REIR pg. 4.11-14	No	No	No
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	LRSP REIR pg. 4.11-16	No	No	No
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?	LRSP REIR pg. 4.11-14	No	No	No
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	LRSP REIR pgs. 4.11-15 to 4.11-16	No	No	No

**Discussion**

- a. Examples of typical scenic vistas include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project’s impact to a scenic vista would occur if development of the project would substantially change or remove a scenic vista. The LRSP REIR analyzed the potential for buildout of the plan area to result in impacts to scenic vistas under Impact 4.11.1 and found that scenic visual resources, such as scenic vistas, do not occur within the vicinity of the plan area.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Considering that new scenic vistas have not been identified within or in immediate proximity to the plan area since the City’s adoption of the LRSP, the proposed Project would not result in an impact beyond what was determined in the LRSP REIR.

Based on the above information, the proposed Project would not result in new significant impacts or substantially more severe impacts related to scenic vistas beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. The LRSP REIR analyzed the potential for buildout of the plan area to substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a County-designated scenic highway under Impact 4.11.3 and concluded that because the plan area is immediately adjacent to SR 99, buildout of the LRSP area would convert agricultural uses to higher-density residential and commercial uses, which would result in a significant and unavoidable impact, with feasible mitigation unavailable. It should be noted that SR 99 is designated by the Sacramento County General Plan as a scenic highway. However, consistent with Appendix G of the CEQA Guidelines, the relevant threshold under CEQA is whether a project would substantially impact scenic resources within the vicinity of a State-designated scenic highway. SR 99 is not designated by the California Department of Transportation (Caltrans) as a State scenic highway, nor is SR 99 currently eligible for such designation.<sup>7</sup>

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Currently, the nearest designated State scenic highway to the City limits is a portion of SR 160, which is located one mile to the west of the City's western boundary, approximately 6.1 miles to the west of the Project site.<sup>8</sup> As such, considering the distance between the Project site and SR 160, the proposed Project would not substantially damage scenic resources within the vicinity of State scenic highway and would not result in an impact beyond what was determined in the LRSP REIR.

Based on the above information, the proposed Project would not result in new significant impacts or substantially more severe impacts related to scenic resources within a State scenic highway beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- c. The LRSP REIR analyzed the potential for buildout of the plan area to substantially degrade the existing visual character or quality of public views of the area and the area's surroundings under Impact 4.11.1 and concluded that a significant and unavoidable impact would occur. The REIR further determined that feasible mitigation was unavailable to reduce the severity level of the potential impact. More specifically, the LRSP REIR found that buildout of the plan area would alter the existing visual character from a rural area to an urban environment, with views of open areas replaced by views of residential and commercial uses. While LRSP requirements related to setbacks, landscaping, and building heights, sizes, and locations would provide visual relief, the LRSP REIR concluded that, overall, development of the plan area would significantly impact existing views, as site development would initially be out of character with the existing rural nature of the area.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Through approval of the Project entitlements, the Project would be developed in accordance with the City's development standards applicable to the RD-30 zoning district, as established by Elk Grove Municipal Code Section 23.29.020. As detailed therein, development within the RD-30 zoning district must adhere to a density range of 25.1 to 30 du/ac, a maximum building height of 40 feet, and 80 sf of open space per unit. The proposed Project would be consistent with such standards, as the Project would feature a density of 25.3 du/ac, with the maximum height of all structures not exceeding 39 feet. In addition, the Project would be required

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<sup>7</sup> California Department of Transportation. *California State Scenic Highway System Map*. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed May 2023.

<sup>8</sup> *Ibid.*

to include 25,920 sf of open space (80 sf x 324 units). The Project's four common areas would exceed the foregoing requirement, encompassing a total of 57,138 sf of open space.

Furthermore, consistent with the Citywide Design Guidelines and design provisions of the LRSP, the building exteriors would be composed of various finishes, such as "light gray," "tricorn black," "brainstorm bronze," "snowbound," and "peppercorn," which would ensure that the Project is composed of complementary colors that highlight the proposed structures' facades. Finally, as discussed above, new landscaping would be provided, consistent with the requirements set forth by Elk Grove Municipal Code Section 23.54.030. As shown in Figure 11, the newly planted vegetation would include, but not be limited to, 24-inch box and 15-gallon trees along the Project site's northern, eastern, and western boundaries. Additional vegetation would be planted throughout the interior of the site. Compliance with the aforementioned regulations and standards would be ensured through the City's Major Design Review process, as established by Elk Grove Municipal Code Section 23.16.080.

Based on the above, consistent with the conclusions of the LRSP REIR, development of the proposed Project would alter the existing visual character of the Project site from an undeveloped area to an urban environment; however, the proposed Project would be developed in accordance with the standards set forth by Elk Grove Municipal Code Section 23.29.020 and the Citywide Design Guidelines and design provisions of the LRSP. The proposed Project would also be subject to Major Design Review. Thus, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to substantial degradation of the existing visual character or quality of public views of the Project site and the site's surroundings beyond what were previously identified in LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- d. The LRSP REIR assessed the potential for buildout of the plan area to create a new source of substantial light or glare that would adversely affect day or nighttime views in the area under Impact 4.11.2 and concluded that because the potential impact would be significant, development facilitated by the LRSP would be subject to Mitigation Measures 4.11.2a and 4.11.2b. More specifically, the LRSP REIR found that buildout of the LRSP area would result in new sources of light and glare, including, but not limited to, light from streetlights, parking lot lighting, vehicle headlights, interior lighting from new structures, and light reflecting off the windows of new structures, particularly large areas of glass installed as part of new commercial buildings. To mitigate such effects, Mitigation Measure 4.11.2a requires a lighting plan to be submitted with improvement plans for non-residential projects within the LRSP area. In addition, Mitigation Measure 4.11.2b necessitates that non-glare glass be used in all non-residential buildings to minimize and reduce impacts from glare. Nevertheless, because buildout of the LRSP would result in the introduction of new sources of light and glare to a rural area, the LRSP REIR concluded that even with incorporation of mitigation, the impact would remain significant and unavoidable.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. New sources of light and glare associated with the Project would include, but not be limited to, light from vehicles using the on-site street system, exterior light fixtures, light reflecting off windows, and interior light spilling through windows. However, pursuant to Elk Grove Municipal Code Section 23.56.030(A), exterior lighting installed as part of new multi-family residential development is required to include shielding that reduces glare to prevent light from being visible within any residential dwelling unit. In addition, Municipal Code Section 23.56.030(B) includes standards measured in footcandles detailing the maximum illumination that can emanate from parking lots and pedestrian walkways, as well as the maximum amount of illumination that can



trespass on abutting residential and agricultural property. As detailed therein, the maximum illumination from the respective sources of light are as follows: an average of four footcandles, an average of two footcandles, and 0.1-footcandle. Furthermore, Municipal Code Section 23.56.030(E) requires that exterior lighting include automatic timing devices to ensure light is turned off between 10:00 PM and 6:00 AM, except as allowed by the exceptions established therein.

The proposed Project would be required to incorporate shielding and automatic timing devices, as required by Municipal Code Section 23.56.030. In addition, as part of demonstrating compliance with the applicable illumination standards detailed above, an Electrical Site Plan summarizing the anticipated horizontal illuminance of the proposed Project was prepared by Robert Hidey Architects, Inc.<sup>9</sup> Horizontal illuminance describes the amount of light landing on a horizontal surface, such as the ground. According to the Electrical Site Plan, the proposed Project would result in a horizontal illuminance generally consistent with the four-footcandle maximum average for parking areas and two-footcandle maximum average for pedestrian walkways. In addition, lighting installed as part of the Project would generally not exceed 0.1-footcandle at abutting property lines. As such, pursuant to the Electrical Site Plan, the proposed Project would not result in new sources of substantial light or glare at the Project site that would adversely affect day or nighttime views in the Project vicinity.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe impacts related to the creation of a new source of substantial light or glare which would adversely affect day or nighttime views in the area beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to aesthetics. It should be noted that Mitigation Measures 4.11.2a and 4.11.2b from the LRSP REIR applied to non-residential development. As such, the proposed Project would not be subject to the aforementioned mitigation.

### **Mitigation Measure(s)**

None required.

### Mitigation Measures from the Previous CEQA Documents

None required.

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

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<sup>9</sup> Robert Hidey Architects, Inc. *Electrical Site Plan*. March 2, 2023.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>II. Agriculture and Forestry Resources.</b>				
<i>Would the Project:</i>				
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?	LRSP REIR pgs. 4.1-15 to 4.1-18	No	No	No
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	N/A	No	No	Yes
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))?	N/A	No	No	Yes
d. Result in the loss of forest land or conversion of forest land to non-forest use?	N/A	No	No	Yes
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?	LRSP REIR pgs. 4.1-15 to 4.1-18	No	No	No

**Discussion**

- a. The LRSP REIR evaluated the potential for buildout of the plan area to 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 uses under Impact 4.1.1 and concluded that the project could result in a significant impact. As detailed therein, the LRSP REIR found that development facilitated by the LRSP would convert approximately 52.8 acres of Prime Farmland, 1,545.9 acres of Farmland of Statewide Importance, 51.0 acres of Unique Farmland, and 171.0 acres of Farmland of Local Importance to urban uses. Overall, the conversion of the plan area from Farmland to urban uses would reduce the amount of Farmland within Sacramento County by approximately 3.3 percent. To mitigate the potential impact, the LRSP REIR included several mitigation options, including (1)



developing an agricultural land mitigation program to protect existing Farmland within the City or region through land and/or easement purchases; (2) preserving existing Farmland within the City; and/or (3) creating new and/or improved Farmland to offset project impacts. However, because the protection of existing agricultural land through the purchase of fee title or easements is not considered by the City to provide true or equivalent mitigation (as programs of such type still result in a net loss of Farmland), the LRSP EIR determined that feasible mitigation was unavailable, and the impact would remain significant and unavoidable.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Pursuant to the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program, the Project site is designated entirely as "Farmland of Local Importance."<sup>10</sup> The DOC defines Farmland of Local Importance as "[I]and of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee." For the purposes of CEQA, a potential impact would result only from the conversion of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural use. As such, the proposed Project would not result in the conversion of Farmland to non-agricultural use and would not result in an impact beyond what was determined in the LRSP REIR. Additionally, as the LRSP REIR determined that feasible mitigation was unavailable, the proposed Project would not be subject to mitigation related to the conversion of Farmland of Local Importance to non-agricultural uses.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b,c,d. The LRSP REIR did not address potential impacts related to conflicts with existing zoning for agricultural use or Williamson Act contracts. Similarly, the LRSP REIR did not evaluate potential impacts related to conflicts with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]). The LRSP REIR also did not assess potential impacts related to the conversion of forest land to non-forest use.

As previously discussed, the Project site is comprised of Parcel I, which is zoned RD-5, and Parcel II, which is zoned RD-30. As such, the site is not zoned for agricultural uses. In addition, the site is not under a Williamson Act contract. Therefore, buildout of the site with the proposed uses would not conflict with an agricultural use or a Williamson Act contract. In addition, is not considered forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), and is not zoned Timberland Production (as defined by Government Code Section 51104[g]). Therefore, the proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, or result in the loss of forest land or conversion of forest land to non-forest use.

Based on the above, the proposed Project would not result in new significant impacts related to (1) conflicts with existing zoning for agricultural use or a Williamson Act contract; (2) conflicts with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned; or (3) the

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<sup>10</sup> California Department of Conservation. *California Important Farmland Finder*. Available at: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed May 2023.

loss of forest land or conversion of forest land to non-forest use. Therefore, the proposed Project would result in a less-than-significant impact.

- e. As previously discussed, the LRSP REIR evaluated the potential for buildout of the plan area to convert Farmland to non-agricultural uses under Impact 4.1.1 and concluded that the Project would result in a significant and unavoidable impact, with feasible mitigation unavailable. However, the Project site is designated entirely as Farmland of Local Importance, and thus, would not convert Farmland, as defined by CEQA, to non-agricultural use. In addition, the Project would not result in the loss of forest land or conversion of forest land to non-forest use.

Based on the above information, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to 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 beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to agriculture and forestry resources.

### **Mitigation Measure(s)**

None required.

### Mitigation Measures from the Previous CEQA Documents

None required.

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

<b>Environmental Issue Area</b>	<b>Where Impact Was Analyzed in Previous CEQA Documents?</b>	<b>Do Proposed Changes Involve New or More Severe Impacts?</b>	<b>Any New Circumstances Involving New or More Severe Impacts?</b>	<b>Any New Information Requiring New Analysis or Verification?</b>
<b>III. Air Quality.</b>				
<i>Would the Project:</i>				
a. Conflict with or obstruct implementation of the applicable air quality plan?	LRSP REIR pgs. 4.3-12 to 4.3-18	No	No	No
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?	LRSP REIR pg. 4.3-21	No	No	No
c. Expose sensitive receptors to substantial pollutant concentrations?	LRSP REIR pgs. 4.3-12 to 4.3-20	No	No	No
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	LRSP REIR pgs. 4.3-18 to 4.3-19	No	No	No

**Discussion**

- a. The LRSP area is located within the boundaries of the Sacramento Valley Air Basin (SVAB) and under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). Federal and State ambient air quality standards (AAQS) have been established for six common air pollutants, known as criteria pollutants, due to the potential for pollutants to be detrimental to human health and the environment. The criteria pollutants include particulate matter (PM), ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides (NO<sub>x</sub>), and lead. At the federal level, Sacramento County is designated as severe nonattainment for the 8-hour ozone AAQS, nonattainment for the 24-hour PM<sub>2.5</sub> AAQS, and attainment or unclassified for all other criteria pollutant AAQS. At the State level, the area is designated as a serious nonattainment area for the 1-hour ozone AAQS, nonattainment for the 8-hour ozone AAQS, nonattainment for the PM<sub>10</sub> and PM<sub>2.5</sub> AAQS, and attainment or unclassified for all other State AAQS.

Due to the nonattainment designations, SMAQMD, along with the other air districts in the SVAB region, is required to develop plans to attain the federal and State AAQS for ozone and particulate matter. The attainment plans currently in effect for the SVAB are the 2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 Ozone Attainment Plan), PM<sub>2.5</sub> Implementation/Maintenance Plan and Re-designation Request for Sacramento PM<sub>2.5</sub> Nonattainment Area (PM<sub>2.5</sub> Implementation/Maintenance Plan), and the 1991 Air Quality Attainment Plan (AQAP), including triennial reports. The air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control measures have worked, and show how air pollution would be reduced. In addition, the plans include the estimated future levels of pollution to ensure that the area would meet air quality goals.

Nearly all development projects in the Sacramento region have the potential to generate air pollutants that may increase the difficulty of attaining federal and State AAQS. Therefore, evaluation of air quality impacts is required. In order to evaluate ozone and other criteria air pollutant emissions and support attainment goals for those pollutants that the area is designated nonattainment, SMAQMD has developed the Guide to Air Quality Assessment in Sacramento County (SMAQMD Guide), which includes recommended thresholds of significance, including mass emission thresholds for construction-related and operational ozone precursors, as the area is under nonattainment for ozone. The SMAQMD's recommended thresholds of significance for the ozone precursors reactive organic compounds (ROG) and NO<sub>x</sub>, which are expressed in pounds per day (lbs/day) and tons per year (tons/yr), are presented in Table 2. As shown in the table, SMAQMD has construction and operational thresholds of significance for PM<sub>10</sub> and PM<sub>2.5</sub> expressed in both lbs/day and tons/yr. The construction and operational thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> only apply to those projects that have implemented all applicable Best Available Control Technologies (BACTs) and Best Management Practices (BMPs).

<b>Pollutant</b>	<b>Construction Thresholds</b>	<b>Operational Thresholds</b>
ROG	N/A	65 lbs/day
NO <sub>x</sub>	85 lbs/day	65 lbs/day
PM <sub>10</sub>	80 lbs/day 14.6 tons/yr	80 lbs/day 14.6 tons/yr
PM <sub>2.5</sub>	82 lbs/day 15 tons/yr	82 lbs/day 15 tons/yr

*Source: SMAQMD, CEQA Guidelines, April 2020.*

The following is a summary of the analyses and conclusions contained in the LRSP REIR related to consistency with the SMAQMD thresholds of significance during construction and operational phases of the LRSP, and an analysis of the proposed Project's potential to result in emissions above the SMAQMD thresholds of significance.

### **Construction Emissions**

The LRSP REIR analyzed the potential for development facilitated by buildout of the LRSP area to conflict with or obstruct implementation of an applicable air quality plan during construction under Impact 4.3.1 by calculating an estimate of emissions associated with buildout of the LRSP and comparing such emissions to the thresholds of significance adopted by SMAQMD. The LRSP REIR concluded that a significant impact could occur.

The LRSP REIR defined a significant impact on regional air quality as an increase in emissions of an ozone precursor in excess of SMAQMD's thresholds of significance that were recommended at the time of the LRSP REIR's preparation. SMAQMD considered increases in ROG and NO<sub>x</sub> emissions of 65 lbs/day, during construction or operation of a project, to be significant. The LRSP REIR calculated construction emissions using the URBEMI-2001 modeling program for Phase I activities (defined in the LRSP REIR as clearing, grading, trenching, etc.) and Phase II activities (actual construction), assuming a 20-year buildout of the plan area (as presented in Table 3 of this Addendum). As shown in Table 3, construction NO<sub>x</sub> emissions would exceed the applicable construction emission threshold. The LRSP REIR further determined that construction activities would also have the potential to cause local exceedances of the State standards for particulate matter.

<b>Table 3 Maximum Daily Emissions from LRSP Construction (lbs/day)</b>			
<b>Source</b>	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>PM<sub>10</sub></b>
<b>Phase I: Clearing, Grading, and Earthmoving</b>			
Equipment/Fugitive Dust	9.9	159.7	513.5
Total (Phase I)	9.9	159.7	513.5
<b>Phase II: Structure Construction</b>			
Employee Trips	2.4	3.4	0.7
Asphalt Paving	0.3	--	--
Stationary Equipment	3.4	2.7	0.2
Mobile Equipment	14.7	229.8	15.4
Architectural Coating	142.8	--	--
Total (Phase II)	163.6	235.9	16.3
<b>Source: Laguna Ridge Specific Plan REIR, 2004.</b>			

To mitigate the potential impact, Mitigation Measure 4.3.1a requires contractors to water all exposed surfaces, graded areas, storage piles, and haul roads at least twice daily during construction. Mitigation Measure 4.3.1b requires that contractors minimize the amount of material actively worked, the amount of disturbed area, and the amount of material stockpiled. Mitigation Measure 4.3.1c requires that contractors limit vehicle speed for on-site construction vehicles to 15 miles per hour (mph) when winds exceed 20 mph. Mitigation Measure 4.3.1d requires paved streets adjacent to construction sites to be washed or swept daily to remove accumulated dust. Mitigation Measure 4.3.1e necessitates that when transporting soil or other materials by truck during construction, two feet of freeboard must be maintained by the contractor and the materials must be covered. Mitigation Measure 4.3.1f includes further provisions, unless a project is less than 20 acres in size and would generate less than 400 lbs/day of NO<sub>x</sub>. Finally, Mitigation Measure 4.3.1g requires contractors to implement ridesharing programs for construction employees traveling to and from a site. Overall, with implementation of Mitigation Measures 4.3.1a through 4.3.1g, the LRSP REIR determined that construction emissions would be limited to the extent feasible; however, the potential for local exceedance of NO<sub>x</sub> and PM<sub>10</sub> would remain, which would result in a significant and unavoidable impact.

The proposed Project's emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0 software – a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including greenhouse gas (GHG) emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, trip generation rates, vehicle mix, trip length, construction timing, inherent site or project design features, compliance with applicable average speed, compliance with the 2019 California Building Standards Code (CBSC), etc. Where Project-specific data was available, such data was input into the model (e.g., construction phases and regulations, etc.). As such, the vehicle trip rate and VMT information was updated based on the VMT Analysis prepared for the proposed Project by Fehr and Peers. The modeling assumed that construction would commence in June 2023 and would occur over approximately 1.5 years. All CalEEMod results are included in Appendix A of this Addendum.

During construction of the Project, various types of equipment and vehicles would temporarily operate on the Project site. Construction exhaust emissions would be generated from construction equipment, vegetation clearing and earth movement activities, construction worker commutes, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions

of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM emissions. As construction of the proposed Project would generate air pollutant emissions intermittently within the site and vicinity, until all construction has been completed, construction is a potential concern because the proposed Project is in a non-attainment area for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>.

The Project is required to comply with all SMAQMD rules and regulations for construction, which would be noted on City-approved construction plans. The applicable rules and regulations would include, but would not be limited to, the following:

- Rule 403 related to Fugitive Dust;
- Rule 404 Related to Particulate Matter;
- Rule 407 related to Open Burning;
- Rule 442 related to Architectural Coatings;
- Rule 453 related to Cutback and Emulsified Asphalt Paving Materials; and
- Rule 460 related to Adhesives and Sealants.

To apply the construction thresholds presented in Table 2, projects must implement all feasible SMAQMD BACTs and BMPs related to dust control. The control of fugitive dust during construction is required by SMAQMD Rule 403, and enforced by SMAQMD staff. The BMPs for dust control include the following:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads;
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered;
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited;
- Limit vehicle speeds on unpaved roads to 15 mph;
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to five minutes (California Code of Regulations [CCR], Title 13, sections 2449[d][3] and 2485). Provide clear signage that posts this requirement for workers at the entrances to the site;
- Provide current certificate(s) of compliance for the California Air Resources Board's (CARB) In-Use Off-Road Diesel-Fueled Fleets Regulation (CCR, Title 13, sections 2449 and 2449.1). For more information contact CARB at 877-593-6677, [doors@arb.ca.gov](mailto:doors@arb.ca.gov), or [www.arb.ca.gov/doors/compliance\\_cert1.html](http://www.arb.ca.gov/doors/compliance_cert1.html); and
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Compliance with the foregoing measures is required pursuant to Rule 403, and Project construction is assumed to include compliance with the foregoing measures. Consequently, the Project PM emissions are assessed in comparison to the thresholds presented in Table 2 above.



Table 4 presents the maximum unmitigated construction emissions associated with development of the Project site under the site’s approved LRSP conditions, in comparison to the maximum unmitigated construction emissions associated with the proposed Project.

<b>Table 4</b>						
<b>Maximum Unmitigated Construction-Related Emissions: LRSP Approved Conditions Compared to the Proposed Project</b>						
<b>Scenario</b>	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>PM<sub>10</sub></b>		<b>PM<sub>2.5</sub></b>	
	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>tons/yr</b>	<b>lbs/day</b>	<b>tons/yr</b>
Approved Conditions	12.55	32.41	21.02	0.38	11.27	0.18
Proposed Project	16.69	32.41	21.02	0.38	11.27	0.18
<i>Net Difference</i>	<i>4.14</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
<b>Adopted SMAQMD Threshold</b>	<b>N/A</b>	<b>85</b>	<b>80</b>	<b>14.6</b>	<b>82</b>	<b>15</b>
<b>Exceed?</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>		<b>NO</b>	
<i>Source: CalEEMod, May 2023.</i>						

As shown in the table, a small net increase in construction-related ROG emissions associated with proposed Project would occur relative to the Project site’s approved LRSP conditions. However, the net increase would not be substantial, and the construction-related emissions associated with the proposed Project would be below the applicable thresholds of significance for all criteria pollutants. Accordingly, construction emissions associated with the proposed Project would result in a less-than-significant impact. Therefore, the proposed Project would not result in any new or more severe significant impacts related to construction criteria pollutant emissions from what was previously analyzed in the LRSP REIR.

### Operational Emissions

The LRSP REIR evaluated emissions from mobile and area sources, including natural gas combustion, fireplaces, and other consumer products, that would occur as part of operations associated with buildout of the LRSP area under Impact 4.3.2 and found that a significant impact could occur. As presented in this Addendum in Table 5, total emissions of criteria pollutants associated with buildout of the LRSP for ROG and NO<sub>x</sub> exceeded the 65 lbs/day threshold used in the LRSP REIR. The LRSP REIR found that operational emissions of PM<sub>10</sub>, which are dispersed over a large area, would be unlikely to result in a violation of the State AAQS.

<b>Table 5</b>			
<b>LRSP Regional Emissions at Buildout (lbs/day)</b>			
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>PM<sub>10</sub></b>
Vehicles	644.6	500.1	617.4
Area Sources	402.5	111.8	0.4
Total	1047.1	611.9	617.8
Threshold	65.0	65.0	CAAQS
<i>Source: Laguna Ridge Specific Plan REIR, 2004.</i>			

To mitigate the potential impact, Mitigation Measure 4.3.2 of the LRSP REIR requires implementation of the AQ-15 Management Plan that was prepared as part of the LRSP in compliance with City of Elk Grove General Plan requirements. As summarized below, the AQ-15 Management Plan requires the following:



1. A mixture of complementary land uses to eliminate the need for numerous vehicle trips and encourage alternative modes of transportation;
2. Encouragement of satellite facilities for large employers and small neighborhood commercial centers to provide support services for on-site companies and work-from-home employees;
3. Quadrants designed to enhance bicycle and pedestrian access between residential uses, local services, schools, and parks, as well as on-street bicycle lanes along Elk Grove Boulevard, Bruceville Road, Laguna Springs Drive, Bilby Road, Poppy Ridge Road, and Big Horn Boulevard and an off-street bicycle trail along the open space corridor adjacent to Poppy Ridge Road;
4. Multiple and/or direct pedestrian access between adjacent, complementary land uses throughout the LRSP area;
5. An internal circulation system designed in a grid pattern to preclude major through traffic;
6. Use of a local shuttle transit service; and
7. Other measures, such as bicycle lockers and/or racks, electric vehicle (EV) charging facilities, preferential parking for carpool/vanpool, and installation of lowest-emitting commercially available fireplaces, Energy Star-labeled roof materials, and Category 5 wiring at phone outlets.

Although implementation of the AQ-15 Management Plan through Mitigation Measure 4.3.2 would reduce the severity of operational air quality impacts, the LRSP REIR found that operational emissions would not be reduced to below the applicable thresholds of significance. As such, the LRSP REIR found that a significant and unavoidable impact would occur.

Similar to the above evaluation of construction-related emissions, Table 6 presents the maximum unmitigated operational emissions associated with development of the Project site with the site's approved LRSP conditions, in comparison to the maximum unmitigated operational emissions associated with the proposed Project.

<b>Table 6</b>						
<b>Maximum Unmitigated Operational Emissions: LRSP Approved Conditions Compared to the Proposed Project</b>						
<b>Scenario</b>	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>PM<sub>10</sub></b>		<b>PM<sub>2.5</sub></b>	
	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>tons/yr</b>	<b>lbs/day</b>	<b>tons/yr</b>
Approved Conditions	11.69	5.64	7.68	1.35	2.20	0.38
Proposed Project	13.86	5.67	7.25	1.27	2.12	0.37
<i>Net Difference</i>	<i>2.17</i>	<i>0.03</i>	<i>-0.43</i>	<i>-0.08</i>	<i>-0.08</i>	<i>-0.01</i>
<b>Adopted SMAQMD Threshold</b>	<b>65</b>	<b>65</b>	<b>80</b>	<b>14.6</b>	<b>82</b>	<b>15</b>
<b>Exceed?</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>		<b>NO</b>	

*Source: CalEEMod, May 2023.*

As shown in the table, a small net increase in operational ROG and NO<sub>x</sub> emissions associated with proposed Project would occur relative to the Project site's approved LRSP conditions. However, the net increase would not be substantial. Furthermore, the proposed Project would result in a net decrease of PM emissions, relative to buildout of the site under the approved LRSP conditions. Overall, operational emissions associated with the proposed Project would be below the applicable thresholds of significance for all criteria pollutants. Accordingly, operational emissions associated with the proposed Project would result in a less-than-significant impact. Therefore, the proposed Project would not result in any new or more severe significant impacts

related to operational criteria pollutant emissions from what was previously analyzed in the LRSP REIR.

### **Conclusion**

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts from what was previously analyzed in the LRSP REIR related to implementation of an applicable air quality plan. The proposed Project would be subject to Mitigation Measures 4.3.1a, 4.3.1b, 4.3.1c, 4.3.1d, 4.3.1e, and 4.3.1g in order to reduce dust emissions during Project construction to the maximum extent feasible. As the Project site is less than 20 acres in size and would generate less than 400 lbs/day of NO<sub>x</sub>, the Project would not be subject to Mitigation Measures 4.3.1f. Thus, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. A cumulative impact analysis considers a project over time in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed. Due to the dispersive nature and regional sourcing of air pollutants, air pollution is already largely a cumulative impact. The non-attainment status of regional pollutants, including ozone and PM, is a result of past and present development, and, thus, cumulative impacts related to the foregoing pollutants could be considered cumulatively significant.

Adopted SMAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated non-attainment, consistent with applicable air quality plans. As future attainment of AAQS is a function of successful implementation of SMAQMD's planning efforts, according to the SMAQMD Guide, by exceeding the SMAQMD's project-level thresholds for construction or operational emissions, a project could contribute to the region's non-attainment status for ozone and PM emissions and could be considered to conflict with or obstruct implementation of the SMAQMD's air quality planning efforts.

The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under Impacts 4.3.8 and concluded that the impact could be significant. As detailed therein, the LRSP REIR accounted for construction activities associated with various projects anticipated to occur in the City and found that buildout of the LRSP could occur simultaneously with other development projects in the region. While all of the projects would implement recommended air quality controls and reduce fugitive dust and engine emissions, the LRSP REIR determined that the combined effect would be cumulatively significant. Additionally, the LRSP REIR found that development facilitated by the LRSP would have a significant cumulative effect on the region's ability to attain federal and State AAQS. Thus, even with implementation of the mitigation measures set forth therein, the LRSP REIR concluded a significant and unavoidable impact would occur.

However, as discussed above, the proposed Project would result in construction and operational emissions below all applicable SMAQMD thresholds of significance. Therefore, the proposed Project would not be considered to result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is non-attainment. The Project would also be subject to Mitigation Measures 4.3.1a, 4.3.1b, 4.3.1c, 4.3.1d, 4.3.1e, and 4.3.1g in order to reduce dust emissions during Project construction to the maximum extent feasible. As discussed above, Mitigation Measure 4.3.2, requires implementation of the AQ-15 Management Plan. However, the Project would not be subject to Mitigation Measure 4.3.2, as the AQ-15 Management Plan applied

to the overall design of the LRSP area and the Project's incremental contribution to operational emissions associated with the LRSP would be less than cumulatively considerable. Overall, as confirmed by the CalEEMod results for the proposed Project, the Project's increases in emissions, relative to the LRSP REIR, would result in a less-than-significant impact.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts from what was previously analyzed in the LRSP REIR. Thus, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. Sensitive receptors in the Project vicinity include the single-family residences located to the north of the Project site. The nearest single-family residence is located approximately 75 feet from the Project site's northern boundary.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions, toxic air contaminant (TAC) emissions, and criteria pollutant emissions, which are addressed in further detail below.

### Localized CO

The LRSP REIR evaluated potential impacts related to CO concentrations under Impact 4.3.2. As detailed therein, LRSP traffic would add to CO concentrations along surface streets in the vicinity of the LRSP area. As part of the LRSP REIR, a screening form of the CALINE-4 computer simulation model was applied to intersections within and near the plan area to predict worst-case concentrations of CO at buildout conditions. The analysis assumed a buildout date of 2025 for the LRSP. The intersections analyzed were selected based on Level of Service. As presented in this Addendum, Table 7 shows the LRSP REIR's predicted concentrations of CO near selected intersections in parts per million (ppm).

Although development facilitated by the LRSP would increase 1-hour averaged concentrations of CO by up to 1.51 ppm and 8-hour averaged concentrations by up to 1.0 ppm, the LRSP REIR found that the predicted concentrations do not exceed the federal or State AAQS. Thus, the LRSP REIR concluded local CO concentrations generated by buildout of the LRSP would result in a less-than-significant impact.

With respect to the proposed Project, pursuant to the SMAQMD's CEQA Guidelines, emissions of CO are generally of less concern than other criteria pollutants, as operational activities are not likely to generate substantial quantities of CO, and the SVAB has been in attainment for CO for multiple years.<sup>11</sup> In addition, development of the proposed Project would be generally consistent with the approved conditions of the LRSP. Furthermore, as discussed in Section XVII, Transportation, of this Addendum, development of the proposed Project would result in 1,763 new vehicle trips per day, which would be less than the trip generation that would occur through

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<sup>11</sup> Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment in Sacramento County: Operational Criteria Air Pollutant and Precursor Emissions* [pg 4-1]. June 2020.

development of the site with the approved LRSP conditions, which would have resulted in 1,775 daily vehicle trips. The lower trip generation of the Project is due to higher densities, as the Project would increase the density of the site by about 34.6 percent. Consequently, the proposed Project would not result in a new significant impact or substantially more severe impact related to localized CO emissions from what was previously analyzed in the LRSP REIR.

<b>Table 7 Worst-Case Carbon Monoxide Concentrations at Selected Intersections (ppm)</b>				
<b>Intersection</b>	<b>Cumulative</b>		<b>Cumulative Plus Project</b>	
	<b>1-Hour</b>	<b>8-Hour</b>	<b>1-Hour</b>	<b>8-Hour</b>
Elk Grove/Bruceville	7.5	5.1	8.9	6.1
Elk Grove/SR 99 SB Ramps	8.0	5.5	8.9	6.1
Elk Grove/Franklin	8.1	5.5	9.3	6.4
Kammerer/W. Stockton	9.2	6.3	9.2	6.3
Grant Line/Waterman	7.0	4.7	7.1	4.8
Big Horn/Elk Grove	7.2	4.9	8.7	5.9
SR 99 SB Ramps/Laguna	7.8	5.3	8.1	5.5
Bruceville/Laguna	7.3	4.9	7.4	5.0
<b>Most Stringent Standard</b>	<b>20.0</b>	<b>9.0</b>	<b>20.0</b>	<b>9.0</b>

*Source: Laguna Ridge Specific Plan REIR, 2004.*

### **TAC Emissions**

Another category of environmental concern is TACs. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk. The CARB's Air Quality and Land Use Handbook: A Community Health Perspective (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, rail yards, and gas-dispensing facilities (GDFs).

The LRSP REIR evaluated potential impacts related to TACs through a qualitative discussion on page 4.3-19. As detailed therein, TACs are not expected to occur in any meaningful amounts in conjunction with operation of the LRSP. Only common forms of hazardous or toxic substances typically used, stored, or sold in conjunction with commercial, office, retail, and household activities would be present and in small quantities. The LRSP REIR further noted that most uses of such substances would occur indoors and only a few uses that could be developed would require emitting toxic pollutants as a byproduct. Overall, any use of toxic substances that could involve an air release would be subject to regulatory control under the permitting authority of SMAQMD. Thus, the LRSP REIR found that a less-than-significant impact would occur.

With respect to the proposed Project, the Project does not involve long-term operation of any stationary diesel engine or other major on-site stationary source of TACs. Residential uses, such as the proposed Project, do not typically involve long-term operation of any stationary sources of TACs. Therefore, the proposed Project would not expose any existing sensitive receptors to any new permanent or substantial TAC emissions during operations.



Construction activities have the potential to generate diesel PM emissions related to the number and types of equipment typically associated with construction. Off-road heavy-duty diesel equipment used for site grading, paving, and other construction activities result in the generation of diesel PM. However, construction is temporary and occurs over a relatively short duration in comparison to the operational lifetime of the proposed Project. In addition, only portions of the site would be disturbed at a time, with operation of construction equipment regulated by federal, State, and local regulations, including SMAQMD rules and regulations, and occurring intermittently throughout the course of a day. Furthermore, although Parcel I, which was designated LDR and P/OS by the LRSP, would be developed with HDR uses as part of the Project, the increase in density would not substantially exacerbate the need for additional construction, as Parcel I would contain only one new structure, consistent with the number of structures facilitated for the parcel by the LRSP. Thus, Project construction would be generally similar to what was anticipated for buildout of the site as part of the LRSP REIR. Therefore, the likelihood that any one sensitive receptor would be exposed to high concentrations of diesel PM for any extended period of time would be low.

Based on the above, the proposed Project would not result in a new significant impact or substantially more severe impact related to TACs from what was previously analyzed in the LRSP REIR.

### **Criteria Pollutants**

Health effects from criteria pollutants are generally experienced on a cumulative air basin-wide level. Thus, the potential for the proposed Project to result in increased exposure of sensitive receptors to substantial criteria pollutant concentrations in comparison to the LRSP REIR is discussed under question 'b' above. As concluded therein, the proposed Project would result in a less-than-significant impact. As such, potential health impacts would similarly be less than significant.

### **Conclusion**

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts to sensitive receptors beyond what was identified in the LRSP REIR. Thus, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- d. Pollutants of principal concern include emissions leading to odors, visible emission (including dust), or emissions considered to constitute air pollutants. Air pollutants have been discussed above. Therefore, the following discussion focuses on emissions of odors and visible emissions.

### **Odors**

The LRSP REIR evaluated potential impacts related to odors through a qualitative discussion starting on page 4.3-18. As detailed therein, the LRSP REIR found that potential airborne odors associated with food services and eating establishments could result, should such services be located within the plan area. However, food-related odors would be typical of food service businesses, and in such cases, odors would be controlled in accordance with the Sacramento County Department of Health Services and SMAQMD permit requirements for proper air filtration and food storage and disposal. In addition, SMAQMD Rule 402 prohibits persons from discharging quantities of air contaminants that cause nuisance to any considerable number of persons.

In addition, the LRSP REIR noted that agricultural odors have been of concern in the Elk Grove area, primarily due to dairy farm operations. However, dairy farm operations in close proximity to the LRSP area have ceased. Other odors that may be discernable to LRSP uses could potentially include propane from the Suburban Propane facility and formalin from the Georgia-Pacific facility; however, the aforementioned facilities are located more than a mile to the southeast of the LRSP's residential component, and odors from the facilities are controlled in accordance with the County Department of Health Services and SMAQMD permit requirements for proper air filtration and SMAQMD Rule 402. Thus, the LRSP REIR concluded impacts related to odors would be less than significant.

With respect to the proposed Project, the proposed land use (i.e., residential) is not typically associated with the generation of objectionable odors. Diesel fumes from construction equipment are often found to be objectionable; however, construction is temporary and associated diesel emissions would be regulated in accordance with the In-Use Off-Road Diesel Vehicle Regulation. Furthermore, the proposed Project would be required to comply with all applicable SMAQMD rules and regulations, including, but not limited to, Rule 402. Rule 402 is enforced based on complaints. If complaints are received, the SMAQMD is required to investigate the complaint, as well as determine and ensure a solution for the source of the complaint, which could include operational modifications. Thus, although not anticipated, if odor complaints are made, SMAQMD would ensure that such odors are addressed and any potential odor effects reduced to less than significant.

### **Dust**

As noted previously, construction of the proposed Project is required to comply with all applicable SMAQMD rules and regulations, including, but not limited to, Rule 403 (Fugitive Dust) and Rule 404 (Particulate Matter). Additionally, all projects within Sacramento County are required to implement the SMAQMD's Basic Construction Emission Control Practices (BCECP). Compliance with SMAQMD rules and regulations and BCECP would help to ensure that dust is minimized during Project construction. Furthermore, the proposed Project would be subject to Mitigation Measures 4.3.1a, 4.3.1b, 4.3.1c, 4.3.1d, 4.3.1e, and 4.3.1g in order to reduce dust emissions during Project construction to the maximum extent feasible. Furthermore, as shown in Table 4, PM emissions would not increase as part of the proposed Project during construction, relative to construction of the site under the LRSP approved conditions. Following Project construction, vehicles operating within the Project site would be limited to paved areas of the site, which would not have the potential to create substantial dust emissions. Thus, Project operations would not include sources of dust that could adversely affect a substantial number of people.

### **Conclusion**

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to other emissions such as those leading to dust or odors that would affect a substantial number of people beyond what was identified in the LRSP REIR.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to air quality.

### **Mitigation Measure(s)**

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below.

### Mitigation Measures from the Previous CEQA Documents

- 4.3.1a *The project applicant shall require that the contractors water all exposed surfaces, graded areas, storage piles and haul roads at least twice daily during construction. This requirement shall be included as a note in all project construction plans.*
- 4.3.1b *The project applicant shall require that the contractor minimize the amount of material actively worked, the amount of disturbed area, and the amount of material stockpiled. This requirement shall be included as a note in all project construction plans.*
- 4.3.1c *The project applicant shall require that the contractor limit vehicle speed for onsite construction vehicles to 15 mph when winds exceed 20 miles per hour. This requirement shall be included as a note in all project construction plans.*
- 4.3.1d *The project applicant shall require paved streets adjacent to construction sites to be washed or swept daily to remove accumulated dust. This requirement shall be included as a note in all project construction plans.*
- 4.3.1e *The project applicant shall require that, when transporting soil or other materials by truck during construction, two feet of freeboard shall be maintained by the contractor, and that the materials be covered. This requirement shall be included as a note in all project construction plans.*
- 4.3.1g *The project applicant shall require contractors to implement ridesharing programs for construction employees traveling to and from the site. This requirement shall be included as a note in all project construction plans.*

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>IV. Biological Resources.</b> <i>Would the Project:</i>				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	LRSP REIR pgs. 4.8-26 to 4.8-27, 4.8-28 to 4.8-36	No	No	No
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	N/A	No	No	Yes
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	LRSP REIR pgs. 4.8-27 to 4.8-28	No	No	No
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?	N/A	No	No	Yes
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	LRSP REIR pgs. 4.8-22 to 4.8-25	No	No	No
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?	N/A	No	No	Yes



## **Discussion**

- a. A development project could 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 (CDFW) or U.S. Fish and Wildlife Service (USFWS), if the project components result in the “take” of such species. Pursuant to the federal Endangered Species Act, “take” is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct. In addition, raptors (birds of prey), migratory birds, and other avian species are protected under the Migratory Bird Treaty Act of 1918 (MBTA) and California Fish and Game Code (CFGC) Section 3503.5. Furthermore, plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS) and CDFW (California Rare Plant Rank [CRPR] 1 and 2) are provided special status under CEQA.

The following is a summary of the analyses and conclusions contained in the LRSP REIR related to special-status plant and wildlife species and an analysis of the proposed Project’s potential to result in substantial adverse effects to special-status species that have potential to occur in the Project vicinity.

### **Potential Impacts to Special-Status Plants**

The LRSP REIR identified that the Project area contains actively disked land that is generally disturbed in nature as a result of historical agricultural uses. Given the previous levels of disturbance, the LRSP REIR concluded that the plan area has limited biological value, and most of the local vegetative species are associated with agricultural land, which is regionally widespread. As such, the LRSP REIR determined that the vast majority of special-status plant species with potential to occur in the greater vicinity surrounding the LRSP area do not have potential to occur within the plan area. However, habitat within the plan area could accommodate Sanford’s arrowhead (*Sagittaria sanfordii*), a special-status plant species.

The LRSP REIR evaluated the potential for buildout of the LRSP area to result in impacts to Sanford’s arrowhead under Impact 4.8.2 and determined that a significant impact could occur. More specifically, the perennial marsh in the northern portion of the plan area is considered suitable habitat for the species, which occurs in shallow freshwater marshes and low-velocity streams. Although development facilitated by the LRSP would avoid the perennial marsh, the LRSP REIR found that future passive recreation uses of the LRSP areas designated for open space could result in adverse effects to the perennial marsh. To address the potential impact, Mitigation Measure 4.8.2a requires a focused plant survey for projects that would be located within 50 feet of the perennial marsh, as shown on Figure 4.8-1 of the LRSP REIR. If the Sanford’s arrowhead is identified as part of the survey, Mitigation Measure 4.8.2b requires further avoidance and/or preservation measures. Through incorporation of Mitigation Measures 4.8.2a and 4.8.2b, the LRSP REIR concluded a less-than-significant impact would occur.

As part of evaluating potential impacts to special-status plant and wildlife species that could occur as part of the proposed Project, a query of the California Natural Diversity Database (CNDDDB) was conducted to identify special-status species that have been recorded as having occurred in the U.S. Geological Survey (USGS) quadrangle in which the Project site is located (Florin), as well as the eight contiguous quadrangles (Sacramento East, Carmichael, Elk Grove, Galt, Bruceville, Courtland, Clarksburg, and Sacramento West). The query identified 23 special-status plant species that have previously been recorded as having occurred within the nine-quadrangle

search area. However, as discussed in the LRSP REIR, the plan area, including the Project site, is comprised of actively disked land that is generally disturbed in nature, which limits the site's ability to accommodate the special-status plants with potential to occur in the greater vicinity. In addition, Sanford's arrowhead, the only protected plant species identified by the LRSP REIR as having potential to occur within the plan area, would not occur on-site, as the site does not contain, nor is within proximity to, perennial marsh habitat.

Based on the above, with development of the proposed Project, a less-than-significant impact would occur, and the Project would not be subject to Mitigation Measures 4.8.2a and 4.8.2b.

### **Potential Impacts to Special-Status Wildlife Species**

As previously discussed, the LRSP REIR incorporated information from literature review and field surveys to identify the biological resources with potential to occur in the LRSP area. Based on such information and the ongoing disturbance to which the plan area is subject, the LRSP REIR found that the following special-status wildlife species have potential to occur in the plan area: giant garter snake, valley elderberry longhorn beetle (VELB), vernal pool fairy shrimp, vernal pool tadpole shrimp, Swainson's hawk, nesting birds and raptors protected under the MBTA and CFGC, including burrowing owl and tricolored blackbird, and various bat species.

The CNDDDB query conducted for the proposed Project identified 29 special-status wildlife species with potential to occur in the nine-quadrangle search area. However, given the site's existing setting, which is entirely composed of undeveloped land that is routinely mowed, the majority of special-status wildlife species with potential to occur in the greater Project vicinity would not occur on-site. For example, pursuant to the USFWS National Wetlands Inventory (NWI), the site does not contain aquatic resources of any kind.<sup>12</sup> Therefore, special-status fish species with potential to occur in the greater vicinity, such as green sturgeon and Delta smelt, would not occur on-site, as such species require aquatic habitat. Similarly, special-status amphibians, such as California tiger salamander and western spadefoot, would not occur on-site, as the site does not contain vernal pools. Furthermore, the special-status western pond turtle would not occur on-site, as the site does not include flowing or standing water.

Of the special-status wildlife species with potential to occur in the greater Project vicinity, the aforementioned wildlife species that were individually evaluated as part of the LRSP REIR are discussed further below.

#### Giant Garter Snake

The LRSP REIR evaluated the potential for buildout of the plan area to result in impacts to giant garter snake (*Thamnophis gigas*) under Impact 4.8.4 and determined that a significant impact could occur. As detailed therein, the LRSP area contains canals and marsh areas, which provide potential habitat for the species. In addition, the species was identified in the Lent Ranch Marketplace site, which is approximately one mile southeast of the plan area. Furthermore, the East Franklin Specific Plan area, located west of the LRSP area across Bruceville Road, contains potential habitat for giant garter snake. To address the potential impact, Mitigation Measure 4.8.4a requires a preconstruction survey of areas within 200 feet of giant garter snake habitat. If the species is identified, Mitigation Measure 4.8.4b requires further provisions. Mitigation Measures 4.8.4c and 4.8.4d contain requirements related to when construction is allowed during the calendar year. Finally, Mitigation Measure 4.8.4e requires worker environmental awareness

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<sup>12</sup> U.S. Fish and Wildlife Service. *National Wetlands Inventory Wetlands Mapper*. Available at: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>. Accessed May 2023.

training for all construction personnel. Through implementation of Mitigation Measures 4.8.4a through 4.8.4e, the LRSP REIR concluded a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Pursuant to the NWI, the site does not contain aquatic resources of any kind, nor is the site within 200 feet of potential habitat for giant garter snake.<sup>13</sup> As such, the proposed Project would not be subject to Mitigation Measures 4.8.4a and 4.8.4b. However, as the Project site is located approximately 637 feet to the northwest of the Shed C Channel, the Project would be subject to Mitigation Measure 4.8.4c, which prohibits grading from October 1 to April 30 for portions of the LRSP area within 1,000 feet of ditches, canals, ponds, wetlands, and/or other such areas. The Project would not include dewatering activities; thus, the Project would not be subject to Mitigation Measure 4.8.4d. Finally, the Project would be subject to Mitigation Measure 4.8.4e, which would ensure all construction personnel associated with the Project have been adequately trained to avoid giant garter snake.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to giant garter snake beyond what were previously identified in the LRSP REIR.

#### Valley Elderberry Longhorn Beetle

The LRSP REIR evaluated the potential for buildout of the plan area to result in impacts to VELB (*Desmocerus californicus dimorphus*) under Impact 4.8.5 and determined that a significant impact could occur. As detailed therein, an elderberry shrub (with a five-inch trunk at ground level) was surveyed in the southern portion of the LRSP area. As the host plant upon which VELB is reliant, an impact to an elderberry shrub occupied by VELB would constitute a direct impact to the special-status species. Consequently, the LRSP REIR required Mitigation Measure 4.8.5 to reduce the impact to a less-than-significant level. Mitigation Measure 4.8.5 requires projects to be designed to avoid the elderberry shrub identified within the LRSP area (see Figure 4.8-1 of the LRSP REIR).

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. However, the previously identified elderberry shrub is not located within or in proximity to the Project site. As such, the proposed Project would not result in impacts to VELB and would not be subject to Mitigation Measure 4.8.5.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to VELB beyond what were previously identified in the LRSP REIR.

#### Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

The LRSP REIR evaluated the potential for buildout of the plan area to result in impacts to vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardii*) under Impact 4.8.6 and determined that a significant impact could occur. As discussed therein, based on wetland delineation data evaluated as part of the LRSP REIR, a total of 0.13-acre of potential invertebrate habitat (farmed wetlands) was determined to be present within the LRSP area. Should vernal pool fairy shrimp and vernal pool tadpole shrimp be present within such features, the LRSP REIR found that construction activities could result in the loss of individuals. To mitigate the potential impact to a less-than-significant level, the LRSP REIR set forth Mitigation Measure 4.8.6, which requires setbacks from potential invertebrate habitat.

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<sup>13</sup> U.S. Fish and Wildlife Service. *National Wetlands Inventory Wetlands Mapper*. Available at: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>. Accessed May 2023.



The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. However, as previously discussed, the Project site does not contain aquatic resources of any kind.<sup>14</sup> As such, the proposed Project would not result in impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp and would not be subject to Mitigation Measure 4.8.6.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to vernal pool fairy shrimp and vernal pool tadpole shrimp beyond what were previously identified in the LRSP REIR.

### Swainson's Hawk

The LRSP REIR evaluated the potential for buildout of the plan area to result in impacts to Swainson's hawk (*Buteo swainsoni*) under Impact 4.8.7 and determined that a significant impact could occur. More specifically, the LRSP REIR found that the agricultural fields within the LRSP area provide suitable Swainson's hawk foraging habitat. In addition, the species is suspected of nesting within the plan area, as the LRSP REIR determined that a nest occurs within 0.5-mile of the plan area and on two separate occasions, three hawks were sighted foraging in the plan area. To prevent potential impacts, Mitigation Measure 4.8.7a includes payment of fees to mitigate the loss of foraging habitat. Mitigation Measure 4.8.7b requires a preconstruction nesting habitat for Swainson's hawk. With incorporation of Mitigation Measures 4.8.7a and 4.8.7b, the LRSP REIR found that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. The Project site is composed of undeveloped land, which could potentially provide foraging habitat for Swainson's hawk. In addition, trees that could provide potential nesting habitat for the species are located to the northeast, east and west of the Project site. Although construction activities would avoid such areas, ensuring direct impacts do not occur to Swainson's hawk nests, construction activities could result in distress to nesting Swainson's hawk, if such individuals are located within the immediate Project vicinity. As such, the proposed Project would be subject to Mitigation Measures 4.8.7a and 4.8.7b, which would ensure that the potential impact is reduced to a less-than-significant level.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to Swainson's hawk beyond what were previously identified in the LRSP REIR.

### Other Nesting Birds and Raptors

The LRSP REIR evaluated the potential for buildout of the plan area to result in impacts to nesting birds and raptors protected under the MBTA and CFGC, including burrowing owl (*Athene cunicularia hypogea*) and tricolored blackbird (*Agelaius tricolor*), under Impact 4.8.8 and determined that a significant impact could occur. As detailed therein, mature trees within the LRSP area provide potential nesting habitat for various avian species. In addition, burrowing owls are known to occur in the LRSP vicinity and could potentially move into the plan area to nest, and tricolored blackbirds could nest in the marsh and blackberry brambles within the plan area. To address the potential impact, the LRSP REIR requires Mitigation Measure 4.8.8a, which necessitates preconstruction surveys at applicable times for nesting raptors and birds. In addition, Mitigation Measure 4.8.8b requires a preconstruction survey outside of the nesting season for burrowing owl. Finally, Mitigation Measure 4.8.8c contains further provisions for active songbird nests or active owl burrows identified as part of the preconstruction surveys. With implementation

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<sup>14</sup> U.S. Fish and Wildlife Service. *National Wetlands Inventory Wetlands Mapper*. Available at: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>. Accessed May 2023.

of Mitigation Measures 4.8.8a through 4.8.8c, the LRSP REIR concluded that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. The Project site is composed of undeveloped land that could offer potential foraging habitat for Swainson's hawk, as well as other nesting raptors. In addition, should ground squirrels occupy the site prior to Project construction, ground burrows could become established within the site, providing suitable habitat for burrowing owl. Furthermore, trees that could provide potential nesting habitat for species protected under the MBTA and CFGC are located to the northeast, east and west of the Project site. As such, the proposed Project would be subject to Mitigation Measures 4.8.8a through 4.8.8c, which would ensure that the potential impact is reduced to a less-than-significant level.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to nesting birds and raptors protected under the MBTA and CFGC beyond what were previously identified in the LRSP REIR.

### Special-Status Bats

The LRSP REIR evaluated the potential for buildout of the plan area to result in impacts to special-status bats under Impact 4.8.8 and determined that a significant impact could occur. More specifically, the LRSP REIR found that agriculture outbuildings occur throughout the plan area, which could provide suitable habitat various bat species. To address the potential impact, the LRSP REIR requires Mitigation Measure 4.8.8a, which necessitates that preconstruction surveys conducted for nesting raptors and birds additionally survey for bat roosts. With implementation of Mitigation Measure 4.8.8a, the LRSP REIR concluded that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. However, the Project site does not contain agriculture outbuildings. Therefore, the site does not feature suitable roosting habitat for special-status bats, and the Project would result in a less-than-significant impact to protected bat species.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to special-status bats beyond what were previously identified in the LRSP REIR.

### **Conclusion**

Based on the above information, through incorporation of applicable mitigation measures set forth by the LRSP REIR, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to any plant or wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (now known as CDFW) or USFWS beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. The LRSP REIR did not address potential impacts related to riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations or by the CDFW or USFWS that could occur through development facilitated by buildout of the LRSP. Riparian habitats are described as the land and vegetation that is situated along the bank of a stream or river. Riparian habitats are distinctly different from surrounding lands, due to a riparian habitat's

unique soil and vegetation characteristics, which are strongly influenced by the presence of water. In addition, the CDFW designates natural communities that meet specific criteria pursuant to NatureServe's Heritage Methodology as Sensitive Natural Communities.

As previously discussed, the Project site is composed entirely of undeveloped grassland that is routinely mowed. The site does not contain a stream or river, and therefore, does not include riparian habitat. In addition, given the ongoing levels of disturbance to which the Project site is subject, the site does not contain natural communities designated by the CDFW as a Sensitive Natural Community.

Based on the above, the proposed Project would not result in new significant impacts related to riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations or by CDFW or USFWS, and a less-than-significant impact would occur.

- c. The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to result in substantial adverse effects on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means under Impact 4.8.3 and concluded that a significant impact could occur. As detailed therein, the LRSP REIR determined that approximately 4.83 acres of jurisdictional wetland habitat could be impacted by the conversion of agricultural land to residential, commercial, recreation, and public service uses. To address the potential impact, Mitigation Measure 4.8.3 requires project applicants to identify all potential wetland resources that occur within areas proposed for disturbance, the results of which are subject to City review. Should potential wetland resources be identified, Mitigation Measure 4.8.3 includes further provisions, including, but not limited to, obtaining a Clean Water Act (CWA) Section 404 permit from the U.S. Army Corps of Engineers (USACE) and a Section 401 permit from the Regional Water Quality Control Board (RWQCB). With incorporation of Mitigation Measure 4.8.3, the LRSP REIR concluded that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, the Project site does not contain aquatic resources of any kind.<sup>15</sup> Nevertheless, to ensure that the City has confirmed such results, the proposed Project would be subject to Mitigation Measure 4.8.3. With incorporation of Mitigation Measure 4.8.3, the Project would result in a less-than-significant impact.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to substantial adverse effects on State- or federally protected wetlands beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- d. The LRSP REIR did not evaluate the potential for development facilitated by buildout of the LRSP area to interfere substantially with the movement of native, resident, or migratory fish or wildlife species or established native resident or migratory wildlife corridors. Movement corridors or landscape linkages are usually linear habitats that connect two or more habitat patches, providing assumed benefits to wildlife species by reducing inbreeding depression and increasing the potential for recolonization of habitat patches.

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<sup>15</sup> U.S. Fish and Wildlife Service. *National Wetlands Inventory Wetlands Mapper*. Available at: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>. Accessed May 2023.

The Project site is bounded by Poppy Ridge Road to the north and Big Horn Boulevard to the east. Existing single-family residences are located to the north (Reflections at Poppy Lane and Madeira South Lot A), across Poppy Ridge Road. In addition, land further to the east and south has already undergone mass grading in preparation of future buildout of the greater Project vicinity with residential uses. As such, existing physical barriers to wildlife movement occur along all directions of the Project site. In addition, given the ongoing levels of disturbance to which the Project site is subject, which include mowing activities, the site does not offer land that would allow for convenient migration between two or more habitat patches. Furthermore, the ongoing disturbance reduces the site's ability to act as a nursery site for wildlife species. Overall, given the disturbance associated with the Project site and the existing physical barriers to wildlife movement, the proposed Project would not interfere substantially with the movement of native, resident, or migratory fish or wildlife species or established native resident or migratory wildlife corridors, and a less-than-significant impact occur.

Based on the above, the proposed Project would not result in new significant impacts related to the movement of any native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or the use of native wildlife nursery sites, and a less-than-significant impact would occur.

- e. The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP to result in the loss of landmark-sized trees and protected tree species under Impact 4.8.1 and concluded that a significant impact could occur. According to the LRSP REIR, native oak trees, non-oak natives (California black walnut), and landmark-sized trees (any tree species with a diameter at breast height [DBH] of 19 inches or more) occur within the plan area. A portion of the protected trees would be removed as part of buildout of the LRSP. In addition, trees within the plan area would be vulnerable to potential impacts from disturbances associated with grading and construction activities that directly affect the branches, trunks, or roots of trees, as well as indirect effects related to alterations in soil structure, drainage, and/or microbiology.

Pursuant to the City's Tree Preservation and Protection Ordinance (codified in Elk Grove Municipal Code Section 19.12.080), development that would result in potential impacts to landmark trees and trees of local importance must obtain a Tree Permit from the City. To address potential impacts to existing protected trees, Mitigation Measure 4.8.1a requires new development within the LRSP area to complete a tree survey prior to construction activities to identify trees that meet the standards of the Tree Preservation and Protection Ordinance. Mitigation Measure 4.8.1b requires that all trees meeting the aforementioned standards be avoided and protected during construction, unless otherwise identified for removal. Mitigation Measure 4.8.1c requires replacement trees on a no-net-loss basis for protected trees removed as part of new LRSP development. Through implementation of Mitigation Measures 4.8.1a and 4.8.1c, the LRSP REIR concluded that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. The Project site does not contain trees. As such, Project construction activities would not result in potential impacts to trees protected under the City's Tree Preservation and Protection Ordinance. Furthermore, trees are not located in areas located adjacent to the southern and western site boundaries. Thus, potential impacts to off-site trees would not occur as part of staging of vehicles and equipment needed as part of Project construction. Therefore, the proposed Project would not be subject to Mitigation Measures 4.8.1a and 4.8.1c.



Based on the above, the proposed Project would not result in new significant impacts related to conflicts with any local policies or ordinances protecting biological resources. Therefore, the proposed Project would result in a less-than-significant impact.

- f. The LRSP REIR did not assess the potential for development facilitated by buildout of the LRSP area to conflict with an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State HCP, as the City of Elk Grove does not participate in an adopted HCP or NCCP. As the City continues to not participate in an adopted HCP or NCCP, the proposed Project would not be subject to such a plan.

Based on the above, the proposed Project would not result in new significant impacts related to conflicts with the provisions of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan. Therefore, the proposed Project would result in a less-than-significant impact.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to biological resources. It should be noted that the previously required mitigation measures from the LRSP REIR, as presented below, would still be required to be implemented for the proposed Project.

### **Mitigation Measure(s)**

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below.

#### Mitigation Measures from the Previous CEQA Documents

It should be noted that the mitigation measures formerly referenced the “Department of Fish and Game” and the “CDFG.” The references have been changed to “Department of Fish and Wildlife” and “CDFW.” No other changes have been made to the following mitigation.

#### *Protected Wetlands*

4.8.3 *As part of each subsequent project application submittal to the City, the project applicant shall identify all potential wetland resources that occur on-site for City review (such as those identified in Figure 4.8-1 of the Draft EIR. If wetland resources are proposed to be impacted, the project applicant shall do the following:*

1. *The applicant shall delineate the extent of jurisdictional waters of the U.S. to be impacted by the proposed project and, if required, apply for a Section 404 permit from the U.S. Army Corps of Engineers (Corps). Wetland areas that would be lost or disturbed shall be replaced or rehabilitated on a “no-net-loss” basis. Onsite creation of wetland habitat is preferred to offsite mitigation. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to the Corps.*
2. *The applicant shall obtain a Section 401 water quality waiver of certification from the RWQCB.*
3. *A mitigation plan shall be implemented that includes one of the following:*
  - a. *Completion of an onsite Mitigation and Monitoring Plan that includes onsite creation/preservation of the wetlands.*
  - b. *Credits may be obtained at an approved mitigation bank.*

The project applicant shall provide written evidence to the City from the Corps and the RWQCB that this measure has been complied with prior to recordation of final maps.

### *Giant Garter Snake*

4.8.4c No grading or other construction activities shall be conducted from October 1 to April 30, which is the inactive period of the giant garter snake. More danger is posed to snakes during their inactive period, because they are occupying underground burrows or crevices and are more susceptible to direct effects, especially during excavation. A “no grading” period from October 1 to April 30 will apply to portions of the plan area located within 1,000 feet of ditches, canals, ponds, wetlands or other such areas. This mitigation measure does not apply to land areas where surveys within the active period of the snake have been conducted and no snakes have been found.

4.8.4e Construction personnel shall participate in a Service-approved worker environmental awareness program. Under this program, workers shall be informed about the presence of giant garter snakes and habitat associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of the Act. Prior to construction activities, a qualified biologist approved by the Service shall instruct all construction personnel about: (1) the life history of the giant garter snake; (2) the importance of irrigation canals, marshes/wetlands, and seasonally flooded areas, such as rice fields, to the giant garter snake; and (3) the terms and conditions of the biological opinion. Proof of this instruction shall be submitted to the City and the Sacramento U.S. Fish and Wildlife Office.

This mitigation measure does not apply to land areas where surveys within the active period of the snake have been conducted and no snakes were found.

### *Swainson’s Hawk*

4.8.7a Prior to the approval of subsequent development (i.e., approval of improvement and construction plans), including offsite improvements, under the Plan, the City of Elk Grove shall ensure that the following mitigation measures are fulfilled:

- Based on the results of the survey identified in Mitigation Measure MM 4.8.8b, the project applicant shall mitigate the loss of Swainson’s hawk foraging habitat by participating in the City of Elk Grove Swainson’s Hawk Impact Mitigation Fees Ordinance or other methods determined acceptable to CDFW, if active nests are identified between one and ten miles of the project site. If active nests are identified within one mile of the project site, the project applicant and City shall consult with CDFW regarding the appropriate amount of acreage compensation, which may include participation in the City of Elk Grove Swainson’s Hawk Impact Mitigation Fees Ordinance and/or additional foraging habitat preservation requirements.

4.8.7b Prior to any subsequent construction activities in the plan area, a Swainson’s hawk nest survey shall be conducted within 30 days of construction activities for a one-mile radius. If active Swainson’s hawks nests are found within ½ mile of a construction site, the applicant shall consult with the Department of Fish and Wildlife and a qualified biologist shall be retained by the City and funded by the project applicant and clearing and construction shall be postponed or halted until additional nesting attempts no longer occur. If a nest tree is found on the subsequent project site prior to construction and is proposed for removal, then appropriate permits from CDFW shall be obtained and mitigation implemented pursuant to CDFW guidelines.

### *Other Nesting Songbirds and Raptors*

4.8.8a *If construction is proposed during the raptor breeding season (February – August), a focused survey for raptors (including burrowing owls), migratory bird nests, and bat roosts shall be conducted within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests onsite. If active nests are found, no construction activities shall take place within 500 feet of the nest until the young have fledged. This 500-foot construction prohibition zone may be reduced based on consultation and approval by the California Department of Fish and Wildlife. Trees containing nests, or burrows that must be removed as a result of project implementation shall be removed during the nonbreeding season (late September to March). If no active nests are found during the focused survey, no further mitigation will be required. This mitigation measure does not apply to a Swainson’s hawk nest. Because the Swainson’s hawk is Federally protected and a State threatened species, the removal of any tree containing an occupied hawk nest could severely affect nesting raptors, fledgling and/or eggs. Therefore, if an occupied Swainson’s hawk nest tree is found on the subsequent project site prior to construction and is proposed for removal, then appropriate permits from CDFW shall be obtained pursuant to CDFW guidelines.*

4.8.8b *Within 30 days prior to the onset of construction activities outside of the breeding season (September – January), a qualified biologist shall conduct a burrow survey to determine if burrowing owls are present in the plan area. If burrowing owls are observed on the site, measures shall be implemented to ensure that no owls or active burrows are inadvertently buried during construction. Such measures include: flagging the burrow and avoiding disturbance; securing and preserving suitable habitat offsite; passive relocation and/or active relocation to move owls from the site. All measures shall be determined by a qualified biologist and approved by the CDFW.*

*All burrowing owl surveys shall be conducted according to CDFW protocol. The protocol requires, at a minimum, four field surveys of the entire site and areas within 500 feet of the site by walking transects close enough that the entire site is visible. The survey shall be at least three hours in length, either from one hour before sunrise to two hours after or two hours before sunset to one hour after. Surveys shall not be conducted during inclement weather, when burrowing owls are typically less active and visible.*

4.8.8c *Pursuant to the Migratory Bird Treaty Act and the California Fish and Game Code, if active songbird nests or active owl burrows are found within the survey area, clearing and construction within a minimum of 250 feet for owls and 100 feet for songbirds, or as determined by a qualified biologist to ensure disturbance to the nest will be minimized, shall be postponed or halted. Construction will not resume within the buffer until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. The perimeter of the protected area shall be indicated by bright orange temporary fencing. No construction activities or personnel shall enter the protected area, except with approval of the biologist.*

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>V. Cultural Resources.</b>				
<i>Would the Project:</i>				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	LRSP REIR pgs. 4.10-10 to 4.10-11	No	No	No
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	LRSP REIR pgs. 4.10-9 to 4.10-10	No	No	No
c. Disturb any human remains, including those interred outside of formal cemeteries?	LRSP REIR pgs. 4.10-9 to 4.10-10	No	No	No

**Discussion**

- a. The LRSP REIR analyzed the potential for development facilitated by buildout of the LRSP area to cause a substantial adverse change in the significance of a historical resource under Impact 4.10.2 and concluded a significant impact could occur. As detailed therein, 10 structures are located within the plan area that were constructed at a date between the 1900s and the 1950s. Generally, properties eligible for listing in the National Register of Historic Places (NRHP) are at least 50 years old. Cultural resources determined eligible for the NRHP by a federal agency are automatically eligible for the California Register of Historical Resources (CRHR). The LRSP REIR found that two structures may have sufficient integrity and stylistic important to warrant further study, as the structures, identified as 8533 and 8551 Poppy Ridge Road, retain some important historical characteristics. To ensure construction activities associated with LRSP development do not impact the two structures, Mitigation Measure 4.10.2 requires that a detailed evaluation of the historical significance of the structures be conducted prior to the approval of any request to remove the Reserve overlay designation on the sites that include the aforementioned structures. With implementation of Mitigation Measure 4.10.2, the LRSP REIR concluded a less-than-significant impact would occur.

As part of ascertaining potential impacts to cultural resources that could occur as part of the proposed Project, a Cultural Resources Assessment Report (CRAR) was prepared for the Project by ECORP Consulting, Inc.<sup>16</sup> The North Central Information Center (NCIC) at Sacramento State University conducted a records search as part of the CRAR of the California Historical Resources Information System (CHRIS) to determine the extent of previous surveys within a 0.5-mile radius of the Project site, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within the search area (see Figure 16).

<sup>16</sup> ECORP Consulting, Inc. *Cultural Resources Assessment Report for the Poppy Ridge and Big Horn Boulevard Project, Sacramento County, California*. June 2022.



**Figure 16**  
**Survey Coverage**



In addition to the official records and maps for archaeological sites and surveys in Sacramento County, the following historic references were also reviewed as part of the CRAR: Built Environment Resource Directory; Historic Property Data File for Sacramento County; the National Register Information System; Office of Historic Preservation, California Historical Landmarks; California Points of Historical Interest; directory of properties in the Historical Resources Inventory; Caltrans Local Bridge Survey; Caltrans State Bridge Survey; and Historic Spots in California. Additionally, ECORP conducted an intensive pedestrian survey on June 10, 2022 of the Project site in accordance with the guidance of the Secretary of the Interior's Standards for the Identification of Historic Properties.

As part of the records search, the CRAR determined that 18 previous cultural resource investigations have been conducted in or within 0.5-mile of the Project site. Of the 18 previous studies, one was conducted within the Project site and the other 17 studies were within 0.5-mile. As part of a previous study conducted in 2016, a residence previously located on-site in the northeast corner was evaluated for cultural significance (P-34-5190). The residence had been determined not to meet applicable NRHP/CRHR criteria for listing. In addition, according to aerial photographs, the residence was demolished as part of the construction of Big Horn Road at a point between 2016 and 2018. As such, potential subsurface deposits associated with the residence would not be eligible for listing. Furthermore, the pedestrian survey conducted as part of the CRAR did not identify any new cultural resources within the Project site. Thus, known cultural resources do not occur within the Project site, and the proposed Project would not be subject to Mitigation Measure 4.10.2.

Based on the above information, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5 beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b,c. The LRSP REIR analyzed the potential for development facilitated by buildout of the LRSP area to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, as well as any human remains, including those interred outside of formal cemeteries, under Impact 4.10.1 and concluded a significant impact could occur. As detailed therein, a survey conducted of participating properties within the plan area did not identify prehistoric archaeological resources. Thus, the plan area is not anticipated to contain such resources.

However, the Eastern Miwok represent one of the two main divisions of the Miwokan subgroup of the Utian language family. The Plains Miwok, one of five separate cultural and linguistic groups of the Eastern Miwok, occupied the lower reaches of the Mokelumne, Cosumnes, and Sacramento rivers, including the area of south Sacramento County. The LRSP REIR found that some evidence of Miwok may exist within the plan area, as the closest tribelet had a main village approximately one mile southeast of the plan area and four smaller villages existed near the plan area. Thus, prehistoric artifacts could potentially exist within the plan area, beneath the ground surface. In addition, the field survey conducted as part of the LRSP REIR did not encompass nonparticipating properties in the plan area, which are identified in Figure 3.0-3 of the LRSP REIR with the "Reserve" overlay designation. To mitigate the potential impact, Mitigation Measure 4.10.1a of the LRSP REIR requires a detailed cultural resources survey for areas within the "Reserve" overlay, prior to construction activities. In addition, Mitigation Measure 4.10.1b requires avoidance and preservation measures for potential resources inadvertently discovered during construction activities.

The Project site is within the area designated with the “Reserve” overlay. Pursuant to the CRAR, the likelihood of pre-contact archaeological sites increases along perennial waterways, and alluvial deposition patterns increase the potential for preservation of archaeological sites. However, the alluvial deposition within the Project site is considered low. In addition, while the Project site has remained largely undeveloped, the site has been subjected to disking and other farming agriculture, which may have caused disturbance of any near-surface, intact buried archaeological deposits. Thus, the potential for unknown archaeological resources to occur within the site is low. Nonetheless, the possibility of subsurface resources being encountered during Project construction cannot be entirely ruled out.

CEQA Guidelines Section 15064.5(f) requires the lead agency for a project to ensure that provisions are made for accidentally discovered resources. In addition, California Health and Safety Code Section 7050.5 and PRC Section 5097.98 require that any human remains discovered within the Project site be treated with respect and dignity. Upon discovery of human remains, all work in an area must cease immediately within 50 feet of the find, with nothing disturbed and the area secured. The coroner’s office of the county where the remains are located must be called, and the coroner has two working days to examine the remains. All parties that discover human remains in California are required to follow a well-defined process. Because previously unknown archaeological resources, including human remains, could exist in the Project vicinity, such resources have the potential to be uncovered during ground-disturbing activities at the Project site. As such, the proposed Project would be subject to Mitigation Measure 4.10.1b. It should be noted, CRAR satisfies Mitigation Measure 4.10.1a and further action would not be required for the proposed Project. With incorporation of Mitigation Measure 4.10.1b, potential impacts to archaeological resources, including human remains, would be reduced to a less-than-significant level.

Based on the above, the currently proposed Project would not result in new significant impacts or substantially more severe significant impacts related to a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, as well as any human remains, beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

## **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to cultural resources. It should be noted that the previously required mitigation measures from the LRSP REIR, as presented below, would still be required to be implemented for the proposed Project.

## **Mitigation Measure(s)**

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below.

### Mitigation Measures from the Previous CEQA Documents

*4.10.1b In the event that any historic surface or subsurface archaeological features or deposits, including locally darkened soil indicative of an archaeological midden that could conceal cultural deposits, animal bone, shell, obsidian, mortars, or human remains, are uncovered during on-site or off-site construction, all work within 100 feet of the find shall cease and Development Services shall be notified. An archaeologist who meets the Secretary of the Interior’s Professional Qualifications Standards shall be contacted to determine if the resource is significant and to determine appropriate mitigation. Any artifacts uncovered shall be*

*recorded and removed to a location to be determined by the archaeologist. The discovery of human remains shall also be reported to the County Coroner in accordance with Section 7050.5 the California Health and Safety Code, and the Native American Commission for further investigation. If the remains are determined to be Native American, the Native American Commission shall inform the most likely descendent and will determine the appropriate disposition of the remains and grave goods.*

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.



Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>VI. Energy.</b>				
<i>Would the Project:</i>				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	N/A	No	No	Yes
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	N/A	No	No	Yes

**Discussion**

a,b. The LRSP REIR did not evaluate the potential for buildout of the LRSP area to result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation, or to conflict with or obstruct a State or local plan for renewable energy or energy efficiency. It should be noted that energy use associated with structures facilitated by the LRSP at the time of the LRSP REIR’s would have been anticipated to consume more energy as part of both construction and operation than the energy use that would be consumed as part of the proposed Project. Such a conclusion is due to the fact that the proposed Project would be subject to the currently adopted 2022 California Green Building Standards Code and the Building Energy Efficiency Standards, which include more stringent requirements related to energy efficiency than previous iterations of the aforementioned regulations. A discussion of each, as well as the proposed Project’s potential effects related to energy demand during construction and operations, are provided below.

**California Green Building Standards Code**

The 2022 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the CBSC, which became effective on January 1, 2023. The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The CALGreen standards regulate the method of use, properties, performance, types of materials used in construction, alteration repair, improvement and rehabilitation of a structure or improvement to property. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CALGreen Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of electric vehicle (EV) charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;

- Outdoor landscaping must comply with the California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills; and
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board.

### **Building Energy Efficiency Standards**

The 2022 Building Energy Efficiency Standards is a portion of the CBSC (CCR Title 24, Part 6), which expands upon energy efficiency measures from the 2019 Building Energy Efficiency Standards. Energy reductions relative to previous Building Energy Efficiency Standards are achieved through various regulations, including requirements for the use of high-efficacy lighting, improved water heating system efficiency, and high-performance attics and walls. The 2022 Building Energy Efficiency Standards are designed to move the State closer to its net-zero energy goals for new residential development by requiring all new residences to install enough renewable energy to offset all the electricity needs of each residential unit, as well as battery storage to maximize on-site use of solar energy and avoid electricity demand during peak consumption periods on the grid. In addition, the 2022 Building Energy Efficiency Standards require new homes to be electric-ready, with dedicated 240-volt outlets and space (with plumbing for water heaters) so electric appliances can eventually replace installed gas appliances.<sup>17</sup>

### **Construction Energy Use**

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

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

The CARB prepared the 2022 Climate Change Scoping Plan Update (2022 Scoping Plan), which builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix D of the 2022 Scoping Plan

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<sup>17</sup> California Energy Commission. *2022 Building Energy Efficiency Standards Summary*. Available at: <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency>. Accessed May 2023.

includes examples of local actions (municipal code changes, zoning changes, policy directions, and mitigation measures) that would support the State's climate goals. The examples provided include, but are not limited to, enforcing idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment. The CARB Diesel Vehicle Regulation described above, with which the proposed Project must comply, would be consistent with the intention of the 2022 Scoping Plan and the recommended actions included in Appendix D of the 2022 Scoping Plan.

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

### **Operational Energy Use**

The proposed Project would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code, the Building Energy Efficiency Standards, and all applicable regulations included within the City's Climate Action Plan (CAP) would ensure that the proposed structures would consume energy efficiently through the incorporation of such features as efficient water heating systems, high-performance attics and walls, and high-efficacy lighting. Required compliance with the CBSC would ensure that the building energy use associated with the proposed Project would not be wasteful, inefficient, or unnecessary. In addition, electricity supplied to the Project by SMUD would comply with the State's Renewables Portfolio Standard, which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 60 percent by 2030. Pursuant to the 2022 CBSC, the proposed Project would be required to incorporate rooftop solar panels to meet the electricity demands of future residents, as well as battery storage systems to help offset consumption during peak periods on the grid and electric-ready home wiring. As a result, a portion of the electricity consumed during Project operation would be generated from renewable sources and the proposed residences would be capable of not relying on natural gas.

With regard to transportation energy use, the proposed Project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, as discussed in Section XVII, Transportation, of this Addendum, as part of buildout of the Project vicinity, including the proposed Project, development of the Project would not cause cumulative VMT to exceed the established citywide limit, as the 34.6 percent increase in residential density provided by the Project would lower VMT.

### **Conclusion**

Based on the above, the proposed Project would not result in new significant impacts related to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation, or conflicts with or obstruction of a State or local plan for renewable energy or energy efficiency. Therefore, the proposed Project would result in a less-than-significant impact.

### **Overall Conclusion**

Based on the above, the proposed Project would result in a less-than-significant impact related to energy.



**Mitigation Measure(s)**

None required.

Mitigation Measures from the Previous CEQA Documents

None required.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>VII. Geology and Soils.</b>				
<i>Would the Project:</i>				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: <ul style="list-style-type: none"> <li>i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.</li> </ul>	LRSP REIR pgs. 4.9-9 to 4.9-11	No	No	No
ii. Strong seismic ground shaking?	LRSP REIR pgs. 4.9-9 to 4.9-11	No	No	No
iii. Seismic-related ground failure, including liquefaction?	LRSP REIR pgs. 4.9-9 to 4.9-11	No	No	No
iv. Landslides?	LRSP REIR pg. 4.9-9	No	No	No
b. Result in substantial soil erosion or the loss of topsoil?	LRSP REIR pgs. 4.9-11 to 4.9-12	No	No	No
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?	LRSP REIR pg. 4.9-12	No	No	No
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	LRSP REIR pgs. 4.9-12 to 4.8-13	No	No	No
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems	LRSP REIR pgs. 4.9-11 to 4.9-12	No	No	No

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
where sewers are not available for the disposal of wastewater?				
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	LRSP REIR pg. 4.10-8	No	No	No

**Discussion**

ai-aiii. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to expose people and structures to risks associated with seismic activity, including ground faults, ground shaking, and ground failure, and determined that a less-than-significant impact would occur. As detailed therein, faults are not known to cross through the plan area. As such, ground rupture due to faulting is considered unlikely. In addition, active or potentially active faults do not pass through the plan area, based on published geologic maps. The LRSP REIR noted that the LRSP area could be subject to ground shaking from earthquakes (as with virtually all sites in the State) and that the maximum level of ground motion that could ever be experienced in the plan area would occur as the result of a 6.5 magnitude earthquake on the Foothills Fault Zone or Great Valley Fault; however, required conformance with applicable State engineering design standards would ensure significant damage from ground shaking during seismic events does not occur. As a result, the LRSP REIR concluded that effects resulting from earthquakes and ground shaking would be reduced to a minimum.

The proposed Project would be implemented within the development footprint area previously analyzed in the LRSP REIR. As such, the same geological conditions would be expected to occur. Furthermore, the proposed Project would also be subject to the applicable provisions of the 2022 California Building Code (CBC), based upon seismic site Class D, which safeguard against major structural failures or loss of life caused by earthquakes or other geologic hazards.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map; strong seismic ground shaking; or seismic-related ground failure beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

aiv. The LRSP REIR did not analyze the potential for development facilitated by buildout of the LRSP area to cause substantial adverse effects involving landslides, as such hazards had already been analyzed in the Initial Study prepared for the LRSP and found to be less than significant. The Project site is entirely flat with an elevation of 30 to 35 feet above mean sea level. Thus, the proposed Project does not include the potential hazard of a landslide, and potential impacts would be less than significant.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to substantial adverse effects, including the



risk of loss, injury, or death involving landslides beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to result in substantial soil erosion or the loss of top soil under Impact 4.9.1 and concluded that a significant impact could occur. As detailed therein, construction activities within the plan area would result in disturbance of top soil during earth-moving activities and grading. Ground disturbance could lead to erosion from a variety of sources, including wind and water. To address the potential impact, the LRSP REIR includes Mitigation Measure 4.9.1, which requires submittal of an Erosion Control Plan to the City detailing the BMPs that would be used to limit erosion effects. With incorporation of Mitigation Measure 4.9.1, the LRSP REIR concluded that a less than significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As discussed further in Section X, Hydrology and Water Quality, of this Addendum, the Project site is 13.31 acres, and thus, development of the proposed Project would be subject to the National Pollutant Discharge Elimination System (NPDES) Construction General Permit, which necessitates preparation of a Storm Water Pollution Prevention Plan (SWPPP) and incorporation of BMPs to control erosion and sedimentation during Project construction. Furthermore, the Project would be subject to Mitigation Measure 4.9.1. Thus, the proposed Project would not result in substantial soil erosion or the loss of top soil.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to substantial soil erosion or the loss of top soil beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- c. The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to be located on a geologic unit or soil that is unstable or would become unstable as a result of the project on page 4.9-12 and determined that a less-than-significant impact would occur. More specifically, the LRSP REIR determined that the soils beneath the plan area exhibit significant strength and are considered capable of supporting the anticipated loads from development associated with the LRSP. Potential impacts related to lateral spreading, subsidence, and liquefaction that could occur as a result of the proposed Project are discussed in further detail below.

### **Lateral Spreading**

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. The Project site, entirely flat, is not located near any open faces that would be considered susceptible to lateral spreading. Therefore, the potential for lateral spreading to pose a risk to the Project is low, and the Project would not result in new significant impacts or substantially more severe significant impacts beyond what were previously identified in the LRSP REIR.

### **Liquefaction and Subsidence**

Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Soils most susceptible to liquefaction are clean, loose,

saturated, uniformly graded, fine-grained sands. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile. However, liquefaction has occurred in soils other than clean sand.

According to the California Geological Survey's (CGS) interactive Earthquake Zones of Required Investigation application (EQ Zapp), the Project site is not located in a designated a CGS Liquefaction Zone.<sup>18</sup> In addition, as previously discussed, the proposed Project would be subject to applicable regulations set forth by the CBSC, including the applicable engineering design provisions of the 2022 CBC, which would further reduce the potential for seismic-related ground failure, including liquefaction. Furthermore, pursuant to LRSP Section 7.1.4, the City of Elk Grove maintains the ability to require LRSP Projects to prepare and submit a Geotechnical Report concurrent with the submittal of improvement plans, which would be prepared by a State-registered civil engineer. The Geotechnical Report would include recommendations for addressing any soil deficiencies identified within a development site, including any related to potentially liquefiable soils. Finally, the proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Given that geologic conditions have not changed within the Project site since the preparation of the LRSP REIR, the on-site soils are reasonably anticipated to be capable of supporting the anticipated loads associated with the proposed Project. Therefore, the potential for liquefaction to pose a risk to the Project is low, and the Project would not result in new significant impacts or substantially more severe significant impacts beyond what were previously identified in the LRSP REIR.

Subsidence is the settlement of soils of very low density generally from either oxidation of organic material, or desiccation and shrinkage, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The proposed Project would comply with applicable regulations within the CBSC and would be developed within the footprint previously analyzed by the LRSP REIR. Therefore, the potential for subsidence to pose a risk to the Project is low, and the Project would not result in new significant impacts or substantially more severe significant impacts beyond what were previously identified in the LRSP REIR.

## Conclusion

Based on the above information, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to a geologic unit or soil that is unstable or would become unstable as a result of the Project beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- d. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to be located on expansive soil, creating substantial risks to life or property, starting on page 4.9-12 and concluded that a less-than-significant impact would occur. As detailed therein, the LRSP REIR determined that soils with a moderate to high shrink/swell potential are located within the plan area. Soils with a moderate to high shrink/swell potential tend to expand during wet seasons and shrink during dry seasons. However, the engineering design provisions of the 2022 CBC require special design and construction methods for addressing expansive soil behavior. In

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<sup>18</sup> California Geological Survey, California Department of Conservation. *Earthquake Zones of Required Investigation*. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>. Accessed May 2023.

addition, a Geotechnical Report prepared pursuant to LRSP Section 7.1.4 would contain site-specific recommendations for addressing any potentially expansive soils identified within a development site. Thus, through compliance with the CBC and recommendations contained in a Geotechnical Report, the LRSP REIR concluded that development facilitated by buildout of the LRSP would not be impacted by expansive soil.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, the proposed Project would be subject to applicable regulations set forth by the CBSC, including the applicable engineering design provisions of the 2022 CBC, which would reduce the potential for impacts related to expansive soils to occur. In addition, in accordance with LRSP Section 7.1.4, the City would require the proposed Project to submit a Geotechnical Report prepared by a State-registered civil engineer, as part of the Improvement Plan submittal package. All recommendations contained in the Geotechnical Report to address on-site soil deficiencies, including those related to expansive soils, would be required to be incorporated into the Project design, further reducing the potential for impacts related to expansive soils. Therefore, the potential for expansive soils to pose a risk to the Project is low.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to expansive soils beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- e. The LRSP REIR did not analyze the potential for development facilitated by buildout of the LRSP area to have soils incapable of adequately supporting the use of septic tanks, as septic tanks are not proposed. The proposed Project would be providing sanitary sewer conveyance services by the Sacramento Area Sewer District (SASD) and would not include the use of septic tanks. Therefore, potential impacts would be less than significant.

Based on the above information, the currently proposed Project would not result in new significant impacts related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. Therefore, the proposed Project would result in a less-than-significant impact.

- f. The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to destroy a unique paleontological resource or unique geologic feature on page 4.10-8. As detailed therein, Quaternary alluvium terraces underlie the LRSP area and have a low potential for yielding unique paleontological resources, due to the geologic age of the deposits. Thus, the LRSP REIR concluded that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Therefore, the potential for the Project site to contain unique paleontological resources is considered low. In addition, while the Project site has remained largely undeveloped, the site has been subjected to disking and other farming agriculture, which limits the potential for any near-resources to occur.

Based on the above information, the currently proposed Project would not result in new significant impacts or substantially more severe significant impacts related to a unique paleontological resource or unique geologic feature beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.



## Overall Conclusion

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to geology and soils. The previously required mitigation measure from the LRSP REIR, as presented below, would still be required to be implemented for the proposed Project.

## Mitigation Measure(s)

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below.

### Mitigation Measures from the Previous CEQA Documents

4.9.1 *Prior to issuance of a grading permit for each subsequent project, the project applicant shall submit to the City an erosion control plan which will utilize best construction practices to limit the erosion effects of the proposed project. Measures shall include, but are not limited to, the following:*

- *Hydro-seeding*
- *Placement of loose straw and/or straw bales within drainageways and ahead of drop inlets;*
- *The temporary lining (during construction activities) of drop inlets with “filter fabric” (a specific type of geotextile fabric);*
- *The placement of straw wattles along slope contours;*
- *Directing subcontractors to a single designation “wash-out” location (as opposed to allowing them to washout wherever they feel like); and*
- *The use of siltation fences.*

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>VIII. Greenhouse Gas Emissions.</b>				
<i>Would the Project:</i>				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	N/A	No	No	No
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	N/A	No	No	No

**Discussion**

a,b. An evaluation of GHG emissions was not required pursuant to CEQA at the time of preparation of the LRSP REIR and, as a result, GHG emissions were not directly addressed in the previous CEQA analysis. However, potential impacts related to GHG emissions do not constitute “new information” as defined by CEQA, considering GHG emissions were known as a potential environmental issue since before 2004 and the LRSP REIR was circulated in 2004.<sup>19</sup> As such, the proposed Project would not result in any new impacts related to GHG emissions and global climate change than what was previously anticipated for the Project site.

GHG emissions 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, cumulative global GHG emissions contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on earth. An individual project’s GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Development of the proposed Project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO<sub>2</sub>) and, to a lesser extent, other GHG pollutants, such as methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) associated with area sources, mobile sources or vehicles, utilities (electricity), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the Project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO<sub>2</sub> equivalents (MTCO<sub>2</sub>e/yr).

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<sup>19</sup> As explained in a series of cases, most recently in *Concerned Dublin Citizens v. City of Dublin* (2013) 214 Cal. App. 4th 1301. Also see, *Citizens of Responsible Equitable Development v. City of San Diego* (2011) 196 Cal.App.4th 515.

## Regulatory Context

In September 2006, AB 32 was enacted, which requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. AB 32 delegated the authority for implementation to CARB and directs CARB to enforce the statewide Clean Air Plan. In accordance with AB 32, CARB prepared the Climate Change Scoping Plan (Scoping Plan) for California, which was approved in 2008 and subsequently revised in 2014, 2017, and 2022. The 2017 revision to the Scoping Plan updated the plan in compliance with SB 32. SB 32 codified emissions reduction targets for the year 2030, which had previously been established by Executive Order B-30-15.

Pursuant to SMAQMD and Section 15183.5 of the CEQA Guidelines, a project may satisfy applicable GHG analysis requirements under CEQA by demonstrating compliance with a qualified CAP.<sup>20</sup> Specifically, Section 15183.5 states the following:

Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of greenhouse gas emissions as provided in section 15152 (tiering), 15167 (staged EIRs) 15168 (program EIRs), 15175-15179.5 (Master EIRs), 15182 (EIRs Prepared for Specific Plans), and 15183 (EIRs Prepared for General Plans, Community Plans, or Zoning).

On February 27, 2019, the City of Elk Grove adopted an updated CAP that includes citywide goals and strategies for the reduction of GHG emissions. In order to meet the City's GHG emissions targets, the CAP sets forth a number of GHG emission reduction implementation measures. Individual projects that are consistent with the implementation measures of the CAP would be considered to meet the City's emissions targets and, thereby, would not conflict with implementation of the CAP or the statewide emission reduction targets of AB 32 or SB 32.

For informational purposes, GHG emissions resulting from construction and operations of the proposed Project were modeled using the CalEEMod emissions model under the same assumptions as discussed in Section III, Air Quality, of this Addendum. The CO<sub>2</sub> intensity factor within CalEEMod was adjusted to reflect SMUD's progress towards achieving the State's RPS goals.<sup>21</sup> Construction and operations of the Project and the associated GHG emissions are discussed below, and all modeling outputs are included in Appendix A to this Addendum.

## Construction GHG Emissions

Construction-related GHG emissions constitute a temporary release and are, therefore, not typically expected to generate a significant contribution to global climate change, as global climate change is inherently a cumulative effect that occurs over a long period of time and is quantified on a yearly basis. Nonetheless, total construction-related GHG emissions were estimated to be 637.17 MTCO<sub>2</sub>e, which would be a net increase of 194.26 MTCO<sub>2</sub>e, as compared to construction activities associated with the approved conditions. Such emissions would be released over the course of the approximately 16-month construction period. In addition, although Parcel I, which was designated LDR and P/OS by the LRSP, would be developed with HDR uses as part of the Project, the increase in density would not substantially exacerbate the need for additional construction, as Parcel I would contain only one new structure, consistent with the number of

<sup>20</sup> Sacramento Metropolitan Air Quality Management District. *Climate Action Planning in the Sacramento Metropolitan Air Quality Management District*. November 2017.

<sup>21</sup> The model was not adjusted to reflect SMUD compliance with SMUD's internal RPS goals.



structures facilitated for the parcel by the LRSP. Thus, GHG emissions generated during Project construction would be generally similar to what was anticipated for buildout of the site as part of the LRSP REIR. As noted above, because the overall impact conclusion is based solely on Project consistency with the City’s CAP, the emissions estimates presented herein are for disclosure purposes only and do not affect the conclusions of this analysis.

**Operational GHG Emissions**

The emissions of GHGs resulting from operations of the Project were estimated using CalEEMod, and are presented in Table 8. As shown in the table, the anticipated GHG emission rate for the first operational year (2025) would be 1,594.57 MTCO<sub>2</sub>e/yr, which would be a net increase of 57.03 MTCO<sub>2</sub>e/yr, as compared to operational emissions associated with the approved conditions. The results are presented for informational purposes only, because, as discussed above, the determination of significance for operational emissions is based on consistency with the City’s CAP.

<b>Table 8 Maximum Unmitigated Operational GHG Emissions</b>	
<b>Operational Emission Source</b>	<b>Annual GHG Emissions (MTCO<sub>2</sub>e/yr)</b>
Area	5.6
Energy	382.19
Mobile	1,095.61
Solid Waste	74.95
Water	36.21
<b>Total Annual Operational GHG Emissions<sup>1</sup></b>	<b>1,594.57</b>
<sup>1</sup> Rounding may result in small differences in summation.	
<i>Source: CalEEMod, May 2023 (see Appendix A).</i>	

**Elk Grove Climate Action Plan**

The Elk Grove CAP is considered a qualified plan for determining consistency with AB 32 and SB 32 and, thus, determining the significance of Project-related GHG emissions. The City’s General Plan EIR concluded that, with implementation of the CAP, buildout of the City’s planning area would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions, and a less-than-significant impact would occur. As such, projects that are consistent with the CAP and implement all applicable CAP measures would result in less-than-significant impacts related to GHG emissions.

One of the questions included in the CAP Consistency Checklist is whether a project would be consistent with the General Plan land use or zoning designations for the site. As noted previously, the proposed Project includes a General Plan Amendment to redesignate Parcel I from LDR to HDR and a Rezone of Parcel I from RD-5 to RD-30. However, the City’s CAP checklist may be utilized if the land use and zoning designation amendment would result in equivalent or less-intensive GHG emissions when compared to the existing land use designation. Based on the analysis set forth herein, the GHG emissions for the Project when compared to the existing land use designation are equivalent. As previously discussed, the proposed Project would result in net increases of 194.26 MTCO<sub>2</sub>e and 57.03 MTCO<sub>2</sub>e/yr during Project construction and operation, respectively. However, such increases would not be considered substantial. For example, SMAQMD establishes a 1,100 MTO<sub>2</sub>e screening level threshold by which construction and operational emissions of new development may be considered less than significant. For comparative purposes, the proposed Project’s increase in GHG emissions, relative to emissions

associated with the LRSP approved conditions, would be, at most, only 17.7 percent of the total GHG emissions allowed under SMAQMD thresholds of significance before a project could be considered to result in a substantial increase in GHG emissions. Thus, the Project’s increase in GHG emissions, relative to emissions associated with the LRSP approved conditions, is reasonably assumed to not be substantial. Furthermore, buildout of the site would primarily be under the existing land use and zoning designations, as Parcel II, which accounts for 12.2 of the 13.31-acre site, does not require a General Plan Amendment or Rezone.

In addition, as discussed in Section VI, Energy, of this Addendum, all Project structures would be constructed in accordance with the applicable provisions of the CALGreen Code and 2022 Building Energy Efficiency Standards. Furthermore, as discussed in Section XVII, Transportation, of this Addendum, as part of buildout of the Project vicinity, including the proposed Project, development of the Project would not cause cumulative VMT to exceed the established citywide limit, as the 34.6 percent increase in residential density provided by the Project would lower VMT. Overall, GHG emissions generated as part of development of the site with the proposed uses would be generally consistent with those anticipated by buildout of the site under the General Plan.

As previously detailed above, individual projects that are consistent with the implementation measures of the CAP would be considered to meet the City’s emissions targets and, thereby, would not conflict with implementation of the CAP or the statewide emission reduction targets of AB 32 or SB 32. Table 9, below, presents a consistency discussion for each of the CAP measures that are required for analysis in CEQA documents and demonstrates the Project’s consistency with the CAP implementation measures.

<b>Table 9</b>	
<b>Elk Grove CAP Consistency Review Checklist Summary</b>	
<b>CAP Implementation Measure</b>	<b>Project Consistency</b>
<p><b>BE-4. Building Stock: Encourage or Require Green Building Practices in New Construction</b> Encourage new construction projects to comply with CALGreen Tier 1 standards, including a 15 percent improvement over minimum Title 24 Part 6 Building Energy Efficiency Standards.</p>	<p>Consistent with measure BE-4, the City would require that, as a condition of Project approval, Project construction must comply with CALGreen Tier 1 standards.</p>
<p><b>BE-5. Building Stock: Phase in Zero Net Energy Standards in New Construction</b> Phase in zero net energy (ZNE) standards for new construction, beginning in 2020 for residential projects and 2030 for commercial projects. Specific phase-in requirements and ZNE compliance standards will be supported by updates in the triennial building code updates, beginning with the 2019 update.</p>	<p>The proposed Project is anticipated to be fully operational by 2025. The proposed Project would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards, which require new multi-family residences to install enough renewable energy to offset all the electricity needs of each residential unit. Thus, the Project would comply with Measure BE-5.</p>
<p><b>BE-6. Building Stock: Electrification in New and Existing Residential Development</b> Encourage and incentivize new residential developments to include all-electrical appliances and HVAC systems in the design of new projects. Support local utilities in implementing residential retrofit programs to help homeowners convert to all electrical appliances and HVAC systems.</p>	<p>The 2022 Building Energy Efficiency Standards require new homes to be electric-ready, with dedicated 240-volt outlets and space (with plumbing for water heaters) so electric appliances can eventually replace installed gas appliances. Thus, the Project would generally comply with Measure BE-6.</p>

<b>Table 9 Elk Grove CAP Consistency Review Checklist Summary</b>	
<b>CAP Implementation Measure</b>	<b>Project Consistency</b>
Explore the feasibility of phasing in minimum standards for all-electric developments.	
<p><b>BE-7. Building Stock: Solar Photovoltaics in New and Existing Residential and Commercial Development</b> Encourage and require installation of on-site solar photovoltaic (PV) in new single-family and low-rise multi-family developments. Promote installation of on-site PV systems in existing residential and commercial development.</p>	The 2022 Building Energy Efficiency Standards require new multi-family residences install enough renewable energy to offset all the electricity needs of each residential unit. Thus, the Project would comply with Measure BE-7.
<p><b>TACM-3. Intracity Transportation Demand Management</b> The City shall continue to implement strategies and policies that reduce the demand for personal motor vehicle travel for intracity (local) trips.</p>	Based on the description included in the City’s CAP, this measure is primarily intended for implementation at the citywide level. However, as discussed in Section XVII, Transportation, of this Addendum, as part of buildout of the Project vicinity, including the proposed Project, development of the Project would not cause cumulative VMT to exceed the established citywide limit, as the 34.6 percent increase in residential density provided by the Project would lower VMT. As such, the Project would comply with Measure TACM-3.
<p><b>TACM-6. Limit Vehicle Miles Traveled</b> Achieve a 15 percent reduction in daily VMT compared to existing conditions (2015) for all new development in the City, consistent with State-mandated VMT reduction targets for land use and transportation projects.</p>	As discussed in Section XVII, Transportation, of this Addendum, as part of buildout of the Project vicinity, including the proposed Project, development of the Project would not cause cumulative VMT to exceed the established citywide limit, as the 34.6 percent increase in residential density provided by the Project would lower VMT. As such, the Project would comply with Measure TACM-6.
<p><b>TACM-8. Tier 4 Final Construction Equipment</b> Require all construction equipment used in Elk Grove to achieve EPA-rated Tier 4 Final diesel engine standards by 2030 and encourage the use of electrified equipment where feasible.</p>	Consistent with measure TACM-8, the City would require that, as a condition of Project approval, all diesel-powered construction equipment use EPA-rated Tier 4 Final engines, and to use electrified equipment where feasible.
<p><b>TACM-9. EV Charging Requirements</b> Adopt an electric vehicle (EV) charging station ordinance that establishes minimum EV charging standards for all new residential and commercial development. Increase the number of EV charging stations at municipal facilities throughout the City.</p>	Consistent with measure TACM-9 and Elk Grove Municipal Code Section 23.58.120, the proposed Project would include 56 EVC spaces, 123 EVR spaces, and 22 EVCS spaces. Thus, the Project would comply with Measure TACM-9.
<b>Source: City of Elk Grove. Climate Action Plan: 2019 Update. December 2019.</b>	

As shown above, the proposed Project would comply with all applicable measures presented within the CAP.

### **Conclusion**

As noted previously, the City’s CAP was established to ensure the City’s compliance with the statewide GHG reduction goals required by AB 32 and SB 32. As demonstrated in the table above, the Project would be consistent with all applicable measures within the City’s CAP. In addition, as discussed, GHG emissions generated during Project construction would be generally similar to



what was anticipated for buildout of the site as part of the LRSP REIR. As such, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and a less-than-significant impact would occur.

### **Overall Conclusion**

Based on the above, the proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and a less-than-significant impact would occur.

### **Mitigation Measure(s)**

None required.

### Mitigation Measures from the Previous CEQA Documents

None required.

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>IX. Hazards and Hazardous Materials.</b>				
<i>Would the Project:</i>				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	N/A	No	No	Yes
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?	LRSP REIR pgs. 4.5-30 to 4.5-34	No	No	No
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	N/A	No	No	Yes
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?	N/A	No	No	Yes
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?	N/A	No	No	Yes
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	N/A	No	No	Yes
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	N/A	No	No	Yes

## **Discussion**

- a. The LRSP REIR did not assess the potential for development facilitated by buildout of the LRSP area to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Projects that involve the routine transport, use, or disposal of hazardous materials are typically industrial in nature. The proposed Project would not be industrial in nature, as the Project consists of a 12-building multi-family residential development, comprised of 324 units, as well as various access, utility, and landscaping improvements. During operations, hazardous material use would be limited to landscaping products such as fertilizer, pesticides, as well as typical commercial and maintenance products (cleaning agents, degreasers, paints, batteries, and motor oil). Proper handling and usage of such materials in accordance with label instructions would ensure that adverse impacts to human health or the environment would not result. Thus, operations of the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Construction activities associated with implementation of the proposed Project, including the proposed frontage improvements along Big Horn Boulevard, would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete, paints, and adhesives. The Project contractor is required to comply with all California Health and Safety Codes and local County ordinances regulating the handling, storage, and transportation of hazardous and toxic materials. Pursuant to California Health and Safety Code Section 25510(a), except as provided in subdivision (b),<sup>22</sup> the handler or an employee, authorized representative, agent, or designee of a handler, must, upon discovery, immediately report any release or threatened release of a hazardous material to the unified program agency (in the case of the proposed Project, the Sacramento County Environmental Management Department [SCEMD]) in accordance with the regulations adopted pursuant to Section 25510(a). The handler or an employee, authorized representative, agent, or designee of the handler must provide all State, city, or county fire or public health or safety personnel and emergency response personnel with access to the handler's facilities. In the case of the proposed Project, the contractors are required to notify the SCEMD in the event of an accidental release of a hazardous material, who would then monitor the conditions and recommend appropriate remediation measures. Furthermore, the proposed Project would result in buildout of the Project site with residential uses, generally consistent with the uses anticipated for the site as part of the LRSP REIR. As such, the Project would not result in changes related to the transport, use, or disposal of hazardous materials beyond what was anticipated as part of buildout of the LRSP area. Therefore, a less-than-significant impact would occur.

Based on the above, the proposed Project would not result in new significant impacts related to the routine transport, use, or disposal of hazardous materials. Therefore, the proposed Project would result in a less-than-significant impact.

- b. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to 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 under Impacts 4.5.1 through 4.5.4 and concluded that a significant impact could occur. More specifically, Impacts 4.5.1 through 4.5.4 evaluated potential impacts related to

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<sup>22</sup> Subdivision (a) does not apply to a person engaged in the transportation of a hazardous material on a highway that is subject to, and in compliance with, the requirements of Sections 2453 and 23112.5 of the Vehicle Code.



herbicides/pesticides, asbestos-containing materials (ACMs), chemical or burn dumps, and lead materials, respectively.

With respect to herbicides/pesticides, the LRSP REIR determined that most of the crops historically cultivated within the plan area do not typically require application of persistent herbicide/pesticide concentrations; however, various portions of the LRSP area were used for orchards. Historically, orchard cultivated soils have the potential to become contaminated through the repeated application of agricultural chemicals to fruit or nut trees. Specifically, organochlorine pesticides and lead-arsenates were probably applied to the orchards in the past. To address the potential impact Mitigation Measure 4.5.1 requires project applicants to conduct a detailed assessment of site's containing potential soil contamination associated with previous herbicide/pesticide use.

With respect to ACMs, the LRSP REIR found that most of the existing structures within the plan area were constructed before 1979, the date at which the federal government banned nearly all uses of friable asbestos in building materials. Thus, demolition of such structures could lead to the release of ACMs into the atmosphere. To address the potential impact, Mitigation Measure 4.5.2 requires asbestos material sampling prior to demolition of structures and further provisions for buildings confirmed to be containing ACMs.

With respect to chemical or burn dumps, the LRSP REIR found that areas designated with the "Reserve" overlay could contain such sites, as they were not included in the hazardous materials investigations conducted as part of the LRSP REIR. Historic burn dumps may contain high concentrations of hazardous materials and the ashes may contain heavy metals and organochlorine pesticides. Chemical dumps may have a higher concentration of hazardous chemicals than burn dumps. To address the potential impact, Mitigation Measure 4.5.3a necessitates a Phase I Environmental Site Assessment (ESA) be conducted for properties designated with a "Reserve" overlay. Mitigation Measure 4.5.3b contains further provisions specifically related to burn and chemical dumps.

Finally, with respect to lead materials, the LRSP REIR concluded that a number of structures that exist in the plan area were constructed prior to the ban in 1970 of lead-based paints (LBPs). Thus, similar to the analysis of ACMs, demolition of such structures could lead to the release of LBPs into the atmosphere. To address the potential impact, Mitigation Measure 4.5.4a requires loose and peeling paint to be removed from structures prior to demolition. Mitigation Measure 4.5.4b includes further provisions to protect construction workers from lead-containing materials. With incorporation of the mitigation measures discussed above, the LRSP REIR found that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Pursuant to Figure 4.5-3 of the LRSP REIR, a former orchard and agricultural use site is located immediately northeast of the Poppy Ridge Road/Big Horn Boulevard intersection. Given the location's immediate proximity to the Project site, the proposed Project would be subject to Mitigation Measure 4.5.1 to confirm the presence or absence of potential soil contamination associated with previous herbicide/pesticide use at the Project site. As previously discussed, the Project site previously contained a residence. According to aerial photographs, the residence was demolished as part of the construction of Big Horn Road at a point between 2016 and 2018.

Finally, with respect to chemical or burn dumps, the Project site is located in an area designated with the "Reserve" overlay, and thus, would be subject to Mitigation Measures 4.5.3a and 4.5.3b. With incorporation of the mitigation measures described above, the proposed Project would not

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.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to creating 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, beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- c. The LRSP REIR did not assess the potential for development facilitated by buildout of the LRSP area to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25-mile of an existing or proposed school. As discussed above, the Project site is immediately to the southwest of Cosumnes River College buildings. In addition, Elizabeth Pinkerton Middle School is 0.3-mile to the northeast of the site. Thus, the proposed Project would be developed within 0.25-mile of a college building and nearly within 0.25-mile of a middle school.

However, as discussed under question 'a,' the proposed Project would be subject to all California Health and Safety Codes and local County ordinances regulating the handling, storage, and transportation of hazardous and toxic materials, which would ensure that the proposed Project would result in a less-than-significant impact related to the transport, use, or disposal of hazardous materials during Project construction. In addition, as discussed under question 'b,' through incorporation of applicable mitigation measures set forth by the LRSP REIR, the Project would result in a less-than-significant impact related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Based on the above, while the proposed Project would be developed within 0.25-mile of a college building and nearly within 0.25-mile of a middle school, the Project would not result in substantial adverse effects related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste. As such, the Project would result in a less-than-significant impact.

- d. The LRSP REIR did not assess the potential for development facilitated by buildout of the LRSP area to be located on a site that is on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Government Code Section 65962.5 requires the California Environmental Protection Agency to annually develop an updated Cortese List. The Project site is not located on the DTSC's Hazardous Waste and Substances Site List, which is a component of the Cortese List.<sup>23</sup> In addition, the Project site is not identified on the State Water Resource Control Boards' (SWRCB) GeoTracker database as a Leaking Underground Storage Tank (LUST) site, which is another portion of the Cortese List.

Based on the above, the proposed Project would not result in new significant impacts related to being located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, the proposed Project would result in a less-than-significant impact.

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<sup>23</sup> California Department of Toxic Substances Control. *Hazardous Waste and Substances Site List*. Available at: <https://dtsc.ca.gov/dtscs-cortese-list>. Accessed May 2023.

- e. The LRSP REIR did not evaluate if development facilitated by buildout of the LRSP area would be located within an airport land use plan or within two miles of a public airport. The Project site is not located within an airport land use plan or within two miles of a public airport or public use airport. The Project site is also not within the vicinity of a private airstrip. The nearest airport or airstrip to the Project site is Franklin Field, which is approximately 5.6 miles to the south. Accordingly, a safety hazard for people residing or working in the Project area associated with public airports or private airstrips would not occur as a result of the Project.

Based on the above, the proposed Project would not result in new significant impacts related to being 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, and a less-than-significant impact would occur.

- f. The LRSP REIR did not assess the potential for development facilitated by buildout of the LRSP area to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The City of Elk Grove Basic Emergency Operations Plan addresses the City's planned response to extraordinary emergency situations associated with natural or human-caused disasters, technological incidents, and national security emergencies in or affecting the City limits.<sup>24</sup> The Basic Emergency Operations Plan accomplished the following:

1. Establishes the Emergency Management Organization required to mitigate any significant emergency or disaster affecting the City;
2. Identifies the roles and responsibilities required to protect the health and safety of the City of Elk Grove residents, public and private property, and the environmental effects of natural, technological and human-caused emergencies and disasters; and
3. Establishes the operational concepts associated with a field response to emergencies, the City of Elk Grove Emergency Operations Center (EOC) activities and the recovery process.

As previously discussed, access to the Project site would be provided by a new 35-foot-wide driveway constructed directly south of the existing Poppy Ridge Road/Sea Turtle Street intersection and a new 35-foot-wide driveway constructed along the west of Big Horn Boulevard. As shown in Figure 17, the proposed Project includes fire engine apparatus staging areas throughout the site within proximity to the majority of the proposed structures.

Furthermore, the proposed Project would not interfere with potential evacuation or response routes used by emergency response teams and would not conflict with the City's Basic Emergency Operations Plan. Thus, the proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and a less-than-significant impact would occur.

Based on the above, the proposed Project would not result in new significant impacts, and a less-than-significant impact would occur.

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<sup>24</sup> City of Elk Grove. *City of Elk Grove Basic Emergency Operations Plan*. September 1, 2018.







- g. The LRSP REIR did not evaluate the potential for development facilitated by buildout of the LRSP area to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the City of Elk Grove is located within a Local Responsibility Area (LRA) and is not designated as being within a Very High Fire Hazard Severity Zone (FHSZ).<sup>25</sup> Pursuant to Appendix G of the CEQA Guidelines, the determination of significant impacts related to wildfire is only relevant if a project would be located in or near a State Responsibility Area (SRA) or lands classified as Very High FHSZs. Furthermore, all structures constructed as part of the currently proposed Project would be built in accordance with the provisions set forth by the California Fire Code, as adopted by Elk Grove Municipal Code Section 17.04.010, which includes requirements, for automatic sprinkler systems in new buildings.

Based on the above, the proposed Project would not result in new significant impacts related to significant risk of loss, injury, or death involving wildland fires, and a less-than-significant impact would occur.

### Overall Conclusion

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to hazards and hazardous materials. The previously required mitigation measures from the LRSP REIR, as presented below, would still be required to be implemented for the proposed Project.

### Mitigation Measure(s)

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below.

#### Mitigation Measures from the Previous CEQA Documents

It should be noted that Mitigation Measure 4.5.1 formerly referenced the “Draft EIR.” The reference has been changed to “LRSP REIR.” No other changes have been made to the following mitigation.

- 4.5.1 *With each improvement plan and/or grading plan application, the project applicant shall include a detailed assessment of soil contamination associated with previous herbicide/pesticide use. Soil sampling shall be conducted within the areas of potential herbicide/pesticide contamination as identified in Figure 4.5-4 of the LRSP REIR. If substances are detected at concentrations that could pose a health hazard and/or violate local, State, or Federal health standards, remediation of the affected areas shall be undertaken in accordance with the requirements of the City of Elk Grove and the Sacramento County Environmental Management Department. Development of the site shall not commence until the site is deemed remediated and clear for development by the City in consultation with the Sacramento County Environmental Management Department.*
- 4.5.3a *As part of the applications for rezone request to remove the “Reserve” overlay designation, the project applicant shall provide the City with a Phase I Site Assessment to determine whether ash or a former burn site is present on the subject property.*
- 4.5.3b *Prior to approval of improvement plans and/or a grading permit, a detailed surface investigation shall be conducted to determine if former burn dumps, chemical dumps or ash*

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<sup>25</sup> California Department of Forestry and Fire Protection. *FHSZ Viewer*. Available at: <https://egis.fire.ca.gov/FHSZ/>. Accessed May 2023.

*are present within each subsequent project site. If any ash or burn sites are identified, surface and subsurface soil sampling shall be conducted to determine if contamination exists. If substances are detected at concentrations that could pose a health hazard and/or violate local, State, or Federal health standards, remediation of the affected areas shall be undertaken in accordance with the requirements of the City of Elk Grove and the Sacramento County Environmental Management Department. Development of the site shall not commence until the site is deemed remediated and clear for development by the City in consultation with the Sacramento County Environmental Management Department.*

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.



Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>X. Hydrology and Water Quality.</b> <i>Would the Project:</i>				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	LRSP REIR pgs. 4.7-20 to 4.7-21 and 4.7-25 to 4.7-32	No	No	No
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	LRSP REIR pgs. 4.6-13 to 4.6-20	No	No	No
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;	LRSP REIR pgs. 4.7-22 to 4.7-25	No	No	No
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	LRSP REIR pgs. 4.7-22 to 4.7-25	No	No	No
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	LRSP REIR pgs. 4.7-22 to 4.7-25	No	No	No
iv. Impede or redirect flood flows?	LRSP REIR pg. 4.7-24	No	No	No
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	LRSP REIR pg. 4.7-24	No	No	No

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	N/A	No	No	Yes

## **Discussion**

- a. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality under Impacts 4.7.1 and 4.7.3 and concluded that a significant impact could occur. As detailed therein, construction and grading activities both on-site and off-site would involve the operation of heavy equipment and cutting of shallow excavations. Although the LRSP area and infrastructure improvement locations are relatively flat and the potential for soil erosion is considered to be low, the LRSP REIR found that peak stormwater runoff could result in short-term sheet erosion within areas of exposed or stockpiled soils. Furthermore, the compaction of soils during construction by heavy equipment would reduce the infiltration capacity of soils within development sites and increase runoff and erosion potential.

With respect to potential impacts that could occur during the operation of developments facilitated by the LRSP, the LRSP REIR noted that pollutants generated from streets and parking lots typically contain atmospheric pollution, tire-wear residues, petroleum products, oil and grease, fertilizer and pesticides, industrial chemical spills, as well as animal droppings and litter types of wastes. The pollutants are washed from street surfaces by rainfall adequate in rate and volume to produce sufficient runoff. The pollutants have the potential to degrade water quality and may result in significant impacts.

To address the potential impact, Mitigation Measure 4.7.1 requires compliance with the NPDES Construction General Permit, including preparation of a SWPPP and incorporation of BMPs to control sedimentation, erosion, and hazardous materials contamination of runoff during construction. Mitigation Measure 4.7.3a requires the placement of biofilter swales and vegetated strips in the bottom of channel areas to provide biofiltration of pollutants. Mitigation Measure 4.7.3b contains provisions for nonresidential development. Mitigation Measure 4.7.3c requires messaging for all storm drains in the plan area. With incorporation of Mitigation Measures 4.7.1 and 4.7.3a through 4.7.3c, the LRSP REIR concluded a less-than-significant impact would occur.

Potential impacts related to water quality that would occur during Project construction and operation of the proposed Project are discussed further below.

## **Construction**

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Water quality degradation is regulated by the federal NPDES Program, established by the Clean Water Act, which controls and reduces pollutants to water bodies from point and non-point discharges. In California, the NPDES permitting program is administered by the SWRCB through nine RWQCBs. As discussed in Section VII, Geology and Soils, of this Addendum, new

development within the City that disturbs one or more acres of land is required to comply with the NPDES Construction General Permit and prepare a SWPPP incorporating BMPs to control sedimentation, erosion, and hazardous materials contamination of runoff during construction. Examples of BMPs that could be used during construction activities include straw wattles, sandbags, gravel traps, and filters; erosion control measures such as vegetation and physical stabilization; and sediment control measure such as fences, dams, barriers, berms, traps, and basins. The proposed Project would disturb approximately 13.31 acres. Thus, the Project would be subject to the NPDES Construction General Permit conditions and Mitigation Measure 4.7.1. Compliance with the Construction General Permit would ensure that the Project does not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality during construction activities.

### **Operation**

With respect to Project operation, NPDES discharge requirements address waste discharge, such as stormwater, from municipal separate storm sewer systems (MS4s). The City of Elk Grove jointly participates as an MS4 permittee, together with the cities of Citrus Heights, Folsom, Galt, Rancho Cordova, Sacramento, and the County of Sacramento. NPDES permit terms are five years. The current region-wide NPDES Phase I MS4 Permit (Order No. R5- 2016-0040), adopted by the Central Valley RWQCB in June 2016, allows each permittee to discharge urban runoff from the MS4 in its respective municipal jurisdiction, and requires the permittees to enroll under the Region-wide MS4 Permit as their current individual permits expire. Regional MS4 Permit activities are managed jointly by the Sacramento Stormwater Quality Partnership, which consists of the seven jurisdictions covered by the permit. Under the permit, each permittee is also responsible for ensuring that stormwater quality management plans are developed and implemented that meet the discharge requirements of the permit. Under the 2016 permit, measures should be included in the stormwater quality management plans that demonstrate how new development would incorporate Low-Impact Development (LID) design features in projects. The Elk Grove Public Works Department is responsible for ensuring the City's specific Phase I MS4 Permit (Order No. R5-2016-0040-005) requirements are implemented. Compliance with the MS4 Permit, as regulated through Elk Grove Municipal Code Chapter 15.12 and required by Mitigation Measure 4.7.3a, would ensure that potential impacts to water quality standards or waste discharge requirements would not occur during Project operation. Furthermore, requirements to which the Project would be subject would be similar to those to which all structures facilitated by buildout of the LRSP area have been subject.

Additionally, as shown in Figure 10, the proposed Project would divide the Project site into 12 DMAs. Stormwater runoff from new impervious surfaces within each DMA would be directed to drain inlets within paved areas and bioretention and landscaped areas located throughout the site. Runoff captured within bioretention areas would be provided preliminary treatment. From the drain inlets, flows would be released to new 10-inch, 12-inch, and 15-inch storm drain lines, which would then convey to a new 18-inch storm drain line in the southwest corner of the site. From the 18-inch storm drain line, flows would ultimately be discharged to a new interim retention basin designed to retain runoff generated by a 100-year, 24-hour storm event. Peak flows exceeding the interim basin's capacity would be pumped to an existing overland release route to the south of the Project site. An ultimate drainage basin would be constructed in the future to drain runoff at pre-development levels.

### **Conclusion**

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the violation of any water quality standards



or waste discharge requirements or the substantial degradation of surface or groundwater quality beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to result in potential impacts related to an increased demand for water supply under Impact 4.6.1.1, which included an analysis of potential impacts related to groundwater supply. The LRSP receives water service from SCWA, which serves as water wholesaler and retailer. The SCWA pumps groundwater from the South American Subbasin, as defined by the California Department of Water Resources (DWR) Bulletin 118. As detailed by the LRSP REIR, within Sacramento County, the subbasin is divided into three areas. The long-term average annual limit (sustainable yield) for each of the three areas is as follows: 131,000 acre-feet (AF) for the North Area (north of the American River); 273,000 AF for the Central Area (between the American and Cosumnes rivers); and 115,000 AF for the South Area (south of the Cosumnes River). Sustainable yield is the amount of groundwater that can be safely pumped from the groundwater basin over a long period of time while maintaining acceptable groundwater elevations and avoiding undesirable effects. The SCWA Zone 40 service area, where the LRSP area is located, draws from the South Area.

Pursuant to the LRSP REIR, the projected water demand in the SCWA Zone 40 service area totals 113,100 AF per year (AFY) through 2030. The LRSP area is served by a combination of groundwater and surface water, as well as reclaimed water for landscape irrigation. The ultimate water demand of the LRSP would be 7,063 AFY. Of the total LRSP demand, 3,347 AFY would be from groundwater, which equates to three percent of both the overall Zone 40 demand and sustainable yield for the South Area. As such, the LRSP REIR concluded that adequate groundwater supplies would be available to serve the demand generated by buildout of the LRSP. Nonetheless, Mitigation Measure 4.6.1.1a requires confirmation that adequate water supplies are available and associated infrastructure facilities to be designed in compliance with the Water Study prepared for the LRSP. In addition, Mitigation Measure 4.6.1.1b requires that future LRSP projects incorporate water conservation measures, such as drought-tolerant landscaping and low-flow toilets, urinals, showerheads, lavatory faucets, and sink faucets. With implementation of the foregoing mitigation measures, the LRSP concluded that potential impacts related to water supply would be reduced to a less-than-significant level.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. The proposed Project would be subject to Mitigation Measures 4.6.1.1a and 4.6.1.1b, which would ensure that the Project confirms to the City that adequate water supplies are available to serve the Project and that water conservation measures have been incorporated into the Project design. Furthermore, although the Project would result in the introduction of new impervious surfaces to the Project site, as discussed under question 'a,' flows from the developed Project site would ultimately be discharged to a new interim retention basin south of the site, which would allow for groundwater recharge. Additional recharge would be provided within the site by way of new bioretention areas and landscaped areas. Overall, through implementation of Mitigation Measures 4.6.1.1a and 4.6.1.1b and incorporation of new vegetated storm drainage features and landscaped areas, the proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project would impede sustainable groundwater management of the South American Subbasin.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to substantially decreasing groundwater supplies or interfering substantially with groundwater recharge beyond what were previously

identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- ci-ciii. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to substantially alter the existing drainage pattern of the site or area, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site under Impact 4.7.2 and concluded that a significant impact could occur. As detailed therein, the LRSP REIR divided the plan area into two drainage areas: Local Drainage Area B and Local Drainage Area C. Of the 1,500 acres of the plan area in Local Drainage Area B, approximately 810 acres would be covered with impervious surfaces, or 54 percent of the area within the watershed. Of the approximately 402 acres of the plan area in Local Drainage Area C, an estimated 169 acres would be covered with impervious surfaces, or 42 percent. As such, the LRSP REIR found that the drainage pattern of the plan area would be altered through development facilitated by the LRSP.

The LRSP REIR noted that buildout of the LRSP includes various on-site drainage improvements, as well as off-site channel improvements, which would actually provide beneficial drainage impacts through containing stormwater flows from developed sites in the downstream storm drainage system. However, such benefits would be realized only if the LRSP drainage improvements and upgrades are constructed in accordance with applicable City/County standards and implemented prior to project construction of impervious surfaces. However, as the plan area could be developed over 20 years and may not be built at the same rate as downstream drainage improvements, the LRSP REIR determined that Mitigation Measure 4.7.2, which requires projects to demonstrate that permanent storm drainage facilities would be included and constructed in accordance with applicable standards, would reduce the potential impact to a less-than-significant level.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. A Preliminary Hydrologic and Water Quality Study was prepared for the proposed Project by TSD Engineering, Inc. to assess the Project's ability to convey runoff generated from the Project site during 10- and 100-year, 24-hour storm events (see Appendix B of this Addendum).<sup>26</sup> Runoff rates generated on-site under existing and developed conditions that would be anticipated during the 10- and 100-year storm events were estimated using the Sacramento Method within the SacCalc software. As detailed therein, the proposed storm drain system would be required to convey runoff through the site, discharging to an interim basin located south of the site. The interim retention basin would be sized to capture runoff generated on-site during a 100-year, 24-hour storm event. The Preliminary Hydrologic and Water Quality Study determined that the total runoff volume from the developed Project site would be 4.1 AF and that the basin's designed capacity would retain such a volume. During peak storm events, flows would be discharged from the basin through pumps. A rental service using portable pumps has been reasonably assumed to be contracted to oversee the operation of the interim basin. The pump operator would be required to pump water from the basin during rain events at a maximum of 15 cubic feet per second (cfs) and 29 cfs during 10-year and 100-year storm events, respectively. The basin would be required to be completely emptied within 72 hours.

In the event that pumping operations are not carried out in a timely manner or the pumps fail, the Preliminary Hydrologic and Water Quality Study noted that the basin has been designed with a spillway with a flowline one foot below the top of the basin. The spillway would allow water to

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<sup>26</sup> TSD Engineering, Inc. *Guardian Madeira Apartments: Preliminary Hydrologic and Water Quality Study*. March 1, 2023.

enter existing natural low-lying areas adjacent to the basin that would allow runoff to convey to the south. In the interim condition, the runoff would enter existing culverts located approximately 1,300 feet west of Big Horn Boulevard. Pursuant to Section 6.2 of the LRSP, runoff from the Project site would be conveyed to a proposed detention basin located on the north side of Bilby Road, approximately 3,300 feet west of Big Horn Boulevard. Ultimately, in the interim and permanent conditions, runoff would be conveyed to the Shed C Channel, which is approximately 637 feet to the southeast of the site.

Finally, the Preliminary Hydrologic and Water Quality Study concluded that the proposed storm drain system has been designed in accordance with applicable requirements, including Section 9 of the Elk Grove Improvement Standards, the Sacramento City/County Drainage Manual, and the Sacramento Region Stormwater Quality Design Manual. Overall, through compliance with applicable standards, analysis of flow rates and volumes from the developed site, and confirmation of the interim retention basin's capacity, the Preliminary Hydrologic and Water Quality Study determined that the Project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. However, as additional analysis during the design phase will be required to identify an appropriate pumping system to drain volumes from the interim basin, the Project would still be subject to Mitigation Measure 4.7.2.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to substantially altering the existing drainage pattern of the site or area, or creating or contributing runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or substantially increasing the rate or amount of surface runoff in a manner that would result in flooding on- or off-site beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- civ,d. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to place structures within a 100-year flood hazard as mapped on a Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) under Impact 4.7.2 and found that the plan area is not within a 100-year or 500-year floodplain or the Folsom Dam failure floodplain area. In addition, the LRSP would not result in the alteration of the course of a stream or river either on- or off-site. As such, the LRSP REIR concluded that potential impacts related to floodplains would be less than significant.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As such, the Project site is not located within a FEMA-designated Special Flood Hazard Area (SFHA) and would not impede or redirect flood flows or expose people or structures to a significant loss, injury, or death involving flooding. The Project site is not located near a water body that is susceptible to seiche hazard, such as a reservoir or lake. In addition, the distance to the nearest coastline does not subject the site to tsunami hazards. Thus, the proposed Project would not be exposed to substantial risks related to flooding as a result of the failure of a dam, tsunamis, or seiches.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to impeding or redirecting flood flows or flood hazard zones beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.



- e. The LRSP REIR did not evaluate the potential for development facilitated by buildout of the LRSP area to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The Sacramento Central Groundwater Authority (SCGA) manages groundwater in the Central Basin portion of the South American Subbasin. Currently, SCGA is undergoing discussions with other groundwater basin users of the South American Subbasin to evaluate options for formation of a Groundwater Sustainability Agency and development of a Groundwater Sustainability Plan (GSP), consistent with the requirements of the Sustainable Groundwater Management Act (SGMA). However, DWR has not approved a GSP for the Subbasin at this time. In addition, as discussed under question 'b,' through implementation of Mitigation Measures 4.6.1.1a and 4.6.1.1b and incorporation of new vegetated storm drainage features and landscaped areas, the proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project would impede sustainable groundwater management of the South American Subbasin. Therefore, the proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and a less-than-significant impact would occur.

Based on the above, the proposed Project would not result in new significant impacts related to conflicts with or obstruction of a water quality control plan or sustainable groundwater management plan, and a less-than-significant impact would occur.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to hydrology and water quality. The previously required mitigation measures from the LRSP REIR, as presented below, would still be required to be implemented for the proposed Project.

### **Mitigation Measure(s)**

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below. It should be noted that Mitigation Measures 4.6.1.1a and 4.6.1.1b are presented in Section XIX, Utilities and Service Systems, of this Addendum.

#### Mitigation Measures from the Previous CEQA Documents

- 4.7.1 *The project applicant shall submit to the City of Elk Grove proof that a Storm Water Pollution Prevention Plan (SWPPP) has been to the California Regional Water Quality Control Board, Central Valley Region. The SWPPP shall be administered throughout all phases of grading and project construction. The SWPPP shall be included with all subsequent project improvement and grading plans and shall incorporate Best Management Practices (BMPs) to ensure that potential water quality impacts during construction phases are minimized. Examples of BMPs that may be implemented during site grading and construction could include inlet filters, filter barriers, silt fences, and sedimentation basins. The SWPPP shall be consistent with the City's NPDES permit (NPDES No. CAS082597).*
- 4.7.2 *Prior to the approval of each subsequent tentative subdivision map, the project applicant shall be required to demonstrate that permanent drainage facilities, generally consistent with the Storm Drainage Master Plan for Laguna Ridge Specific Plan (Wood-Rogers, 2002), will adequately serve the subsequent project, consistent with City standards and off-site flooding impacts would not result, and that such facilities are either available or will be available upon site development. This demonstration may take the form of plans and/or reports, which shall*

*be reviewed and approved by the City consistent with the Specific Plan infrastructure phasing provisions. Interim storm drainage facilities shall be considered on a case-by-case basis to meet this mitigation measure.*

- 4.7.3a *Biofilter swales and vegetated strips shall be placed in the bottom of channel areas and be designed to provide biofiltration of pollutants in project runoff. The project engineer shall consult with the City when designing these areas, and the developer shall submit designs of the areas to the City for review and approval prior to approval of the improvement plans. Water quality control features shall be consistent with the City's NPDES permit (NPDES No. CAS082597).*
- 4.7.3c *All plan area storm drains shall provide a permanent storm drain message "No Dumping – Flows to Creek" or other approved message at each storm drain inlet. This may be accomplished with a stamped concrete impression (for curbs) or manufactured colored tiles, which are epoxied in place, adjacent to the inlet (for parking lots and areas without curbs).*

#### Modified Mitigation Measures

None required.

#### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XI. Land Use and Planning.</b>				
<i>Would the Project:</i>				
a. Physically divide an established community?	LRSP REIR pg. 4.12-13	No	No	Yes
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	LRSP REIR pgs. 4.12-13 to 4.12-14	No	No	No

**Discussion**

- a. The LRSP REIR did not evaluate the potential for development facilitated by buildout of the LRSP area to physically divide an established community, as the Notice of Preparation (NOP) circulated prior to preparation of the LRSP REIR indicated that potential impacts related to such would not occur. The Project site currently consists of undeveloped land. Buildout of the site with 12 multi-family residential buildings would be consistent with the single-family residences to the north, across Poppy Ridge Road. Furthermore, buildout of the site would be consistent with future developments, such as Arbor Ranch to the south and Madeira South to the west, as well as the Moser Tentative Map and Tuscan West subdivisions further west. Through approval of the Project entitlements, the Project would be developed in accordance with the City’s development standards applicable to the RD-30 zoning district, as established by Elk Grove Municipal Code Section 23.29.020. As detailed therein, development within the RD-30 zoning district must adhere to a density range of 25.1 to 30 du/ac, a maximum building height of 40 feet, and 80 sf of open space per unit. The proposed Project would feature a density of 25.3 du/ac, with the maximum height of all structures not exceeding 39 feet. In addition, the Project’s four common areas would encompass a total of 57,138 sf of open space, exceeding the 25,920 sf of open space (80 sf x 324 units) that would be required. The City’s existing roadway system would not be modified by the Project. Additionally, the Project would include sidewalk improvements along the site’s northern, eastern, and western boundaries to increase pedestrian connectivity in the Project area.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the physical division of an established community beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect starting on page 4.12-13 and determined that significant and unavoidable impacts would occur. As detailed therein, the LRSP REIR referred to the analysis of agricultural resources, noise, and visual resources. With respect to potential impacts related to agricultural resources, the LRSP REIR determined that substantial building setbacks and landscaped corridors would be provided along all roadways located between



proposed residential areas and current active agricultural operations. Thus, potential land use compatibility impacts would be less than significant. As discussed further in Section XIII, Noise, of this Addendum, the LRSP REIR found that traffic and construction noise would be excessive relative to existing conditions, and thus, a significant and unavoidable impact would occur. Finally, the LRSP REIR concluded that buildout of the LRSP area would result in the conversion of an agricultural area to urban uses and significant light and glare impacts that would contribute to the overall cumulative change in the open visual character of the plan area. Thus, a significant and unavoidable impact would occur related to visual resources.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. The Project would be generally consistent with Elk Grove Municipal Code standards and General Plan policies, as well as other applicable requirements adopted for the purpose of avoiding or mitigating environmental effects. In addition, the Project would be subject to mitigation measures set forth herein, which would ensure that all potential impacts are reduced to a less-than-significant level. For example, with implementation of Mitigation Measures 4.3.1a through 4.3.1g, potential impacts associated with dust and PM would not occur. As discussed under Section IV, Biological Resources, of this Addendum, through incorporation of various mitigation measures included in the LRSP REIR, the Project would be required to complete preconstruction surveys to ensure that potential impacts to protected wildlife species do not occur. Overall, through adherence to applicable policies, regulations, and standards set forth at the federal, State, and local levels, the proposed Project would not cause a substantial adverse environmental impact.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to inconsistency with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to land use and planning.

### **Mitigation Measure(s)**

None required.

### Mitigation Measures from the Previous CEQA Documents

None required.

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XII. Mineral Resources.</b>				
<i>Would the Project:</i>				
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?	LRSP REIR pg. 1.0-7	No	No	Yes
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?	LRSP REIR pg. 1.0-7	No	No	Yes

**Discussion**

a,b. The LRSP REIR did not evaluate the potential for development facilitated by buildout of the LRSP area to result in the loss of availability of a known mineral resource or locally important mineral resource recovery site, as the NOP circulated prior to preparation of the LRSP REIR indicated that potential impacts related to such would not occur. The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Given that new mineral resources would not have occurred within the plan area subsequent to the certification of the LRSP EIR, consistent with the conclusions of the LRRP REIR, the Project would not result in the loss of availability of a known mineral resource or of a locally important mineral resource recovery site.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the loss of availability of a known mineral resource that would be of value to the region and the residents of the State or 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 beyond what were previously identified in the LRSP REIR. Therefore, the Project would be consistent with the conclusions of the LRSP REIR.

**Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to mineral resources.

**Mitigation Measure(s)**

None required.

Mitigation Measures from the Previous CEQA Documents

None required.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XIII. Noise.</b>				
<i>Would the Project result in:</i>				
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?	LRSP REIR pgs. 4.4-18 to 4.4-21 and 4.4-23 to 4.4-25	No	No	No
b. Generation of excessive groundborne vibration or groundborne noise levels?	LRSP REIR pgs. 4.4-21 to 4.4-23	No	No	No
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?	N/A	No	No	Yes

**Discussion**

a. The following sections present information regarding existing sensitive noise receptors in proximity to the Project site, the existing noise environment, and the potential for the proposed Project to result in impacts during Project construction and operation. The following terms are referenced in the sections below:

- Decibel (dB): A unit of sound energy intensity. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. All references to dB in this discussion will be A-weighted unless noted otherwise.
- Day-Night Average Sound Level ( $L_{dn}$ ): The average noise over a 24-hour period.
- Equivalent Sound Level ( $L_{eq}$ ): The average sound level over a period of time.

The City of Elk Grove General Plan Noise Element establishes noise level criteria for both transportation noise sources, and for non-transportation (stationary) noise sources. For transportation noise sources, the Noise Element establishes an exterior noise level standard of 60 dB  $L_{dn}$  and an interior noise level standard of 45 dB  $L_{dn}$  for residences. The exterior noise level standard is applied at outdoor activity areas to provide an acceptable noise environment for outdoor activities. The interior noise level standard is intended to provide a suitable environment for indoor communication and sleep. For stationary noise sources, the Noise Element establishes noise level performance standards of 55 dB  $L_{eq}$  during daytime hours (7:00 AM to 10:00 PM) and



45 dB  $L_{eq}$  during nighttime hours (10:00 PM to 7:00 AM) for typical stationary noise sources. The Noise Element includes trucking operations, shopping centers, car washes, loading docks, and heating, ventilation, and air conditioning (HVAC) systems as typical stationary noise sources.

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. The following is a summary of the analyses and conclusions contained in the LRSP REIR related to potential noise increases that would occur at sensitive receptor locations during construction and operation of the LRSP relative to existing levels, and an analysis of the proposed Project's potential to result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project site.

### **Construction Noise**

The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to result in the generation of a substantial temporary increase in ambient noise levels in excess of applicable standards under Impact 4.4.1 and concluded the project could result in a significant impact. As detailed therein, activities associated with on-site and off-site construction would result in elevated noise levels within the plan area and could generate noise levels in excess of applicable standards or expose residential noise receptors to substantial short-term increases in ambient noise levels. The LRSP REIR found that during construction activities, noise level increases could be noticeable to nearby residential land uses. Construction activities on the plan area would occur throughout portions of the site. The Elk Grove Noise Ordinance would restrict proposed construction activities to occurring between 6:00 AM to 8:00 PM during weekdays, when residents are less likely to be disturbed, but would allow construction activities on the weekends from 7:00 AM to 8:00 PM, when more residents could be disturbed by construction. Given that existing, proposed, and potential future residential uses could be exposed to LRSP-related construction noise, the LRSP REIR concluded that the potential impact, though temporary, could be considered significant.

To address the potential impact, the LRSP REIR includes Mitigation Measures 4.4.1a through 4.4.1d, which restrict construction activities to specific times and require additional provisions for construction, such as the inclusion of noise-attenuating features during construction and required locations for staging areas and stationary equipment. While implementation of the foregoing mitigation measures would reduce the severity level of the potential impact, the LRSP REIR concluded that the impact would remain significant and unavoidable.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. The nearest single-family residence is located approximately 75 feet from the Project site's northern boundary. During Project construction, heavy equipment would be used for grading, excavation, paving, and building construction, which could result in temporary noise level increases at nearby sensitive receptors. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the Project site would vary depending on the proximity of construction activities to that point. As the existing residential uses north of the Project site could be exposed to noise generated as part of Project construction, the proposed Project would be subject to Mitigation Measures 4.4.1a through 4.4.1d. Given the proximity of the existing residences to the site, noise generated as part of Project construction could still result in a substantial temporary increase in ambient noise levels in the Project vicinity in excess of

applicable standards. Nonetheless, Project construction would not result in a new significant impact or substantially more severe significant impact beyond what was identified in the LRSP REIR.

### **Operation Noise**

the potential for development facilitated by buildout of the LRSP area to result in the generation of a substantial permanent increase in ambient noise levels related to traffic in excess of applicable standards under Impact 4.4.5 and concluded the project could result in a significant impact. As detailed therein, existing residences located along major roadways in the vicinity of the plan area would be exposed to elevated traffic noise levels under buildout conditions. According to Table 4.4-12 of the LRSP REIR, which shows the predicted Cumulative and Cumulative Plus Project traffic noise level conditions, the LRSP-related increase in the cumulative noise environment would range from 0.0 to 1.2 dB  $L_{dn}$ . Because the project would expose residential uses within the LRSP to noise levels in excess of City noise standards along the extension of Big Horn Boulevard between Elk Grove Boulevard and Poppy Ridge Road, as well as along the frontage of Elk Grove Boulevard and Poppy Ridge Road, the LRSP REIR requires Mitigation Measure 4.4.5. The mitigation necessitates that specific noise mitigation features be identified for sensitive land uses that would be located within the 60 dB  $L_{dn}$  traffic noise contour, as listed in Table 4.4-12 of the LRSP REIR. With implementation of Mitigation Measure 4.4.5, the LRSP REIR concluded that potential impacts related to traffic noise would be reduced to a less-than-significant level.

With respect to the proposed Project, residential uses typically do not involve noise-generating components as part of operation, with the exception of noise generated as part of an increase in traffic. As discussed in Section XVII, Transportation, of this Addendum, development of the proposed Project would result in 1,763 new vehicle trips per day, which would be less than the trip generation that would occur through development of the site with the approved LRSP conditions, which would have resulted in 1,775 daily vehicle trips. The lower trip generation of the Project is due to higher densities, as the Project would increase the density of the site by about 34.6 percent. As the Project site is located along Poppy Ridge Road, which is identified as being within the 60 dB  $L_{dn}$  traffic noise contour in Table 4.4-12 of the LRSP REIR, the Project would be subject to Mitigation Measure 4.4.5. However, as the Project would result in less daily vehicle trips than what was anticipated for the site by the LRSP REIR, the Project would, accordingly, not result in traffic-related noise above the noise levels anticipated as part of buildout of the site under LRSP approved conditions. Thus, Project operation would not result in a new significant impact or substantially more severe significant impact beyond what was identified in the LRSP REIR.

### **Conclusion**

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to 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 beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to generate excessive groundborne vibration or groundborne noise levels under Impact 4.4.2 and concluded that the project could result in a significant impact. As detailed therein, construction activities generate varying degrees of ground vibration, depending on the construction procedures and the construction equipment. The vibrations spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the

construction site often varies, depending on soil type, ground strata, and receptor building construction. The results from vibration can range from the absence of perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels. Ground vibrations from construction activities rarely reach the levels that can damage structures, but can achieve the audible and perceptible ranges in buildings close to the construction site. Typically, blasting and impact pile driving generate the highest vibration levels.

The LRSP REIR anticipated that blasting would not be employed for building of the plan area and pile driving would be very limited. The primary vibration sources associated with the development of the LRSP would include the use of pile drivers during the construction of foundations. Pile drivers create a high-intensity, repetitious noise that is disturbing and can result in ground vibrations. The use of pile drivers would be very limited during the development of on-site structures. As indicated in Table 4.4-10 of the LRSP REIR, impact pile drivers are capable of producing root mean square (RMS) velocity levels at 25 feet in the upper range of 0.37 inches per second, but typically produce levels of approximately 0.16 inches per second. Sonic pile drivers are capable of producing RMS velocity levels at 25 feet in the upper range of 0.18 inches per second, but typically produce levels of approximately 0.04 inches per second. Such vibration levels demonstrate that pile-driving activities could result in vibration above the acceptable threshold of 0.4 inches per second at receptors in the vicinity of potential locations for construction activities. To address the potential impact, Mitigation Measure 4.4.2 of the LRSP REIR requires that a preconstruction assessment of vibrations induced by pile driving at locations in proximity to residential areas be conducted. If pile driving would result in vibration levels above applicable standards, Mitigation Measure 4.4.2 requires further provisions to reduce vibration. With incorporation of Mitigation Measure 4.4.2, the LRSP REIR concluded that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. The nearest single-family residence is located approximately 75 feet from the Project site's northern boundary. Given the proximity to the nearest receptor from the site, vibration levels generated during Project construction are not anticipated to be above the acceptable threshold of 0.4 inches per second. Nevertheless, out of an abundance of caution, the Project would be subject to Mitigation Measure 4.4.2 to confirm such assumptions. Through implementation of Mitigation Measure 4.4.2, the Project would not result in new significant impacts or substantially more severe significant impacts beyond what were identified in the LRSP REIR.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the generation of excessive groundborne vibration or groundborne noise levels beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- c. The LRSP REIR did not evaluate if development facilitated by buildout of the LRSP area would be located within an airport land use plan or within two miles of a public airport. The Project site is not located within an airport land use plan or within two miles of a public airport or public use airport. The Project site is also not within the vicinity of a private airstrip. The nearest airport or airstrip to the Project site is Franklin Field, which is approximately 5.6 miles to the south. Accordingly, the proposed Project would not expose people residing or working in the Project area to excessive noise levels related to aviation.

Based on the above, the proposed Project would not result in new significant impacts related to being 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, and a less-than-significant impact would occur.

## Overall Conclusion

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to noise. The previously required mitigation measures from the LRSP REIR, as presented below, would still be required to be implemented for the proposed Project.

## Mitigation Measure(s)

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below.

### Mitigation Measures from the Previous CEQA Documents

It should be noted that former references to "Draft EIR" have been changed to "LRSP REIR." No other changes have been made to the following mitigation.

- 4.4.1a *Site preparation and construction activities shall be limited to between the hours of 6:00 A.M. to 8:00 P.M., Monday through Friday, and 7:00 A.M. to 8:00 P.M. on Saturday and Sunday (City of Elk Grove Noise Control Ordinance, Section #6.68.090). Furthermore, construction equipment maintenance shall be limited to the same hours. This requirement shall be included as a note in all project construction plans.*
- 4.4.1b *All construction equipment shall be equipped with appropriate mufflers in good working condition. This requirement shall be included as a note in all project construction plans.*
- 4.4.1c *Construction staging areas shall be located as far from noise-sensitive uses as is feasible. This requirement shall be included as a note in all project construction plans.*
- 4.4.1d *Stationary construction equipment shall be located as far from noise sensitive uses as feasible, and temporary or portable acoustic barriers shall be installed around the equipment/work area when within 100 feet or less of residential properties or other sensitive uses. This requirement shall be included as a note in all project construction plans.*
- 4.4.1e *Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted on a sign no larger than 4 foot by 8 foot at all construction entrances to allow for surrounding and onsite property owners to contact the job superintendent. If the City or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party. This requirement shall be included as a note in all project construction plans.*
- 4.4.2 *Prior to the commencement of pile driver operations in proximity to residential areas, an assessment of vibrations induced by pile driving at the site shall be completed. During indicator pile driving, vibrations should be measured at regular intervals to determine the levels of vibration at various distances from pile driving equipment. The indicator piles shall be driven at locations at least 400 feet from any existing residents. After monitoring, methods of reducing the peak ground velocities to less than 0.4 inches/second shall be determined and implemented during production pile driving. Methods to reduce vibrations, if needed, could include cut-off trenches, and the use of smaller hammers. The vibration reduction techniques to be used should be described in a note attached to the construction plans for the project to*



be reviewed and approved by the appropriate City regulatory agency prior to issuance of building permits. This requirement shall be included as a note in all project construction plans.

4.4.5 Prior to development of any noise-sensitive uses (as defined by the City of Elk Grove Noise Element) along Elk Grove Boulevard, Big Horn Road and Poppy Ridge Road, the project applicant shall identify specific noise mitigation measures for areas that would be located within the 60 dB Ldn traffic noise contours shown in Table 4.4-12 in the LRSP REIR that would attenuate noise levels in with City noise standards for traffic noise as shown in Table 4.4-9 of the LRSP REIR. Potential design features for noise attenuation are listed below.

- a. Setbacks (i.e., open space, frontage roads, recreational areas, and storage yards) typically reduce noise attenuation by 4 to 6 dB per doubling of distance from the source.
- b. Barriers (i.e., walls, berms, or structures) to achieve a noise reduction ranging from 5 to 15 dB. Earth berms provide approximately 3 dB more attenuation than a wall.
- c. Site design (i.e., building location) to reduce noise levels.
- d. Building design (i.e., location of noise-sensitive uses within a building) to reduce the impact of noises on inhabitants.
- e. Building facades (i.e., utilizing all features of the building façade including the closed windows) to reduce noise.
- f. Vegetation (i.e., trees and other vegetation) 100 feet of dense foliage can achieve a 5 dB attenuation of traffic noise
- g. Noise-reducing paving materials (i.e., rubberized asphalt) reduce traffic noise by approximately 4 dB.

#### Modified Mitigation Measures

None required.

#### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XIV. Population and Housing.</b>				
<i>Would the Project:</i>				
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)?	LRSP REIR pg. 4.12-15, 2021 HE SEIR pg. 3.10-14	No	No	No
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	N/A	No	No	Yes

**Discussion**

a,b. The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to induce substantial population growth on page 4.12-15 and determined that a less-than-significant impact would occur. As noted in the LRSP REIR, development of the plan area would result in 7,826 housing units and accommodate approximately 24,025 people. The LRSP REIR concluded that such growth would be consistent with projections for the City over the next two decades, as projected by the Sacramento Area Council of Governments (SACOG).

With respect to the proposed Project, the Project, as designed, would result in a density of 25.3 du/ac, which would be consistent with the City’s development standards applicable to the RD-30 zoning district, as established by Elk Grove Municipal Code Section 23.29.020. While the proposed Project, due to an increased density, would result in a higher population total relative to the approved conditions of the project site, the population increase would not be substantial. In addition the proposed Project would generally comply with applicable Elk Grove General Plan policies and would adhere to applicable Elk Grove Municipal Code standards. Furthermore, the proposed Project would be developed in an urban area, surrounded by existing residential uses to the north, across Poppy Ridge Road. The Project would not involve extension of major infrastructure. New utility infrastructure associated with the proposed Project would be sized to accommodate only the proposed residential uses. Furthermore, as evaluated in the 2021 Housing Element SEIR, the increased population levels associated with the City’s rezoning of various parcels, including Parcel II, would be consistent with regional growth projections for the City and would meet SACOG projected housing needs through 2029. As such, the Project would not indirectly result in substantial unplanned population growth in the Project area.

Finally, the Project site is currently undeveloped and does not include existing housing or other habitable structures. As such, the proposed Project would not displace a substantial number of existing housing or people and would not necessitate the construction of replacement housing elsewhere.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to population and housing beyond what were previously identified in the preceding environmental documents. Therefore, the proposed Project would be consistent with the conclusions of the preceding environmental documents.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the previous CEQA documents related to population and housing.

### **Mitigation Measure(s)**

None required.

### Mitigation Measures from the Previous CEQA Documents

None required.

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XV. Public Services.</b> <i>Would the Project result in:</i>				
a. 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 fire protection?	LRSP REIR pgs. 4.6-47 to 4.6-49	No	No	No
Police protection?	LRSP REIR pg. 4.6-54	No	No	No
Schools?	LRSP REIR pgs. 4.6-60 to 4.6-61	No	No	No
Parks?	LRSP REIR pgs. 4.6-67 to 4.6-68	No	No	No
Other public facilities?	N/A	No	No	Yes

**Discussion**

- a. Potential impacts related to public services that were addressed in the LRSP REIR and that would result from implementation of the proposed Project are discussed below.

**Fire Protection Services**

The LRSP REIR did not evaluate the potential for development facilitated by buildout of the LRSP REIR to result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, and/or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection facilities. However, the LRSP REIR assess the potential for buildout of the LRSP to significantly impact fire department response times prior to the construction of a new fire station within the LRSP area under Impact 4.6.4.2 and concluded a significant impact could occur.

As detailed therein, the development of new residential, office, and other commercial land uses within the LRSP area and surrounding areas would increase the demand for fire suppression and emergency response services provided by the Cosumnes Fire Department (CFD). Although existing fire facilities in the vicinity of the plan area are sufficient to serve existing development, the LRSP REIR found that new development would not be adequately served. However, pursuant to Elk Grove Municipal Code Section 16.85.050, new development within the City is subject to



the Elk Grove Fire Fee. The Elk Grove Fire Fee addresses the costs of financing fire station construction and equipment acquisition needed to meet service demands generated by development within the City. In addition, as buildout of the LRSP includes an on-site fire station (Station 77 at 83500 Poppy Ridge Road), the LRSP REIR concluded estimated response times by the CFD would be within acceptable time limits upon construction of Station 77. To address potential impacts related to fire services, the LRSP REIR sets forth Mitigation Measures 4.6.4.2a through 4.6.4.2f, which include various requirements related to payment of applicable fees, water supply systems for subdivisions, and development adjacent to wetlands/creeks/open spaces. Through implementation of Mitigation Measures 4.6.4.2a through 4.6.4.2f, the LRSP REIR concluded a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. Using the LRSP's average household size for Elk Grove of 3.07 residents and the maximum density allowed for the RD-5 and RD-25 zoning districts (which correspond with the current Parcels I and II LRSP designations of LDR and HDR/RD-25), buildout under the LRSP approved conditions of Parcels I and II would result in approximately 954 residents. Under the proposed conditions, buildout of the Project site would result in approximately 1,226 residents, or a net increase of 272 residents. However, it should be noted that the 3.07 residents per household estimate is conservative, as such an average applies to single-family residences, whereas the proposed Project would include multi-family residences, which typically contain fewer residents per unit. In addition, the increase in density would not substantially exacerbate the need for CFD services, as Parcel I would contain only one new structure, consistent with the number of structures facilitated for the parcel by the LRSP. Additionally, the currently under-construction Station 77 was previously analyzed within the LRSP REIR, which concluded that the addition of Station 77 would ensure response times are within acceptable time limits to the Project site. Furthermore, the proposed Project would be subject to the Elk Grove Fire Fee, which would ensure that the Project pays a fair-share funding contribution for the provision of CFD services, including for Station 77 (if deemed necessary), which is currently under construction. In addition, the Project structures would be designed in compliance with all applicable provisions of the California Fire Code and would include features such as fire sprinklers and smoke alarms to reduce potential fire hazards. Fire Code consistency review would be performed as part of the construction and development review process for the proposed Project. To ensure payment of the Elk Grove Fire Fee, the Project would be subject to Mitigation Measure 4.6.4.2a. Mitigation Measures 4.6.4.2b through 4.6.4.2f would not apply, as the Project does not include a subdivision or adjacent to wetlands/creeks/open spaces.

Based on the above, the proposed Project would not result in new significant impact or substantially more significant impact related to fire protection beyond what were identified in the LRSP REIR.

### **Police Protection Services**

The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to result in substantial adverse physical impacts associated with the provisions of new or physically altered police protection facilities, and/or the need for new or physically altered police protection facilities, under Impact 4.6.5.1 and concluded that the project could result in a significant impact.

As discussed therein, buildout of the LRSP area would contribute to an increased demand for law enforcement services, as the project would result in 7,826 new residential units and 282 acres of commercial uses in an area composed of rural uses. The Elk Grove Police Department has an

existing officer-to-population standard of one officer per 1,000 residents. Based on an average of 3.07 persons per household (as defined by the LRSP REIR) for conventional housing and 1.8 persons per household for age-restricted housing, the residential component of the LRSP would require 24 deputies to maintain the current staffing ratio. In addition, the commercial uses would generate a need for 3.6 additional officers and the schools would generate a need for two additional officers. To address the potential impact, Mitigation Measure 4.6.5.1 of the LRSP REIR requires the LRSP general financing program to demonstrate sufficient funding is available to provide adequate law enforcement facilities and equipment for new officers required to maintain the officer-to-population standard. With incorporation of Mitigation Measure 4.6.5.1, the LRSP REIR concluded a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, the net increase in new residents that could occur through developing the Project site under the proposed conditions, relative to those approved by the LRSP, would be a net increase of 272 residents; however, the increase in density would not substantially exacerbate the need for law enforcement services, as Parcel I would contain only one new structure, consistent with the number of structures facilitated for the parcel by the LRSP. In addition, the Project would be subject to the City's Public Facilities Impact Fee, as set forth by Elk Grove Municipal Code Section 16.95.020, which would ensure that the Project pays a fair-share funding contribution for the provision of law enforcement services. Furthermore, the relevant CEQA threshold is whether new or physically altered stations are needed to meet response times or other performance objectives, the construction of which could cause environmental impacts. Should the City determine the increase in population generated by the Project necessitates the need for new Elk Grove Police Department facilities, such structures would be built in accordance with applicable standards and regulations, ensuring that potential environmental effects do not occur. To ensure the Project demonstrates that adequate funding is available for police services, the Project would be subject to Mitigation Measure 4.6.5.1.

Based on the above, the proposed Project would not result in new significant impact or substantially more significant impact related to police protection beyond what were identified in the LRSP REIR.

### **School Services**

The LRSP EIR evaluated the potential for development facilitated by buildout of the LRSP area to result in substantial adverse physical impacts associated with the provisions of new or physically altered school facilities, and/or the need for new or physically altered school facilities, for school facilities starting on page 4.6-60 of the LRSP REIR and concluded that a less-than-significant impact would occur. As detailed in Table 4.6.6-3 of the LRSP REIR, buildout of the plan area would generate 5,464 new students. However, the LRSP includes the construction of three elementary schools and a combined middle school/high school. In addition, Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "legislative or adjudicative act involving the planning, use, or development of real property" (Government Code 65996[b]). Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation." Therefore, according to SB 50, the payment of the necessary school impact fees for a project is considered full and satisfactory CEQA mitigation. Based on the provision of new schools and payment of applicable development impact fees to the Elk Grove Unified School District (EGUSD), the LRSP REIR concluded that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, buildout of the proposed Project would result in a net increase of 272 residents, due to the higher density of uses, relative to the approved LRSP conditions. An increase in residents could, in turn, result in a higher population total of student-aged residents within the developed Project site. However, through construction of new schools as part of the LRSP, the EGUSD would have the necessary facilities to serve new students generated by the proposed Project. In addition, the proposed Project would be subject to the EGUSD Development School Impact Fee. All new residential development must pay a fee at the rate of \$7.04 per sf. Thus, consistent with the Proposition 1A/SB 50 statutory requirements, the proposed Project's payment of the EGUSD Development School Impact Fee would be considered full and complete mitigation.

Based on the above, the proposed Project would not result in new significant impact or substantially more significant impact related to schools beyond what were identified in the LRSP REIR.

### **Park Services**

The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to result in substantial adverse physical impacts associated with the provisions of new or physically altered park facilities, and/or the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts for park facilities under Impact 4.6.7.1 and concluded that a significant impact could occur. As detailed therein, the LRSP designates more than 87 acres of parks and 44 acres of parkway open space. Of the 87 acres of parks, seven mini-parks are proposed, six of which are two acres and one of which is four acres. Three neighborhood parks are proposed ranging from nine to more than 17 acres. In addition, one community park is proposed at approximately 37 acres. The Elk Grove Community Services District Park District standard for park acreage required to serve existing and new residents is 5.0 acres per 1,000 people. Based on the persons per household for conventional housing and age-restricted housing in the City defined by the LRSP REIR (3.07 and 1.8, respectively), the total park acreage necessary for the LRSP to meet the standard is 116 acres. As such, the designated parks and parkway open space would comply with the Elk Grove Community Services District Park District standard for park acreage. To ensure compliance with the standard, Mitigation Measure 4.6.7.1 requires parkland dedications and/or the payment of in-lieu fees. With incorporation of Mitigation Measure 4.6.7.1, the LRSP REIR concluded a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, the Project would be required to include 25,920 sf of open space (80 sf x 324 units); however, the Project's four common areas would exceed the foregoing requirement, encompassing a total of 57,138 sf of open space. In addition, as mandated by Elk Grove Municipal Code Chapter 16.82, development within the LRSP area is subject to the City of Elk Grove Laguna Ridge Park Fee. Payment of the fee would ensure that the Project pays a fair-share funding contribution for the provision of park services. As payment of the Elk Grove Laguna Ridge Park Fee would satisfy Mitigation Measure 4.6.7.1, the Project would not result in new significant impact or substantially more significant impact related to parks beyond what were identified in the LRSP REIR.

### **Other Public Facilities**

The LRSP REIR did not evaluate the potential for development facilitated by buildout of the LRSP area to result in substantial adverse physical impacts associated with the provisions of new or

physically altered other public facilities, and/or the need for new or physically altered other public facilities, the construction of which could cause significant environmental impacts. The Elk Grove branch of the Sacramento Public Library (SPL) is located at 8900 Elk Grove Boulevard. Based on plans set forth in the SPL Authority Facility Master Plan, the SPL expects to provide 1,007,274 sf of library space throughout the SPL's service area by 2025. Because the SPL Facility Master Plan outlines plans to meet the library target level in 2025, the proposed Project would not result in the need for new or altered services related to other governmental services, the construction of which would result in substantial environmental impacts, and a less-than-significant impact would occur.

## Overall Conclusion

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to public services. The previously required mitigation measures from the LRSP REIR, as presented below, would still be required to be implemented for the proposed Project.

## Mitigation Measure(s)

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below.

### Mitigation Measures from the Previous CEQA Documents

4.6.4.2a *The project applicant shall provide a permanent fire station within the plan area and sufficient funds to purchase associated facilities including an aerial truck, and urban interface engine. These improvements and facilities, included in the Laguna South Public Facilities Fee Program, shall be provided to the satisfaction of the Elk Grove Community Services District Fire Department (EGCSDFD).*

*Fair-share funding for the above fire facilities and services improvements shall be determined by the modification of the Laguna South Public Facilities Fee Program by the annexation of the Laguna Ridge Specific Plan into the Fee Program. Project public facility financing plans and/or programs shall establish the timing of these improvements to ensure they are in place to the satisfaction of the EGCSDFD. Establishment of the financing plans and/or programs shall occur prior to the approval of any subsequent development project. Development may occur prior to approval of the project's financing plans and/or programs if the project applicant constructs the EGCSDFD required improvement and purchases associated facilities concurrent with the development of their specific project.*

4.6.5.1 *The project's general financing program and/or plan shall demonstrate that there are sufficient sources of funding to provide adequate law enforcement facilities and equipment for new officers required to maintain the one officer per 1,000 residents ratio with the addition of the project.*

4.6.7.1 *The project applicant shall meet the parkland requirement to provide for 5.0 acres of parkland per 1,000 people through parkland dedications within the LRSP area and/or the payment of in-lieu fees.*

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.



Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XVI. Recreation.</b>				
<i>Would the Project:</i>				
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?	LRSP REIR pgs. 4.6-67 to 4.6-68	No	No	No
b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	LRSP REIR pgs. 4.6-67 to 4.6-68	No	No	No

**Discussion**

a,b. While the LRSP REIR did not specifically include analysis of questions ‘a’ and ‘b’ of Section XVI, Recreation, of CEQA Guidelines Appendix G, the LRSP REIR did include an assessment of the potential for development facilitated by buildout of the LRSP area to result in substantial adverse physical impacts associated with the provisions of new or physically altered park facilities, and/or the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts in the analysis of public services under Impact 4.6.7.1. In support of the conclusion, the LRSP REIR cited that the LRSP designates more than 87 acres of parks and 44 acres of parkway open space. The Elk Grove Community Services District Park District standard for park acreage required to serve existing and new residents is 5.0 acres per 1,000 people. The total park acreage necessary for the LRSP to meet the standard is 116 acres. As such, the designated parks and parkway open space would comply with the Elk Grove Community Services District Park District standard for park acreage.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, the Project’s four common areas would encompass a total of 57,138 sf of open space, which would exceed the City’s minimum requirements for open space that would be expected of the Project. In addition, as mandated by Elk Grove Municipal Code Chapter 16.82, the Project would be subject to the City of Elk Grove Laguna Ridge Park Fee.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated or the construction or expansion of recreational facilities which might have an adverse physical effect on the environment beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the Project site in the LRSP REIR related to recreation.

### **Mitigation Measure(s)**

None required.

### Mitigation Measures from the Previous CEQA Documents

None required.

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XVII. Transportation.</b> <i>Would the Project:</i>				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	LRSP REIR pgs. 4.2-50 to 4.2-51	No	No	No
b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	N/A	No	No	Yes
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	N/A	No	No	Yes
d. Result in inadequate emergency access?	N/A	No	No	Yes

**Discussion**

The LRSP REIR included a Level of Service (LOS) analysis for roadway segments and intersections within the plan area under Impacts 4.2.1 and 4.2.2. However, the law has changed with respect to how transportation-related impacts may be addressed under CEQA. Traditionally, lead agencies used LOS to assess the significance of such impacts, with greater levels of congestion considered to be more significant than lesser levels. Mitigation measures, such as those stipulated in the LRSP REIR to address transportation impacts, typically took the form of capacity-increasing improvements, which often had their own environmental impacts (e.g., to biological resources). Depending on circumstances, and an agency’s tolerance for congestion (e.g., as reflected in its general plan), LOS D, E, or F often represented significant environmental effects. In 2013, however, the Legislature passed legislation with the intention of ultimately doing away with LOS in most instances as a basis for environmental analysis under CEQA. Enacted as part of SB 743 (2013), PRC Section 21099, subdivision (b)(1), directed the Governor’s Office of Planning and Research (OPR) to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing “criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, VMT, VMT per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section.”

Subdivision (b)(2) of Section 21099 further provides that “[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion *shall not be*

*considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any[.]" (Italics added).

Pursuant to SB 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018. It became effective in early 2019. Subdivision (a) of that section provides that "[g]enerally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact."<sup>27</sup>

Subdivision (c) of Section 15064.3 (Applicability) states that "[t]he provisions of this section shall apply prospectively *as described in Section 15007*. A lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide[.]" (Italics added).

In *Citizens for Positive Growth & Preservation v. City of Sacramento* (2019) 43 Cal.App.5th 609, 625-626 (*Citizens for Positive Growth*), the Court of Appeal refused to address the merits of a pending CEQA appeal involving the sufficiency of an EIR's LOS-based analysis of transportation-related impacts. The court found that this particular challenge was moot, in that, if the court were to find problems with the analysis and remand the matter back to the respondent city, the city would be under no obligation to undertake additional LOS-based analysis. After noting that Section 15064.3 was "[t]he regulation was promulgated, in part, pursuant to Section 21099 and certified by the Secretary of the Natural Resources Agency before being approved by the Office of Administrative Law on December 28, 2018," the court reasoned as follows:

"In mandamus proceedings like this one, "the law to be applied is that which is current at the time of judgment in the appellate court." [Citations.] Under section 21099, subdivision (b)(2), existing law is that "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment" under CEQA, except for roadway capacity projects. Accordingly, the 2035 General Plan's impacts on LOS (i.e., automobile delay) cannot constitute a significant environmental impact, as Citizens argues, rendering Citizens's traffic impacts argument moot."

In short, as of December 28, 2018, "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment" under CEQA, except for roadway capacity projects. Thus, the former obligation under CEQA to address LOS in transportation analyses ceased to exist as of that date, except (at agencies' discretion) with respect to transportation projects. EIRs for land use projects are therefore not required to address LOS issues, and "automobile delay," as described in terms of LOS, "shall not be considered a significant impact on the environment." Therefore, the following transportation analysis will focus on VMT, rather than LOS, to determine impact significance. As is required, other topics, such as emergency access and transit, bicycle, and pedestrian systems are evaluated. It is important to note, however, that the City maintains the right to require the proposed Project to implement roadway and/or intersection improvements to relieve congestion attributable to the Project, including through implementation of LOS-

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<sup>27</sup> Subdivision (b)(2) of section 15064.3 ("transportation projects") provides that "[t]ransportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152."



based mitigation measures contained in the LRSP REIR. Any congestion-related roadway and/or intersection improvements would be required through conditions of approval.

- a. A VMT Analysis was prepared by Fehr and Peers to assess the potential impacts related to pedestrian, bicycle, and transit facilities as well as impacts related to VMT associated with the proposed Project (see Appendix C of this Addendum).<sup>28</sup> The proposed Project's potential impacts related to VMT are discussed under question 'b' below. The following discussions address potential conflicts with a program, plan, ordinance or policy addressing the circulation system, specifically as they relate to transit, bicycle, and pedestrian facilities associated with buildout of the LRSP area and the proposed Project.

### **Bicycle and Pedestrian Facilities**

The LRSP REIR evaluated the potential for buildout of the LRSP area to result in impacts to bicycle and pedestrian facilities on page 4.2-51 and concluded that a less-than-significant impact would occur. As detailed therein, the LRSP includes provisions for bicycle and pedestrian facilities. Major and minor arterials and commercial streets within the LRSP area are planned to have on-street Class II bicycle lanes. Major and minor arterials, commercial streets, and primary residential streets would have detached sidewalks separated for the roadway by landscaped planters. In addition, pedestrian sidewalks would be provided on all roadway cross-sections, and all street cross-sections would accommodate bicycles. As buildout of the LRSP area would not disrupt or interfere with existing or planned bikeways and pedestrian operations in the area, the LRSP REIR concluded that a less-than-significant impact would occur.

The VMT Analysis assessed potential impacts associated with bicycle facilities that would occur as a result of the proposed Project through bicycle level of traffic stress (LTS). Bicycle LTS refers to the comfort associated with roadways, or the mental ease people experience riding on them. Bicycle riders vary in experience, skill, ability, and confidence. As such, they rely on the bikeway system to cater to their specific needs and abilities. Some cyclists are more comfortable riding in traffic and value bikeways and routes that are direct and limit unnecessary delay. They more comfortably use facilities that share the roadway with automobiles or have limited bicycle infrastructure. People with limited bicycling confidence and lower or developing skill levels such as children and older adult riders may desire more separation from traffic to feel comfortable enough to ride. Different bicycle types also require more space in bicycle facilities, such as trailers for children or cargo or adult tricycles.

According to the VMT Analysis, recent research has correlated the different bicycle riders with the level of "traffic stress" they are willing to experience while cycling. Bicycle LTS criteria span from 1 to 4, with 1 being the least stressful and 4 being the most stressful. With respect to the Project site, Class II bike lanes (on-street with signage and striping) are provided in both directions on Big Horn Boulevard. Bike lanes are not currently provided on Poppy Ridge Road; however, a Class I multi-use path is proposed for Poppy Ridge Road, between Bruceville Road and Big Horn Boulevard. Pursuant to the VMT Analysis, the City of Elk Grove Bicycle, Pedestrian, & Trails Master Plan identifies Big Horn Boulevard and Poppy Ridge Road as bicycle LTS 4. As previously discussed, the VMT Analysis determined that development of the proposed Project would result in 1,763 new vehicle trips per day. Such an amount would be less than the trip generation that would occur through development of the site with the approved LRSP conditions, which would have resulted in 1,775 daily vehicle trips. The lower trip generation of the Project is due to higher densities, as the Project would increase the density of the site by about 34.6 percent. With lower

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<sup>28</sup> Fehr and Peers. *Memorandum: Guardian Madeira Apartments – VMT Analysis*. April 12, 2023.

trip generation and VMT (discussed further under question 'b'), the VMT Analysis concluded the proposed Project would not worsen the bicycle LTS.

In addition, the proposed Project would include frontage improvements along a portion of the Project's Big Horn Boulevard boundary (see Figure 12), including bicycle lane improvements. North of the new driveway along Big Horn Boulevard, the Project would construct a new four-foot-wide Class II bicycle lane within the western half of the existing 80-foot-wide Big Horn Boulevard ROW. South of the aforementioned driveway, the Project would expand the existing ROW width from 73 feet to 74 feet and construct a new five-foot-wide Class II bicycle lane. The proposed frontage improvements would extend from Poppy Ridge Road to the southern Project site boundary. Thus, the proposed Project would not result in new significant impacts or substantially more severe significant impact beyond what were previously identified in the LRSP REIR.

With respect to pedestrian facilities, the VMT Analysis assessed current and proposed pedestrian conditions along Big Horn Boulevard through employing a Pedestrian Streetscore+ scale, which ranges from 1 to 4. Pedestrian Streetscore+ 1 indicates a highly comfortable, pedestrian-friendly, and easily navigable for pedestrians, whereas Pedestrian Streetscore+ 4 indicates walking is a barrier and very uncomfortable or even impossible. Based on the VMT Analysis, current and proposed pedestrian conditions would both be Pedestrian Streetscore+ 4. As such, the Project would not degrade pedestrian LTS.

In addition, as previously discussed, new seven-foot-wide sidewalks would be constructed along the northern, eastern, and western Project site boundaries, which would be shaded by new landscaping trees. The Project would also include new sidewalks parallel to the apartment buildings and clubhouse building, as well as in areas planned for outdoor amenities, such as the picnic areas in the southeast corner and western boundary of the site. Additionally, pedestrians would be provided access from the sidewalks along the site boundaries to the more interior sidewalks by way of pedestrian gates stationed at various locations along the site perimeters. Thus, the proposed Project would not result in new significant impacts or substantially more severe significant impact beyond what were previously identified in the LRSP REIR.

### **Transit Services**

The LRSP REIR evaluated the potential for buildout of the LRSP area to result in impacts related to transit services on page 4.2-50 and concluded that a less-than-significant impact would occur. As detailed therein, Sacramento Regional Transit (SacRT) maintains a 20-year master plan of transit facilities for the Elk Grove region that identifies Elk Grove Boulevard (from Franklin Boulevard to Elk Grove-Florin Road), Laguna Boulevard (from I-5 to SR 99) and Bruceville Road (from Poppy Ridge Road to SR 99) as conceptual transit corridors, which do not represent specific routes. The LRSP REIR found that all major arterial and collector streets in the vicinity of the plan area are expected to be designed to accommodate transit facilities, such as turnouts, bus stops, and shelters. Bus turnouts would be provided on all plan area arterial streets. Consistent with SacRT improvement standards, the turnouts would be located on the far side of each major intersection. Because buildout of the LRSP area would not disrupt existing or planned transit operations in the area and transit system deficiencies were not identified under Existing Plus Project conditions, the LRSP REIR concluded that impacts to transit system operations would not occur.

With respect to the proposed Project, transit service within the Project vicinity is provided by SacRT. The closest service to the Project site is Commuter Route E10, Local Route E11, and Local Route E12. Elk Grove Transit, which is currently operated by SacRT, receives funding from

State sources (Transit Development Act [TDA] funds), federal sources (Federal Transportation Administration), and through fare collection. State and federal funds are generally allocated based on population, with a portion of TDA funds derived from a 0.25-cent general sales tax and a sales tax on diesel fuel. Therefore, the VMT Analysis found that development of the proposed Project would increase funding for transit, through the aforementioned sources, due to population growth.

In addition, the Federal Transit Administration maintains a database of transit system performance. According to the VMT Analysis, the City of Elk Grove 2021 Annual Agency Profile identifies that local bus service had unlinked trips per vehicle revenue hour of 2.2, or about two passengers per hour. Generally, such level of performance is indicative of low demand and productivity. Routes performing at the aforementioned level would have excess seated and standing capacity. Consequently, the VMT Analysis concluded that the proposed Project would not create demand for public transit services above the crush load capacity of the transit system.

### **Conclusion**

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, specifically as they relate to transit, bicycle, and pedestrian facilities, beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. An evaluation of VMT was not required pursuant to CEQA at the time of preparation of the LRSP REIR and, as a result, VMT was not directly addressed in the previous CEQA analysis. Pursuant to the VMT Analysis prepared for the proposed Project, the City of Elk Grove uses total daily VMT and VMT per service population as the basis for evaluating potential impacts related to VMT. The following describes the two metrics and their intended use:

- VMT per service population: Includes the sum of all VMT produced by the Project, including employees and visitors to the Project. The VMT per service population metric is used to assess a Project against specific land use VMT limits.
- Total daily VMT: Includes the sum of all daily VMT produced by all uses within the Project. Because the Project is located in the City limits, the citywide cumulative VMT limit that is outlined in Elk Grove General Plan Policy MOB-1-1(a)(ii) is used to assess the Project.

The VMT Analysis includes a VMT Screening Map that identifies areas in the City that are exempt from VMT analysis. The map includes sites that have been prescreened through a citywide VMT analysis and have been determined to result in 15 percent or below the average service population VMT established for a site's land use designation, if the site is built to the specifications of the City's land use standards. With an average VMT per service population of 12.0, the City's target VMT per service population threshold is 10.2. The Project site is located within a prescreened area that has been determined to result in 15 percent or below the average service population VMT established for the site's existing land use designation. However, because the proposed Project includes a General Plan Amendment to redesignate Parcel I from LDR to HDR, as well as a Specific Plan Amendment and Rezone of Parcel I to HDR and RD-30, respectively, additional analysis is required to confirm VMT performance for the proposed HDR land use designation.

A modified version of SACOG's SACSIM15 regional travel demand forecasting model, developed for the City of Elk Grove General Plan, was used to calculate the VMT per service population for the Project site. Table 10 includes a comparison of the Project's VMT per service population to

the City’s VMT limit the HDR designation (which incorporates a 15 percent reduction in total VMT from the 2015 baseline). As shown, the Project’s VMT per service population would be 18.5, which would be 10.2 percent lower than the City’s VMT limit for the HDR land use. The VMT performance would not exceed the City’s VMT limit for the HDR land use.

<b>Table 10</b>				
<b>VMT by Land Use Designation Limits – Project Buildout Conditions</b>				
<b>Project</b>	<b>Land Use Designation</b>	<b>VMT per Service Population</b>		<b>Limit Exceeded?</b>
		<b>Limit</b>	<b>Project</b>	
Buildout	HDR	20.6	18.5	No

*Source: Fehr and Peers, 2023*

Table 11 compares the daily, AM peak hour, and PM peak hour trip generation associated with the Project site’s approved LRSP REIR conditions and the proposed uses. As shown, the proposed Project would generate fewer daily trips and higher AM peak hour and PM peak hour trips. The lower trip generation of the proposed Project is due to higher densities, as the proposed Project would increase the density of the Project site by about 34.6 percent.

<b>Table 11</b>						
<b>Trip Generation Comparison</b>						
<b>Land Use</b>	<b>Units</b>	<b>Quantity</b>	<b>Trip Generation<sup>1</sup></b>			
			<b>Daily</b>	<b>Peak Hour</b>		
				<b>AM</b>	<b>PM</b>	
LRSP REIR	Single-Family <sup>2</sup>	Dwelling Units	5	47	4	5
	Multi-Family <sup>3</sup>	Dwelling Units	236	1,728	109	132
	Total		241	1,775	113	137
Proposed Project	Multi-Family <sup>4</sup>	Dwelling Units	324	1,763	117	143
<b>Difference (Proposed Project – LRSP REIR)</b>			<b>83</b>	<b>-12</b>	<b>4</b>	<b>6</b>

<sup>1</sup> Trip Generation Manual, 10<sup>th</sup> Edition  
<sup>2</sup> ITE Code 210 – Single-Family Detached Housing  
<sup>3</sup> ITE Code 221 – Multi-Family Housing (Low-Rise)  
<sup>4</sup> ITE Code 220 – Multi-Family Housing (Mid-Rise)

*Source: Fehr and Peers, 2023*

Table 12 compares total VMT for the proposed Project to the VMT-based LRSP land uses. As shown, the proposed Project would result in less total VMT. The lower VMT is a result of the 34.6 percent increase in residential density provided by the proposed Project. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing residential density results in shorter and fewer trips by single-occupancy vehicles and a corresponding reduction in VMT.

As previously discussed, land use development projects located within the existing City limits must demonstrate that cumulative VMT within the City, including the Project, would be equal to or less than the City’s established total VMT limit. Table 12 compares the citywide total VMT limit to the City’s total VMT limit with buildout of the proposed Project. As shown, the addition of the Project would not cause cumulative VMT to exceed the established citywide limit. As discussed, lower VMT is a result of the 34.6 percent increase in residential density provided by the proposed Project.



<b>Table 12 Total VMT Comparison</b>						
Land Use	Daily	Average Trip Length	VMT			
			Base	Density Adjustment	Final	
LRSP REIR	Single-Family	47	5.79	272	--	9,707
	Multi-Family	1,728	5.46	9,435	--	
	Total	1,775	--	9,707	--	
Proposed Project	Multi-Family	1,763	5.46	9,626	-5.62%	9,085
<b>Difference (Proposed Project – LRSP REIR)</b>						<b>-622</b>
<i>Source: Fehr and Peers, 2023</i>						

<b>Table 13 Citywide VMT Limit – Project Buildout Conditions</b>			
Development Projects in Existing City	Total VMT		Limit Exceeded?
	Limit	Project	
Citywide	6,367,833	6,367,211	No
<i>Source: Fehr and Peers, 2023</i>			

Based on the above, the proposed Project would not exceed the citywide cumulative VMT limit that is outlined in Elk Grove General Plan Policy MOB-1-1(a)(ii). Therefore, the proposed Project would not result in new significant impacts, and a less-than-significant impact would occur.

- c,d. The LRSP REIR did not assess the potential for development facilitated by buildout of the LRSP REIR to substantially increase hazards or result in inadequate emergency access. The proposed Project would not alter the existing transportation network, nor increase hazards due to a geometrical design feature. The proposed buildings are sufficiently set back from Poppy Ridge Road and Big Horn Boulevard, such that visibility for motorists would not be hindered. During Project construction, public roads in the vicinity would remain open and available for use by emergency vehicles and other traffic. In addition, the internal on-site drive aisles would be designed to be adequate for emergency vehicle access.

As noted in the City’s General Plan EIR under Impacts 5.13.5 and 5.13.6, buildout of the General Plan planning area would result in less-than-significant impacts related to hazards and emergency access.<sup>29</sup> Although the proposed Project would require a General Plan Amendment to redesignate Parcel I from LDR to HDR, the General Plan EIR noted that any new transportation facility improvements required as part of General Plan buildout would be constructed based on industry design standards consistent with General Plan Policy MOB-3-10, which stresses that the safety of the most vulnerable user is a priority. Therefore, through compliance with General Plan Policy MOB-3-10, the proposed Project would not substantially increase hazards or result in inadequate emergency access.

Based on the above, the proposed Project would not result in new significant impacts related to increased hazards due to a geometric design feature, incompatible uses, or inadequate emergency access, and a less-than-significant impact would occur.

<sup>29</sup> City of Elk Grove. *General Plan Update Draft Environmental Impact Report*. February 2019.

**Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts from what had been anticipated for the Project site in the LRSP REIR related to transportation.

**Mitigation Measure(s)**

None required.

Mitigation Measures from the Previous CEQA Documents

None required.

Modified Mitigation Measures

None required.

Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<p><b>XVIII. Tribal Cultural Resources.</b>  <i>Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:</i></p>				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	N/A	No	No	Yes
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	N/A	No	No	Yes

**Discussion**

a,b. An evaluation of potential impacts related to tribal cultural resources was not required pursuant to CEQA at the time of preparation of the LRSP REIR and, as a result, impacts to tribal cultural resources were not directly addressed in the previous CEQA analysis. However, as previously discussed in Section V, Cultural Resources, of this Addendum, the LRSP REIR included an evaluation of potential impacts that could occur through development facilitated by buildout of the LRSP area to historical and archaeological resources. The LRSP REIR concluded that with applicable mitigation measures set forth therein, potential impacts would be reduced to a less-than-significant level.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, the Project site does not contain known historical or archaeological resources. In addition, the Project would be subject to Mitigation Measure 4.10.1b, which requires avoidance and preservation measures for potential resources inadvertently discovered during construction activities. Therefore, through implementation of Mitigation Measure 4.10.1b, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource during ground-disturbing activities.

Based on the above, the proposed Project would not result in new significant impacts related to potential impacts to tribal cultural resources listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1 or a resource determined by the lead agency to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1, and a less-than-significant impact would occur.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to tribal cultural resources. The previously required mitigation measures from the LRSP REIR, as presented in Section V, Cultural Resources, of this Addendum, would still be required to be implemented for the proposed Project.

### **Mitigation Measure(s)**

None required.

### Mitigation Measures from the Previous CEQA Documents

None.

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.



Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XIX. Utilities and Service Systems.</b>				
<i>Would the Project:</i>				
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?	LRSP REIR pgs. 4.6-11 to 4.6-49	No	No	No
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	LRSP REIR pgs. 4.6-13 to 4.6-20	No	No	No
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?	LRSP REIR pg. 4.6-35	No	No	No
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?	LRSP REIR pgs. 4.6-41 to 4.6-42	No	No	No
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	LRSP REIR pgs. 4.6-41 to 4.6-42	No	No	No

**Discussion**

- a. The LRSP REIR evaluated the potential for development facilitated by buildout of the LRSP area to require or result in the relocation or construction of new or expanded utilities and service systems facilities under various impact statements. Specific discussions of each utility service, potential impacts associated with each service identified in the LRSP REIR, and the potential impacts that would result from the proposed Project are discussed further below.

## **Water Facilities**

The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP REIR to result in impacts related to the City's domestic water system under Impact 4.61.1 and concluded that a significant impact could occur. As detailed therein, buildout of the LRSP area was projected to result in 7,063 AFY of water demand. The water system for the LRSP area was designed to be generally consistent with the overall SCWA Zone 40 Water Supply Master Plan, which consists of an interconnected grid of facilities that provide treatment, storage, conveyance, and pump stations designed to serve all uses within the Zone 40 service area.<sup>30</sup> Transmission line locations and sizes identified in the Water Supply Master Plan were designed to meet the demand for water generated by all uses in the service area. Figure 4.6.1-4 of the LRSP REIR shows the LRSP water system layout. All water lines would be primarily located in the ROWs of roads constructed as part of the LRSP. In addition, the LRSP REIR anticipated that the plan area would be served by three water treatment facilities (Poppy Ridge, Laguna Ridge, and Big Horn), each consisting of a series of six planned wells. Furthermore, the LRSP REIR concluded that the Zone 40 water system facilities would be capable of providing both domestic and fire flows that meet or exceed flows specified by the California Independent System Operator and the CFD.

As previously discussed in Section X, Hydrology and Water Quality, of this Addendum, the LRSP REIR concluded that Mitigation Measures 4.6.1.1a and 4.6.1.1b would be required to address potential impact. Mitigation Measure 4.6.1.1a requires confirmation that adequate water supplies are available and associated infrastructure facilities would be designed in compliance with the Water Study prepared for the LRSP. Mitigation Measure 4.6.1.1b requires that future LRSP projects incorporate water conservation measures. With implementation of the foregoing mitigation measures, the LRSP concluded that potential impacts related to water supply would be reduced to a less-than-significant level.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, the proposed Project would include new water utility infrastructure that would be sized to accommodate only the proposed residential uses. An existing 12-inch water line is located within the Poppy Ridge Road ROW and an existing 20-inch water line is located within the Big Horn Boulevard ROW (see Figure 8). From the existing water lines, a new 10-inch water line would extend into the Project site within the proposed driveways and internal drive aisles, to which each building would connect through either a two-inch or six-inch water lateral. In addition, each proposed structure would receive fire flow through new six-inch water lines. Finally, as previously discussed, the Project would be subject to Mitigation Measures 4.6.1.1a and 4.6.1.1b.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

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<sup>30</sup> Sacramento County Water Agency. *Zone 40 Water Supply Master Plan*. February 2005.

## **Wastewater Facilities**

The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to result in impacts related to the City's wastewater system under Impact 4.6.2.1 and concluded that the project could result in a significant impact. The City of Elk Grove is provided wastewater collection and treatment services by SASD and the Sacramento Regional County Sanitation District (SRCSD). The SRCSD South Interceptor was anticipated by the LRSP REIR to serve buildout of the LRSP area. Figure 4.6.2-3 of the LRSP REIR illustrates the location of on-site wastewater collection facilities. As shown therein, the LRSP on-site sanitary sewer system consists of a series of laterals that extend into a network of trunk and interceptor sewer lines ranging in size from eight to 33 inches in diameter. The system conveys sanitary sewer flows to the South Interceptor, from which they are ultimately conveyed to the SRCSD Sacramento Regional Wastewater Treatment Plant (SRWTP). While the LRSP REIR determined that long-term impacts would not be substantial provided that future sewers are designed consistent with applicable standards established by the SRCSD, the LRSP REIR includes Mitigation Measure 4.6.2.1 to ensure that such consistency occurs. With implementation of Mitigation Measure 4.6.2.1, the LRSP REIR concluded that a less-than-significant impact would occur.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As previously discussed, the proposed Project would include new wastewater utility infrastructure that would be sized to accommodate only the proposed residential uses. An existing eight-inch sewer line is located within the Big Horn Boulevard ROW (see Figure 9). From the existing line, a new eight-inch sewer line would extend into the Project site from the site's southeast corner within the proposed internal drive aisles. Each building would connect to the new internal sewer line by way of new six-inch sewer laterals. The Project would be subject to the SRCSD Sewer Impact Fee, which is currently \$4,859 for each new multi-family dwelling unit. The revenues generated through payment of the fee are used by the SRCSD to pay for needed upgrades and/or expansions to SRCSD facilities. Therefore, payment of the Sewer Impact Fee would further serve to reduce the proposed Project's potential impacts on the sanitary sewer system. Finally, to ensure new sewer infrastructure installed as part of the Project is designed in compliance with applicable standards, the Project would be subject to Mitigation Measure 4.6.2.1.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the relocation or construction of new or expanded sewer facilities, the construction or relocation of which could cause significant environmental effects beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

## **Stormwater Drainage Facilities**

The LRSP REIR's analysis of potential impacts associated with buildout of the LRSP area to stormwater drainage facilities and impacts that would result from the proposed Project are discussed in Section X, Hydrology and Water Quality, of this Addendum.

## **Gas and Electric Facilities**

The LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to result in impacts related to natural gas and electricity facilities on page 4.6-71 and concluded that a less-than-significant impact would occur. As detailed therein, the LRSP area is within the SMUD service area. Buildout of the LRSP would add approximately 7,826 additional residential customers to the SMUD service area, necessitating approximately 23.7 megawatts (MW) of electricity. SMUD currently generates capacity of approximately 2,386 MW per day. The

residential portion of the LRSP would require less than one percent of the total generating capacity of SMUD at full buildout.

With respect to the proposed Project, electricity would be provided by SMUD through new infrastructure installed underground, in accordance with Elk Grove Municipal Code Section 23.63.020. In addition, natural gas would be provided to the Project by PG&E. All new connections to existing infrastructure within the Project vicinity would be installed underground. As previously discussed, buildout of the proposed Project would result in a net increase of 272 residents, relative to the site's approved LRSP conditions. Such an increase would equate to a 3.5 percent increase in population beyond what was previously anticipated by the LRSP REIR, which would not result in a substantial increase in energy consumption beyond what was previously determined.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the relocation or construction of new or expanded gas and/or electricity facilities, the construction or relocation of which could cause significant environmental effects beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

### **Telecommunications Facilities**

The LRSP REIR assessed the potential for buildout of the LRSP area to result in impacts related to telecommunications facilities on page 4.11-10 and concluded that a less-than-significant impact would occur. The same general telecommunication infrastructure would be required for the proposed Project; thus, the conclusion remains applicable to the proposed Project. Prior to construction, the applicant would coordinate with service providers to identify points of connection to existing telecommunications lines and any needed upgrades to the existing system, which would be designed to occur within existing development areas.

### **Conclusion**

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to requiring or resulting 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 beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- b. As previously discussed, the LRSP REIR assessed the potential for development facilitated by buildout of the LRSP area to result in potential impacts related to an increased demand for water supply under Impact 4.6.1.1. The LRSP REIR concluded that adequate water supplies would be available to serve the demand generated by buildout of the LRSP. Nonetheless, Mitigation Measure 4.6.1.1a requires confirmation that adequate water supplies are available and associated infrastructure facilities would be designed in compliance with the Water Study prepared for the LRSP. In addition, Mitigation Measure 4.6.1.1b requires that future LRSP projects incorporate water conservation measures. With implementation of the foregoing mitigation measures, the LRSP concluded that potential impacts related to water supply would be reduced to a less-than-significant level.

The proposed Project would be developed within the footprint previously analyzed by the LRSP REIR. As discussed, the Project site is located within the SCWA Zone 40 service area. The SCWA 2020 Urban Water Management Plan (UWMP) includes an assessment of water supply that



would be available to serve Zone 40 during normal, dry, and multiple dry years.<sup>31</sup> As detailed in Tables 5-7 and 5-8 of the UWMP, Zone 40 is anticipated to have substantial supply available to serve the demand generated by existing and new development through 2045. The UWMP does not identify a deficit under any scenario. In fact, of all years assessed, the lowest difference between the anticipated supply and demand would be in the third year of five consecutive dry years, which would still result in 29,569 AF of excess supply. Thus, although Parcel I would be developed at a higher density than was previously anticipated by the LRSP REIR, adequate water supply is available to serve the proposed Project, in conjunction with the SCWA's existing commitments.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- c. The LRSP REIR assessed the potential for buildout of the LRSP area to result in a determination by the wastewater treatment provider that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments on page 4.6-35 and concluded that a less-than-significant impact would occur. As detailed therein, each LRSP development would be required, prior to the recording of a Final Map, to ensure that adequate capacity in the receiving trunk sewers and receiving sewerage treatment plant exists to accommodate the effluent generated by the use. Additionally, each project would be required to pay a connection fee used to fund expansions needed to accommodate growth. Assuming each project would construct the necessary improvements consistent with applicable SRCSD standards and pay connection fees to cover the costs for operation of facilities, sewerage infrastructure would be upgraded, as necessary, to accommodate sewage created by the LRSP area and adequate capacity would exist to serve the new development, in conjunction with the SRCSD's existing commitments.

As previously discussed, the proposed Project would be developed within the footprint previously analyzed by the LRSP REIR and would include new wastewater utility infrastructure that would be sized to accommodate only the proposed residential uses. The Project would be subject to the SRCSD Sewer Impact Fee, which is currently \$4,859 for each new multi-family dwelling unit. The revenues generated through payment of the fee would fund needed upgrades and/or expansions to SRCSD facilities. Therefore, payment of the Sewer Impact Fee would further serve to reduce the proposed Project's potential impacts on the wastewater treatment facilities. Finally, to ensure new sewer infrastructure installed as part of the Project is designed in compliance with applicable standards, the Project would be subject to Mitigation Measure 4.6.2.1.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to 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 beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

- d,e. The LRSP REIR evaluated if development facilitated by buildout of the LRSP area would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs or fail to comply with federal, State, and local statutes and regulations related to

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31 Sacramento County Water Agency. 2020 Urban Water Management Plan. April 2021.

solid waste starting on page 4.6-41 and concluded that a less-than-significant impact would occur. As discussed therein, the LRSP REIR found that the Kiefer Road Landfill, which would serve the LRSP area, has capacity to accept all construction waste generated by LRSP projects, as well as cumulative development within the watershed. With respect to operation of LRSP developments, the LRSP REIR determined that the LRSP at buildout would result in a maximum increase over the current (at the time) intake at the Kiefer Road Landfill of 0.8 percent. As such, the Kiefer Road Landfill would have sufficient capacity to accommodate waste generated during operation of LRSP developments.

With respect to the proposed Project, according to the California Department of Resources Recycling and Recovery (CalRecycle), the Kiefer Road Landfill currently has a remaining capacity of 112,900,000 cubic yards and an anticipated cease operations date of 2064.<sup>32</sup> As such, sufficient capacity exists at the landfill to accommodate waste generated by the proposed Project. In addition, the Project would be required to comply with all applicable solid waste regulations, including Title 30, Solid Waste Management, of the Elk Grove Municipal Code, as well as Chapter 30.90, the City's Space Allocation and Enclosure Design Guidelines for Trash and Recycling. Section 30.10.140 requires all residents within the City of Elk Grove to transport and deliver all solid waste only at sites or facilities that are allowed to accept that solid waste under solid waste law, such as permitted transfer stations, landfills, materials recovery facilities, composting facilities, and recyclables buy-back centers. Chapter 30.90 also requires applicants to develop and submit an integrated waste management plan as part of the land use permit process. The plan must demonstrate steps the applicant would take to meet the State mandate to reduce or divert 65 percent of the waste generated by all residences and businesses in the City. Therefore, the Project would comply with applicable federal, State, and local management and reduction statutes and regulations related to solid waste.

Based on the above, the proposed Project would not result in new significant impacts or substantially more severe significant impacts related to the generation of solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure; the impairment or attainment of solid waste reduction goals; or compliance with federal, State, and local management and reduction statutes and regulations related to solid waste beyond what were previously identified in the LRSP REIR. Therefore, the proposed Project would be consistent with the conclusions of the LRSP REIR.

## **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to utilities and service systems.

## **Mitigation Measure(s)**

The mitigation measures from the LRSP REIR applicable to the proposed Project are presented below.

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<sup>32</sup> California Department of Resources Recycling and Recovery. *SWIS Facility/Site Activity Details, Sacramento County Landfill (Kiefer) (34-AA-0001)*. Available at: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/2070?siteID=2507>. Accessed May 2023.

### Mitigation Measures from the Previous CEQA Documents

- 4.6.1.1a *Prior to each tentative subdivision and/or parcel map approval, the project applicant shall submit to the City, information documenting adequate availability of water supplies and associated infrastructure facilities for the proposed development consistent with facilities and phasing set forth in the Laguna Ridge Specific Plan Water Study (Wood-Rogers, 2003). Subsequent project applications shall not be approved by the City until proof has been provided that water supplies are available and approval from SCWA has been received.*
- 4.6.1.1b *As a condition of subsequent development applications, uses constructed on the property shall incorporate into the building plans water conservation measures including drought tolerant landscaping with low fuel potential, lowflow toilets, urinals, shower heads, lavatory faucets, and sink faucets, as well as insulation to reduce water used before hot water reaches equipment or fixtures.*
- 4.6.2.1 *Prior to each tentative subdivision or parcel map, the project applicant shall be required to demonstrate that the permanent sewer system, consistent with the Preliminary Sewer Master Plan for the Laguna Ridge Specific Plan (Wood-Rodgers, 2002) adequately serves the subsequent project. This demonstration may take the form of plans and/or reports, which shall be reviewed and approved by the City consistent with the Specific Plan infrastructure phasing provisions. The project applicant shall also pay the required sewer connection and capacity fees that are used to fund expansion of trunk and interceptor facilities.*

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

Environmental Issue Area	Where Impact Was Analyzed in Previous CEQA Documents?	Do Proposed Changes Involve New or More Severe Impacts?	Any New Circumstances Involving New or More Severe Impacts?	Any New Information Requiring New Analysis or Verification?
<b>XX. Wildfire.</b>				
<i>If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:</i>				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	N/A	No	No	Yes
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?	N/A	No	No	Yes
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?	N/A	No	No	Yes
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?	N/A	No	No	Yes

**Discussion**

a-d. An evaluation of potential impacts related to wildfire was not required pursuant to CEQA at the time of preparation of the LRSP REIR and, as a result, impacts to wildfire were not directly addressed in the previous CEQA analysis. However, as discussed under question ‘g’ of Section IX, Hazards and Hazardous Materials, of this Addendum, according to the CAL FIRE Fire and Resource Assessment Program, the City of Elk Grove is located within a LRA and is not designated as being within a Very High FHSZ.<sup>33</sup> Pursuant to Appendix G of the CEQA Guidelines, the determination of significant impacts related to wildfire is only relevant if a project would be located in or near a SRA or lands classified as Very High FHSZs. Furthermore, all structures constructed as part of the currently proposed Project would be built in accordance with the provisions set forth by the California Fire Code, as adopted by Elk Grove Municipal Code Section 17.04.010, which includes requirements, for automatic sprinkler systems in new buildings.

<sup>33</sup> California Department of Forestry and Fire Protection. *FHSZ Viewer*. Available at: <https://egis.fire.ca.gov/FHSZ/>. Accessed May 2023.



Based on the above, the proposed Project would not expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands, and a less-than-significant impact would occur.

### **Overall Conclusion**

Based on the above, the proposed Project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe significant impacts from what had been anticipated for the Project site in the LRSP REIR related to wildfire.

### **Mitigation Measure(s)**

None required.

### Mitigation Measures from the Previous CEQA Documents

None.

### Modified Mitigation Measures

None required.

### Additional Project-Specific Mitigation Measures

None required.

## F. SOURCES

The following documents are referenced information sources used for the purposes of this Addendum:

1. CalEEMod Air Quality Modeling Results. May 2023.
2. California Department of Conservation. *California Important Farmland Finder*. Available at: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed May 2023.
3. California Department of Forestry and Fire Protection. *FHSZ Viewer*. Available at: <https://egis.fire.ca.gov/FHSZ/>. Accessed May 2023.
4. California Department of Resources Recycling and Recovery. *SWIS Facility/Site Activity Details, Sacramento County Landfill (Kiefer) (34-AA-0001)*. Available at: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/2070?siteID=2507>. Accessed May 2023.
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# **APPENDIX A**

## **AIR QUALITY AND GHG MODELING RESULTS**



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Guardian Madeira - Approved Conditions  
Sacramento Metropolitan AQMD Air District, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	5.00	Dwelling Unit	1.11	9,000.00	13
Apartments Mid Rise	236.00	Dwelling Unit	12.20	236,000.00	630

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2026
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	357.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Lot acreage adjusted to be representative of total project site acreage.

Construction Phase - Architectural coating assumed to begin two weeks after the initiation of building construction, and last for the same duration.

Vehicle Trips - Based on project-specific traffic data provided by Fehr & Peers.

Water Mitigation - Compliant with MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	11/14/2025	10/31/2025
tblConstructionPhase	PhaseEndDate	9/19/2025	10/17/2025
tblConstructionPhase	PhaseEndDate	10/17/2025	8/23/2024

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblConstructionPhase	PhaseStartDate	10/18/2025	9/7/2024
tblConstructionPhase	PhaseStartDate	7/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	9/20/2025	7/27/2024
tblLandUse	LotAcreage	1.62	1.11
tblLandUse	LotAcreage	6.21	12.20
tblVehicleTrips	HO_TL	6.50	5.06
tblVehicleTrips	HO_TL	6.50	5.06
tblVehicleTrips	HS_TL	5.00	3.89
tblVehicleTrips	HS_TL	5.00	3.89
tblVehicleTrips	HW_TL	10.00	7.78
tblVehicleTrips	HW_TL	10.00	7.78
tblVehicleTrips	ST_TR	4.91	7.32
tblVehicleTrips	ST_TR	9.54	9.40
tblVehicleTrips	SU_TR	4.09	7.32
tblVehicleTrips	SU_TR	8.55	9.40
tblVehicleTrips	WD_TR	5.44	7.32
tblVehicleTrips	WD_TR	9.44	9.40

**2.0 Emissions Summary**

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Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
2024	0.5935	1.4579	1.7023	3.5400e-003	0.3157	0.0623	0.3779	0.1266	0.0581	0.1846	0.0000	313.9768	313.9768	0.0663	4.7400e-003	317.0484
2025	1.3325	1.5789	2.3459	4.9000e-003	0.1744	0.0619	0.2364	0.0468	0.0586	0.1053	0.0000	438.2816	438.2816	0.0627	0.0103	442.9074
<b>Maximum</b>	<b>1.3325</b>	<b>1.5789</b>	<b>2.3459</b>	<b>4.9000e-003</b>	<b>0.3157</b>	<b>0.0623</b>	<b>0.3779</b>	<b>0.1266</b>	<b>0.0586</b>	<b>0.1846</b>	<b>0.0000</b>	<b>438.2816</b>	<b>438.2816</b>	<b>0.0663</b>	<b>0.0103</b>	<b>442.9074</b>

**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					
2024	0.5935	1.4579	1.7023	3.5400e-003	0.3157	0.0623	0.3779	0.1266	0.0581	0.1846	0.0000	313.9765	313.9765	0.0663	4.7400e-003	317.0481
2025	1.3325	1.5789	2.3459	4.9000e-003	0.1744	0.0619	0.2364	0.0468	0.0586	0.1053	0.0000	438.2813	438.2813	0.0627	0.0103	442.9071
<b>Maximum</b>	<b>1.3325</b>	<b>1.5789</b>	<b>2.3459</b>	<b>4.9000e-003</b>	<b>0.3157</b>	<b>0.0623</b>	<b>0.3779</b>	<b>0.1266</b>	<b>0.0586</b>	<b>0.1846</b>	<b>0.0000</b>	<b>438.2813</b>	<b>438.2813</b>	<b>0.0663</b>	<b>0.0103</b>	<b>442.9071</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	6-3-2024	9-2-2024	0.8298	0.8298
2	9-3-2024	12-2-2024	0.9176	0.9176
3	12-3-2024	3-2-2025	0.8975	0.8975
4	3-3-2025	6-2-2025	0.9023	0.9023
5	6-3-2025	9-2-2025	0.9015	0.9015
6	9-3-2025	9-30-2025	0.2744	0.2744
		Highest	0.9176	0.9176



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1847	0.0286	2.4830	1.3000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	4.0598	4.0598	3.8900e-003	0.0000	4.1570
Energy	0.0126	0.1079	0.0459	6.9000e-004		8.7200e-003	8.7200e-003		8.7200e-003	8.7200e-003	0.0000	280.5303	280.5303	0.0167	4.0300e-003	282.1494
Mobile	0.7142	0.8239	6.0255	0.0120	1.3131	9.5800e-003	1.3226	0.3510	8.9500e-003	0.3599	0.0000	1,147.7894	1,147.7894	0.0833	0.0587	1,167.3526
Waste						0.0000	0.0000		0.0000	0.0000	22.9867	0.0000	22.9867	1.3585	0.0000	56.9486
Water						0.0000	0.0000		0.0000	0.0000	5.5554	18.3298	23.8853	0.0208	0.0123	28.0668
<b>Total</b>	<b>1.9116</b>	<b>0.9604</b>	<b>8.5543</b>	<b>0.0128</b>	<b>1.3131</b>	<b>0.0321</b>	<b>1.3451</b>	<b>0.3510</b>	<b>0.0315</b>	<b>0.3824</b>	<b>28.5421</b>	<b>1,450.7093</b>	<b>1,479.2514</b>	<b>1.4832</b>	<b>0.0750</b>	<b>1,538.6744</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1847	0.0286	2.4830	1.3000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	4.0598	4.0598	3.8900e-003	0.0000	4.1570
Energy	0.0126	0.1079	0.0459	6.9000e-004		8.7200e-003	8.7200e-003		8.7200e-003	8.7200e-003	0.0000	280.5303	280.5303	0.0167	4.0300e-003	282.1494
Mobile	0.7142	0.8239	6.0255	0.0120	1.3131	9.5800e-003	1.3226	0.3510	8.9500e-003	0.3599	0.0000	1,147.7894	1,147.7894	0.0833	0.0587	1,167.3526
Waste						0.0000	0.0000		0.0000	0.0000	22.9867	0.0000	22.9867	1.3585	0.0000	56.9486
Water						0.0000	0.0000		0.0000	0.0000	5.5554	17.2047	22.7601	0.0207	0.0123	26.9353
<b>Total</b>	<b>1.9116</b>	<b>0.9604</b>	<b>8.5543</b>	<b>0.0128</b>	<b>1.3131</b>	<b>0.0321</b>	<b>1.3451</b>	<b>0.3510</b>	<b>0.0315</b>	<b>0.3824</b>	<b>28.5421</b>	<b>1,449.5841</b>	<b>1,478.1263</b>	<b>1.4831</b>	<b>0.0750</b>	<b>1,537.5429</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.08</b>	<b>0.08</b>	<b>0.01</b>	<b>0.03</b>	<b>0.07</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2024	6/14/2024	5	10	
2	Grading	Grading	6/15/2024	7/26/2024	5	30	
3	Paving	Paving	7/27/2024	8/23/2024	5	20	

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

4	Building Construction	Building Construction	8/24/2024	10/17/2025	5	300
5	Architectural Coating	Architectural Coating	9/7/2024	10/31/2025	5	300

**Acres of Grading (Site Preparation Phase): 15**

**Acres of Grading (Grading Phase): 90**

**Acres of Paving: 0**

**Residential Indoor: 496,125; Residential Outdoor: 165,375; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

**Trips and VMT**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	26.00	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	34.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

**3.2 Site Preparation - 2024**

**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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1359	0.0917	1.9000e-004		6.1500e-003	6.1500e-003		5.6600e-003	5.6600e-003	0.0000	16.7285	16.7285	5.4100e-003	0.0000	16.8638
<b>Total</b>	<b>0.0133</b>	<b>0.1359</b>	<b>0.0917</b>	<b>1.9000e-004</b>	<b>0.0983</b>	<b>6.1500e-003</b>	<b>0.1044</b>	<b>0.0505</b>	<b>5.6600e-003</b>	<b>0.0562</b>	<b>0.0000</b>	<b>16.7285</b>	<b>16.7285</b>	<b>5.4100e-003</b>	<b>0.0000</b>	<b>16.8638</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.4000e-004	1.9500e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5170	0.5170	2.0000e-005	1.0000e-005	0.5216
<b>Total</b>	<b>2.4000e-004</b>	<b>1.4000e-004</b>	<b>1.9500e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.6000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5170</b>	<b>0.5170</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>0.5216</b>

**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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1359	0.0917	1.9000e-004		6.1500e-003	6.1500e-003		5.6500e-003	5.6500e-003	0.0000	16.7285	16.7285	5.4100e-003	0.0000	16.8638
<b>Total</b>	<b>0.0133</b>	<b>0.1359</b>	<b>0.0917</b>	<b>1.9000e-004</b>	<b>0.0983</b>	<b>6.1500e-003</b>	<b>0.1044</b>	<b>0.0505</b>	<b>5.6500e-003</b>	<b>0.0562</b>	<b>0.0000</b>	<b>16.7285</b>	<b>16.7285</b>	<b>5.4100e-003</b>	<b>0.0000</b>	<b>16.8638</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.4000e-004	1.9500e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5170	0.5170	2.0000e-005	1.0000e-005	0.5216
<b>Total</b>	<b>2.4000e-004</b>	<b>1.4000e-004</b>	<b>1.9500e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.6000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5170</b>	<b>0.5170</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>0.5216</b>

**3.3 Grading - 2024**

**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					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0483	0.4857	0.4158	9.3000e-004		0.0200	0.0200		0.0184	0.0184	0.0000	81.7793	81.7793	0.0265	0.0000	82.4405
<b>Total</b>	<b>0.0483</b>	<b>0.4857</b>	<b>0.4158</b>	<b>9.3000e-004</b>	<b>0.1381</b>	<b>0.0200</b>	<b>0.1581</b>	<b>0.0548</b>	<b>0.0184</b>	<b>0.0732</b>	<b>0.0000</b>	<b>81.7793</b>	<b>81.7793</b>	<b>0.0265</b>	<b>0.0000</b>	<b>82.4405</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	4.7000e-004	6.5100e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.7234	1.7234	5.0000e-005	5.0000e-005	1.7387
<b>Total</b>	<b>8.0000e-004</b>	<b>4.7000e-004</b>	<b>6.5100e-003</b>	<b>2.0000e-005</b>	<b>2.2000e-003</b>	<b>1.0000e-005</b>	<b>2.2100e-003</b>	<b>5.9000e-004</b>	<b>1.0000e-005</b>	<b>6.0000e-004</b>	<b>0.0000</b>	<b>1.7234</b>	<b>1.7234</b>	<b>5.0000e-005</b>	<b>5.0000e-005</b>	<b>1.7387</b>

**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					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0483	0.4857	0.4158	9.3000e-004		0.0200	0.0200		0.0184	0.0184	0.0000	81.7792	81.7792	0.0265	0.0000	82.4404
<b>Total</b>	<b>0.0483</b>	<b>0.4857</b>	<b>0.4158</b>	<b>9.3000e-004</b>	<b>0.1381</b>	<b>0.0200</b>	<b>0.1581</b>	<b>0.0548</b>	<b>0.0184</b>	<b>0.0732</b>	<b>0.0000</b>	<b>81.7792</b>	<b>81.7792</b>	<b>0.0265</b>	<b>0.0000</b>	<b>82.4404</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	4.7000e-004	6.5100e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.7234	1.7234	5.0000e-005	5.0000e-005	1.7387
<b>Total</b>	<b>8.0000e-004</b>	<b>4.7000e-004</b>	<b>6.5100e-003</b>	<b>2.0000e-005</b>	<b>2.2000e-003</b>	<b>1.0000e-005</b>	<b>2.2100e-003</b>	<b>5.9000e-004</b>	<b>1.0000e-005</b>	<b>6.0000e-004</b>	<b>0.0000</b>	<b>1.7234</b>	<b>1.7234</b>	<b>5.0000e-005</b>	<b>5.0000e-005</b>	<b>1.7387</b>

**3.4 Paving - 2024**

**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	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>9.8800e-003</b>	<b>0.0953</b>	<b>0.1463</b>	<b>2.3000e-004</b>		<b>4.6900e-003</b>	<b>4.6900e-003</b>		<b>4.3100e-003</b>	<b>4.3100e-003</b>	<b>0.0000</b>	<b>20.0265</b>	<b>20.0265</b>	<b>6.4800e-003</b>	<b>0.0000</b>	<b>20.1885</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Paving - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	2.4000e-004	3.2500e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8617	0.8617	3.0000e-005	2.0000e-005	0.8693
<b>Total</b>	<b>4.0000e-004</b>	<b>2.4000e-004</b>	<b>3.2500e-003</b>	<b>1.0000e-005</b>	<b>1.1000e-003</b>	<b>1.0000e-005</b>	<b>1.1100e-003</b>	<b>2.9000e-004</b>	<b>1.0000e-005</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>0.8617</b>	<b>0.8617</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>0.8693</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>9.8800e-003</b>	<b>0.0953</b>	<b>0.1463</b>	<b>2.3000e-004</b>		<b>4.6900e-003</b>	<b>4.6900e-003</b>		<b>4.3100e-003</b>	<b>4.3100e-003</b>	<b>0.0000</b>	<b>20.0265</b>	<b>20.0265</b>	<b>6.4800e-003</b>	<b>0.0000</b>	<b>20.1884</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Paving - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	2.4000e-004	3.2500e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8617	0.8617	3.0000e-005	2.0000e-005	0.8693
<b>Total</b>	<b>4.0000e-004</b>	<b>2.4000e-004</b>	<b>3.2500e-003</b>	<b>1.0000e-005</b>	<b>1.1000e-003</b>	<b>1.0000e-005</b>	<b>1.1100e-003</b>	<b>2.9000e-004</b>	<b>1.0000e-005</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>0.8617</b>	<b>0.8617</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>0.8693</b>

**3.5 Building Construction - 2024**

**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	0.0677	0.6184	0.7437	1.2400e-003		0.0282	0.0282		0.0265	0.0265	0.0000	106.6506	106.6506	0.0252	0.0000	107.2811
<b>Total</b>	<b>0.0677</b>	<b>0.6184</b>	<b>0.7437</b>	<b>1.2400e-003</b>		<b>0.0282</b>	<b>0.0282</b>		<b>0.0265</b>	<b>0.0265</b>	<b>0.0000</b>	<b>106.6506</b>	<b>106.6506</b>	<b>0.0252</b>	<b>0.0000</b>	<b>107.2811</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4900e-003	0.0571	0.0170	2.2000e-004	7.0000e-003	3.1000e-004	7.3100e-003	2.0200e-003	2.9000e-004	2.3200e-003	0.0000	21.7608	21.7608	5.3000e-004	3.2000e-003	22.7278
Worker	0.0212	0.0125	0.1717	4.9000e-004	0.0581	3.0000e-004	0.0584	0.0155	2.7000e-004	0.0157	0.0000	45.4524	45.4524	1.3400e-003	1.2400e-003	45.8550
<b>Total</b>	<b>0.0227</b>	<b>0.0696</b>	<b>0.1887</b>	<b>7.1000e-004</b>	<b>0.0651</b>	<b>6.1000e-004</b>	<b>0.0657</b>	<b>0.0175</b>	<b>5.6000e-004</b>	<b>0.0181</b>	<b>0.0000</b>	<b>67.2132</b>	<b>67.2132</b>	<b>1.8700e-003</b>	<b>4.4400e-003</b>	<b>68.5828</b>

**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	0.0677	0.6184	0.7437	1.2400e-003		0.0282	0.0282		0.0265	0.0265	0.0000	106.6505	106.6505	0.0252	0.0000	107.2810
<b>Total</b>	<b>0.0677</b>	<b>0.6184</b>	<b>0.7437</b>	<b>1.2400e-003</b>		<b>0.0282</b>	<b>0.0282</b>		<b>0.0265</b>	<b>0.0265</b>	<b>0.0000</b>	<b>106.6505</b>	<b>106.6505</b>	<b>0.0252</b>	<b>0.0000</b>	<b>107.2810</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4900e-003	0.0571	0.0170	2.2000e-004	7.0000e-003	3.1000e-004	7.3100e-003	2.0200e-003	2.9000e-004	2.3200e-003	0.0000	21.7608	21.7608	5.3000e-004	3.2000e-003	22.7278
Worker	0.0212	0.0125	0.1717	4.9000e-004	0.0581	3.0000e-004	0.0584	0.0155	2.7000e-004	0.0157	0.0000	45.4524	45.4524	1.3400e-003	1.2400e-003	45.8550
<b>Total</b>	<b>0.0227</b>	<b>0.0696</b>	<b>0.1887</b>	<b>7.1000e-004</b>	<b>0.0651</b>	<b>6.1000e-004</b>	<b>0.0657</b>	<b>0.0175</b>	<b>5.6000e-004</b>	<b>0.0181</b>	<b>0.0000</b>	<b>67.2132</b>	<b>67.2132</b>	<b>1.8700e-003</b>	<b>4.4400e-003</b>	<b>68.5828</b>

**3.5 Building Construction - 2025**

**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	0.1422	1.2969	1.6728	2.8000e-003		0.0549	0.0549		0.0516	0.0516	0.0000	241.1962	241.1962	0.0567	0.0000	242.6137
<b>Total</b>	<b>0.1422</b>	<b>1.2969</b>	<b>1.6728</b>	<b>2.8000e-003</b>		<b>0.0549</b>	<b>0.0549</b>		<b>0.0516</b>	<b>0.0516</b>	<b>0.0000</b>	<b>241.1962</b>	<b>241.1962</b>	<b>0.0567</b>	<b>0.0000</b>	<b>242.6137</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2025**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2500e-003	0.1266	0.0376	4.9000e-004	0.0158	6.8000e-004	0.0165	4.5700e-003	6.5000e-004	5.2200e-003	0.0000	48.2031	48.2031	1.1800e-003	7.1000e-003	50.3488
Worker	0.0451	0.0254	0.3631	1.0600e-003	0.1314	6.4000e-004	0.1320	0.0349	5.9000e-004	0.0355	0.0000	100.2767	100.2767	2.7500e-003	2.6200e-003	101.1256
<b>Total</b>	<b>0.0483</b>	<b>0.1519</b>	<b>0.4007</b>	<b>1.5500e-003</b>	<b>0.1472</b>	<b>1.3200e-003</b>	<b>0.1485</b>	<b>0.0395</b>	<b>1.2400e-003</b>	<b>0.0408</b>	<b>0.0000</b>	<b>148.4798</b>	<b>148.4798</b>	<b>3.9300e-003</b>	<b>9.7200e-003</b>	<b>151.4744</b>

**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	0.1422	1.2969	1.6728	2.8000e-003		0.0549	0.0549		0.0516	0.0516	0.0000	241.1959	241.1959	0.0567	0.0000	242.6134
<b>Total</b>	<b>0.1422</b>	<b>1.2969</b>	<b>1.6728</b>	<b>2.8000e-003</b>		<b>0.0549</b>	<b>0.0549</b>		<b>0.0516</b>	<b>0.0516</b>	<b>0.0000</b>	<b>241.1959</b>	<b>241.1959</b>	<b>0.0567</b>	<b>0.0000</b>	<b>242.6134</b>

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**3.5 Building Construction - 2025**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2500e-003	0.1266	0.0376	4.9000e-004	0.0158	6.8000e-004	0.0165	4.5700e-003	6.5000e-004	5.2200e-003	0.0000	48.2031	48.2031	1.1800e-003	7.1000e-003	50.3488
Worker	0.0451	0.0254	0.3631	1.0600e-003	0.1314	6.4000e-004	0.1320	0.0349	5.9000e-004	0.0355	0.0000	100.2767	100.2767	2.7500e-003	2.6200e-003	101.1256
<b>Total</b>	<b>0.0483</b>	<b>0.1519</b>	<b>0.4007</b>	<b>1.5500e-003</b>	<b>0.1472</b>	<b>1.3200e-003</b>	<b>0.1485</b>	<b>0.0395</b>	<b>1.2400e-003</b>	<b>0.0408</b>	<b>0.0000</b>	<b>148.4798</b>	<b>148.4798</b>	<b>3.9300e-003</b>	<b>9.7200e-003</b>	<b>151.4744</b>

**3.6 Architectural Coating - 2024**

**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	0.4190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.4100e-003	0.0500	0.0742	1.2000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	10.4683	10.4683	5.9000e-004	0.0000	10.4831
<b>Total</b>	<b>0.4264</b>	<b>0.0500</b>	<b>0.0742</b>	<b>1.2000e-004</b>		<b>2.5000e-003</b>	<b>2.5000e-003</b>		<b>2.5000e-003</b>	<b>2.5000e-003</b>	<b>0.0000</b>	<b>10.4683</b>	<b>10.4683</b>	<b>5.9000e-004</b>	<b>0.0000</b>	<b>10.4831</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	3.7400e-003	2.2000e-003	0.0303	9.0000e-005	0.0102	5.0000e-005	0.0103	2.7200e-003	5.0000e-005	2.7700e-003	0.0000	8.0082	8.0082	2.4000e-004	2.2000e-004	8.0791
<b>Total</b>	<b>3.7400e-003</b>	<b>2.2000e-003</b>	<b>0.0303</b>	<b>9.0000e-005</b>	<b>0.0102</b>	<b>5.0000e-005</b>	<b>0.0103</b>	<b>2.7200e-003</b>	<b>5.0000e-005</b>	<b>2.7700e-003</b>	<b>0.0000</b>	<b>8.0082</b>	<b>8.0082</b>	<b>2.4000e-004</b>	<b>2.2000e-004</b>	<b>8.0791</b>

**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	0.4190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.4100e-003	0.0500	0.0742	1.2000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	10.4683	10.4683	5.9000e-004	0.0000	10.4831
<b>Total</b>	<b>0.4264</b>	<b>0.0500</b>	<b>0.0742</b>	<b>1.2000e-004</b>		<b>2.5000e-003</b>	<b>2.5000e-003</b>		<b>2.5000e-003</b>	<b>2.5000e-003</b>	<b>0.0000</b>	<b>10.4683</b>	<b>10.4683</b>	<b>5.9000e-004</b>	<b>0.0000</b>	<b>10.4831</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	3.7400e-003	2.2000e-003	0.0303	9.0000e-005	0.0102	5.0000e-005	0.0103	2.7200e-003	5.0000e-005	2.7700e-003	0.0000	8.0082	8.0082	2.4000e-004	2.2000e-004	8.0791
<b>Total</b>	<b>3.7400e-003</b>	<b>2.2000e-003</b>	<b>0.0303</b>	<b>9.0000e-005</b>	<b>0.0102</b>	<b>5.0000e-005</b>	<b>0.0103</b>	<b>2.7200e-003</b>	<b>5.0000e-005</b>	<b>2.7700e-003</b>	<b>0.0000</b>	<b>8.0082</b>	<b>8.0082</b>	<b>2.4000e-004</b>	<b>2.2000e-004</b>	<b>8.0791</b>

**3.6 Architectural Coating - 2025**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1140					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1249	0.1972	3.2000e-004		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	27.8305	27.8305	1.5200e-003	0.0000	27.8684
<b>Total</b>	<b>1.1326</b>	<b>0.1249</b>	<b>0.1972</b>	<b>3.2000e-004</b>		<b>5.6100e-003</b>	<b>5.6100e-003</b>		<b>5.6100e-003</b>	<b>5.6100e-003</b>	<b>0.0000</b>	<b>27.8305</b>	<b>27.8305</b>	<b>1.5200e-003</b>	<b>0.0000</b>	<b>27.8684</b>

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**3.6 Architectural Coating - 2025**

**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	9.3300e-003	5.2500e-003	0.0752	2.2000e-004	0.0272	1.3000e-004	0.0274	7.2400e-003	1.2000e-004	7.3600e-003	0.0000	20.7751	20.7751	5.7000e-004	5.4000e-004	20.9510
<b>Total</b>	<b>9.3300e-003</b>	<b>5.2500e-003</b>	<b>0.0752</b>	<b>2.2000e-004</b>	<b>0.0272</b>	<b>1.3000e-004</b>	<b>0.0274</b>	<b>7.2400e-003</b>	<b>1.2000e-004</b>	<b>7.3600e-003</b>	<b>0.0000</b>	<b>20.7751</b>	<b>20.7751</b>	<b>5.7000e-004</b>	<b>5.4000e-004</b>	<b>20.9510</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1140					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1249	0.1972	3.2000e-004		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	27.8304	27.8304	1.5200e-003	0.0000	27.8684
<b>Total</b>	<b>1.1326</b>	<b>0.1249</b>	<b>0.1972</b>	<b>3.2000e-004</b>		<b>5.6100e-003</b>	<b>5.6100e-003</b>		<b>5.6100e-003</b>	<b>5.6100e-003</b>	<b>0.0000</b>	<b>27.8304</b>	<b>27.8304</b>	<b>1.5200e-003</b>	<b>0.0000</b>	<b>27.8684</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	9.3300e-003	5.2500e-003	0.0752	2.2000e-004	0.0272	1.3000e-004	0.0274	7.2400e-003	1.2000e-004	7.3600e-003	0.0000	20.7751	20.7751	5.7000e-004	5.4000e-004	20.9510
<b>Total</b>	<b>9.3300e-003</b>	<b>5.2500e-003</b>	<b>0.0752</b>	<b>2.2000e-004</b>	<b>0.0272</b>	<b>1.3000e-004</b>	<b>0.0274</b>	<b>7.2400e-003</b>	<b>1.2000e-004</b>	<b>7.3600e-003</b>	<b>0.0000</b>	<b>20.7751</b>	<b>20.7751</b>	<b>5.7000e-004</b>	<b>5.4000e-004</b>	<b>20.9510</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive 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	0.7142	0.8239	6.0255	0.0120	1.3131	9.5800e-003	1.3226	0.3510	8.9500e-003	0.3599	0.0000	1,147.7894	1,147.7894	0.0833	0.0587	1,167.3526
Unmitigated	0.7142	0.8239	6.0255	0.0120	1.3131	9.5800e-003	1.3226	0.3510	8.9500e-003	0.3599	0.0000	1,147.7894	1,147.7894	0.0833	0.0587	1,167.3526

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,727.52	1,727.52	1727.52	3,449,983	3,449,983
Single Family Housing	47.00	47.00	47.00	93,862	93,862
<b>Total</b>	<b>1,774.52</b>	<b>1,774.52</b>	<b>1,774.52</b>	<b>3,543,845</b>	<b>3,543,845</b>

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	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 Mid Rise	7.78	3.89	5.06	46.50	12.50	41.00	86	11	3
Single Family Housing	7.78	3.89	5.06	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 Mid Rise	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071
Single Family Housing	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071

**5.0 Energy Detail**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

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	155.6310	155.6310	0.0144	1.7400e-003	156.5079
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	155.6310	155.6310	0.0144	1.7400e-003	156.5079
NaturalGas Mitigated	0.0126	0.1079	0.0459	6.9000e-004		8.7200e-003	8.7200e-003		8.7200e-003	8.7200e-003	0.0000	124.8993	124.8993	2.3900e-003	2.2900e-003	125.6415
NaturalGas Unmitigated	0.0126	0.1079	0.0459	6.9000e-004		8.7200e-003	8.7200e-003		8.7200e-003	8.7200e-003	0.0000	124.8993	124.8993	2.3900e-003	2.2900e-003	125.6415

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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 Mid Rise	2.22223e+006	0.0120	0.1024	0.0436	6.5000e-004		8.2800e-003	8.2800e-003		8.2800e-003	8.2800e-003	0.0000	118.5867	118.5867	2.2700e-003	2.1700e-003	119.2914
Single Family Housing	118294	6.4000e-004	5.4500e-003	2.3200e-003	3.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004	0.0000	6.3126	6.3126	1.2000e-004	1.2000e-004	6.3501
<b>Total</b>		<b>0.0126</b>	<b>0.1079</b>	<b>0.0459</b>	<b>6.8000e-004</b>		<b>8.7200e-003</b>	<b>8.7200e-003</b>		<b>8.7200e-003</b>	<b>8.7200e-003</b>	<b>0.0000</b>	<b>124.8993</b>	<b>124.8993</b>	<b>2.3900e-003</b>	<b>2.2900e-003</b>	<b>125.6415</b>

**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 Mid Rise	2.22223e+006	0.0120	0.1024	0.0436	6.5000e-004		8.2800e-003	8.2800e-003		8.2800e-003	8.2800e-003	0.0000	118.5867	118.5867	2.2700e-003	2.1700e-003	119.2914
Single Family Housing	118294	6.4000e-004	5.4500e-003	2.3200e-003	3.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004	0.0000	6.3126	6.3126	1.2000e-004	1.2000e-004	6.3501
<b>Total</b>		<b>0.0126</b>	<b>0.1079</b>	<b>0.0459</b>	<b>6.8000e-004</b>		<b>8.7200e-003</b>	<b>8.7200e-003</b>		<b>8.7200e-003</b>	<b>8.7200e-003</b>	<b>0.0000</b>	<b>124.8993</b>	<b>124.8993</b>	<b>2.3900e-003</b>	<b>2.2900e-003</b>	<b>125.6415</b>

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**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	918918	149.2111	0.0138	1.6700e-003	150.0519
Single Family Housing	39537	6.4199	5.9000e-004	7.0000e-005	6.4561
<b>Total</b>		<b>155.6310</b>	<b>0.0143</b>	<b>1.7400e-003</b>	<b>156.5079</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	918918	149.2111	0.0138	1.6700e-003	150.0519
Single Family Housing	39537	6.4199	5.9000e-004	7.0000e-005	6.4561
<b>Total</b>		<b>155.6310</b>	<b>0.0143</b>	<b>1.7400e-003</b>	<b>156.5079</b>

**6.0 Area Detail**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	1.1847	0.0286	2.4830	1.3000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	4.0598	4.0598	3.8900e-003	0.0000	4.1570
Unmitigated	1.1847	0.0286	2.4830	1.3000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	4.0598	4.0598	3.8900e-003	0.0000	4.1570

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1533					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9569					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	0.0746	0.0286	2.4830	1.3000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	4.0598	4.0598	3.8900e-003	0.0000	4.1570
<b>Total</b>	<b>1.1847</b>	<b>0.0286</b>	<b>2.4830</b>	<b>1.3000e-004</b>		<b>0.0138</b>	<b>0.0138</b>		<b>0.0138</b>	<b>0.0138</b>	<b>0.0000</b>	<b>4.0598</b>	<b>4.0598</b>	<b>3.8900e-003</b>	<b>0.0000</b>	<b>4.1570</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1533					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9569					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	0.0746	0.0286	2.4830	1.3000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	4.0598	4.0598	3.8900e-003	0.0000	4.1570
<b>Total</b>	<b>1.1847</b>	<b>0.0286</b>	<b>2.4830</b>	<b>1.3000e-004</b>		<b>0.0138</b>	<b>0.0138</b>		<b>0.0138</b>	<b>0.0138</b>	<b>0.0000</b>	<b>4.0598</b>	<b>4.0598</b>	<b>3.8900e-003</b>	<b>0.0000</b>	<b>4.1570</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

Apply Water Conservation Strategy

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	22.7601	0.0207	0.0123	26.9353
Unmitigated	23.8853	0.0208	0.0123	28.0668

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	15.3764 / 9.69379	23.3897	0.0204	0.0120	27.4845
Single Family Housing	0.32577 / 0.205377	0.4956	4.3000e-004	2.5000e-004	0.5823
<b>Total</b>		<b>23.8853</b>	<b>0.0208</b>	<b>0.0123</b>	<b>28.0668</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**7.2 Water by Land Use**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	15.3764 / 7.75503	22.2879	0.0203	0.0120	26.3765
Single Family Housing	0.32577 / 0.164301	0.4722	4.3000e-004	2.5000e-004	0.5588
<b>Total</b>		<b>22.7601</b>	<b>0.0207</b>	<b>0.0123</b>	<b>26.9353</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	22.9867	1.3585	0.0000	56.9486
Unmitigated	22.9867	1.3585	0.0000	56.9486



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	108.56	22.0367	1.3023	0.0000	54.5950
Single Family Housing	4.68	0.9500	0.0561	0.0000	2.3536
<b>Total</b>		<b>22.9867</b>	<b>1.3585</b>	<b>0.0000</b>	<b>56.9486</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	108.56	22.0367	1.3023	0.0000	54.5950
Single Family Housing	4.68	0.9500	0.0561	0.0000	2.3536
<b>Total</b>		<b>22.9867</b>	<b>1.3585</b>	<b>0.0000</b>	<b>56.9486</b>

**9.0 Operational Offroad**

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Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Guardian Madeira - Approved Conditions  
Sacramento Metropolitan AQMD Air District, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	5.00	Dwelling Unit	1.11	9,000.00	13
Apartments Mid Rise	236.00	Dwelling Unit	12.20	236,000.00	630

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2026
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	357.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Lot acreage adjusted to be representative of total project site acreage.

Construction Phase - Architectural coating assumed to begin two weeks after the initiation of building construction, and last for the same duration.

Vehicle Trips - Based on project-specific traffic data provided by Fehr & Peers.

Water Mitigation - Compliant with MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	11/14/2025	10/31/2025
tblConstructionPhase	PhaseEndDate	9/19/2025	10/17/2025
tblConstructionPhase	PhaseEndDate	10/17/2025	8/23/2024

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblConstructionPhase	PhaseStartDate	10/18/2025	9/7/2024
tblConstructionPhase	PhaseStartDate	7/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	9/20/2025	7/27/2024
tblLandUse	LotAcreage	1.62	1.11
tblLandUse	LotAcreage	6.21	12.20
tblVehicleTrips	HO_TL	6.50	5.06
tblVehicleTrips	HO_TL	6.50	5.06
tblVehicleTrips	HS_TL	5.00	3.89
tblVehicleTrips	HS_TL	5.00	3.89
tblVehicleTrips	HW_TL	10.00	7.78
tblVehicleTrips	HW_TL	10.00	7.78
tblVehicleTrips	ST_TR	4.91	7.32
tblVehicleTrips	ST_TR	9.54	9.40
tblVehicleTrips	SU_TR	4.09	7.32
tblVehicleTrips	SU_TR	8.55	9.40
tblVehicleTrips	WD_TR	5.44	7.32
tblVehicleTrips	WD_TR	9.44	9.40

**2.0 Emissions Summary**

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Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
2024	12.5542	32.4058	28.2288	0.0634	19.7939	1.3362	21.0240	10.1388	1.2293	11.2704	0.0000	6,148.499 2	6,148.499 2	1.9472	0.1101	6,198.148 3
2025	12.3992	15.0379	23.1132	0.0481	1.7237	0.5929	2.3166	0.4608	0.5607	1.0215	0.0000	4,742.878 4	4,742.878 4	0.6617	0.1065	4,791.158 2
<b>Maximum</b>	<b>12.5542</b>	<b>32.4058</b>	<b>28.2288</b>	<b>0.0634</b>	<b>19.7939</b>	<b>1.3362</b>	<b>21.0240</b>	<b>10.1388</b>	<b>1.2293</b>	<b>11.2704</b>	<b>0.0000</b>	<b>6,148.499 2</b>	<b>6,148.499 2</b>	<b>1.9472</b>	<b>0.1101</b>	<b>6,198.148 3</b>

**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					
2024	12.5542	32.4058	28.2288	0.0634	19.7939	1.3362	21.0240	10.1388	1.2293	11.2704	0.0000	6,148.499 2	6,148.499 2	1.9472	0.1101	6,198.148 3
2025	12.3992	15.0379	23.1132	0.0481	1.7237	0.5929	2.3166	0.4608	0.5607	1.0215	0.0000	4,742.878 4	4,742.878 4	0.6617	0.1065	4,791.158 2
<b>Maximum</b>	<b>12.5542</b>	<b>32.4058</b>	<b>28.2288</b>	<b>0.0634</b>	<b>19.7939</b>	<b>1.3362</b>	<b>21.0240</b>	<b>10.1388</b>	<b>1.2293</b>	<b>11.2704</b>	<b>0.0000</b>	<b>6,148.499 2</b>	<b>6,148.499 2</b>	<b>1.9472</b>	<b>0.1101</b>	<b>6,198.148 3</b>





Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	6.6794	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102	0.0000	35.8011	35.8011	0.0343	0.0000	36.6582
Energy	0.0692	0.5910	0.2515	3.7700e-003		0.0478	0.0478		0.0478	0.0478		754.3995	754.3995	0.0145	0.0138	758.8825
Mobile	4.9462	4.1773	35.1186	0.0709	7.4703	0.0527	7.5229	1.9912	0.0492	2.0404		7,463.1103	7,463.1103	0.4767	0.3413	7,576.7314
<b>Total</b>	<b>11.6948</b>	<b>4.9970</b>	<b>55.2340</b>	<b>0.0758</b>	<b>7.4703</b>	<b>0.2107</b>	<b>7.6809</b>	<b>1.9912</b>	<b>0.2072</b>	<b>2.1984</b>	<b>0.0000</b>	<b>8,253.3109</b>	<b>8,253.3109</b>	<b>0.5254</b>	<b>0.3551</b>	<b>8,372.2721</b>

**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	6.6794	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102	0.0000	35.8011	35.8011	0.0343	0.0000	36.6582
Energy	0.0692	0.5910	0.2515	3.7700e-003		0.0478	0.0478		0.0478	0.0478		754.3995	754.3995	0.0145	0.0138	758.8825
Mobile	4.9462	4.1773	35.1186	0.0709	7.4703	0.0527	7.5229	1.9912	0.0492	2.0404		7,463.1103	7,463.1103	0.4767	0.3413	7,576.7314
<b>Total</b>	<b>11.6948</b>	<b>4.9970</b>	<b>55.2340</b>	<b>0.0758</b>	<b>7.4703</b>	<b>0.2107</b>	<b>7.6809</b>	<b>1.9912</b>	<b>0.2072</b>	<b>2.1984</b>	<b>0.0000</b>	<b>8,253.3109</b>	<b>8,253.3109</b>	<b>0.5254</b>	<b>0.3551</b>	<b>8,372.2721</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	Site Preparation	Site Preparation	6/3/2024	6/14/2024	5	10	
2	Grading	Grading	6/15/2024	7/26/2024	5	30	
3	Paving	Paving	7/27/2024	8/23/2024	5	20	
4	Building Construction	Building Construction	8/24/2024	10/17/2025	5	300	
5	Architectural Coating	Architectural Coating	9/7/2024	10/31/2025	5	300	

**Acres of Grading (Site Preparation Phase): 15**

**Acres of Grading (Grading Phase): 90**

**Acres of Paving: 0**

**Residential Indoor: 496,125; Residential Outdoor: 165,375; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	26.00	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	34.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**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					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310		3,688.0100	3,688.0100	1.1928		3,717.8294
<b>Total</b>	<b>2.6609</b>	<b>27.1760</b>	<b>18.3356</b>	<b>0.0381</b>	<b>19.6570</b>	<b>1.2294</b>	<b>20.8864</b>	<b>10.1025</b>	<b>1.1310</b>	<b>11.2335</b>		<b>3,688.0100</b>	<b>3,688.0100</b>	<b>1.1928</b>		<b>3,717.8294</b>

**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	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
Worker	0.0567	0.0260	0.4554	1.2100e-003	0.1369	6.7000e-004	0.1376	0.0363	6.2000e-004	0.0369		124.8755	124.8755	3.1800e-003	2.9300e-003	125.8270
<b>Total</b>	<b>0.0567</b>	<b>0.0260</b>	<b>0.4554</b>	<b>1.2100e-003</b>	<b>0.1369</b>	<b>6.7000e-004</b>	<b>0.1376</b>	<b>0.0363</b>	<b>6.2000e-004</b>	<b>0.0369</b>		<b>124.8755</b>	<b>124.8755</b>	<b>3.1800e-003</b>	<b>2.9300e-003</b>	<b>125.8270</b>



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**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					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310	0.0000	3,688.010 0	3,688.010 0	1.1928		3,717.829 4
<b>Total</b>	<b>2.6609</b>	<b>27.1760</b>	<b>18.3356</b>	<b>0.0381</b>	<b>19.6570</b>	<b>1.2294</b>	<b>20.8864</b>	<b>10.1025</b>	<b>1.1310</b>	<b>11.2335</b>	<b>0.0000</b>	<b>3,688.010 0</b>	<b>3,688.010 0</b>	<b>1.1928</b>		<b>3,717.829 4</b>

**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	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
Worker	0.0567	0.0260	0.4554	1.2100e-003	0.1369	6.7000e-004	0.1376	0.0363	6.2000e-004	0.0369		124.8755	124.8755	3.1800e-003	2.9300e-003	125.8270
<b>Total</b>	<b>0.0567</b>	<b>0.0260</b>	<b>0.4554</b>	<b>1.2100e-003</b>	<b>0.1369</b>	<b>6.7000e-004</b>	<b>0.1376</b>	<b>0.0363</b>	<b>6.2000e-004</b>	<b>0.0369</b>		<b>124.8755</b>	<b>124.8755</b>	<b>3.1800e-003</b>	<b>2.9300e-003</b>	<b>125.8270</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
<b>Total</b>	<b>3.2181</b>	<b>32.3770</b>	<b>27.7228</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.3354</b>	<b>10.5390</b>	<b>3.6538</b>	<b>1.2286</b>	<b>4.8823</b>		<b>6,009.7487</b>	<b>6,009.7487</b>	<b>1.9437</b>		<b>6,058.3405</b>

**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	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
Worker	0.0630	0.0289	0.5060	1.3500e-003	0.1521	7.5000e-004	0.1529	0.0404	6.9000e-004	0.0410		138.7506	138.7506	3.5300e-003	3.2500e-003	139.8078
<b>Total</b>	<b>0.0630</b>	<b>0.0289</b>	<b>0.5060</b>	<b>1.3500e-003</b>	<b>0.1521</b>	<b>7.5000e-004</b>	<b>0.1529</b>	<b>0.0404</b>	<b>6.9000e-004</b>	<b>0.0410</b>		<b>138.7506</b>	<b>138.7506</b>	<b>3.5300e-003</b>	<b>3.2500e-003</b>	<b>139.8078</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286	0.0000	6,009.7487	6,009.7487	1.9437		6,058.3405
<b>Total</b>	<b>3.2181</b>	<b>32.3770</b>	<b>27.7228</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.3354</b>	<b>10.5390</b>	<b>3.6538</b>	<b>1.2286</b>	<b>4.8823</b>	<b>0.0000</b>	<b>6,009.7487</b>	<b>6,009.7487</b>	<b>1.9437</b>		<b>6,058.3405</b>

**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	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
Worker	0.0630	0.0289	0.5060	1.3500e-003	0.1521	7.5000e-004	0.1529	0.0404	6.9000e-004	0.0410		138.7506	138.7506	3.5300e-003	3.2500e-003	139.8078
<b>Total</b>	<b>0.0630</b>	<b>0.0289</b>	<b>0.5060</b>	<b>1.3500e-003</b>	<b>0.1521</b>	<b>7.5000e-004</b>	<b>0.1529</b>	<b>0.0404</b>	<b>6.9000e-004</b>	<b>0.0410</b>		<b>138.7506</b>	<b>138.7506</b>	<b>3.5300e-003</b>	<b>3.2500e-003</b>	<b>139.8078</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Paving - 2024**

**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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.9882</b>	<b>9.5246</b>	<b>14.6258</b>	<b>0.0228</b>		<b>0.4685</b>	<b>0.4685</b>		<b>0.4310</b>	<b>0.4310</b>		<b>2,207.547 2</b>	<b>2,207.547 2</b>	<b>0.7140</b>		<b>2,225.396 3</b>

**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	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
Worker	0.0472	0.0216	0.3795	1.0100e-003	0.1141	5.6000e-004	0.1147	0.0303	5.2000e-004	0.0308		104.0629	104.0629	2.6500e-003	2.4400e-003	104.8559
<b>Total</b>	<b>0.0472</b>	<b>0.0216</b>	<b>0.3795</b>	<b>1.0100e-003</b>	<b>0.1141</b>	<b>5.6000e-004</b>	<b>0.1147</b>	<b>0.0303</b>	<b>5.2000e-004</b>	<b>0.0308</b>		<b>104.0629</b>	<b>104.0629</b>	<b>2.6500e-003</b>	<b>2.4400e-003</b>	<b>104.8559</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Paving - 2024**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.9882</b>	<b>9.5246</b>	<b>14.6258</b>	<b>0.0228</b>		<b>0.4685</b>	<b>0.4685</b>		<b>0.4310</b>	<b>0.4310</b>	<b>0.0000</b>	<b>2,207.547 2</b>	<b>2,207.547 2</b>	<b>0.7140</b>		<b>2,225.396 3</b>

**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	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
Worker	0.0472	0.0216	0.3795	1.0100e-003	0.1141	5.6000e-004	0.1147	0.0303	5.2000e-004	0.0308		104.0629	104.0629	2.6500e-003	2.4400e-003	104.8559
<b>Total</b>	<b>0.0472</b>	<b>0.0216</b>	<b>0.3795</b>	<b>1.0100e-003</b>	<b>0.1141</b>	<b>5.6000e-004</b>	<b>0.1147</b>	<b>0.0303</b>	<b>5.2000e-004</b>	<b>0.0308</b>		<b>104.0629</b>	<b>104.0629</b>	<b>2.6500e-003</b>	<b>2.4400e-003</b>	<b>104.8559</b>



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2024**

**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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
<b>Total</b>	<b>1.4716</b>	<b>13.4438</b>	<b>16.1668</b>	<b>0.0270</b>		<b>0.6133</b>	<b>0.6133</b>		<b>0.5769</b>	<b>0.5769</b>		<b>2,555.6989</b>	<b>2,555.6989</b>	<b>0.6044</b>		<b>2,570.8077</b>

**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	0.0000
Vendor	0.0333	1.1800	0.3630	4.8600e-003	0.1566	6.6200e-003	0.1633	0.0451	6.3400e-003	0.0514		521.2785	521.2785	0.0128	0.0766	544.4215
Worker	0.5414	0.2481	4.3514	0.0116	1.3084	6.4200e-003	1.3148	0.3471	5.9100e-003	0.3530		1,193.2548	1,193.2548	0.0303	0.0280	1,202.3471
<b>Total</b>	<b>0.5746</b>	<b>1.4281</b>	<b>4.7144</b>	<b>0.0164</b>	<b>1.4650</b>	<b>0.0130</b>	<b>1.4781</b>	<b>0.3922</b>	<b>0.0123</b>	<b>0.4044</b>		<b>1,714.5333</b>	<b>1,714.5333</b>	<b>0.0431</b>	<b>0.1046</b>	<b>1,746.7686</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2024**

**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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
<b>Total</b>	<b>1.4716</b>	<b>13.4438</b>	<b>16.1668</b>	<b>0.0270</b>		<b>0.6133</b>	<b>0.6133</b>		<b>0.5769</b>	<b>0.5769</b>	<b>0.0000</b>	<b>2,555.6989</b>	<b>2,555.6989</b>	<b>0.6044</b>		<b>2,570.8077</b>

**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	0.0000
Vendor	0.0333	1.1800	0.3630	4.8600e-003	0.1566	6.6200e-003	0.1633	0.0451	6.3400e-003	0.0514		521.2785	521.2785	0.0128	0.0766	544.4215
Worker	0.5414	0.2481	4.3514	0.0116	1.3084	6.4200e-003	1.3148	0.3471	5.9100e-003	0.3530		1,193.2548	1,193.2548	0.0303	0.0280	1,202.3471
<b>Total</b>	<b>0.5746</b>	<b>1.4281</b>	<b>4.7144</b>	<b>0.0164</b>	<b>1.4650</b>	<b>0.0130</b>	<b>1.4781</b>	<b>0.3922</b>	<b>0.0123</b>	<b>0.4044</b>		<b>1,714.5333</b>	<b>1,714.5333</b>	<b>0.0431</b>	<b>0.1046</b>	<b>1,746.7686</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2025**

**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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.474 4	2,556.474 4	0.6010		2,571.498 1
<b>Total</b>	<b>1.3674</b>	<b>12.4697</b>	<b>16.0847</b>	<b>0.0270</b>		<b>0.5276</b>	<b>0.5276</b>		<b>0.4963</b>	<b>0.4963</b>		<b>2,556.474 4</b>	<b>2,556.474 4</b>	<b>0.6010</b>		<b>2,571.498 1</b>

**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	0.0000
Vendor	0.0321	1.1560	0.3545	4.7600e-003	0.1566	6.4900e-003	0.1631	0.0451	6.2100e-003	0.0513		510.7083	510.7083	0.0125	0.0752	533.4242
Worker	0.5082	0.2227	4.0620	0.0112	1.3084	6.1400e-003	1.3145	0.3471	5.6500e-003	0.3527		1,164.129 1	1,164.129 1	0.0275	0.0262	1,172.609 3
<b>Total</b>	<b>0.5403</b>	<b>1.3787</b>	<b>4.4165</b>	<b>0.0159</b>	<b>1.4650</b>	<b>0.0126</b>	<b>1.4776</b>	<b>0.3921</b>	<b>0.0119</b>	<b>0.4040</b>		<b>1,674.837 4</b>	<b>1,674.837 4</b>	<b>0.0400</b>	<b>0.1013</b>	<b>1,706.033 5</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2025**

**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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.474 4	2,556.474 4	0.6010		2,571.498 1
<b>Total</b>	<b>1.3674</b>	<b>12.4697</b>	<b>16.0847</b>	<b>0.0270</b>		<b>0.5276</b>	<b>0.5276</b>		<b>0.4963</b>	<b>0.4963</b>	<b>0.0000</b>	<b>2,556.474 4</b>	<b>2,556.474 4</b>	<b>0.6010</b>		<b>2,571.498 1</b>

**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	0.0000
Vendor	0.0321	1.1560	0.3545	4.7600e-003	0.1566	6.4900e-003	0.1631	0.0451	6.2100e-003	0.0513		510.7083	510.7083	0.0125	0.0752	533.4242
Worker	0.5082	0.2227	4.0620	0.0112	1.3084	6.1400e-003	1.3145	0.3471	5.6500e-003	0.3527		1,164.129 1	1,164.129 1	0.0275	0.0262	1,172.609 3
<b>Total</b>	<b>0.5403</b>	<b>1.3787</b>	<b>4.4165</b>	<b>0.0159</b>	<b>1.4650</b>	<b>0.0126</b>	<b>1.4776</b>	<b>0.3921</b>	<b>0.0119</b>	<b>0.4040</b>		<b>1,674.837 4</b>	<b>1,674.837 4</b>	<b>0.0400</b>	<b>0.1013</b>	<b>1,706.033 5</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	10.2202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>10.4009</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

**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	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
Worker	0.1070	0.0490	0.8602	2.2900e-003	0.2586	1.2700e-003	0.2599	0.0686	1.1700e-003	0.0698		235.8760	235.8760	6.0000e-003	5.5300e-003	237.6733
<b>Total</b>	<b>0.1070</b>	<b>0.0490</b>	<b>0.8602</b>	<b>2.2900e-003</b>	<b>0.2586</b>	<b>1.2700e-003</b>	<b>0.2599</b>	<b>0.0686</b>	<b>1.1700e-003</b>	<b>0.0698</b>		<b>235.8760</b>	<b>235.8760</b>	<b>6.0000e-003</b>	<b>5.5300e-003</b>	<b>237.6733</b>



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	10.2202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>10.4009</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

**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	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
Worker	0.1070	0.0490	0.8602	2.2900e-003	0.2586	1.2700e-003	0.2599	0.0686	1.1700e-003	0.0698		235.8760	235.8760	6.0000e-003	5.5300e-003	237.6733
<b>Total</b>	<b>0.1070</b>	<b>0.0490</b>	<b>0.8602</b>	<b>2.2900e-003</b>	<b>0.2586</b>	<b>1.2700e-003</b>	<b>0.2599</b>	<b>0.0686</b>	<b>1.1700e-003</b>	<b>0.0698</b>		<b>235.8760</b>	<b>235.8760</b>	<b>6.0000e-003</b>	<b>5.5300e-003</b>	<b>237.6733</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	10.2202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
<b>Total</b>	<b>10.3910</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.8319</b>

**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	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
Worker	0.1005	0.0440	0.8030	2.2100e-003	0.2586	1.2100e-003	0.2599	0.0686	1.1200e-003	0.0697		230.1185	230.1185	5.4300e-003	5.1700e-003	231.7949
<b>Total</b>	<b>0.1005</b>	<b>0.0440</b>	<b>0.8030</b>	<b>2.2100e-003</b>	<b>0.2586</b>	<b>1.2100e-003</b>	<b>0.2599</b>	<b>0.0686</b>	<b>1.1200e-003</b>	<b>0.0697</b>		<b>230.1185</b>	<b>230.1185</b>	<b>5.4300e-003</b>	<b>5.1700e-003</b>	<b>231.7949</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	10.2202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
<b>Total</b>	<b>10.3910</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.8319</b>

**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	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
Worker	0.1005	0.0440	0.8030	2.2100e-003	0.2586	1.2100e-003	0.2599	0.0686	1.1200e-003	0.0697		230.1185	230.1185	5.4300e-003	5.1700e-003	231.7949
<b>Total</b>	<b>0.1005</b>	<b>0.0440</b>	<b>0.8030</b>	<b>2.2100e-003</b>	<b>0.2586</b>	<b>1.2100e-003</b>	<b>0.2599</b>	<b>0.0686</b>	<b>1.1200e-003</b>	<b>0.0697</b>		<b>230.1185</b>	<b>230.1185</b>	<b>5.4300e-003</b>	<b>5.1700e-003</b>	<b>231.7949</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	4.9462	4.1773	35.1186	0.0709	7.4703	0.0527	7.5229	1.9912	0.0492	2.0404		7,463.110 3	7,463.110 3	0.4767	0.3413	7,576.731 4
Unmitigated	4.9462	4.1773	35.1186	0.0709	7.4703	0.0527	7.5229	1.9912	0.0492	2.0404		7,463.110 3	7,463.110 3	0.4767	0.3413	7,576.731 4

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,727.52	1,727.52	1727.52	3,449,983	3,449,983
Single Family Housing	47.00	47.00	47.00	93,862	93,862
<b>Total</b>	<b>1,774.52</b>	<b>1,774.52</b>	<b>1,774.52</b>	<b>3,543,845</b>	<b>3,543,845</b>

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	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 Mid Rise	7.78	3.89	5.06	46.50	12.50	41.00	86	11	3
Single Family Housing	7.78	3.89	5.06	46.50	12.50	41.00	86	11	3

**4.4 Fleet Mix**

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071
Single Family Housing	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071

**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	0.0692	0.5910	0.2515	3.7700e-003		0.0478	0.0478		0.0478	0.0478		754.3995	754.3995	0.0145	0.0138	758.8825
NaturalGas Unmitigated	0.0692	0.5910	0.2515	3.7700e-003		0.0478	0.0478		0.0478	0.0478		754.3995	754.3995	0.0145	0.0138	758.8825



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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 Mid Rise	6088.3	0.0657	0.5611	0.2388	3.5800e-003		0.0454	0.0454		0.0454	0.0454		716.2708	716.2708	0.0137	0.0131	720.5273
Single Family Housing	324.093	3.5000e-003	0.0299	0.0127	1.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003		38.1286	38.1286	7.3000e-004	7.0000e-004	38.3552
<b>Total</b>		<b>0.0692</b>	<b>0.5910</b>	<b>0.2515</b>	<b>3.7700e-003</b>		<b>0.0478</b>	<b>0.0478</b>		<b>0.0478</b>	<b>0.0478</b>		<b>754.3995</b>	<b>754.3995</b>	<b>0.0145</b>	<b>0.0138</b>	<b>758.8825</b>

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 Mid Rise	6.0883	0.0657	0.5611	0.2388	3.5800e-003		0.0454	0.0454		0.0454	0.0454		716.2708	716.2708	0.0137	0.0131	720.5273
Single Family Housing	0.324093	3.5000e-003	0.0299	0.0127	1.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003		38.1286	38.1286	7.3000e-004	7.0000e-004	38.3552
<b>Total</b>		<b>0.0692</b>	<b>0.5910</b>	<b>0.2515</b>	<b>3.7700e-003</b>		<b>0.0478</b>	<b>0.0478</b>		<b>0.0478</b>	<b>0.0478</b>		<b>754.3995</b>	<b>754.3995</b>	<b>0.0145</b>	<b>0.0138</b>	<b>758.8825</b>

**6.0 Area Detail**

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	6.6794	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102	0.0000	35.8011	35.8011	0.0343	0.0000	36.6582
Unmitigated	6.6794	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102	0.0000	35.8011	35.8011	0.0343	0.0000	36.6582

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.8400					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.2430					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	0.5964	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102		35.8011	35.8011	0.0343		36.6582
<b>Total</b>	<b>6.6794</b>	<b>0.2288</b>	<b>19.8640</b>	<b>1.0500e-003</b>		<b>0.1102</b>	<b>0.1102</b>		<b>0.1102</b>	<b>0.1102</b>	<b>0.0000</b>	<b>35.8011</b>	<b>35.8011</b>	<b>0.0343</b>	<b>0.0000</b>	<b>36.6582</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.8400					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.2430					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	0.5964	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102		35.8011	35.8011	0.0343		36.6582
<b>Total</b>	<b>6.6794</b>	<b>0.2288</b>	<b>19.8640</b>	<b>1.0500e-003</b>		<b>0.1102</b>	<b>0.1102</b>		<b>0.1102</b>	<b>0.1102</b>	<b>0.0000</b>	<b>35.8011</b>	<b>35.8011</b>	<b>0.0343</b>	<b>0.0000</b>	<b>36.6582</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

Apply Water Conservation Strategy

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Guardian Madeira - Approved Conditions  
Sacramento Metropolitan AQMD Air District, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	5.00	Dwelling Unit	1.11	9,000.00	13
Apartments Mid Rise	236.00	Dwelling Unit	12.20	236,000.00	630

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2026
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	357.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Lot acreage adjusted to be representative of total project site acreage.

Construction Phase - Architectural coating assumed to begin two weeks after the initiation of building construction, and last for the same duration.

Vehicle Trips - Based on project-specific traffic data provided by Fehr & Peers.

Water Mitigation - Compliant with MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	11/14/2025	10/31/2025
tblConstructionPhase	PhaseEndDate	9/19/2025	10/17/2025
tblConstructionPhase	PhaseEndDate	10/17/2025	8/23/2024



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblConstructionPhase	PhaseStartDate	10/18/2025	9/7/2024
tblConstructionPhase	PhaseStartDate	7/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	9/20/2025	7/27/2024
tblLandUse	LotAcreage	1.62	1.11
tblLandUse	LotAcreage	6.21	12.20
tblVehicleTrips	HO_TL	6.50	5.06
tblVehicleTrips	HO_TL	6.50	5.06
tblVehicleTrips	HS_TL	5.00	3.89
tblVehicleTrips	HS_TL	5.00	3.89
tblVehicleTrips	HW_TL	10.00	7.78
tblVehicleTrips	HW_TL	10.00	7.78
tblVehicleTrips	ST_TR	4.91	7.32
tblVehicleTrips	ST_TR	9.54	9.40
tblVehicleTrips	SU_TR	4.09	7.32
tblVehicleTrips	SU_TR	8.55	9.40
tblVehicleTrips	WD_TR	5.44	7.32
tblVehicleTrips	WD_TR	9.44	9.40

**2.0 Emissions Summary**

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Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
2024	12.4800	32.4123	28.1656	0.0633	19.7939	1.3362	21.0240	10.1388	1.2293	11.2704	0.0000	6,133.212 1	6,133.212 1	1.9478	0.1152	6,183.016 8
2025	12.3303	15.1852	22.5380	0.0466	1.7237	0.5930	2.3166	0.4608	0.5608	1.0216	0.0000	4,590.113 0	4,590.113 0	0.6670	0.1112	4,639.937 4
<b>Maximum</b>	<b>12.4800</b>	<b>32.4123</b>	<b>28.1656</b>	<b>0.0633</b>	<b>19.7939</b>	<b>1.3362</b>	<b>21.0240</b>	<b>10.1388</b>	<b>1.2293</b>	<b>11.2704</b>	<b>0.0000</b>	<b>6,133.212 1</b>	<b>6,133.212 1</b>	<b>1.9478</b>	<b>0.1152</b>	<b>6,183.016 8</b>

**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					
2024	12.4800	32.4123	28.1656	0.0633	19.7939	1.3362	21.0240	10.1388	1.2293	11.2704	0.0000	6,133.212 1	6,133.212 1	1.9478	0.1152	6,183.016 8
2025	12.3303	15.1852	22.5380	0.0466	1.7237	0.5930	2.3166	0.4608	0.5608	1.0216	0.0000	4,590.113 0	4,590.113 0	0.6670	0.1112	4,639.937 4
<b>Maximum</b>	<b>12.4800</b>	<b>32.4123</b>	<b>28.1656</b>	<b>0.0633</b>	<b>19.7939</b>	<b>1.3362</b>	<b>21.0240</b>	<b>10.1388</b>	<b>1.2293</b>	<b>11.2704</b>	<b>0.0000</b>	<b>6,133.212 1</b>	<b>6,133.212 1</b>	<b>1.9478</b>	<b>0.1152</b>	<b>6,183.016 8</b>



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	6.6794	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102	0.0000	35.8011	35.8011	0.0343	0.0000	36.6582
Energy	0.0692	0.5910	0.2515	3.7700e-003		0.0478	0.0478		0.0478	0.0478		754.3995	754.3995	0.0145	0.0138	758.8825
Mobile	3.7394	4.8247	35.7218	0.0649	7.4703	0.0528	7.5230	1.9912	0.0493	2.0404		6,831.4815	6,831.4815	0.5461	0.3728	6,956.2259
<b>Total</b>	<b>10.4879</b>	<b>5.6444</b>	<b>55.8372</b>	<b>0.0697</b>	<b>7.4703</b>	<b>0.2108</b>	<b>7.6810</b>	<b>1.9912</b>	<b>0.2073</b>	<b>2.1984</b>	<b>0.0000</b>	<b>7,621.6820</b>	<b>7,621.6820</b>	<b>0.5949</b>	<b>0.3866</b>	<b>7,751.7665</b>

**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	6.6794	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102	0.0000	35.8011	35.8011	0.0343	0.0000	36.6582
Energy	0.0692	0.5910	0.2515	3.7700e-003		0.0478	0.0478		0.0478	0.0478		754.3995	754.3995	0.0145	0.0138	758.8825
Mobile	3.7394	4.8247	35.7218	0.0649	7.4703	0.0528	7.5230	1.9912	0.0493	2.0404		6,831.4815	6,831.4815	0.5461	0.3728	6,956.2259
<b>Total</b>	<b>10.4879</b>	<b>5.6444</b>	<b>55.8372</b>	<b>0.0697</b>	<b>7.4703</b>	<b>0.2108</b>	<b>7.6810</b>	<b>1.9912</b>	<b>0.2073</b>	<b>2.1984</b>	<b>0.0000</b>	<b>7,621.6820</b>	<b>7,621.6820</b>	<b>0.5949</b>	<b>0.3866</b>	<b>7,751.7665</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	Site Preparation	Site Preparation	6/3/2024	6/14/2024	5	10	
2	Grading	Grading	6/15/2024	7/26/2024	5	30	
3	Paving	Paving	7/27/2024	8/23/2024	5	20	
4	Building Construction	Building Construction	8/24/2024	10/17/2025	5	300	
5	Architectural Coating	Architectural Coating	9/7/2024	10/31/2025	5	300	

**Acres of Grading (Site Preparation Phase): 15**

**Acres of Grading (Grading Phase): 90**

**Acres of Paving: 0**

**Residential Indoor: 496,125; Residential Outdoor: 165,375; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	26.00	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	34.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**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					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310		3,688.010 0	3,688.010 0	1.1928		3,717.829 4
<b>Total</b>	<b>2.6609</b>	<b>27.1760</b>	<b>18.3356</b>	<b>0.0381</b>	<b>19.6570</b>	<b>1.2294</b>	<b>20.8864</b>	<b>10.1025</b>	<b>1.1310</b>	<b>11.2335</b>		<b>3,688.010 0</b>	<b>3,688.010 0</b>	<b>1.1928</b>		<b>3,717.829 4</b>

**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	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
Worker	0.0503	0.0318	0.3985	1.0800e-003	0.1369	6.7000e-004	0.1376	0.0363	6.2000e-004	0.0369		111.1171	111.1171	3.6800e-003	3.3500e-003	112.2087
<b>Total</b>	<b>0.0503</b>	<b>0.0318</b>	<b>0.3985</b>	<b>1.0800e-003</b>	<b>0.1369</b>	<b>6.7000e-004</b>	<b>0.1376</b>	<b>0.0363</b>	<b>6.2000e-004</b>	<b>0.0369</b>		<b>111.1171</b>	<b>111.1171</b>	<b>3.6800e-003</b>	<b>3.3500e-003</b>	<b>112.2087</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**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					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310	0.0000	3,688.010 0	3,688.010 0	1.1928		3,717.829 4
<b>Total</b>	<b>2.6609</b>	<b>27.1760</b>	<b>18.3356</b>	<b>0.0381</b>	<b>19.6570</b>	<b>1.2294</b>	<b>20.8864</b>	<b>10.1025</b>	<b>1.1310</b>	<b>11.2335</b>	<b>0.0000</b>	<b>3,688.010 0</b>	<b>3,688.010 0</b>	<b>1.1928</b>		<b>3,717.829 4</b>

**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	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
Worker	0.0503	0.0318	0.3985	1.0800e-003	0.1369	6.7000e-004	0.1376	0.0363	6.2000e-004	0.0369		111.1171	111.1171	3.6800e-003	3.3500e-003	112.2087
<b>Total</b>	<b>0.0503</b>	<b>0.0318</b>	<b>0.3985</b>	<b>1.0800e-003</b>	<b>0.1369</b>	<b>6.7000e-004</b>	<b>0.1376</b>	<b>0.0363</b>	<b>6.2000e-004</b>	<b>0.0369</b>		<b>111.1171</b>	<b>111.1171</b>	<b>3.6800e-003</b>	<b>3.3500e-003</b>	<b>112.2087</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
<b>Total</b>	<b>3.2181</b>	<b>32.3770</b>	<b>27.7228</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.3354</b>	<b>10.5390</b>	<b>3.6538</b>	<b>1.2286</b>	<b>4.8823</b>		<b>6,009.7487</b>	<b>6,009.7487</b>	<b>1.9437</b>		<b>6,058.3405</b>

**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	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
Worker	0.0559	0.0354	0.4428	1.2000e-003	0.1521	7.5000e-004	0.1529	0.0404	6.9000e-004	0.0410		123.4634	123.4634	4.0900e-003	3.7300e-003	124.6763
<b>Total</b>	<b>0.0559</b>	<b>0.0354</b>	<b>0.4428</b>	<b>1.2000e-003</b>	<b>0.1521</b>	<b>7.5000e-004</b>	<b>0.1529</b>	<b>0.0404</b>	<b>6.9000e-004</b>	<b>0.0410</b>		<b>123.4634</b>	<b>123.4634</b>	<b>4.0900e-003</b>	<b>3.7300e-003</b>	<b>124.6763</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286	0.0000	6,009.7487	6,009.7487	1.9437		6,058.3405
<b>Total</b>	<b>3.2181</b>	<b>32.3770</b>	<b>27.7228</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.3354</b>	<b>10.5390</b>	<b>3.6538</b>	<b>1.2286</b>	<b>4.8823</b>	<b>0.0000</b>	<b>6,009.7487</b>	<b>6,009.7487</b>	<b>1.9437</b>		<b>6,058.3405</b>

**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	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
Worker	0.0559	0.0354	0.4428	1.2000e-003	0.1521	7.5000e-004	0.1529	0.0404	6.9000e-004	0.0410		123.4634	123.4634	4.0900e-003	3.7300e-003	124.6763
<b>Total</b>	<b>0.0559</b>	<b>0.0354</b>	<b>0.4428</b>	<b>1.2000e-003</b>	<b>0.1521</b>	<b>7.5000e-004</b>	<b>0.1529</b>	<b>0.0404</b>	<b>6.9000e-004</b>	<b>0.0410</b>		<b>123.4634</b>	<b>123.4634</b>	<b>4.0900e-003</b>	<b>3.7300e-003</b>	<b>124.6763</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Paving - 2024**

**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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.9882</b>	<b>9.5246</b>	<b>14.6258</b>	<b>0.0228</b>		<b>0.4685</b>	<b>0.4685</b>		<b>0.4310</b>	<b>0.4310</b>		<b>2,207.547 2</b>	<b>2,207.547 2</b>	<b>0.7140</b>		<b>2,225.396 3</b>

**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	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
Worker	0.0419	0.0265	0.3321	9.0000e-004	0.1141	5.6000e-004	0.1147	0.0303	5.2000e-004	0.0308		92.5976	92.5976	3.0600e-003	2.8000e-003	93.5072
<b>Total</b>	<b>0.0419</b>	<b>0.0265</b>	<b>0.3321</b>	<b>9.0000e-004</b>	<b>0.1141</b>	<b>5.6000e-004</b>	<b>0.1147</b>	<b>0.0303</b>	<b>5.2000e-004</b>	<b>0.0308</b>		<b>92.5976</b>	<b>92.5976</b>	<b>3.0600e-003</b>	<b>2.8000e-003</b>	<b>93.5072</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Paving - 2024**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.9882</b>	<b>9.5246</b>	<b>14.6258</b>	<b>0.0228</b>		<b>0.4685</b>	<b>0.4685</b>		<b>0.4310</b>	<b>0.4310</b>	<b>0.0000</b>	<b>2,207.547 2</b>	<b>2,207.547 2</b>	<b>0.7140</b>		<b>2,225.396 3</b>

**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	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
Worker	0.0419	0.0265	0.3321	9.0000e-004	0.1141	5.6000e-004	0.1147	0.0303	5.2000e-004	0.0308		92.5976	92.5976	3.0600e-003	2.8000e-003	93.5072
<b>Total</b>	<b>0.0419</b>	<b>0.0265</b>	<b>0.3321</b>	<b>9.0000e-004</b>	<b>0.1141</b>	<b>5.6000e-004</b>	<b>0.1147</b>	<b>0.0303</b>	<b>5.2000e-004</b>	<b>0.0308</b>		<b>92.5976</b>	<b>92.5976</b>	<b>3.0600e-003</b>	<b>2.8000e-003</b>	<b>93.5072</b>



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2024**

**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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
<b>Total</b>	<b>1.4716</b>	<b>13.4438</b>	<b>16.1668</b>	<b>0.0270</b>		<b>0.6133</b>	<b>0.6133</b>		<b>0.5769</b>	<b>0.5769</b>		<b>2,555.6989</b>	<b>2,555.6989</b>	<b>0.6044</b>		<b>2,570.8077</b>

**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	0.0000
Vendor	0.0321	1.2686	0.3798	4.8600e-003	0.1566	6.6900e-003	0.1633	0.0451	6.4000e-003	0.0515		521.7183	521.7183	0.0127	0.0768	544.9134
Worker	0.4804	0.3042	3.8078	0.0103	1.3084	6.4200e-003	1.3148	0.3471	5.9100e-003	0.3530		1,061.7855	1,061.7855	0.0351	0.0321	1,072.2162
<b>Total</b>	<b>0.5126</b>	<b>1.5728</b>	<b>4.1875</b>	<b>0.0152</b>	<b>1.4650</b>	<b>0.0131</b>	<b>1.4782</b>	<b>0.3922</b>	<b>0.0123</b>	<b>0.4045</b>		<b>1,583.5038</b>	<b>1,583.5038</b>	<b>0.0478</b>	<b>0.1088</b>	<b>1,617.1296</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2024**

**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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
<b>Total</b>	<b>1.4716</b>	<b>13.4438</b>	<b>16.1668</b>	<b>0.0270</b>		<b>0.6133</b>	<b>0.6133</b>		<b>0.5769</b>	<b>0.5769</b>	<b>0.0000</b>	<b>2,555.6989</b>	<b>2,555.6989</b>	<b>0.6044</b>		<b>2,570.8077</b>

**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	0.0000
Vendor	0.0321	1.2686	0.3798	4.8600e-003	0.1566	6.6900e-003	0.1633	0.0451	6.4000e-003	0.0515		521.7183	521.7183	0.0127	0.0768	544.9134
Worker	0.4804	0.3042	3.8078	0.0103	1.3084	6.4200e-003	1.3148	0.3471	5.9100e-003	0.3530		1,061.7855	1,061.7855	0.0351	0.0321	1,072.2162
<b>Total</b>	<b>0.5126</b>	<b>1.5728</b>	<b>4.1875</b>	<b>0.0152</b>	<b>1.4650</b>	<b>0.0131</b>	<b>1.4782</b>	<b>0.3922</b>	<b>0.0123</b>	<b>0.4045</b>		<b>1,583.5038</b>	<b>1,583.5038</b>	<b>0.0478</b>	<b>0.1088</b>	<b>1,617.1296</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2025**

**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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.474 4	2,556.474 4	0.6010		2,571.498 1
<b>Total</b>	<b>1.3674</b>	<b>12.4697</b>	<b>16.0847</b>	<b>0.0270</b>		<b>0.5276</b>	<b>0.5276</b>		<b>0.4963</b>	<b>0.4963</b>		<b>2,556.474 4</b>	<b>2,556.474 4</b>	<b>0.6010</b>		<b>2,571.498 1</b>

**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	0.0000
Vendor	0.0309	1.2432	0.3708	4.7600e-003	0.1566	6.5600e-003	0.1632	0.0451	6.2700e-003	0.0513		511.1968	511.1968	0.0124	0.0754	533.9634
Worker	0.4516	0.2730	3.5681	9.9500e-003	1.3084	6.1400e-003	1.3145	0.3471	5.6500e-003	0.3527		1,036.169 6	1,036.169 6	0.0320	0.0300	1,045.897 0
<b>Total</b>	<b>0.4825</b>	<b>1.5161</b>	<b>3.9389</b>	<b>0.0147</b>	<b>1.4650</b>	<b>0.0127</b>	<b>1.4777</b>	<b>0.3921</b>	<b>0.0119</b>	<b>0.4041</b>		<b>1,547.366 4</b>	<b>1,547.366 4</b>	<b>0.0444</b>	<b>0.1053</b>	<b>1,579.860 4</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Building Construction - 2025**

**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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.474 4	2,556.474 4	0.6010		2,571.498 1
<b>Total</b>	<b>1.3674</b>	<b>12.4697</b>	<b>16.0847</b>	<b>0.0270</b>		<b>0.5276</b>	<b>0.5276</b>		<b>0.4963</b>	<b>0.4963</b>	<b>0.0000</b>	<b>2,556.474 4</b>	<b>2,556.474 4</b>	<b>0.6010</b>		<b>2,571.498 1</b>

**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	0.0000
Vendor	0.0309	1.2432	0.3708	4.7600e-003	0.1566	6.5600e-003	0.1632	0.0451	6.2700e-003	0.0513		511.1968	511.1968	0.0124	0.0754	533.9634
Worker	0.4516	0.2730	3.5681	9.9500e-003	1.3084	6.1400e-003	1.3145	0.3471	5.6500e-003	0.3527		1,036.169 6	1,036.169 6	0.0320	0.0300	1,045.897 0
<b>Total</b>	<b>0.4825</b>	<b>1.5161</b>	<b>3.9389</b>	<b>0.0147</b>	<b>1.4650</b>	<b>0.0127</b>	<b>1.4777</b>	<b>0.3921</b>	<b>0.0119</b>	<b>0.4041</b>		<b>1,547.366 4</b>	<b>1,547.366 4</b>	<b>0.0444</b>	<b>0.1053</b>	<b>1,579.860 4</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	10.2202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>10.4009</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

**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	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
Worker	0.0950	0.0601	0.7527	2.0300e-003	0.2586	1.2700e-003	0.2599	0.0686	1.1700e-003	0.0698		209.8878	209.8878	6.9500e-003	6.3400e-003	211.9497
<b>Total</b>	<b>0.0950</b>	<b>0.0601</b>	<b>0.7527</b>	<b>2.0300e-003</b>	<b>0.2586</b>	<b>1.2700e-003</b>	<b>0.2599</b>	<b>0.0686</b>	<b>1.1700e-003</b>	<b>0.0698</b>		<b>209.8878</b>	<b>209.8878</b>	<b>6.9500e-003</b>	<b>6.3400e-003</b>	<b>211.9497</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	10.2202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>10.4009</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

**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	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
Worker	0.0950	0.0601	0.7527	2.0300e-003	0.2586	1.2700e-003	0.2599	0.0686	1.1700e-003	0.0698		209.8878	209.8878	6.9500e-003	6.3400e-003	211.9497
<b>Total</b>	<b>0.0950</b>	<b>0.0601</b>	<b>0.7527</b>	<b>2.0300e-003</b>	<b>0.2586</b>	<b>1.2700e-003</b>	<b>0.2599</b>	<b>0.0686</b>	<b>1.1700e-003</b>	<b>0.0698</b>		<b>209.8878</b>	<b>209.8878</b>	<b>6.9500e-003</b>	<b>6.3400e-003</b>	<b>211.9497</b>



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	10.2202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
<b>Total</b>	<b>10.3910</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.8319</b>

**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	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
Worker	0.0893	0.0540	0.7053	1.9700e-003	0.2586	1.2100e-003	0.2599	0.0686	1.1200e-003	0.0697		204.8242	204.8242	6.3200e-003	5.9200e-003	206.7471
<b>Total</b>	<b>0.0893</b>	<b>0.0540</b>	<b>0.7053</b>	<b>1.9700e-003</b>	<b>0.2586</b>	<b>1.2100e-003</b>	<b>0.2599</b>	<b>0.0686</b>	<b>1.1200e-003</b>	<b>0.0697</b>		<b>204.8242</b>	<b>204.8242</b>	<b>6.3200e-003</b>	<b>5.9200e-003</b>	<b>206.7471</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	10.2202					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
<b>Total</b>	<b>10.3910</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.8319</b>

**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	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
Worker	0.0893	0.0540	0.7053	1.9700e-003	0.2586	1.2100e-003	0.2599	0.0686	1.1200e-003	0.0697		204.8242	204.8242	6.3200e-003	5.9200e-003	206.7471
<b>Total</b>	<b>0.0893</b>	<b>0.0540</b>	<b>0.7053</b>	<b>1.9700e-003</b>	<b>0.2586</b>	<b>1.2100e-003</b>	<b>0.2599</b>	<b>0.0686</b>	<b>1.1200e-003</b>	<b>0.0697</b>		<b>204.8242</b>	<b>204.8242</b>	<b>6.3200e-003</b>	<b>5.9200e-003</b>	<b>206.7471</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	3.7394	4.8247	35.7218	0.0649	7.4703	0.0528	7.5230	1.9912	0.0493	2.0404		6,831,481 5	6,831,481 5	0.5461	0.3728	6,956,225 9
Unmitigated	3.7394	4.8247	35.7218	0.0649	7.4703	0.0528	7.5230	1.9912	0.0493	2.0404		6,831,481 5	6,831,481 5	0.5461	0.3728	6,956,225 9

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,727.52	1,727.52	1,727.52	3,449,983	3,449,983
Single Family Housing	47.00	47.00	47.00	93,862	93,862
<b>Total</b>	<b>1,774.52</b>	<b>1,774.52</b>	<b>1,774.52</b>	<b>3,543,845</b>	<b>3,543,845</b>

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	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 Mid Rise	7.78	3.89	5.06	46.50	12.50	41.00	86	11	3
Single Family Housing	7.78	3.89	5.06	46.50	12.50	41.00	86	11	3

**4.4 Fleet Mix**

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071
Single Family Housing	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071

**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	0.0692	0.5910	0.2515	3.7700e-003		0.0478	0.0478		0.0478	0.0478		754.3995	754.3995	0.0145	0.0138	758.8825
NaturalGas Unmitigated	0.0692	0.5910	0.2515	3.7700e-003		0.0478	0.0478		0.0478	0.0478		754.3995	754.3995	0.0145	0.0138	758.8825

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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 Mid Rise	6088.3	0.0657	0.5611	0.2388	3.5800e-003		0.0454	0.0454		0.0454	0.0454		716.2708	716.2708	0.0137	0.0131	720.5273
Single Family Housing	324.093	3.5000e-003	0.0299	0.0127	1.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003		38.1286	38.1286	7.3000e-004	7.0000e-004	38.3552
<b>Total</b>		<b>0.0692</b>	<b>0.5910</b>	<b>0.2515</b>	<b>3.7700e-003</b>		<b>0.0478</b>	<b>0.0478</b>		<b>0.0478</b>	<b>0.0478</b>		<b>754.3995</b>	<b>754.3995</b>	<b>0.0145</b>	<b>0.0138</b>	<b>758.8825</b>

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 Mid Rise	6.0883	0.0657	0.5611	0.2388	3.5800e-003		0.0454	0.0454		0.0454	0.0454		716.2708	716.2708	0.0137	0.0131	720.5273
Single Family Housing	0.324093	3.5000e-003	0.0299	0.0127	1.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003		38.1286	38.1286	7.3000e-004	7.0000e-004	38.3552
<b>Total</b>		<b>0.0692</b>	<b>0.5910</b>	<b>0.2515</b>	<b>3.7700e-003</b>		<b>0.0478</b>	<b>0.0478</b>		<b>0.0478</b>	<b>0.0478</b>		<b>754.3995</b>	<b>754.3995</b>	<b>0.0145</b>	<b>0.0138</b>	<b>758.8825</b>

**6.0 Area Detail**

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	6.6794	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102	0.0000	35.8011	35.8011	0.0343	0.0000	36.6582
Unmitigated	6.6794	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102	0.0000	35.8011	35.8011	0.0343	0.0000	36.6582



Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.8400					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.2430					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	0.5964	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102		35.8011	35.8011	0.0343		36.6582
<b>Total</b>	<b>6.6794</b>	<b>0.2288</b>	<b>19.8640</b>	<b>1.0500e-003</b>		<b>0.1102</b>	<b>0.1102</b>		<b>0.1102</b>	<b>0.1102</b>	<b>0.0000</b>	<b>35.8011</b>	<b>35.8011</b>	<b>0.0343</b>	<b>0.0000</b>	<b>36.6582</b>

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.8400					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.2430					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	0.5964	0.2288	19.8640	1.0500e-003		0.1102	0.1102		0.1102	0.1102		35.8011	35.8011	0.0343		36.6582
<b>Total</b>	<b>6.6794</b>	<b>0.2288</b>	<b>19.8640</b>	<b>1.0500e-003</b>		<b>0.1102</b>	<b>0.1102</b>		<b>0.1102</b>	<b>0.1102</b>	<b>0.0000</b>	<b>35.8011</b>	<b>35.8011</b>	<b>0.0343</b>	<b>0.0000</b>	<b>36.6582</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

Apply Water Conservation Strategy

Guardian Madeira - Approved Conditions - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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**Guardian Madeira - Approved Conditions**

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Sacramento Metropolitan AQMD Air District, Mitigation Report**

**Construction Mitigation Summary**

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**OFFROAD Equipment Mitigation**

### Guardian Madeira - Approved Conditions

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	2	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	4	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	9	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Scrapers	Diesel	No Change	0	2	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

### Guardian Madeira - Approved Conditions

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Air Compressors	2.60400E-002	1.74830E-001	2.71410E-001	4.50000E-004	8.11000E-003	8.11000E-003	0.00000E+000	3.82988E+001	3.82988E+001	2.11000E-003	0.00000E+000	3.83515E+001
Cranes	4.18200E-002	4.29330E-001	2.29450E-001	7.60000E-004	1.81200E-002	1.66700E-002	0.00000E+000	6.65376E+001	6.65376E+001	2.15200E-002	0.00000E+000	6.70756E+001
Excavators	5.41000E-003	4.20900E-002	9.79500E-002	1.60000E-004	2.07000E-003	1.91000E-003	0.00000E+000	1.36150E+001	1.36150E+001	4.40000E-003	0.00000E+000	1.37251E+001
Forklifts	4.01100E-002	3.77310E-001	5.10950E-001	6.90000E-004	2.07100E-002	1.90600E-002	0.00000E+000	6.04311E+001	6.04311E+001	1.95400E-002	0.00000E+000	6.09197E+001
Generator Sets	4.08200E-002	3.66180E-001	5.49130E-001	9.90000E-004	1.50100E-002	1.50100E-002	0.00000E+000	8.47811E+001	8.47811E+001	3.22000E-003	0.00000E+000	8.48617E+001
Graders	5.32000E-003	6.23400E-002	2.48500E-002	1.00000E-004	2.02000E-003	1.86000E-003	0.00000E+000	8.71588E+000	8.71588E+000	2.82000E-003	0.00000E+000	8.78635E+000
Pavers	3.67000E-003	3.48400E-002	5.78600E-002	9.00000E-005	1.63000E-003	1.50000E-003	0.00000E+000	8.25832E+000	8.25832E+000	2.67000E-003	0.00000E+000	8.32510E+000
Paving Equipment	3.30000E-003	2.99200E-002	5.14000E-002	8.00000E-005	1.45000E-003	1.33000E-003	0.00000E+000	7.15707E+000	7.15707E+000	2.31000E-003	0.00000E+000	7.21493E+000
Rollers	2.91000E-003	3.04900E-002	3.70000E-002	5.00000E-005	1.61000E-003	1.48000E-003	0.00000E+000	4.61114E+000	4.61114E+000	1.49000E-003	0.00000E+000	4.64843E+000
Rubber Tired Dozers	2.08500E-002	2.13830E-001	9.39300E-002	2.60000E-004	9.63000E-003	8.86000E-003	0.00000E+000	2.25067E+001	2.25067E+001	7.28000E-003	0.00000E+000	2.26887E+001
Scrapers	2.28000E-002	2.30870E-001	1.79010E-001	4.60000E-004	9.13000E-003	8.40000E-003	0.00000E+000	3.99823E+001	3.99823E+001	1.29300E-002	0.00000E+000	4.03056E+001
Tractors/Loaders/Backhoes	6.06500E-002	6.11770E-001	9.90430E-001	1.38000E-003	2.61200E-002	2.40300E-002	0.00000E+000	1.21552E+002	1.21552E+002	3.93100E-002	0.00000E+000	1.22535E+002
Welders	3.37100E-002	2.03090E-001	2.48300E-001	3.80000E-004	6.44000E-003	6.44000E-003	0.00000E+000	2.82331E+001	2.82331E+001	2.74000E-003	0.00000E+000	2.83017E+001



### Guardian Madeira - Approved Conditions

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Air Compressors	2.60400E-002	1.74830E-001	2.71410E-001	4.50000E-004	8.11000E-003	8.11000E-003	0.00000E+000	3.82988E+001	3.82988E+001	2.11000E-003	0.00000E+000	3.83515E+001
Cranes	4.18200E-002	4.29330E-001	2.29450E-001	7.60000E-004	1.81200E-002	1.66700E-002	0.00000E+000	6.65376E+001	6.65376E+001	2.15200E-002	0.00000E+000	6.70755E+001
Excavators	5.41000E-003	4.20900E-002	9.79500E-002	1.60000E-004	2.07000E-003	1.91000E-003	0.00000E+000	1.36150E+001	1.36150E+001	4.40000E-003	0.00000E+000	1.37251E+001
Forklifts	4.01100E-002	3.77310E-001	5.10950E-001	6.90000E-004	2.07100E-002	1.90600E-002	0.00000E+000	6.04310E+001	6.04310E+001	1.95400E-002	0.00000E+000	6.09196E+001
Generator Sets	4.08200E-002	3.66180E-001	5.49130E-001	9.90000E-004	1.50100E-002	1.50100E-002	0.00000E+000	8.47810E+001	8.47810E+001	3.22000E-003	0.00000E+000	8.48616E+001
Graders	5.32000E-003	6.23400E-002	2.48500E-002	1.00000E-004	2.02000E-003	1.86000E-003	0.00000E+000	8.71587E+000	8.71587E+000	2.82000E-003	0.00000E+000	8.78634E+000
Pavers	3.67000E-003	3.48400E-002	5.78600E-002	9.00000E-005	1.63000E-003	1.50000E-003	0.00000E+000	8.25831E+000	8.25831E+000	2.67000E-003	0.00000E+000	8.32509E+000
Paving Equipment	3.30000E-003	2.99200E-002	5.14000E-002	8.00000E-005	1.45000E-003	1.33000E-003	0.00000E+000	7.15706E+000	7.15706E+000	2.31000E-003	0.00000E+000	7.21493E+000
Rollers	2.91000E-003	3.04900E-002	3.70000E-002	5.00000E-005	1.61000E-003	1.48000E-003	0.00000E+000	4.61114E+000	4.61114E+000	1.49000E-003	0.00000E+000	4.64842E+000
Rubber Tired Dozers	2.08500E-002	2.13830E-001	9.39300E-002	2.60000E-004	9.63000E-003	8.86000E-003	0.00000E+000	2.25067E+001	2.25067E+001	7.28000E-003	0.00000E+000	2.26887E+001
Scrapers	2.28000E-002	2.30870E-001	1.79010E-001	4.60000E-004	9.13000E-003	8.40000E-003	0.00000E+000	3.99823E+001	3.99823E+001	1.29300E-002	0.00000E+000	4.03055E+001
Tractors/Loaders/Balckhoes	6.06500E-002	6.11770E-001	9.90430E-001	1.38000E-003	2.61200E-002	2.40300E-002	0.00000E+000	1.21552E+002	1.21552E+002	3.93100E-002	0.00000E+000	1.22534E+002
Welders	3.37100E-002	2.03090E-001	2.48300E-001	3.80000E-004	6.44000E-003	6.44000E-003	0.00000E+000	2.82331E+001	2.82331E+001	2.74000E-003	0.00000E+000	2.83017E+001

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#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.30552E-006	1.30552E-006	0.00000E+000	0.00000E+000	1.30373E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20233E-006	1.20233E-006	0.00000E+000	0.00000E+000	1.19268E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.34485E-007	7.34485E-007	0.00000E+000	0.00000E+000	1.45719E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.15834E-006	1.15834E-006	0.00000E+000	0.00000E+000	1.31320E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17951E-006	1.17951E-006	0.00000E+000	0.00000E+000	1.17839E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.14733E-006	1.14733E-006	0.00000E+000	0.00000E+000	1.13813E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21090E-006	1.21090E-006	0.00000E+000	0.00000E+000	1.20119E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.39722E-006	1.39722E-006	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.15126E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.33293E-006	1.33293E-006	0.00000E+000	0.00000E+000	8.81496E-007
Scrapers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.25055E-006	1.25055E-006	0.00000E+000	0.00000E+000	1.24052E-006
Tractors/Loaders/Balckhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.23404E-006	1.23404E-006	0.00000E+000	0.00000E+000	1.14253E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.06258E-006	1.06258E-006	0.00000E+000	0.00000E+000	1.41334E-006

#### Fugitive Dust Mitigation

Yes/No Mitigation Measure Mitigation Input Mitigation Input Mitigation Input

No	Soil Stabilizer for unpaved Roads	PM10 Reduction	PM2.5 Reduction	
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### Guardian Madeira - Approved Conditions

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	
No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

Phase	Source	Unmitigated		Mitigated		Percent Reduction	
		PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.04	0.01	0.04	0.01	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.21	0.06	0.21	0.06	0.00	0.00
Grading	Fugitive Dust	0.14	0.05	0.14	0.05	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.10	0.05	0.10	0.05	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

### Operational Percent Reduction Summary

### Guardian Madeira - Approved Conditions

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	4.71	0.48	0.08	4.03
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

#### Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.02	0.19		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

**Guardian Madeira - Approved Conditions**

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

No	Neighborhood Enhancements	Improve Pedestrian Network			
No	Neighborhood Enhancements	Provide Traffic Calming Measures			
No	Neighborhood Enhancements	Implement NEV Network	0.00		
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00		
No	Parking Policy Pricing	Limit Parking Supply	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00		
No	Transit Improvements	Provide BRT System	0.00		
No	Transit Improvements	Expand Transit Network	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		
	Transit Improvements	Transit Improvements Subtotal	0.00		
		Land Use and Site Enhancement Subtotal	0.00		
No	Commute	Implement Trip Reduction Program			
No	Commute	Transit Subsidy			
No	Commute	Implement Employee Parking "Cash Out"			
No	Commute	Workplace Parking Charge			
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00		
No	Commute	Market Commute Trip Reduction Option	0.00		
No	Commute	Employee Vanpool/Shuttle	0.00		2.00

### Guardian Madeira - Approved Conditions

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

No	Commuter	Provide Ride Sharing Program			
	Commuter	Commuter Subtotal	0.00		
No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.00		

#### Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	100.00
No	Use Low VOC Paint (Parking)	100.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

#### Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		

**Guardian Madeira - Approved Conditions**

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

**Water Mitigation Measures**

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Apply Water Conservation on Strategy	0.00	20.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

**Solid Waste Mitigation**



### Guardian Madeira - Approved Conditions

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Guardian Madeira - Proposed Project  
Sacramento Metropolitan AQMD Air District, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	324.00	Dwelling Unit	8.42	324,000.00	865
Parking Lot	543.00	Space	4.89	217,200.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2026
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	357.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Lot acreage adjusted to represent total acreage of project site.

Construction Phase - Architectural coating assumed to start two weeks after the initiation of building construction, and last for the same duration.

Vehicle Trips - Based on project-specific traffic data provided by Fehr & Peers.

Water Mitigation - Compliant with MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	11/14/2025	10/31/2025
tblConstructionPhase	PhaseEndDate	9/19/2025	10/17/2025
tblConstructionPhase	PhaseEndDate	10/17/2025	8/23/2024

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblConstructionPhase	PhaseStartDate	10/18/2025	9/7/2024
tblConstructionPhase	PhaseStartDate	7/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	9/20/2025	7/27/2024
tblLandUse	LotAcreage	8.53	8.42
tblVehicleTrips	HO_TL	6.50	4.77
tblVehicleTrips	HS_TL	5.00	3.67
tblVehicleTrips	HW_TL	10.00	7.33
tblVehicleTrips	ST_TR	4.91	5.44
tblVehicleTrips	SU_TR	4.09	5.44

**2.0 Emissions Summary**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
2024	0.7681	1.5677	1.9114	4.4300e-003	0.3885	0.0631	0.4516	0.1462	0.0588	0.2051	0.0000	398.5359	398.5359	0.0687	0.0115	403.6666
2025	1.7677	1.8204	2.8011	6.8900e-003	0.3429	0.0638	0.4067	0.0922	0.0603	0.1525	0.0000	627.9977	627.9977	0.0677	0.0251	637.1702
<b>Maximum</b>	<b>1.7677</b>	<b>1.8204</b>	<b>2.8011</b>	<b>6.8900e-003</b>	<b>0.3885</b>	<b>0.0638</b>	<b>0.4516</b>	<b>0.1462</b>	<b>0.0603</b>	<b>0.2051</b>	<b>0.0000</b>	<b>627.9977</b>	<b>627.9977</b>	<b>0.0687</b>	<b>0.0251</b>	<b>637.1702</b>

**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					
2024	0.7681	1.5677	1.9114	4.4300e-003	0.3885	0.0631	0.4516	0.1462	0.0588	0.2051	0.0000	398.5356	398.5356	0.0687	0.0115	403.6663
2025	1.7677	1.8204	2.8011	6.8900e-003	0.3429	0.0638	0.4067	0.0922	0.0603	0.1525	0.0000	627.9974	627.9974	0.0677	0.0251	637.1698
<b>Maximum</b>	<b>1.7677</b>	<b>1.8204</b>	<b>2.8011</b>	<b>6.8900e-003</b>	<b>0.3885</b>	<b>0.0638</b>	<b>0.4516</b>	<b>0.1462</b>	<b>0.0603</b>	<b>0.2051</b>	<b>0.0000</b>	<b>627.9974</b>	<b>627.9974</b>	<b>0.0687</b>	<b>0.0251</b>	<b>637.1698</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	6-3-2024	9-2-2024	0.8460	0.8460
2	9-3-2024	12-2-2024	1.1234	1.1234
3	12-3-2024	3-2-2025	1.1052	1.1052
4	3-3-2025	6-2-2025	1.1104	1.1104
5	6-3-2025	9-2-2025	1.1082	1.1082
6	9-3-2025	9-30-2025	0.3373	0.3373
		Highest	1.1234	1.1234

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5860	0.0385	3.3451	1.8000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	5.4714	5.4714	5.2600e-003	0.0000	5.6030
Energy	0.0165	0.1406	0.0598	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	379.9985	379.9985	0.0231	5.4100e-003	382.1897
Mobile	0.6939	0.7844	5.7383	0.0113	1.2292	9.0400e-003	1.2382	0.3286	8.4400e-003	0.3370	0.0000	1,076.9712	1,076.9712	0.0799	0.0559	1,095.6147
Waste						0.0000	0.0000		0.0000	0.0000	30.2538	0.0000	30.2538	1.7880	0.0000	74.9524
Water						0.0000	0.0000		0.0000	0.0000	7.4687	24.6426	32.1113	0.0280	0.0165	37.7330
<b>Total</b>	<b>2.2964</b>	<b>0.9635</b>	<b>9.1431</b>	<b>0.0124</b>	<b>1.2292</b>	<b>0.0390</b>	<b>1.2681</b>	<b>0.3286</b>	<b>0.0384</b>	<b>0.3669</b>	<b>37.7225</b>	<b>1,487.0837</b>	<b>1,524.8062</b>	<b>1.9242</b>	<b>0.0778</b>	<b>1,596.0928</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5860	0.0385	3.3451	1.8000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	5.4714	5.4714	5.2600e-003	0.0000	5.6030
Energy	0.0165	0.1406	0.0598	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	379.9985	379.9985	0.0231	5.4100e-003	382.1897
Mobile	0.6939	0.7844	5.7383	0.0113	1.2292	9.0400e-003	1.2382	0.3286	8.4400e-003	0.3370	0.0000	1,076.9712	1,076.9712	0.0799	0.0559	1,095.6147
Waste						0.0000	0.0000		0.0000	0.0000	30.2538	0.0000	30.2538	1.7880	0.0000	74.9524
Water						0.0000	0.0000		0.0000	0.0000	7.4687	23.1299	30.5986	0.0278	0.0165	36.2117
<b>Total</b>	<b>2.2964</b>	<b>0.9635</b>	<b>9.1431</b>	<b>0.0124</b>	<b>1.2292</b>	<b>0.0390</b>	<b>1.2681</b>	<b>0.3286</b>	<b>0.0384</b>	<b>0.3669</b>	<b>37.7225</b>	<b>1,485.5711</b>	<b>1,523.2935</b>	<b>1.9241</b>	<b>0.0778</b>	<b>1,594.5716</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.10</b>	<b>0.10</b>	<b>0.01</b>	<b>0.03</b>	<b>0.10</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2024	6/14/2024	5	10	
2	Grading	Grading	6/15/2024	7/26/2024	5	30	
3	Building Construction	Building Construction	8/24/2024	10/17/2025	5	300	



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4	Paving	Paving	7/27/2024	8/23/2024	5	20
5	Architectural Coating	Architectural Coating	9/7/2024	10/31/2025	5	300

**Acres of Grading (Site Preparation Phase): 15**

**Acres of Grading (Grading Phase): 90**

**Acres of Paving: 4.89**

**Residential Indoor: 656,100; Residential Outdoor: 218,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 13,032 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

**Trips and VMT**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	325.00	70.00	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	65.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

**3.2 Site Preparation - 2024**

**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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1359	0.0917	1.9000e-004		6.1500e-003	6.1500e-003		5.6600e-003	5.6600e-003	0.0000	16.7285	16.7285	5.4100e-003	0.0000	16.8638
<b>Total</b>	<b>0.0133</b>	<b>0.1359</b>	<b>0.0917</b>	<b>1.9000e-004</b>	<b>0.0983</b>	<b>6.1500e-003</b>	<b>0.1044</b>	<b>0.0505</b>	<b>5.6600e-003</b>	<b>0.0562</b>	<b>0.0000</b>	<b>16.7285</b>	<b>16.7285</b>	<b>5.4100e-003</b>	<b>0.0000</b>	<b>16.8638</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.4000e-004	1.9500e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5170	0.5170	2.0000e-005	1.0000e-005	0.5216
<b>Total</b>	<b>2.4000e-004</b>	<b>1.4000e-004</b>	<b>1.9500e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.6000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5170</b>	<b>0.5170</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>0.5216</b>

**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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1359	0.0917	1.9000e-004		6.1500e-003	6.1500e-003		5.6500e-003	5.6500e-003	0.0000	16.7285	16.7285	5.4100e-003	0.0000	16.8638
<b>Total</b>	<b>0.0133</b>	<b>0.1359</b>	<b>0.0917</b>	<b>1.9000e-004</b>	<b>0.0983</b>	<b>6.1500e-003</b>	<b>0.1044</b>	<b>0.0505</b>	<b>5.6500e-003</b>	<b>0.0562</b>	<b>0.0000</b>	<b>16.7285</b>	<b>16.7285</b>	<b>5.4100e-003</b>	<b>0.0000</b>	<b>16.8638</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.4000e-004	1.9500e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5170	0.5170	2.0000e-005	1.0000e-005	0.5216
<b>Total</b>	<b>2.4000e-004</b>	<b>1.4000e-004</b>	<b>1.9500e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>6.6000e-004</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>0.5170</b>	<b>0.5170</b>	<b>2.0000e-005</b>	<b>1.0000e-005</b>	<b>0.5216</b>

**3.3 Grading - 2024**

**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					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0483	0.4857	0.4158	9.3000e-004		0.0200	0.0200		0.0184	0.0184	0.0000	81.7793	81.7793	0.0265	0.0000	82.4405
<b>Total</b>	<b>0.0483</b>	<b>0.4857</b>	<b>0.4158</b>	<b>9.3000e-004</b>	<b>0.1381</b>	<b>0.0200</b>	<b>0.1581</b>	<b>0.0548</b>	<b>0.0184</b>	<b>0.0732</b>	<b>0.0000</b>	<b>81.7793</b>	<b>81.7793</b>	<b>0.0265</b>	<b>0.0000</b>	<b>82.4405</b>

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**3.3 Grading - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	4.7000e-004	6.5100e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.7234	1.7234	5.0000e-005	5.0000e-005	1.7387
<b>Total</b>	<b>8.0000e-004</b>	<b>4.7000e-004</b>	<b>6.5100e-003</b>	<b>2.0000e-005</b>	<b>2.2000e-003</b>	<b>1.0000e-005</b>	<b>2.2100e-003</b>	<b>5.9000e-004</b>	<b>1.0000e-005</b>	<b>6.0000e-004</b>	<b>0.0000</b>	<b>1.7234</b>	<b>1.7234</b>	<b>5.0000e-005</b>	<b>5.0000e-005</b>	<b>1.7387</b>

**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					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0483	0.4857	0.4158	9.3000e-004		0.0200	0.0200		0.0184	0.0184	0.0000	81.7792	81.7792	0.0265	0.0000	82.4404
<b>Total</b>	<b>0.0483</b>	<b>0.4857</b>	<b>0.4158</b>	<b>9.3000e-004</b>	<b>0.1381</b>	<b>0.0200</b>	<b>0.1581</b>	<b>0.0548</b>	<b>0.0184</b>	<b>0.0732</b>	<b>0.0000</b>	<b>81.7792</b>	<b>81.7792</b>	<b>0.0265</b>	<b>0.0000</b>	<b>82.4404</b>

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**3.3 Grading - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	4.7000e-004	6.5100e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.7234	1.7234	5.0000e-005	5.0000e-005	1.7387
<b>Total</b>	<b>8.0000e-004</b>	<b>4.7000e-004</b>	<b>6.5100e-003</b>	<b>2.0000e-005</b>	<b>2.2000e-003</b>	<b>1.0000e-005</b>	<b>2.2100e-003</b>	<b>5.9000e-004</b>	<b>1.0000e-005</b>	<b>6.0000e-004</b>	<b>0.0000</b>	<b>1.7234</b>	<b>1.7234</b>	<b>5.0000e-005</b>	<b>5.0000e-005</b>	<b>1.7387</b>

**3.4 Building Construction - 2024**

**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	0.0677	0.6184	0.7437	1.2400e-003		0.0282	0.0282		0.0265	0.0265	0.0000	106.6506	106.6506	0.0252	0.0000	107.2811
<b>Total</b>	<b>0.0677</b>	<b>0.6184</b>	<b>0.7437</b>	<b>1.2400e-003</b>		<b>0.0282</b>	<b>0.0282</b>		<b>0.0265</b>	<b>0.0265</b>	<b>0.0000</b>	<b>106.6506</b>	<b>106.6506</b>	<b>0.0252</b>	<b>0.0000</b>	<b>107.2811</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2024**

**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	4.0200e-003	0.1539	0.0459	6.0000e-004	0.0189	8.2000e-004	0.0197	5.4500e-003	7.9000e-004	6.2400e-003	0.0000	58.5869	58.5869	1.4300e-003	8.6200e-003	61.1901
Worker	0.0401	0.0236	0.3244	9.2000e-004	0.1098	5.6000e-004	0.1104	0.0292	5.1000e-004	0.0297	0.0000	85.8839	85.8839	2.5300e-003	2.3400e-003	86.6446
<b>Total</b>	<b>0.0441</b>	<b>0.1775</b>	<b>0.3702</b>	<b>1.5200e-003</b>	<b>0.1287</b>	<b>1.3800e-003</b>	<b>0.1300</b>	<b>0.0347</b>	<b>1.3000e-003</b>	<b>0.0360</b>	<b>0.0000</b>	<b>144.4707</b>	<b>144.4707</b>	<b>3.9600e-003</b>	<b>0.0110</b>	<b>147.8347</b>

**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	0.0677	0.6184	0.7437	1.2400e-003		0.0282	0.0282		0.0265	0.0265	0.0000	106.6505	106.6505	0.0252	0.0000	107.2810
<b>Total</b>	<b>0.0677</b>	<b>0.6184</b>	<b>0.7437</b>	<b>1.2400e-003</b>		<b>0.0282</b>	<b>0.0282</b>		<b>0.0265</b>	<b>0.0265</b>	<b>0.0000</b>	<b>106.6505</b>	<b>106.6505</b>	<b>0.0252</b>	<b>0.0000</b>	<b>107.2810</b>



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**3.4 Building Construction - 2024**

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	4.0200e-003	0.1539	0.0459	6.0000e-004	0.0189	8.2000e-004	0.0197	5.4500e-003	7.9000e-004	6.2400e-003	0.0000	58.5869	58.5869	1.4300e-003	8.6200e-003	61.1901
Worker	0.0401	0.0236	0.3244	9.2000e-004	0.1098	5.6000e-004	0.1104	0.0292	5.1000e-004	0.0297	0.0000	85.8839	85.8839	2.5300e-003	2.3400e-003	86.6446
<b>Total</b>	<b>0.0441</b>	<b>0.1775</b>	<b>0.3702</b>	<b>1.5200e-003</b>	<b>0.1287</b>	<b>1.3800e-003</b>	<b>0.1300</b>	<b>0.0347</b>	<b>1.3000e-003</b>	<b>0.0360</b>	<b>0.0000</b>	<b>144.4707</b>	<b>144.4707</b>	<b>3.9600e-003</b>	<b>0.0110</b>	<b>147.8347</b>

**3.4 Building Construction - 2025**

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	0.1422	1.2969	1.6728	2.8000e-003		0.0549	0.0549		0.0516	0.0516	0.0000	241.1962	241.1962	0.0567	0.0000	242.6137
<b>Total</b>	<b>0.1422</b>	<b>1.2969</b>	<b>1.6728</b>	<b>2.8000e-003</b>		<b>0.0549</b>	<b>0.0549</b>		<b>0.0516</b>	<b>0.0516</b>	<b>0.0000</b>	<b>241.1962</b>	<b>241.1962</b>	<b>0.0567</b>	<b>0.0000</b>	<b>242.6137</b>

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**3.4 Building Construction - 2025**

**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	8.7500e-003	0.3408	0.1012	1.3300e-003	0.0426	1.8300e-003	0.0444	0.0123	1.7500e-003	0.0141	0.0000	129.7776	129.7776	3.1700e-003	0.0191	135.5543
Worker	0.0851	0.0479	0.6860	2.0000e-003	0.2482	1.2100e-003	0.2495	0.0660	1.1100e-003	0.0671	0.0000	189.4763	189.4763	5.1900e-003	4.9500e-003	191.0804
<b>Total</b>	<b>0.0939</b>	<b>0.3887</b>	<b>0.7873</b>	<b>3.3300e-003</b>	<b>0.2909</b>	<b>3.0400e-003</b>	<b>0.2939</b>	<b>0.0783</b>	<b>2.8600e-003</b>	<b>0.0812</b>	<b>0.0000</b>	<b>319.2539</b>	<b>319.2539</b>	<b>8.3600e-003</b>	<b>0.0241</b>	<b>326.6347</b>

**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	0.1422	1.2969	1.6728	2.8000e-003		0.0549	0.0549		0.0516	0.0516	0.0000	241.1959	241.1959	0.0567	0.0000	242.6134
<b>Total</b>	<b>0.1422</b>	<b>1.2969</b>	<b>1.6728</b>	<b>2.8000e-003</b>		<b>0.0549</b>	<b>0.0549</b>		<b>0.0516</b>	<b>0.0516</b>	<b>0.0000</b>	<b>241.1959</b>	<b>241.1959</b>	<b>0.0567</b>	<b>0.0000</b>	<b>242.6134</b>

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**3.4 Building Construction - 2025**

**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	8.7500e-003	0.3408	0.1012	1.3300e-003	0.0426	1.8300e-003	0.0444	0.0123	1.7500e-003	0.0141	0.0000	129.7776	129.7776	3.1700e-003	0.0191	135.5543
Worker	0.0851	0.0479	0.6860	2.0000e-003	0.2482	1.2100e-003	0.2495	0.0660	1.1100e-003	0.0671	0.0000	189.4763	189.4763	5.1900e-003	4.9500e-003	191.0804
<b>Total</b>	<b>0.0939</b>	<b>0.3887</b>	<b>0.7873</b>	<b>3.3300e-003</b>	<b>0.2909</b>	<b>3.0400e-003</b>	<b>0.2939</b>	<b>0.0783</b>	<b>2.8600e-003</b>	<b>0.0812</b>	<b>0.0000</b>	<b>319.2539</b>	<b>319.2539</b>	<b>8.3600e-003</b>	<b>0.0241</b>	<b>326.6347</b>

**3.5 Paving - 2024**

**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	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	6.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0163</b>	<b>0.0953</b>	<b>0.1463</b>	<b>2.3000e-004</b>		<b>4.6900e-003</b>	<b>4.6900e-003</b>		<b>4.3100e-003</b>	<b>4.3100e-003</b>	<b>0.0000</b>	<b>20.0265</b>	<b>20.0265</b>	<b>6.4800e-003</b>	<b>0.0000</b>	<b>20.1885</b>

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**3.5 Paving - 2024**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	2.4000e-004	3.2500e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8617	0.8617	3.0000e-005	2.0000e-005	0.8693
<b>Total</b>	<b>4.0000e-004</b>	<b>2.4000e-004</b>	<b>3.2500e-003</b>	<b>1.0000e-005</b>	<b>1.1000e-003</b>	<b>1.0000e-005</b>	<b>1.1100e-003</b>	<b>2.9000e-004</b>	<b>1.0000e-005</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>0.8617</b>	<b>0.8617</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>0.8693</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	6.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0163</b>	<b>0.0953</b>	<b>0.1463</b>	<b>2.3000e-004</b>		<b>4.6900e-003</b>	<b>4.6900e-003</b>		<b>4.3100e-003</b>	<b>4.3100e-003</b>	<b>0.0000</b>	<b>20.0265</b>	<b>20.0265</b>	<b>6.4800e-003</b>	<b>0.0000</b>	<b>20.1884</b>

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**3.5 Paving - 2024**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	2.4000e-004	3.2500e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8617	0.8617	3.0000e-005	2.0000e-005	0.8693
<b>Total</b>	<b>4.0000e-004</b>	<b>2.4000e-004</b>	<b>3.2500e-003</b>	<b>1.0000e-005</b>	<b>1.1000e-003</b>	<b>1.0000e-005</b>	<b>1.1100e-003</b>	<b>2.9000e-004</b>	<b>1.0000e-005</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>0.8617</b>	<b>0.8617</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>0.8693</b>

**3.6 Architectural Coating - 2024**

**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	0.5624					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.4100e-003	0.0500	0.0742	1.2000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	10.4683	10.4683	5.9000e-004	0.0000	10.4831
<b>Total</b>	<b>0.5698</b>	<b>0.0500</b>	<b>0.0742</b>	<b>1.2000e-004</b>		<b>2.5000e-003</b>	<b>2.5000e-003</b>		<b>2.5000e-003</b>	<b>2.5000e-003</b>	<b>0.0000</b>	<b>10.4683</b>	<b>10.4683</b>	<b>5.9000e-004</b>	<b>0.0000</b>	<b>10.4831</b>

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**3.6 Architectural Coating - 2024**

**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	7.1500e-003	4.2100e-003	0.0578	1.6000e-004	0.0196	1.0000e-004	0.0197	5.2100e-003	9.0000e-005	5.3000e-003	0.0000	15.3097	15.3097	4.5000e-004	4.2000e-004	15.4453
<b>Total</b>	<b>7.1500e-003</b>	<b>4.2100e-003</b>	<b>0.0578</b>	<b>1.6000e-004</b>	<b>0.0196</b>	<b>1.0000e-004</b>	<b>0.0197</b>	<b>5.2100e-003</b>	<b>9.0000e-005</b>	<b>5.3000e-003</b>	<b>0.0000</b>	<b>15.3097</b>	<b>15.3097</b>	<b>4.5000e-004</b>	<b>4.2000e-004</b>	<b>15.4453</b>

**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	0.5624					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.4100e-003	0.0500	0.0742	1.2000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	10.4683	10.4683	5.9000e-004	0.0000	10.4831
<b>Total</b>	<b>0.5698</b>	<b>0.0500</b>	<b>0.0742</b>	<b>1.2000e-004</b>		<b>2.5000e-003</b>	<b>2.5000e-003</b>		<b>2.5000e-003</b>	<b>2.5000e-003</b>	<b>0.0000</b>	<b>10.4683</b>	<b>10.4683</b>	<b>5.9000e-004</b>	<b>0.0000</b>	<b>10.4831</b>

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**3.6 Architectural Coating - 2024**

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	7.1500e-003	4.2100e-003	0.0578	1.6000e-004	0.0196	1.0000e-004	0.0197	5.2100e-003	9.0000e-005	5.3000e-003	0.0000	15.3097	15.3097	4.5000e-004	4.2000e-004	15.4453
<b>Total</b>	<b>7.1500e-003</b>	<b>4.2100e-003</b>	<b>0.0578</b>	<b>1.6000e-004</b>	<b>0.0196</b>	<b>1.0000e-004</b>	<b>0.0197</b>	<b>5.2100e-003</b>	<b>9.0000e-005</b>	<b>5.3000e-003</b>	<b>0.0000</b>	<b>15.3097</b>	<b>15.3097</b>	<b>4.5000e-004</b>	<b>4.2000e-004</b>	<b>15.4453</b>

**3.6 Architectural Coating - 2025**

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.4952					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1249	0.1972	3.2000e-004		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	27.8305	27.8305	1.5200e-003	0.0000	27.8684
<b>Total</b>	<b>1.5138</b>	<b>0.1249</b>	<b>0.1972</b>	<b>3.2000e-004</b>		<b>5.6100e-003</b>	<b>5.6100e-003</b>		<b>5.6100e-003</b>	<b>5.6100e-003</b>	<b>0.0000</b>	<b>27.8305</b>	<b>27.8305</b>	<b>1.5200e-003</b>	<b>0.0000</b>	<b>27.8684</b>



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**3.6 Architectural Coating - 2025**

**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	0.0179	0.0100	0.1438	4.2000e-004	0.0520	2.5000e-004	0.0523	0.0138	2.3000e-004	0.0141	0.0000	39.7172	39.7172	1.0900e-003	1.0400e-003	40.0534
<b>Total</b>	<b>0.0179</b>	<b>0.0100</b>	<b>0.1438</b>	<b>4.2000e-004</b>	<b>0.0520</b>	<b>2.5000e-004</b>	<b>0.0523</b>	<b>0.0138</b>	<b>2.3000e-004</b>	<b>0.0141</b>	<b>0.0000</b>	<b>39.7172</b>	<b>39.7172</b>	<b>1.0900e-003</b>	<b>1.0400e-003</b>	<b>40.0534</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.4952					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1249	0.1972	3.2000e-004		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	27.8304	27.8304	1.5200e-003	0.0000	27.8684
<b>Total</b>	<b>1.5138</b>	<b>0.1249</b>	<b>0.1972</b>	<b>3.2000e-004</b>		<b>5.6100e-003</b>	<b>5.6100e-003</b>		<b>5.6100e-003</b>	<b>5.6100e-003</b>	<b>0.0000</b>	<b>27.8304</b>	<b>27.8304</b>	<b>1.5200e-003</b>	<b>0.0000</b>	<b>27.8684</b>

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**3.6 Architectural Coating - 2025**

**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	0.0179	0.0100	0.1438	4.2000e-004	0.0520	2.5000e-004	0.0523	0.0138	2.3000e-004	0.0141	0.0000	39.7172	39.7172	1.0900e-003	1.0400e-003	40.0534
<b>Total</b>	<b>0.0179</b>	<b>0.0100</b>	<b>0.1438</b>	<b>4.2000e-004</b>	<b>0.0520</b>	<b>2.5000e-004</b>	<b>0.0523</b>	<b>0.0138</b>	<b>2.3000e-004</b>	<b>0.0141</b>	<b>0.0000</b>	<b>39.7172</b>	<b>39.7172</b>	<b>1.0900e-003</b>	<b>1.0400e-003</b>	<b>40.0534</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive 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	0.6939	0.7844	5.7383	0.0113	1.2292	9.0400e-003	1.2382	0.3286	8.4400e-003	0.3370	0.0000	1,076.9712	1,076.9712	0.0799	0.0559	1,095.6147
Unmitigated	0.6939	0.7844	5.7383	0.0113	1.2292	9.0400e-003	1.2382	0.3286	8.4400e-003	0.3370	0.0000	1,076.9712	1,076.9712	0.0799	0.0559	1,095.6147

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,762.56	1,762.56	1762.56	3,317,455	3,317,455
Parking Lot	0.00	0.00	0.00		
<b>Total</b>	<b>1,762.56</b>	<b>1,762.56</b>	<b>1,762.56</b>	<b>3,317,455</b>	<b>3,317,455</b>

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	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 Mid Rise	7.33	3.67	4.77	46.50	12.50	41.00	86	11	3
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071
Parking Lot	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071

**5.0 Energy Detail**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

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	217.1931	217.1931	0.0200	2.4300e-003	218.4168
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	217.1931	217.1931	0.0200	2.4300e-003	218.4168
NaturalGas Mitigated	0.0165	0.1406	0.0598	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	162.8054	162.8054	3.1200e-003	2.9800e-003	163.7729
NaturalGas Unmitigated	0.0165	0.1406	0.0598	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	162.8054	162.8054	3.1200e-003	2.9800e-003	163.7729

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**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 Mid Rise	3.05086e+006	0.0165	0.1406	0.0598	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	162.8054	162.8054	3.1200e-003	2.9800e-003	163.7729
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0165</b>	<b>0.1406</b>	<b>0.0598</b>	<b>9.0000e-004</b>		<b>0.0114</b>	<b>0.0114</b>		<b>0.0114</b>	<b>0.0114</b>	<b>0.0000</b>	<b>162.8054</b>	<b>162.8054</b>	<b>3.1200e-003</b>	<b>2.9800e-003</b>	<b>163.7729</b>

**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 Mid Rise	3.05086e+006	0.0165	0.1406	0.0598	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	162.8054	162.8054	3.1200e-003	2.9800e-003	163.7729
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0165</b>	<b>0.1406</b>	<b>0.0598</b>	<b>9.0000e-004</b>		<b>0.0114</b>	<b>0.0114</b>		<b>0.0114</b>	<b>0.0114</b>	<b>0.0000</b>	<b>162.8054</b>	<b>162.8054</b>	<b>3.1200e-003</b>	<b>2.9800e-003</b>	<b>163.7729</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.26157e+006	204.8492	0.0189	2.2900e-003	206.0034
Parking Lot	76020	12.3439	1.1400e-003	1.4000e-004	12.4135
<b>Total</b>		<b>217.1931</b>	<b>0.0200</b>	<b>2.4300e-003</b>	<b>218.4168</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.26157e+006	204.8492	0.0189	2.2900e-003	206.0034
Parking Lot	76020	12.3439	1.1400e-003	1.4000e-004	12.4135
<b>Total</b>		<b>217.1931</b>	<b>0.0200</b>	<b>2.4300e-003</b>	<b>218.4168</b>

**6.0 Area Detail**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	1.5860	0.0385	3.3451	1.8000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	5.4714	5.4714	5.2600e-003	0.0000	5.6030
Unmitigated	1.5860	0.0385	3.3451	1.8000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	5.4714	5.4714	5.2600e-003	0.0000	5.6030



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.2058					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2794					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	0.1009	0.0385	3.3451	1.8000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	5.4714	5.4714	5.2600e-003	0.0000	5.6030
<b>Total</b>	<b>1.5860</b>	<b>0.0385</b>	<b>3.3451</b>	<b>1.8000e-004</b>		<b>0.0186</b>	<b>0.0186</b>		<b>0.0186</b>	<b>0.0186</b>	<b>0.0000</b>	<b>5.4714</b>	<b>5.4714</b>	<b>5.2600e-003</b>	<b>0.0000</b>	<b>5.6030</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.2058					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2794					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	0.1009	0.0385	3.3451	1.8000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	5.4714	5.4714	5.2600e-003	0.0000	5.6030
<b>Total</b>	<b>1.5860</b>	<b>0.0385</b>	<b>3.3451</b>	<b>1.8000e-004</b>		<b>0.0186</b>	<b>0.0186</b>		<b>0.0186</b>	<b>0.0186</b>	<b>0.0000</b>	<b>5.4714</b>	<b>5.4714</b>	<b>5.2600e-003</b>	<b>0.0000</b>	<b>5.6030</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

Apply Water Conservation Strategy

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	30.5986	0.0278	0.0165	36.2117
Unmitigated	32.1113	0.0280	0.0165	37.7330

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	21.1099 / 13.3084	32.1113	0.0280	0.0165	37.7330
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>32.1113</b>	<b>0.0280</b>	<b>0.0165</b>	<b>37.7330</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**7.2 Water by Land Use**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	21.1099 / 10.6467	30.5986	0.0278	0.0165	36.2117
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>30.5986</b>	<b>0.0278</b>	<b>0.0165</b>	<b>36.2117</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	30.2538	1.7880	0.0000	74.9524
Unmitigated	30.2538	1.7880	0.0000	74.9524

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	149.04	30.2538	1.7880	0.0000	74.9524
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>30.2538</b>	<b>1.7880</b>	<b>0.0000</b>	<b>74.9524</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	149.04	30.2538	1.7880	0.0000	74.9524
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>30.2538</b>	<b>1.7880</b>	<b>0.0000</b>	<b>74.9524</b>

**9.0 Operational Offroad**

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Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Guardian Madeira - Proposed Project**  
**Sacramento Metropolitan AQMD Air District, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	324.00	Dwelling Unit	8.42	324,000.00	865
Parking Lot	543.00	Space	4.89	217,200.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2026
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	357.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Lot acreage adjusted to represent total acreage of project site.

Construction Phase - Architectural coating assumed to start two weeks after the initiation of building construction, and last for the same duration.

Vehicle Trips - Based on project-specific traffic data provided by Fehr & Peers.

Water Mitigation - Compliant with MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	11/14/2025	10/31/2025
tblConstructionPhase	PhaseEndDate	9/19/2025	10/17/2025
tblConstructionPhase	PhaseEndDate	10/17/2025	8/23/2024



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblConstructionPhase	PhaseStartDate	10/18/2025	9/7/2024
tblConstructionPhase	PhaseStartDate	7/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	9/20/2025	7/27/2024
tblLandUse	LotAcreage	8.53	8.42
tblVehicleTrips	HO_TL	6.50	4.77
tblVehicleTrips	HS_TL	5.00	3.67
tblVehicleTrips	HW_TL	10.00	7.33
tblVehicleTrips	ST_TR	4.91	5.44
tblVehicleTrips	SU_TR	4.09	5.44

**2.0 Emissions Summary**

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Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
2024	16.6865	32.4058	28.8208	0.0692	19.7939	1.3362	21.0240	10.1388	1.2293	11.2704	0.0000	6,946.2250	6,946.2250	1.9472	0.2696	7,044.6542
2025	16.4940	17.2324	28.0586	0.0681	3.3884	0.6105	3.9988	0.9083	0.5773	1.4856	0.0000	6,852.5014	6,852.5014	0.7122	0.2617	6,948.2953
<b>Maximum</b>	<b>16.6865</b>	<b>32.4058</b>	<b>28.8208</b>	<b>0.0692</b>	<b>19.7939</b>	<b>1.3362</b>	<b>21.0240</b>	<b>10.1388</b>	<b>1.2293</b>	<b>11.2704</b>	<b>0.0000</b>	<b>6,946.2250</b>	<b>6,946.2250</b>	<b>1.9472</b>	<b>0.2696</b>	<b>7,044.6542</b>

**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					
2024	16.6865	32.4058	28.8208	0.0692	19.7939	1.3362	21.0240	10.1388	1.2293	11.2704	0.0000	6,946.2250	6,946.2250	1.9472	0.2696	7,044.6542
2025	16.4940	17.2324	28.0586	0.0681	3.3884	0.6105	3.9988	0.9083	0.5773	1.4856	0.0000	6,852.5014	6,852.5014	0.7122	0.2617	6,948.2953
<b>Maximum</b>	<b>16.6865</b>	<b>32.4058</b>	<b>28.8208</b>	<b>0.0692</b>	<b>19.7939</b>	<b>1.3362</b>	<b>21.0240</b>	<b>10.1388</b>	<b>1.2293</b>	<b>11.2704</b>	<b>0.0000</b>	<b>6,946.2250</b>	<b>6,946.2250</b>	<b>1.9472</b>	<b>0.2696</b>	<b>7,044.6542</b>



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	8.9449	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484	0.0000	48.2498	48.2498	0.0464	0.0000	49.4098
Energy	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
Mobile	4.8280	3.9790	33.3256	0.0666	6.9930	0.0497	7.0427	1.8640	0.0464	1.9104		7,001.3516	7,001.3516	0.4559	0.3250	7,109.5968
<b>Total</b>	<b>13.8630</b>	<b>5.0574</b>	<b>60.4137</b>	<b>0.0729</b>	<b>6.9930</b>	<b>0.2604</b>	<b>7.2534</b>	<b>1.8640</b>	<b>0.2571</b>	<b>2.1210</b>	<b>0.0000</b>	<b>8,032.9562</b>	<b>8,032.9562</b>	<b>0.5212</b>	<b>0.3430</b>	<b>8,148.2051</b>

**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	8.9449	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484	0.0000	48.2498	48.2498	0.0464	0.0000	49.4098
Energy	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
Mobile	4.8280	3.9790	33.3256	0.0666	6.9930	0.0497	7.0427	1.8640	0.0464	1.9104		7,001.3516	7,001.3516	0.4559	0.3250	7,109.5968
<b>Total</b>	<b>13.8630</b>	<b>5.0574</b>	<b>60.4137</b>	<b>0.0729</b>	<b>6.9930</b>	<b>0.2604</b>	<b>7.2534</b>	<b>1.8640</b>	<b>0.2571</b>	<b>2.1210</b>	<b>0.0000</b>	<b>8,032.9562</b>	<b>8,032.9562</b>	<b>0.5212</b>	<b>0.3430</b>	<b>8,148.2051</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	Site Preparation	Site Preparation	6/3/2024	6/14/2024	5	10	
2	Grading	Grading	6/15/2024	7/26/2024	5	30	
3	Building Construction	Building Construction	8/24/2024	10/17/2025	5	300	
4	Paving	Paving	7/27/2024	8/23/2024	5	20	
5	Architectural Coating	Architectural Coating	9/7/2024	10/31/2025	5	300	

**Acres of Grading (Site Preparation Phase): 15**

**Acres of Grading (Grading Phase): 90**

**Acres of Paving: 4.89**

**Residential Indoor: 656,100; Residential Outdoor: 218,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 13,032 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	325.00	70.00	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	65.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**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					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310		3,688.010 0	3,688.010 0	1.1928		3,717.829 4
<b>Total</b>	<b>2.6609</b>	<b>27.1760</b>	<b>18.3356</b>	<b>0.0381</b>	<b>19.6570</b>	<b>1.2294</b>	<b>20.8864</b>	<b>10.1025</b>	<b>1.1310</b>	<b>11.2335</b>		<b>3,688.010 0</b>	<b>3,688.010 0</b>	<b>1.1928</b>		<b>3,717.829 4</b>

**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	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
Worker	0.0567	0.0260	0.4554	1.2100e-003	0.1369	6.7000e-004	0.1376	0.0363	6.2000e-004	0.0369		124.8755	124.8755	3.1800e-003	2.9300e-003	125.8270
<b>Total</b>	<b>0.0567</b>	<b>0.0260</b>	<b>0.4554</b>	<b>1.2100e-003</b>	<b>0.1369</b>	<b>6.7000e-004</b>	<b>0.1376</b>	<b>0.0363</b>	<b>6.2000e-004</b>	<b>0.0369</b>		<b>124.8755</b>	<b>124.8755</b>	<b>3.1800e-003</b>	<b>2.9300e-003</b>	<b>125.8270</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**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					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310	0.0000	3,688.010 0	3,688.010 0	1.1928		3,717.829 4
<b>Total</b>	<b>2.6609</b>	<b>27.1760</b>	<b>18.3356</b>	<b>0.0381</b>	<b>19.6570</b>	<b>1.2294</b>	<b>20.8864</b>	<b>10.1025</b>	<b>1.1310</b>	<b>11.2335</b>	<b>0.0000</b>	<b>3,688.010 0</b>	<b>3,688.010 0</b>	<b>1.1928</b>		<b>3,717.829 4</b>

**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	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
Worker	0.0567	0.0260	0.4554	1.2100e-003	0.1369	6.7000e-004	0.1376	0.0363	6.2000e-004	0.0369		124.8755	124.8755	3.1800e-003	2.9300e-003	125.8270
<b>Total</b>	<b>0.0567</b>	<b>0.0260</b>	<b>0.4554</b>	<b>1.2100e-003</b>	<b>0.1369</b>	<b>6.7000e-004</b>	<b>0.1376</b>	<b>0.0363</b>	<b>6.2000e-004</b>	<b>0.0369</b>		<b>124.8755</b>	<b>124.8755</b>	<b>3.1800e-003</b>	<b>2.9300e-003</b>	<b>125.8270</b>



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
<b>Total</b>	<b>3.2181</b>	<b>32.3770</b>	<b>27.7228</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.3354</b>	<b>10.5390</b>	<b>3.6538</b>	<b>1.2286</b>	<b>4.8823</b>		<b>6,009.7487</b>	<b>6,009.7487</b>	<b>1.9437</b>		<b>6,058.3405</b>

**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	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
Worker	0.0630	0.0289	0.5060	1.3500e-003	0.1521	7.5000e-004	0.1529	0.0404	6.9000e-004	0.0410		138.7506	138.7506	3.5300e-003	3.2500e-003	139.8078
<b>Total</b>	<b>0.0630</b>	<b>0.0289</b>	<b>0.5060</b>	<b>1.3500e-003</b>	<b>0.1521</b>	<b>7.5000e-004</b>	<b>0.1529</b>	<b>0.0404</b>	<b>6.9000e-004</b>	<b>0.0410</b>		<b>138.7506</b>	<b>138.7506</b>	<b>3.5300e-003</b>	<b>3.2500e-003</b>	<b>139.8078</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286	0.0000	6,009.748 7	6,009.748 7	1.9437		6,058.340 5
<b>Total</b>	<b>3.2181</b>	<b>32.3770</b>	<b>27.7228</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.3354</b>	<b>10.5390</b>	<b>3.6538</b>	<b>1.2286</b>	<b>4.8823</b>	<b>0.0000</b>	<b>6,009.748 7</b>	<b>6,009.748 7</b>	<b>1.9437</b>		<b>6,058.340 5</b>

**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	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
Worker	0.0630	0.0289	0.5060	1.3500e-003	0.1521	7.5000e-004	0.1529	0.0404	6.9000e-004	0.0410		138.7506	138.7506	3.5300e-003	3.2500e-003	139.8078
<b>Total</b>	<b>0.0630</b>	<b>0.0289</b>	<b>0.5060</b>	<b>1.3500e-003</b>	<b>0.1521</b>	<b>7.5000e-004</b>	<b>0.1529</b>	<b>0.0404</b>	<b>6.9000e-004</b>	<b>0.0410</b>		<b>138.7506</b>	<b>138.7506</b>	<b>3.5300e-003</b>	<b>3.2500e-003</b>	<b>139.8078</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2024**

**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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
<b>Total</b>	<b>1.4716</b>	<b>13.4438</b>	<b>16.1668</b>	<b>0.0270</b>		<b>0.6133</b>	<b>0.6133</b>		<b>0.5769</b>	<b>0.5769</b>		<b>2,555.6989</b>	<b>2,555.6989</b>	<b>0.6044</b>		<b>2,570.8077</b>

**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	0.0000
Vendor	0.0896	3.1769	0.9774	0.0131	0.4217	0.0178	0.4395	0.1214	0.0171	0.1384		1,403.4422	1,403.4422	0.0344	0.2062	1,465.7501
Worker	1.0229	0.4688	8.2220	0.0219	2.4723	0.0121	2.4844	0.6558	0.0112	0.6670		2,254.6966	2,254.6966	0.0573	0.0528	2,271.8768
<b>Total</b>	<b>1.1125</b>	<b>3.6457</b>	<b>9.1994</b>	<b>0.0349</b>	<b>2.8940</b>	<b>0.0300</b>	<b>2.9239</b>	<b>0.7772</b>	<b>0.0282</b>	<b>0.8054</b>		<b>3,658.1388</b>	<b>3,658.1388</b>	<b>0.0917</b>	<b>0.2590</b>	<b>3,737.6269</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2024**

**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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
<b>Total</b>	<b>1.4716</b>	<b>13.4438</b>	<b>16.1668</b>	<b>0.0270</b>		<b>0.6133</b>	<b>0.6133</b>		<b>0.5769</b>	<b>0.5769</b>	<b>0.0000</b>	<b>2,555.6989</b>	<b>2,555.6989</b>	<b>0.6044</b>		<b>2,570.8077</b>

**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	0.0000
Vendor	0.0896	3.1769	0.9774	0.0131	0.4217	0.0178	0.4395	0.1214	0.0171	0.1384		1,403.4422	1,403.4422	0.0344	0.2062	1,465.7501
Worker	1.0229	0.4688	8.2220	0.0219	2.4723	0.0121	2.4844	0.6558	0.0112	0.6670		2,254.6966	2,254.6966	0.0573	0.0528	2,271.8768
<b>Total</b>	<b>1.1125</b>	<b>3.6457</b>	<b>9.1994</b>	<b>0.0349</b>	<b>2.8940</b>	<b>0.0300</b>	<b>2.9239</b>	<b>0.7772</b>	<b>0.0282</b>	<b>0.8054</b>		<b>3,658.1388</b>	<b>3,658.1388</b>	<b>0.0917</b>	<b>0.2590</b>	<b>3,737.6269</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2025**

**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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.474 4	2,556.474 4	0.6010		2,571.498 1
<b>Total</b>	<b>1.3674</b>	<b>12.4697</b>	<b>16.0847</b>	<b>0.0270</b>		<b>0.5276</b>	<b>0.5276</b>		<b>0.4963</b>	<b>0.4963</b>		<b>2,556.474 4</b>	<b>2,556.474 4</b>	<b>0.6010</b>		<b>2,571.498 1</b>

**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	0.0000
Vendor	0.0864	3.1123	0.9545	0.0128	0.4216	0.0175	0.4391	0.1214	0.0167	0.1381		1,374.983 9	1,374.983 9	0.0337	0.2024	1,436.142 0
Worker	0.9603	0.4208	7.6752	0.0211	2.4723	0.0116	2.4839	0.6558	0.0107	0.6665		2,199.662 6	2,199.662 6	0.0519	0.0494	2,215.686 1
<b>Total</b>	<b>1.0467</b>	<b>3.5331</b>	<b>8.6297</b>	<b>0.0339</b>	<b>2.8939</b>	<b>0.0291</b>	<b>2.9230</b>	<b>0.7771</b>	<b>0.0274</b>	<b>0.8045</b>		<b>3,574.646 4</b>	<b>3,574.646 4</b>	<b>0.0856</b>	<b>0.2518</b>	<b>3,651.828 1</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2025**

**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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.474 4	2,556.474 4	0.6010		2,571.498 1
<b>Total</b>	<b>1.3674</b>	<b>12.4697</b>	<b>16.0847</b>	<b>0.0270</b>		<b>0.5276</b>	<b>0.5276</b>		<b>0.4963</b>	<b>0.4963</b>	<b>0.0000</b>	<b>2,556.474 4</b>	<b>2,556.474 4</b>	<b>0.6010</b>		<b>2,571.498 1</b>

**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	0.0000
Vendor	0.0864	3.1123	0.9545	0.0128	0.4216	0.0175	0.4391	0.1214	0.0167	0.1381		1,374.983 9	1,374.983 9	0.0337	0.2024	1,436.142 0
Worker	0.9603	0.4208	7.6752	0.0211	2.4723	0.0116	2.4839	0.6558	0.0107	0.6665		2,199.662 6	2,199.662 6	0.0519	0.0494	2,215.686 1
<b>Total</b>	<b>1.0467</b>	<b>3.5331</b>	<b>8.6297</b>	<b>0.0339</b>	<b>2.8939</b>	<b>0.0291</b>	<b>2.9230</b>	<b>0.7771</b>	<b>0.0274</b>	<b>0.8045</b>		<b>3,574.646 4</b>	<b>3,574.646 4</b>	<b>0.0856</b>	<b>0.2518</b>	<b>3,651.828 1</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Paving - 2024**

**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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.6406					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.6288</b>	<b>9.5246</b>	<b>14.6258</b>	<b>0.0228</b>		<b>0.4685</b>	<b>0.4685</b>		<b>0.4310</b>	<b>0.4310</b>		<b>2,207.547 2</b>	<b>2,207.547 2</b>	<b>0.7140</b>		<b>2,225.396 3</b>

**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	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
Worker	0.0472	0.0216	0.3795	1.0100e-003	0.1141	5.6000e-004	0.1147	0.0303	5.2000e-004	0.0308		104.0629	104.0629	2.6500e-003	2.4400e-003	104.8559
<b>Total</b>	<b>0.0472</b>	<b>0.0216</b>	<b>0.3795</b>	<b>1.0100e-003</b>	<b>0.1141</b>	<b>5.6000e-004</b>	<b>0.1147</b>	<b>0.0303</b>	<b>5.2000e-004</b>	<b>0.0308</b>		<b>104.0629</b>	<b>104.0629</b>	<b>2.6500e-003</b>	<b>2.4400e-003</b>	<b>104.8559</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Paving - 2024**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.6406					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.6288</b>	<b>9.5246</b>	<b>14.6258</b>	<b>0.0228</b>		<b>0.4685</b>	<b>0.4685</b>		<b>0.4310</b>	<b>0.4310</b>	<b>0.0000</b>	<b>2,207.547 2</b>	<b>2,207.547 2</b>	<b>0.7140</b>		<b>2,225.396 3</b>

**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	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
Worker	0.0472	0.0216	0.3795	1.0100e-003	0.1141	5.6000e-004	0.1147	0.0303	5.2000e-004	0.0308		104.0629	104.0629	2.6500e-003	2.4400e-003	104.8559
<b>Total</b>	<b>0.0472</b>	<b>0.0216</b>	<b>0.3795</b>	<b>1.0100e-003</b>	<b>0.1141</b>	<b>5.6000e-004</b>	<b>0.1147</b>	<b>0.0303</b>	<b>5.2000e-004</b>	<b>0.0308</b>		<b>104.0629</b>	<b>104.0629</b>	<b>2.6500e-003</b>	<b>2.4400e-003</b>	<b>104.8559</b>



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	13.7170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>13.8978</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

**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	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
Worker	0.2046	0.0938	1.6444	4.3700e-003	0.4945	2.4300e-003	0.4969	0.1312	2.2300e-003	0.1334		450.9393	450.9393	0.0115	0.0106	454.3754
<b>Total</b>	<b>0.2046</b>	<b>0.0938</b>	<b>1.6444</b>	<b>4.3700e-003</b>	<b>0.4945</b>	<b>2.4300e-003</b>	<b>0.4969</b>	<b>0.1312</b>	<b>2.2300e-003</b>	<b>0.1334</b>		<b>450.9393</b>	<b>450.9393</b>	<b>0.0115</b>	<b>0.0106</b>	<b>454.3754</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	13.7170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>13.8978</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

**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	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
Worker	0.2046	0.0938	1.6444	4.3700e-003	0.4945	2.4300e-003	0.4969	0.1312	2.2300e-003	0.1334		450.9393	450.9393	0.0115	0.0106	454.3754
<b>Total</b>	<b>0.2046</b>	<b>0.0938</b>	<b>1.6444</b>	<b>4.3700e-003</b>	<b>0.4945</b>	<b>2.4300e-003</b>	<b>0.4969</b>	<b>0.1312</b>	<b>2.2300e-003</b>	<b>0.1334</b>		<b>450.9393</b>	<b>450.9393</b>	<b>0.0115</b>	<b>0.0106</b>	<b>454.3754</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	13.7170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
<b>Total</b>	<b>13.8879</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.8319</b>

**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	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
Worker	0.1921	0.0842	1.5351	4.2200e-003	0.4945	2.3200e-003	0.4968	0.1312	2.1400e-003	0.1333		439.9325	439.9325	0.0104	9.8800e-003	443.1372
<b>Total</b>	<b>0.1921</b>	<b>0.0842</b>	<b>1.5351</b>	<b>4.2200e-003</b>	<b>0.4945</b>	<b>2.3200e-003</b>	<b>0.4968</b>	<b>0.1312</b>	<b>2.1400e-003</b>	<b>0.1333</b>		<b>439.9325</b>	<b>439.9325</b>	<b>0.0104</b>	<b>9.8800e-003</b>	<b>443.1372</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	13.7170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
<b>Total</b>	<b>13.8879</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.8319</b>

**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	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
Worker	0.1921	0.0842	1.5351	4.2200e-003	0.4945	2.3200e-003	0.4968	0.1312	2.1400e-003	0.1333		439.9325	439.9325	0.0104	9.8800e-003	443.1372
<b>Total</b>	<b>0.1921</b>	<b>0.0842</b>	<b>1.5351</b>	<b>4.2200e-003</b>	<b>0.4945</b>	<b>2.3200e-003</b>	<b>0.4968</b>	<b>0.1312</b>	<b>2.1400e-003</b>	<b>0.1333</b>		<b>439.9325</b>	<b>439.9325</b>	<b>0.0104</b>	<b>9.8800e-003</b>	<b>443.1372</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	4.8280	3.9790	33.3256	0.0666	6.9930	0.0497	7.0427	1.8640	0.0464	1.9104		7,001.3516	7,001.3516	0.4559	0.3250	7,109.5968
Unmitigated	4.8280	3.9790	33.3256	0.0666	6.9930	0.0497	7.0427	1.8640	0.0464	1.9104		7,001.3516	7,001.3516	0.4559	0.3250	7,109.5968

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,762.56	1,762.56	1762.56	3,317,455	3,317,455
Parking Lot	0.00	0.00	0.00		
<b>Total</b>	<b>1,762.56</b>	<b>1,762.56</b>	<b>1,762.56</b>	<b>3,317,455</b>	<b>3,317,455</b>

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	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 Mid Rise	7.33	3.67	4.77	46.50	12.50	41.00	86	11	3
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071
Parking Lot	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071

**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	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
NaturalGas Unmitigated	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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 Mid Rise	8358.52	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0901</b>	<b>0.7703</b>	<b>0.3278</b>	<b>4.9200e-003</b>		<b>0.0623</b>	<b>0.0623</b>		<b>0.0623</b>	<b>0.0623</b>		<b>983.3549</b>	<b>983.3549</b>	<b>0.0189</b>	<b>0.0180</b>	<b>989.1985</b>

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 Mid Rise	8.35852	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0901</b>	<b>0.7703</b>	<b>0.3278</b>	<b>4.9200e-003</b>		<b>0.0623</b>	<b>0.0623</b>		<b>0.0623</b>	<b>0.0623</b>		<b>983.3549</b>	<b>983.3549</b>	<b>0.0189</b>	<b>0.0180</b>	<b>989.1985</b>

**6.0 Area Detail**

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	8.9449	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484	0.0000	48.2498	48.2498	0.0464	0.0000	49.4098
Unmitigated	8.9449	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484	0.0000	48.2498	48.2498	0.0464	0.0000	49.4098



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	1.1274					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.0105					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	0.8069	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484		48.2498	48.2498	0.0464		49.4098
<b>Total</b>	<b>8.9449</b>	<b>0.3081</b>	<b>26.7604</b>	<b>1.4200e-003</b>		<b>0.1484</b>	<b>0.1484</b>		<b>0.1484</b>	<b>0.1484</b>	<b>0.0000</b>	<b>48.2498</b>	<b>48.2498</b>	<b>0.0464</b>	<b>0.0000</b>	<b>49.4098</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	1.1274					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.0105					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	0.8069	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484		48.2498	48.2498	0.0464		49.4098
<b>Total</b>	<b>8.9449</b>	<b>0.3081</b>	<b>26.7604</b>	<b>1.4200e-003</b>		<b>0.1484</b>	<b>0.1484</b>		<b>0.1484</b>	<b>0.1484</b>	<b>0.0000</b>	<b>48.2498</b>	<b>48.2498</b>	<b>0.0464</b>	<b>0.0000</b>	<b>49.4098</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

Apply Water Conservation Strategy

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Guardian Madeira - Proposed Project  
Sacramento Metropolitan AQMD Air District, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	324.00	Dwelling Unit	8.42	324,000.00	865
Parking Lot	543.00	Space	4.89	217,200.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2026
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	357.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Lot acreage adjusted to represent total acreage of project site.

Construction Phase - Architectural coating assumed to start two weeks after the initiation of building construction, and last for the same duration.

Vehicle Trips - Based on project-specific traffic data provided by Fehr & Peers.

Water Mitigation - Compliant with MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	11/14/2025	10/31/2025
tblConstructionPhase	PhaseEndDate	9/19/2025	10/17/2025
tblConstructionPhase	PhaseEndDate	10/17/2025	8/23/2024

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblConstructionPhase	PhaseStartDate	10/18/2025	9/7/2024
tblConstructionPhase	PhaseStartDate	7/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	9/20/2025	7/27/2024
tblLandUse	LotAcreage	8.53	8.42
tblVehicleTrips	HO_TL	6.50	4.77
tblVehicleTrips	HS_TL	5.00	3.67
tblVehicleTrips	HW_TL	10.00	7.33
tblVehicleTrips	ST_TR	4.91	5.44
tblVehicleTrips	SU_TR	4.09	5.44

**2.0 Emissions Summary**

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Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
2024	16.5452	32.4123	28.1656	0.0664	19.7939	1.3362	21.0240	10.1388	1.2293	11.2704	0.0000	6,649.3100	6,649.3100	1.9478	0.2794	6,750.9142
2025	16.3625	17.5810	26.9825	0.0653	3.3884	0.6106	3.9990	0.9083	0.5775	1.4858	0.0000	6,563.6757	6,563.6757	0.7223	0.2708	6,662.4344
<b>Maximum</b>	<b>16.5452</b>	<b>32.4123</b>	<b>28.1656</b>	<b>0.0664</b>	<b>19.7939</b>	<b>1.3362</b>	<b>21.0240</b>	<b>10.1388</b>	<b>1.2293</b>	<b>11.2704</b>	<b>0.0000</b>	<b>6,649.3100</b>	<b>6,649.3100</b>	<b>1.9478</b>	<b>0.2794</b>	<b>6,750.9142</b>

**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					
2024	16.5452	32.4123	28.1656	0.0664	19.7939	1.3362	21.0240	10.1388	1.2293	11.2704	0.0000	6,649.3100	6,649.3100	1.9478	0.2794	6,750.9142
2025	16.3625	17.5810	26.9825	0.0653	3.3884	0.6106	3.9990	0.9083	0.5775	1.4858	0.0000	6,563.6757	6,563.6757	0.7223	0.2708	6,662.4344
<b>Maximum</b>	<b>16.5452</b>	<b>32.4123</b>	<b>28.1656</b>	<b>0.0664</b>	<b>19.7939</b>	<b>1.3362</b>	<b>21.0240</b>	<b>10.1388</b>	<b>1.2293</b>	<b>11.2704</b>	<b>0.0000</b>	<b>6,649.3100</b>	<b>6,649.3100</b>	<b>1.9478</b>	<b>0.2794</b>	<b>6,750.9142</b>



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	8.9449	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484	0.0000	48.2498	48.2498	0.0464	0.0000	49.4098
Energy	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
Mobile	3.6255	4.5944	34.1050	0.0609	6.9930	0.0498	7.0428	1.8640	0.0465	1.9105		6,410.5285	6,410.5285	0.5249	0.3552	6,529.4910
<b>Total</b>	<b>12.6605</b>	<b>5.6728</b>	<b>61.1931</b>	<b>0.0673</b>	<b>6.9930</b>	<b>0.2604</b>	<b>7.2535</b>	<b>1.8640</b>	<b>0.2571</b>	<b>2.1211</b>	<b>0.0000</b>	<b>7,442.1331</b>	<b>7,442.1331</b>	<b>0.5901</b>	<b>0.3732</b>	<b>7,568.0993</b>

**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	8.9449	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484	0.0000	48.2498	48.2498	0.0464	0.0000	49.4098
Energy	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
Mobile	3.6255	4.5944	34.1050	0.0609	6.9930	0.0498	7.0428	1.8640	0.0465	1.9105		6,410.5285	6,410.5285	0.5249	0.3552	6,529.4910
<b>Total</b>	<b>12.6605</b>	<b>5.6728</b>	<b>61.1931</b>	<b>0.0673</b>	<b>6.9930</b>	<b>0.2604</b>	<b>7.2535</b>	<b>1.8640</b>	<b>0.2571</b>	<b>2.1211</b>	<b>0.0000</b>	<b>7,442.1331</b>	<b>7,442.1331</b>	<b>0.5901</b>	<b>0.3732</b>	<b>7,568.0993</b>



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	Site Preparation	Site Preparation	6/3/2024	6/14/2024	5	10	
2	Grading	Grading	6/15/2024	7/26/2024	5	30	
3	Building Construction	Building Construction	8/24/2024	10/17/2025	5	300	
4	Paving	Paving	7/27/2024	8/23/2024	5	20	
5	Architectural Coating	Architectural Coating	9/7/2024	10/31/2025	5	300	

**Acres of Grading (Site Preparation Phase): 15**

**Acres of Grading (Grading Phase): 90**

**Acres of Paving: 4.89**

**Residential Indoor: 656,100; Residential Outdoor: 218,700; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 13,032 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	325.00	70.00	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	65.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**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					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310		3,688.010 0	3,688.010 0	1.1928		3,717.829 4
<b>Total</b>	<b>2.6609</b>	<b>27.1760</b>	<b>18.3356</b>	<b>0.0381</b>	<b>19.6570</b>	<b>1.2294</b>	<b>20.8864</b>	<b>10.1025</b>	<b>1.1310</b>	<b>11.2335</b>		<b>3,688.010 0</b>	<b>3,688.010 0</b>	<b>1.1928</b>		<b>3,717.829 4</b>

**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	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
Worker	0.0503	0.0318	0.3985	1.0800e-003	0.1369	6.7000e-004	0.1376	0.0363	6.2000e-004	0.0369		111.1171	111.1171	3.6800e-003	3.3500e-003	112.2087
<b>Total</b>	<b>0.0503</b>	<b>0.0318</b>	<b>0.3985</b>	<b>1.0800e-003</b>	<b>0.1369</b>	<b>6.7000e-004</b>	<b>0.1376</b>	<b>0.0363</b>	<b>6.2000e-004</b>	<b>0.0369</b>		<b>111.1171</b>	<b>111.1171</b>	<b>3.6800e-003</b>	<b>3.3500e-003</b>	<b>112.2087</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.2 Site Preparation - 2024**

**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					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310	0.0000	3,688.010 0	3,688.010 0	1.1928		3,717.829 4
<b>Total</b>	<b>2.6609</b>	<b>27.1760</b>	<b>18.3356</b>	<b>0.0381</b>	<b>19.6570</b>	<b>1.2294</b>	<b>20.8864</b>	<b>10.1025</b>	<b>1.1310</b>	<b>11.2335</b>	<b>0.0000</b>	<b>3,688.010 0</b>	<b>3,688.010 0</b>	<b>1.1928</b>		<b>3,717.829 4</b>

**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	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
Worker	0.0503	0.0318	0.3985	1.0800e-003	0.1369	6.7000e-004	0.1376	0.0363	6.2000e-004	0.0369		111.1171	111.1171	3.6800e-003	3.3500e-003	112.2087
<b>Total</b>	<b>0.0503</b>	<b>0.0318</b>	<b>0.3985</b>	<b>1.0800e-003</b>	<b>0.1369</b>	<b>6.7000e-004</b>	<b>0.1376</b>	<b>0.0363</b>	<b>6.2000e-004</b>	<b>0.0369</b>		<b>111.1171</b>	<b>111.1171</b>	<b>3.6800e-003</b>	<b>3.3500e-003</b>	<b>112.2087</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
<b>Total</b>	<b>3.2181</b>	<b>32.3770</b>	<b>27.7228</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.3354</b>	<b>10.5390</b>	<b>3.6538</b>	<b>1.2286</b>	<b>4.8823</b>		<b>6,009.7487</b>	<b>6,009.7487</b>	<b>1.9437</b>		<b>6,058.3405</b>

**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	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
Worker	0.0559	0.0354	0.4428	1.2000e-003	0.1521	7.5000e-004	0.1529	0.0404	6.9000e-004	0.0410		123.4634	123.4634	4.0900e-003	3.7300e-003	124.6763
<b>Total</b>	<b>0.0559</b>	<b>0.0354</b>	<b>0.4428</b>	<b>1.2000e-003</b>	<b>0.1521</b>	<b>7.5000e-004</b>	<b>0.1529</b>	<b>0.0404</b>	<b>6.9000e-004</b>	<b>0.0410</b>		<b>123.4634</b>	<b>123.4634</b>	<b>4.0900e-003</b>	<b>3.7300e-003</b>	<b>124.6763</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.3 Grading - 2024**

**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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286	0.0000	6,009.748 7	6,009.748 7	1.9437		6,058.340 5
<b>Total</b>	<b>3.2181</b>	<b>32.3770</b>	<b>27.7228</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.3354</b>	<b>10.5390</b>	<b>3.6538</b>	<b>1.2286</b>	<b>4.8823</b>	<b>0.0000</b>	<b>6,009.748 7</b>	<b>6,009.748 7</b>	<b>1.9437</b>		<b>6,058.340 5</b>

**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	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
Worker	0.0559	0.0354	0.4428	1.2000e-003	0.1521	7.5000e-004	0.1529	0.0404	6.9000e-004	0.0410		123.4634	123.4634	4.0900e-003	3.7300e-003	124.6763
<b>Total</b>	<b>0.0559</b>	<b>0.0354</b>	<b>0.4428</b>	<b>1.2000e-003</b>	<b>0.1521</b>	<b>7.5000e-004</b>	<b>0.1529</b>	<b>0.0404</b>	<b>6.9000e-004</b>	<b>0.0410</b>		<b>123.4634</b>	<b>123.4634</b>	<b>4.0900e-003</b>	<b>3.7300e-003</b>	<b>124.6763</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2024**

**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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
<b>Total</b>	<b>1.4716</b>	<b>13.4438</b>	<b>16.1668</b>	<b>0.0270</b>		<b>0.6133</b>	<b>0.6133</b>		<b>0.5769</b>	<b>0.5769</b>		<b>2,555.6989</b>	<b>2,555.6989</b>	<b>0.6044</b>		<b>2,570.8077</b>

**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	0.0000
Vendor	0.0865	3.4155	1.0224	0.0131	0.4217	0.0180	0.4397	0.1214	0.0172	0.1386		1,404.6262	1,404.6262	0.0342	0.2067	1,467.0745
Worker	0.9078	0.5748	7.1949	0.0195	2.4723	0.0121	2.4844	0.6558	0.0112	0.6670		2,006.2807	2,006.2807	0.0664	0.0606	2,025.9899
<b>Total</b>	<b>0.9943</b>	<b>3.9903</b>	<b>8.2173</b>	<b>0.0325</b>	<b>2.8940</b>	<b>0.0302</b>	<b>2.9241</b>	<b>0.7772</b>	<b>0.0284</b>	<b>0.8056</b>		<b>3,410.9070</b>	<b>3,410.9070</b>	<b>0.1006</b>	<b>0.2673</b>	<b>3,493.0643</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2024**

**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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
<b>Total</b>	<b>1.4716</b>	<b>13.4438</b>	<b>16.1668</b>	<b>0.0270</b>		<b>0.6133</b>	<b>0.6133</b>		<b>0.5769</b>	<b>0.5769</b>	<b>0.0000</b>	<b>2,555.6989</b>	<b>2,555.6989</b>	<b>0.6044</b>		<b>2,570.8077</b>

**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	0.0000
Vendor	0.0865	3.4155	1.0224	0.0131	0.4217	0.0180	0.4397	0.1214	0.0172	0.1386		1,404.6262	1,404.6262	0.0342	0.2067	1,467.0745
Worker	0.9078	0.5748	7.1949	0.0195	2.4723	0.0121	2.4844	0.6558	0.0112	0.6670		2,006.2807	2,006.2807	0.0664	0.0606	2,025.9899
<b>Total</b>	<b>0.9943</b>	<b>3.9903</b>	<b>8.2173</b>	<b>0.0325</b>	<b>2.8940</b>	<b>0.0302</b>	<b>2.9241</b>	<b>0.7772</b>	<b>0.0284</b>	<b>0.8056</b>		<b>3,410.9070</b>	<b>3,410.9070</b>	<b>0.1006</b>	<b>0.2673</b>	<b>3,493.0643</b>



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2025**

**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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.474 4	2,556.474 4	0.6010		2,571.498 1
<b>Total</b>	<b>1.3674</b>	<b>12.4697</b>	<b>16.0847</b>	<b>0.0270</b>		<b>0.5276</b>	<b>0.5276</b>		<b>0.4963</b>	<b>0.4963</b>		<b>2,556.474 4</b>	<b>2,556.474 4</b>	<b>0.6010</b>		<b>2,571.498 1</b>

**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	0.0000
Vendor	0.0832	3.3470	0.9984	0.0128	0.4216	0.0177	0.4393	0.1214	0.0169	0.1382		1,376.299 0	1,376.299 0	0.0335	0.2029	1,437.593 9
Worker	0.8534	0.5157	6.7420	0.0188	2.4723	0.0116	2.4839	0.6558	0.0107	0.6665		1,957.878 5	1,957.878 5	0.0604	0.0566	1,976.258 8
<b>Total</b>	<b>0.9366</b>	<b>3.8627</b>	<b>7.7403</b>	<b>0.0316</b>	<b>2.8939</b>	<b>0.0293</b>	<b>2.9232</b>	<b>0.7771</b>	<b>0.0276</b>	<b>0.8047</b>		<b>3,334.177 6</b>	<b>3,334.177 6</b>	<b>0.0939</b>	<b>0.2595</b>	<b>3,413.852 7</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.4 Building Construction - 2025**

**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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.474 4	2,556.474 4	0.6010		2,571.498 1
<b>Total</b>	<b>1.3674</b>	<b>12.4697</b>	<b>16.0847</b>	<b>0.0270</b>		<b>0.5276</b>	<b>0.5276</b>		<b>0.4963</b>	<b>0.4963</b>	<b>0.0000</b>	<b>2,556.474 4</b>	<b>2,556.474 4</b>	<b>0.6010</b>		<b>2,571.498 1</b>

**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	0.0000
Vendor	0.0832	3.3470	0.9984	0.0128	0.4216	0.0177	0.4393	0.1214	0.0169	0.1382		1,376.299 0	1,376.299 0	0.0335	0.2029	1,437.593 9
Worker	0.8534	0.5157	6.7420	0.0188	2.4723	0.0116	2.4839	0.6558	0.0107	0.6665		1,957.878 5	1,957.878 5	0.0604	0.0566	1,976.258 8
<b>Total</b>	<b>0.9366</b>	<b>3.8627</b>	<b>7.7403</b>	<b>0.0316</b>	<b>2.8939</b>	<b>0.0293</b>	<b>2.9232</b>	<b>0.7771</b>	<b>0.0276</b>	<b>0.8047</b>		<b>3,334.177 6</b>	<b>3,334.177 6</b>	<b>0.0939</b>	<b>0.2595</b>	<b>3,413.852 7</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Paving - 2024**

**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	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.6406					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.6288</b>	<b>9.5246</b>	<b>14.6258</b>	<b>0.0228</b>		<b>0.4685</b>	<b>0.4685</b>		<b>0.4310</b>	<b>0.4310</b>		<b>2,207.547 2</b>	<b>2,207.547 2</b>	<b>0.7140</b>		<b>2,225.396 3</b>

**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	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
Worker	0.0419	0.0265	0.3321	9.0000e-004	0.1141	5.6000e-004	0.1147	0.0303	5.2000e-004	0.0308		92.5976	92.5976	3.0600e-003	2.8000e-003	93.5072
<b>Total</b>	<b>0.0419</b>	<b>0.0265</b>	<b>0.3321</b>	<b>9.0000e-004</b>	<b>0.1141</b>	<b>5.6000e-004</b>	<b>0.1147</b>	<b>0.0303</b>	<b>5.2000e-004</b>	<b>0.0308</b>		<b>92.5976</b>	<b>92.5976</b>	<b>3.0600e-003</b>	<b>2.8000e-003</b>	<b>93.5072</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.5 Paving - 2024**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.547 2	2,207.547 2	0.7140		2,225.396 3
Paving	0.6406					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.6288</b>	<b>9.5246</b>	<b>14.6258</b>	<b>0.0228</b>		<b>0.4685</b>	<b>0.4685</b>		<b>0.4310</b>	<b>0.4310</b>	<b>0.0000</b>	<b>2,207.547 2</b>	<b>2,207.547 2</b>	<b>0.7140</b>		<b>2,225.396 3</b>

**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	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
Worker	0.0419	0.0265	0.3321	9.0000e-004	0.1141	5.6000e-004	0.1147	0.0303	5.2000e-004	0.0308		92.5976	92.5976	3.0600e-003	2.8000e-003	93.5072
<b>Total</b>	<b>0.0419</b>	<b>0.0265</b>	<b>0.3321</b>	<b>9.0000e-004</b>	<b>0.1141</b>	<b>5.6000e-004</b>	<b>0.1147</b>	<b>0.0303</b>	<b>5.2000e-004</b>	<b>0.0308</b>		<b>92.5976</b>	<b>92.5976</b>	<b>3.0600e-003</b>	<b>2.8000e-003</b>	<b>93.5072</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	13.7170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>13.8978</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

**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	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
Worker	0.1816	0.1150	1.4390	3.8900e-003	0.4945	2.4300e-003	0.4969	0.1312	2.2300e-003	0.1334		401.2561	401.2561	0.0133	0.0121	405.1980
<b>Total</b>	<b>0.1816</b>	<b>0.1150</b>	<b>1.4390</b>	<b>3.8900e-003</b>	<b>0.4945</b>	<b>2.4300e-003</b>	<b>0.4969</b>	<b>0.1312</b>	<b>2.2300e-003</b>	<b>0.1334</b>		<b>401.2561</b>	<b>401.2561</b>	<b>0.0133</b>	<b>0.0121</b>	<b>405.1980</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2024**

**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	13.7170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>13.8978</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

**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	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
Worker	0.1816	0.1150	1.4390	3.8900e-003	0.4945	2.4300e-003	0.4969	0.1312	2.2300e-003	0.1334		401.2561	401.2561	0.0133	0.0121	405.1980
<b>Total</b>	<b>0.1816</b>	<b>0.1150</b>	<b>1.4390</b>	<b>3.8900e-003</b>	<b>0.4945</b>	<b>2.4300e-003</b>	<b>0.4969</b>	<b>0.1312</b>	<b>2.2300e-003</b>	<b>0.1334</b>		<b>401.2561</b>	<b>401.2561</b>	<b>0.0133</b>	<b>0.0121</b>	<b>405.1980</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	13.7170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
<b>Total</b>	<b>13.8879</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.8319</b>

**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	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
Worker	0.1707	0.1032	1.3484	3.7600e-003	0.4945	2.3200e-003	0.4968	0.1312	2.1400e-003	0.1333		391.5757	391.5757	0.0121	0.0113	395.2518
<b>Total</b>	<b>0.1707</b>	<b>0.1032</b>	<b>1.3484</b>	<b>3.7600e-003</b>	<b>0.4945</b>	<b>2.3200e-003</b>	<b>0.4968</b>	<b>0.1312</b>	<b>2.1400e-003</b>	<b>0.1333</b>		<b>391.5757</b>	<b>391.5757</b>	<b>0.0121</b>	<b>0.0113</b>	<b>395.2518</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**3.6 Architectural Coating - 2025**

**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	13.7170					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
<b>Total</b>	<b>13.8879</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.8319</b>

**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	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
Worker	0.1707	0.1032	1.3484	3.7600e-003	0.4945	2.3200e-003	0.4968	0.1312	2.1400e-003	0.1333		391.5757	391.5757	0.0121	0.0113	395.2518
<b>Total</b>	<b>0.1707</b>	<b>0.1032</b>	<b>1.3484</b>	<b>3.7600e-003</b>	<b>0.4945</b>	<b>2.3200e-003</b>	<b>0.4968</b>	<b>0.1312</b>	<b>2.1400e-003</b>	<b>0.1333</b>		<b>391.5757</b>	<b>391.5757</b>	<b>0.0121</b>	<b>0.0113</b>	<b>395.2518</b>



Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	3.6255	4.5944	34.1050	0.0609	6.9930	0.0498	7.0428	1.8640	0.0465	1.9105		6,410,528 5	6,410,528 5	0.5249	0.3552	6,529,491 0
Unmitigated	3.6255	4.5944	34.1050	0.0609	6.9930	0.0498	7.0428	1.8640	0.0465	1.9105		6,410,528 5	6,410,528 5	0.5249	0.3552	6,529,491 0

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,762.56	1,762.56	1762.56	3,317,455	3,317,455
Parking Lot	0.00	0.00	0.00		
<b>Total</b>	<b>1,762.56</b>	<b>1,762.56</b>	<b>1,762.56</b>	<b>3,317,455</b>	<b>3,317,455</b>

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	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 Mid Rise	7.33	3.67	4.77	46.50	12.50	41.00	86	11	3
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071
Parking Lot	0.550065	0.056538	0.183073	0.126916	0.023794	0.005777	0.013314	0.009484	0.000878	0.000597	0.025554	0.000937	0.003071

**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	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
NaturalGas Unmitigated	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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 Mid Rise	8358.52	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0901</b>	<b>0.7703</b>	<b>0.3278</b>	<b>4.9200e-003</b>		<b>0.0623</b>	<b>0.0623</b>		<b>0.0623</b>	<b>0.0623</b>		<b>983.3549</b>	<b>983.3549</b>	<b>0.0189</b>	<b>0.0180</b>	<b>989.1985</b>

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 Mid Rise	8.35852	0.0901	0.7703	0.3278	4.9200e-003		0.0623	0.0623		0.0623	0.0623		983.3549	983.3549	0.0189	0.0180	989.1985
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0901</b>	<b>0.7703</b>	<b>0.3278</b>	<b>4.9200e-003</b>		<b>0.0623</b>	<b>0.0623</b>		<b>0.0623</b>	<b>0.0623</b>		<b>983.3549</b>	<b>983.3549</b>	<b>0.0189</b>	<b>0.0180</b>	<b>989.1985</b>

**6.0 Area Detail**

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	8.9449	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484	0.0000	48.2498	48.2498	0.0464	0.0000	49.4098
Unmitigated	8.9449	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484	0.0000	48.2498	48.2498	0.0464	0.0000	49.4098

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	1.1274					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.0105					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	0.8069	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484		48.2498	48.2498	0.0464		49.4098
<b>Total</b>	<b>8.9449</b>	<b>0.3081</b>	<b>26.7604</b>	<b>1.4200e-003</b>		<b>0.1484</b>	<b>0.1484</b>		<b>0.1484</b>	<b>0.1484</b>	<b>0.0000</b>	<b>48.2498</b>	<b>48.2498</b>	<b>0.0464</b>	<b>0.0000</b>	<b>49.4098</b>

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	1.1274					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.0105					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	0.8069	0.3081	26.7604	1.4200e-003		0.1484	0.1484		0.1484	0.1484		48.2498	48.2498	0.0464		49.4098
<b>Total</b>	<b>8.9449</b>	<b>0.3081</b>	<b>26.7604</b>	<b>1.4200e-003</b>		<b>0.1484</b>	<b>0.1484</b>		<b>0.1484</b>	<b>0.1484</b>	<b>0.0000</b>	<b>48.2498</b>	<b>48.2498</b>	<b>0.0464</b>	<b>0.0000</b>	<b>49.4098</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

Apply Water Conservation Strategy

Guardian Madeira - Proposed Project - Sacramento Metropolitan AQMD Air District, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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### Guardian Madeira - Proposed Project

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

#### Sacramento Metropolitan AQMD Air District, Mitigation Report

#### Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

#### OFFROAD Equipment Mitigation



**Guardian Madeira - Proposed Project**

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	2	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	4	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	9	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Scrapers	Diesel	No Change	0	2	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

### Guardian Madeira - Proposed Project

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Air Compressors	2.60400E-002	1.74830E-001	2.71410E-001	4.50000E-004	8.11000E-003	8.11000E-003	0.00000E+000	3.82988E+001	3.82988E+001	2.11000E-003	0.00000E+000	3.83515E+001
Cranes	4.18200E-002	4.29330E-001	2.29450E-001	7.60000E-004	1.81200E-002	1.66700E-002	0.00000E+000	6.65376E+001	6.65376E+001	2.15200E-002	0.00000E+000	6.70756E+001
Excavators	5.41000E-003	4.20900E-002	9.79500E-002	1.60000E-004	2.07000E-003	1.91000E-003	0.00000E+000	1.36150E+001	1.36150E+001	4.40000E-003	0.00000E+000	1.37251E+001
Forklifts	4.01100E-002	3.77310E-001	5.10950E-001	6.90000E-004	2.07100E-002	1.90600E-002	0.00000E+000	6.04311E+001	6.04311E+001	1.95400E-002	0.00000E+000	6.09197E+001
Generator Sets	4.08200E-002	3.66180E-001	5.49130E-001	9.90000E-004	1.50100E-002	1.50100E-002	0.00000E+000	8.47811E+001	8.47811E+001	3.22000E-003	0.00000E+000	8.48617E+001
Graders	5.32000E-003	6.23400E-002	2.48500E-002	1.00000E-004	2.02000E-003	1.86000E-003	0.00000E+000	8.71588E+000	8.71588E+000	2.82000E-003	0.00000E+000	8.78635E+000
Pavers	3.67000E-003	3.48400E-002	5.78600E-002	9.00000E-005	1.63000E-003	1.50000E-003	0.00000E+000	8.25832E+000	8.25832E+000	2.67000E-003	0.00000E+000	8.32510E+000
Paving Equipment	3.30000E-003	2.99200E-002	5.14000E-002	8.00000E-005	1.45000E-003	1.33000E-003	0.00000E+000	7.15707E+000	7.15707E+000	2.31000E-003	0.00000E+000	7.21493E+000
Rollers	2.91000E-003	3.04900E-002	3.70000E-002	5.00000E-005	1.61000E-003	1.48000E-003	0.00000E+000	4.61114E+000	4.61114E+000	1.49000E-003	0.00000E+000	4.64843E+000
Rubber Tired Dozers	2.08500E-002	2.13830E-001	9.39300E-002	2.60000E-004	9.63000E-003	8.86000E-003	0.00000E+000	2.25067E+001	2.25067E+001	7.28000E-003	0.00000E+000	2.26887E+001
Scrapers	2.28000E-002	2.30870E-001	1.79010E-001	4.60000E-004	9.13000E-003	8.40000E-003	0.00000E+000	3.99823E+001	3.99823E+001	1.29300E-002	0.00000E+000	4.03056E+001
Tractors/Loaders/Backhoes	6.06500E-002	6.11770E-001	9.90430E-001	1.38000E-003	2.61200E-002	2.40300E-002	0.00000E+000	1.21552E+002	1.21552E+002	3.93100E-002	0.00000E+000	1.22535E+002
Welders	3.37100E-002	2.03090E-001	2.48300E-001	3.80000E-004	6.44000E-003	6.44000E-003	0.00000E+000	2.82331E+001	2.82331E+001	2.74000E-003	0.00000E+000	2.83017E+001

### Guardian Madeira - Proposed Project

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Air Compressors	2.60400E-002	1.74830E-001	2.71410E-001	4.50000E-004	8.11000E-003	8.11000E-003	0.00000E+000	3.82988E+001	3.82988E+001	2.11000E-003	0.00000E+000	3.83515E+001
Cranes	4.18200E-002	4.29330E-001	2.29450E-001	7.60000E-004	1.81200E-002	1.66700E-002	0.00000E+000	6.65376E+001	6.65376E+001	2.15200E-002	0.00000E+000	6.70755E+001
Excavators	5.41000E-003	4.20900E-002	9.79500E-002	1.60000E-004	2.07000E-003	1.91000E-003	0.00000E+000	1.36150E+001	1.36150E+001	4.40000E-003	0.00000E+000	1.37251E+001
Forklifts	4.01100E-002	3.77310E-001	5.10950E-001	6.90000E-004	2.07100E-002	1.90600E-002	0.00000E+000	6.04310E+001	6.04310E+001	1.95400E-002	0.00000E+000	6.09196E+001
Generator Sets	4.08200E-002	3.66180E-001	5.49130E-001	9.90000E-004	1.50100E-002	1.50100E-002	0.00000E+000	8.47810E+001	8.47810E+001	3.22000E-003	0.00000E+000	8.48616E+001
Graders	5.32000E-003	6.23400E-002	2.48500E-002	1.00000E-004	2.02000E-003	1.86000E-003	0.00000E+000	8.71587E+000	8.71587E+000	2.82000E-003	0.00000E+000	8.78634E+000
Pavers	3.67000E-003	3.48400E-002	5.78600E-002	9.00000E-005	1.63000E-003	1.50000E-003	0.00000E+000	8.25831E+000	8.25831E+000	2.67000E-003	0.00000E+000	8.32509E+000
Paving Equipment	3.30000E-003	2.99200E-002	5.14000E-002	8.00000E-005	1.45000E-003	1.33000E-003	0.00000E+000	7.15706E+000	7.15706E+000	2.31000E-003	0.00000E+000	7.21493E+000
Rollers	2.91000E-003	3.04900E-002	3.70000E-002	5.00000E-005	1.61000E-003	1.48000E-003	0.00000E+000	4.61114E+000	4.61114E+000	1.49000E-003	0.00000E+000	4.64842E+000
Rubber Tired Dozers	2.08500E-002	2.13830E-001	9.39300E-002	2.60000E-004	9.63000E-003	8.86000E-003	0.00000E+000	2.25067E+001	2.25067E+001	7.28000E-003	0.00000E+000	2.26887E+001
Scrapers	2.28000E-002	2.30870E-001	1.79010E-001	4.60000E-004	9.13000E-003	8.40000E-003	0.00000E+000	3.99823E+001	3.99823E+001	1.29300E-002	0.00000E+000	4.03055E+001
Tractors/Loaders/Balckhoes	6.06500E-002	6.11770E-001	9.90430E-001	1.38000E-003	2.61200E-002	2.40300E-002	0.00000E+000	1.21552E+002	1.21552E+002	3.93100E-002	0.00000E+000	1.22534E+002
Welders	3.37100E-002	2.03090E-001	2.48300E-001	3.80000E-004	6.44000E-003	6.44000E-003	0.00000E+000	2.82331E+001	2.82331E+001	2.74000E-003	0.00000E+000	2.83017E+001

### Guardian Madeira - Proposed Project

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.30552E-006	1.30552E-006	0.00000E+000	0.00000E+000	1.30373E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20233E-006	1.20233E-006	0.00000E+000	0.00000E+000	1.19268E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.34485E-007	7.34485E-007	0.00000E+000	0.00000E+000	1.45719E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.15834E-006	1.15834E-006	0.00000E+000	0.00000E+000	1.31320E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17951E-006	1.17951E-006	0.00000E+000	0.00000E+000	1.17839E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.14733E-006	1.14733E-006	0.00000E+000	0.00000E+000	1.13813E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21090E-006	1.21090E-006	0.00000E+000	0.00000E+000	1.20119E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.39722E-006	1.39722E-006	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.15126E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.33293E-006	1.33293E-006	0.00000E+000	0.00000E+000	8.81496E-007
Scrapers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.25055E-006	1.25055E-006	0.00000E+000	0.00000E+000	1.24052E-006
Tractors/Loaders/Balckhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.23404E-006	1.23404E-006	0.00000E+000	0.00000E+000	1.14253E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.06258E-006	1.06258E-006	0.00000E+000	0.00000E+000	1.41334E-006

#### Fugitive Dust Mitigation

Yes/No Mitigation Measure Mitigation Input Mitigation Input Mitigation Input

No	Soil Stabilizer for unpaved Roads	PM10 Reduction	PM2.5 Reduction	
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### Guardian Madeira - Proposed Project

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	
No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

Phase	Source	Unmitigated		Mitigated		Percent Reduction	
		PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.07	0.02	0.07	0.02	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.42	0.11	0.42	0.11	0.00	0.00
Grading	Fugitive Dust	0.14	0.05	0.14	0.05	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.10	0.05	0.10	0.05	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

#### Operational Percent Reduction Summary

### Guardian Madeira - Proposed Project

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	4.71	0.50	0.12	4.03
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

#### Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.09	0.30		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

**Guardian Madeira - Proposed Project**

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

No	Neighborhood Enhancements	Improve Pedestrian Network			
No	Neighborhood Enhancements	Provide Traffic Calming Measures			
No	Neighborhood Enhancements	Implement NEV Network	0.00		
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00		
No	Parking Policy Pricing	Limit Parking Supply	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00		
No	Transit Improvements	Provide BRT System	0.00		
No	Transit Improvements	Expand Transit Network	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		
	Transit Improvements	Transit Improvements Subtotal	0.00		
		Land Use and Site Enhancement Subtotal	0.00		
No	Commute	Implement Trip Reduction Program			
No	Commute	Transit Subsidy			
No	Commute	Implement Employee Parking "Cash Out"			
No	Commute	Workplace Parking Charge			
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00		
No	Commute	Market Commute Trip Reduction Option	0.00		
No	Commute	Employee Vanpool/Shuttle	0.00		2.00

### Guardian Madeira - Proposed Project

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

No	Commuter	Provide Ride Sharing Program			
	Commuter	Commuter Subtotal	0.00		
No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.00		

#### Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	100.00
No	Use Low VOC Paint (Parking)	100.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

#### Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		



**Guardian Madeira - Proposed Project**

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

**Water Mitigation Measures**

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Apply Water Conservation on Strategy	0.00	20.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

**Solid Waste Mitigation**

### Guardian Madeira - Proposed Project

#### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

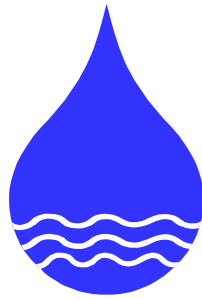
Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

# **APPENDIX B**

## **PRELIMINARY HYDROLOGIC AND WATER QUALITY STUDY**

# **GUARDIAN MADEIRA APARTMENTS**

## **PRELIMINARY HYDROLOGIC AND WATER QUALITY STUDY**



MARCH 1, 2023

Prepared For:

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**APPENDIX A- FIGURES**

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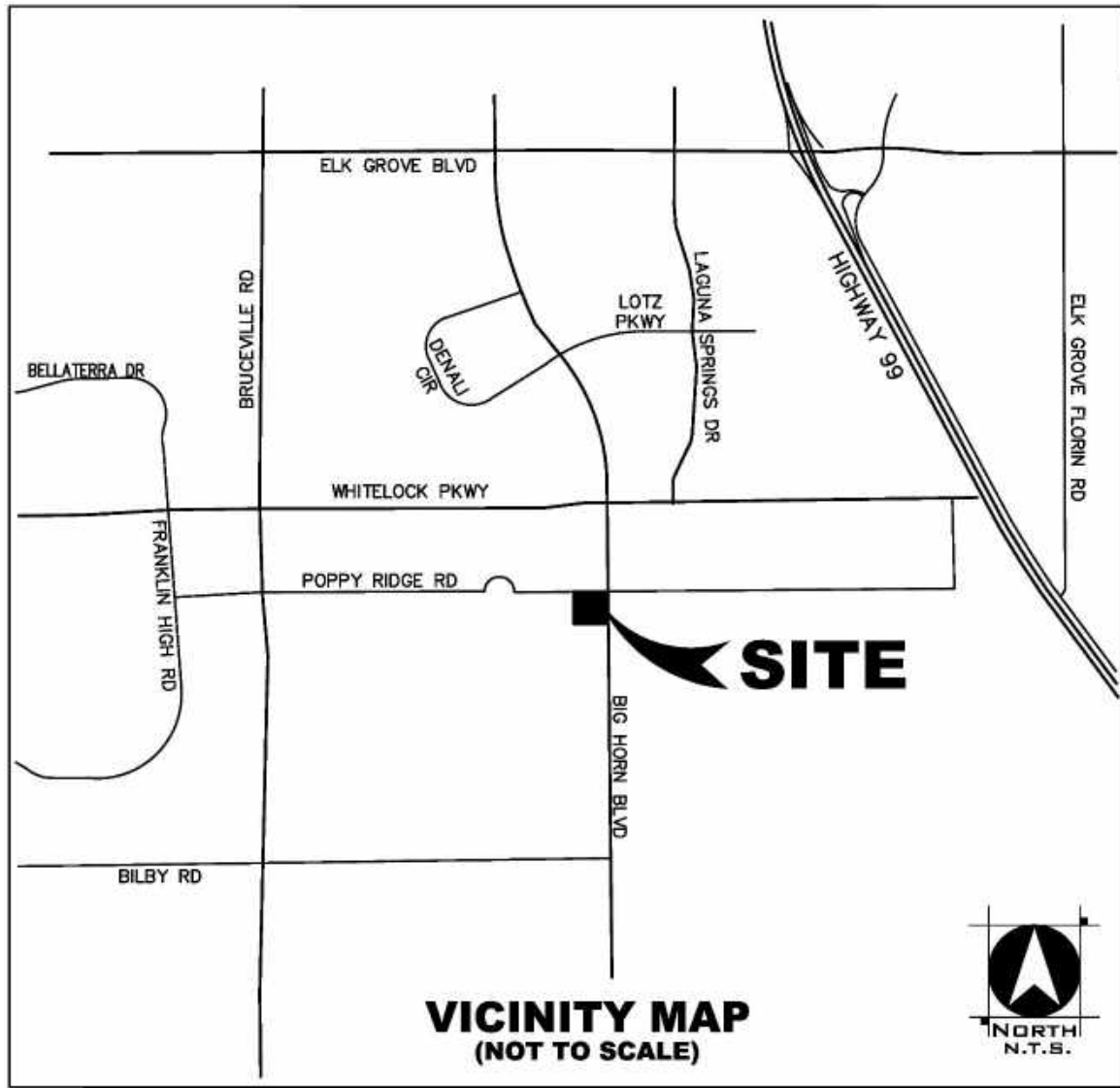
**APPENDIX D – STORMWATER QUALITY**

**APPENDIX E – SUPPORTING DOCUMENTS**

## I. INTRODUCTION

This study represents the preliminary hydrologic, hydraulic and storm water quality analysis for the Guardian Madeira Apartments project located southwest of the intersection of Poppy Ridge Road and Big Horn Blvd (APNs: 132-050-171 & -171), see Figure 1 – Vicinity Map.

Figure 1 – Vicinity Map



The project proposes to construct an apartment complex, consisting of twelve apartment buildings, a clubhouse and associated drive aisles, parking and landscaping on approximately 12.8 acres of undeveloped land.

## II. BACKGROUND

The proposed storm drain system has been designed and analyzed in accordance with the following documents:

- City of Elk Grove Improvement Standards – Section 9 Storm Drainage Design, dated May 11, 2020 (City Standards)
- The Sacramento City/County Drainage Manual – Volume 2 Hydrology Standards (Drainage Manual)
- Sacramento Region Stormwater Quality Design Manual, 2018 (SWQ Manual)

In accordance with the City Standards, the proposed storm drain system will be required to convey the runoff generated by the Nolte storm event as in the Drainage Manual.

The project site is located within the City of Elk Grove Storm Drain Master Plan (SDMP) Shed C. The project site is located at the high end of the drainage shed, therefore runoff from upstream locations is not a concern at this site. The SDMP has identified a detention basin location downstream of the site that will be designed to:

- Provide detention to mitigate the increased runoff due to development within the Laguna Ridge Specific Plan to pre-development discharge rates for the 10- and 100-year, 24-hour storm events.
- Provide storage for to achieve hydromodification for projects within the contributing shed.

The Guardian Madeira Apartments project proposes to construct an interim basin that will be designed with the capacity to retain the runoff generated by the 100-year, 24-hour storm event. The interim basin will be located south of the project site and will be taken offline once the permanent detention basin has been constructed.

The interim basin will require pumping to drain. The pumping operations will be limited to runoff rates determined under existing conditions for the 10-year and 100-year storm events, effectively providing mitigation for hydromodification for the interim period prior to the construction of downstream facilities.

## III. FLOOD ZONE

Zone X Unshaded (Area of Minimal Flood Hazard) per Federal Emergency Management Agency Flood Insurance Rate Map 06067C0319H, effective 8/16/2012.

## IV. SYSTEM REQUIREMENTS

The proposed storm onsite storm drain system will convey runoff from the Guardian Madeira Apartments project site, discharging to an interim basin that will be constructed south of the project site. The proposed storm drain system will be private and designed to:

- Convey the runoff generated by the Nolte storm event while maintain an HGL below the proposed finish grade as determined using the methods described in the City Standards and Drainage Manual.
- Stormwater Quality Treatment
  - Retain the volume generated by the 85<sup>th</sup> percentile storm as determined using the LID Credit Worksheets from the SWQ Manual.
- Implement Low Impact Development Measures
  - Accumulate at least 100 LID Credits within each drainage management area using the LID Credit Worksheets from the SWQ Manual.
- Implement Full Trash Capture Measures
  - Remove particles larger than 5 mm from the system prior to discharging to the city storm drain system.

The interim detention basin will be designed with the capacity to capture the runoff generated onsite by the 100-year, 24-hour storm event. The basin will be designed with a spillway and will be evacuated via portable pumps placed during rainfall events, discharging to existing overland release routes conveying runoff southwest toward the City of Elk grove Shed C Channel.

## V. EXISTING CONDITIONS

The project site covers approximately 12.8 acres of undeveloped land. The site is flat, with existing grades ranging from approximately 38-feet to 35-feet above sea level, sloping from the northeast corner of the property to the southwest corner. There is no run-on from offsite areas to consider at this site.

Runoff generated onsite by the 10-year and 100-year storm events site under existing conditions was estimated using the Sacramento Method within the SacCalc software, modeled under the following Assumptions:

- Shed XA
  - 12.8 Acres
  - Land Use = Open Space
  - Rainfall Zone 2
  - Hydrologic Soil Type D (WebSoil Survey Appendix A)



SacCalc reports can be seen in Appendix B. A summary of the 10- and 100-year, 24-hour storm event peak discharge rates estimated for the site under existing conditions are shown in the table below:

Table 1. Existing Conditions

Shed	Q <sub>10</sub> (cfs)	Q <sub>100</sub> (cfs)
Shed XA	15	29

## VI. DEVELOPED CONDITIONS

The project will construct a multi-family development. The proposed storm drain system will be required to convey the runoff through the site, discharging to an interim basin located south of the project site. Ultimately, a permanent detention basin designed to provide storage for hydromodification and peak flow mitigation for development within the Laguna Ridge Specific Plan. The Laguna Ridge Specific Plan on Bilby Road, east of Bruceville Road as the site of the permanent basin. Once the permanent basin has been constructed, the interim basin will be taken off-line, the offsite storm drain system will be extended to convey runoff to the permanent detention basin.

The storm drain system will be designed to allow runoff to surface drain to landscaping or bio-retention basins prior to entering the underground storm drain system. The proposed storm drain system is designed to convey the runoff generated by the Nolte storm event. The runoff for the Nolte storm event, was determined using the Nolte Method within the SacCalc software, 10- and 100-year runoff rates were determined using the Sacramento Method within the SacCalc software. The following assumptions were used to estimate the onsite runoff:

- Shed A
  - 12.36 acres (Onsite)
  - Land Use
    - Nolte Method = Apartments
    - Sacramento Method = HDR
  - Sacramento Method Rainfall Zone 2
  - Nolte Rainfall Zone 3
  - Hydrologic Soil Type D

SacCalc reports can be seen in Appendix B. A summary of the 10- and 100-year, 24-hour storm event discharge rates estimated for the site under existing conditions are shown in the table below:

Table 2. Developed Conditions

Shed	Nolte Flow Rate (Design) (cfs)	10-Year Peak Flow Rate (cfs)	100-Year Peak Flow Rate (cfs)
A	5.33	25	44

The proposed onsite underground storm drain system has been modeled using Bentley StormCAD software to confirm the system has the capacity to convey the runoff generated by the Nolte Storm event while maintain an HGL at least 1-foot below manhole rim elevations. The hydraulic model was created using the following assumptions:

- Starting HGL = 33.5 (HGL<sub>10</sub> at Interim Basin)
- Manning's, n=0.015 for all pipes

The hydraulic model reports and profiles can be seen in Appendix C.

## VII. INTERIM RETENTION BASIN

The proposed interim retention basin has been sized to capture the runoff generated on-site during a 100-year, 24-hour storm event. The basin will be evacuated via portable pumps placed during rainfall events.

### EXISTING CONDITIONS

Runoff analysis was performed as described in Section V of this study. The peak runoff rates for the site under existing conditions has been determined to be 15 cfs and 29 cfs during the 10-year, 24-hour and 100-year, 24-hour storm events, respectively. These peak flows will be used as the maximum allowable discharge rates from the interim basin. In effect, providing hydromodification during this interim period.

## DEVELOPED CONDITIONS

Runoff analysis was performed as described in Section IV of this study. The runoff volume has been determined using the hydrographs generated by software. The total runoff volume has been determined to be 4.1 ac-ft and the basin has been designed with the capacity to retain this volume. See the SacCalc hydrographs and calculations in Appendix B.

## PUMP/SPILLWAY OPERATION

The site owner will be responsible for the operation of the interim retention basin and related pumping activities. It is assumed that a rental service, utilizing portable pumps, would be contracted to oversee the operation of the proposed interim basin. The pump operator will be required to:

- Pump water from the basin during rain events at a maximum of 15 cfs and 29 cfs during 10-year and 100-year storm events, respectively.
- Evacuate the basin completely within 72 hours.

In the event that pumping operations are not carried out in a timely manner or the pumps fail, the basin is designed with a spillway with a flowline 1-foot below the top of the basin. The spillway will allow water to enter existing natural low-lying areas adjacent to the basin that will allow runoff to convey south, see the Overland Release Exhibit in Appendix A. In the interim condition, the runoff will enter existing culverts located approximately 1,300 feet west of Big Horn Blvd. Per Section 6.2 of the Laguna Ridge Specific Plan, Amended December 11, 2019, runoff from the project site will be conveyed to a proposed detention basin located on the north side of Bilby Road approximately 3,300 feet west of Big Horn Blvd. (hereinafter referred to as the Bilby Basin). Ultimately, runoff is conveyed to the Shed C Channel in both scenarios.

## **VIII. STORMWATER QUALITY**

The Guardian Madeira Apartments project site will drain to a regional basin sized to provide hydromodification and flood control. Therefore, onsite hydromodification and peak flow mitigation is not required. The proposed storm drain system is required to:

- Low Impact Development
  - Building roof drains will be disconnected
  - Interceptor trees will be planted throughout the site
- Stormwater Treatment
  - The site will be graded to allow runoff to surface flow to bio-retention facilities.
  - The bio-retention facilities will be designed to retain the runoff generated by the 85<sup>th</sup> percentile storm event.
  - See Appendix D for Drainage Management Map and LID Worksheets
- Hydromodification
  - The interim retention basin has been designed with the capacity to retain the volume generated by the 100-year, 24-hour storm. Water will be pumped from the basin at rates that shall not exceed runoff rates determined for the existing conditions. 15 cfs and 29 cfs for a 10-year and 100-year storm event, respectively.
  - Ultimately, runoff from the project site will be conveyed to the Bilby Basin that will be designed to provide hydromodification for the entire contributing subshed.
- Full Trash Capture
  - Pipe screens designed to remove particles larger than 5 mm will be installed in manholes prior to discharge to the city storm drain system

## **IX. CONCLUSION**

The proposed storm drain has been designed in accordance with the City Standards, Drainage Manual and SWQ Manual to meet all applicable requirements. Additional analysis will be performed during the design phase to identify an appropriate pumping system to drain water from the interim basin at rates equal to or less than existing conditions and to evacuate it completely within 72 hours.

## **X. REFERENCES**

1. City of Elk Grove Improvement Standards – Section 9 Storm Drainage Design, dated May 11, 2020 (City Standards)
2. The Sacramento City/County Drainage Manual – Volume 2 Hydrology Standards (Drainage Manual)
3. Sacramento Region Stormwater Quality Design Manual, 2018 (SWQ Manual)
4. City of Elk Grove Storm Drain Master Plan – Volume II. Dated June 2011, By West Yost Associated. (SDMP)

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APPENDIX A - FIGURES

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*Existing Conditions Shed Map*

*Developed Conditions Shed Map*

**Overland Release Exhibit**



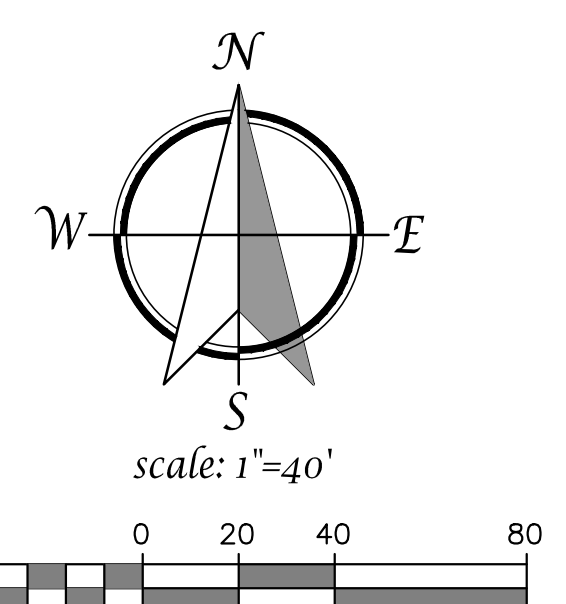


UTILITY LEGEND		
DESCRIPTION	PROPOSED	EXISTING
STORM DRAIN		
STORM DRAIN MANHOLE		
DROP INLET		

SITE LEGEND:	
	OVERLAND RELEASE

**BENCHMARK:**  
 STATION 118 02 SURVEYS 5  
 EL= 89.24 FT (NAVD88)  
 3/4" BRASS DISK 1.50' W OF LT Z PARKWAY, N SIDE OF WHITELOCK PKWY, 7' E OF EDGE OF SIDEWALK; 2' N OF T&G; 10 SW OF TREE.  
 (NGVD 29 CONVERSION - 2.43 FT)

**BASIS OF BEARING:**  
 CENTERLINE OF POPPY RIDGE ROAD PER 423 MAPS 6, TAKEN AS N89°01'01" E AND WAS ESTABLISHED FROM FOUND MONUMENTS.



**GUARDIAN MADEIRA APARTMENTS**

Elk Grove, California

Proposed By:

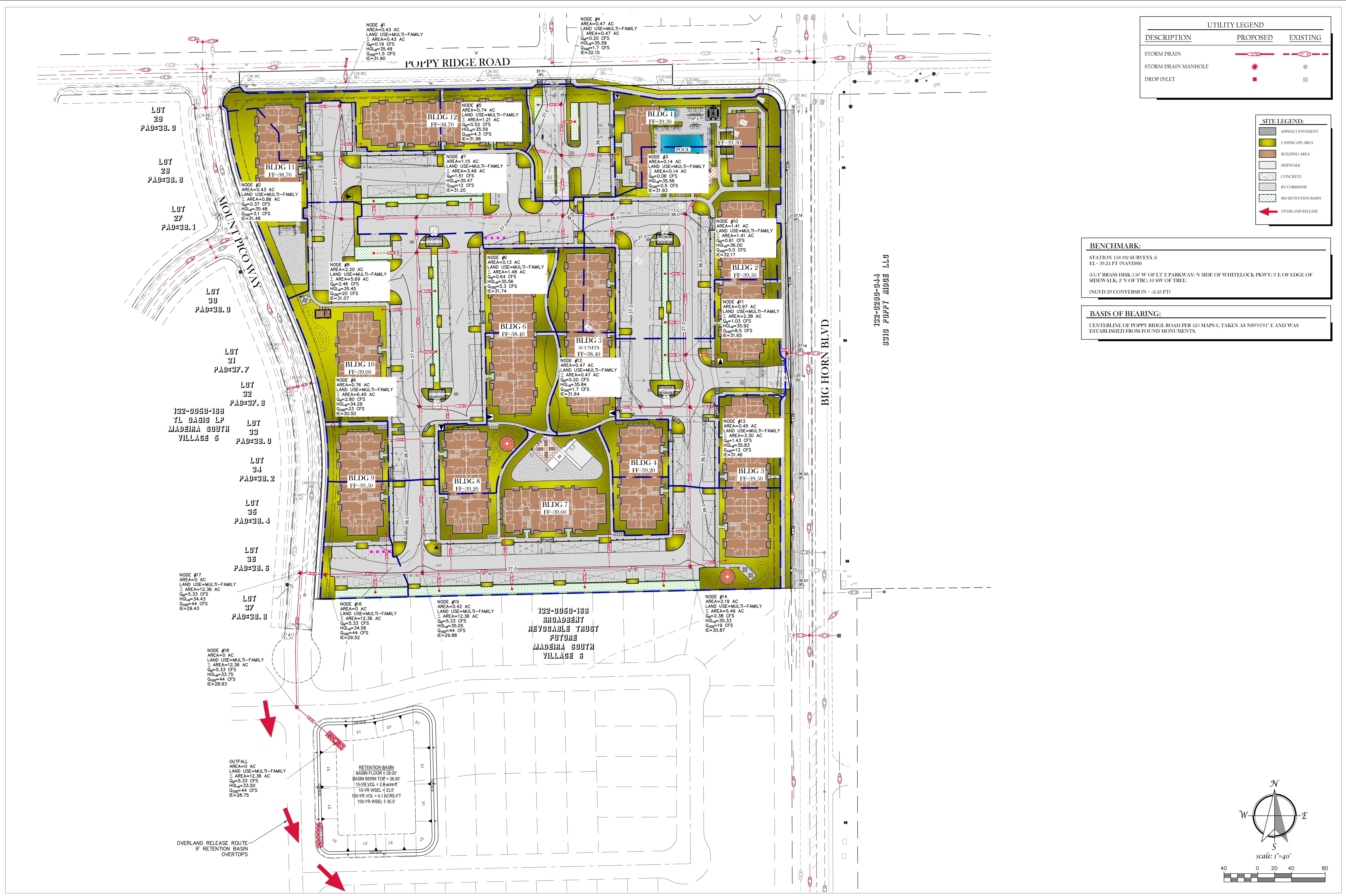


Guardian Capital  
 555 University Avenue, Suite 275  
 Sacramento, CA 95825

In Association With: Gillum Consulting (Land Consultant), RHA (Architects), TSD Engineering, Inc. (Civil), and Furhman Leamy Land Group (Landscape Architecture)







**UTILITY LEGEND**

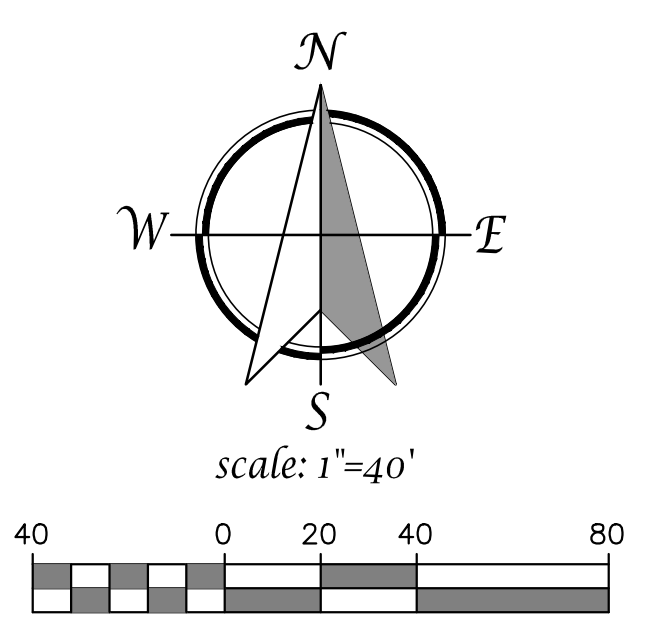
DESCRIPTION	PROPOSED	EXISTING
STORM DRAIN		
STORM DRAIN MANHOLE		
DROP INLET		

**SITE LEGEND:**

- ASPHALT PAVEMENT
- LANDSCAPE AREA
- BUILDING AREA
- SIDEWALK
- CONCRETE
- RT CORRIDOR
- BIO RETENTION BASIN
- OVERLAND RELEASE

**BENCHMARK:**  
 STATION 118.02 SURVEYS 5  
 EL= 89.21 FT (NAVD88)  
 34" B BRASS DISK 1.50' W OF LOT 2 PARKWAY N SIDE OF WHITELOCK PKWY; 3' E OF EDGE OF SIDEWALK; 2' N OF T&G; 10' SW OF TREE.  
 (NGVD 29 CONVERSION = -2.43 FT)

**BASIS OF BEARING:**  
 CENTERLINE OF POPPY RIDGE ROAD PER 425 MAPS 6, TAKEN AS N89°01'01" E AND WAS ESTABLISHED FROM FOUND MONUMENTS.



**GUARDIAN MADEIRA APARTMENTS**

Elk Grove, California Proposed By: **GUARDIAN** Guardian Capital  
 555 University Avenue, Suite 275  
 Sacramento, CA 95825

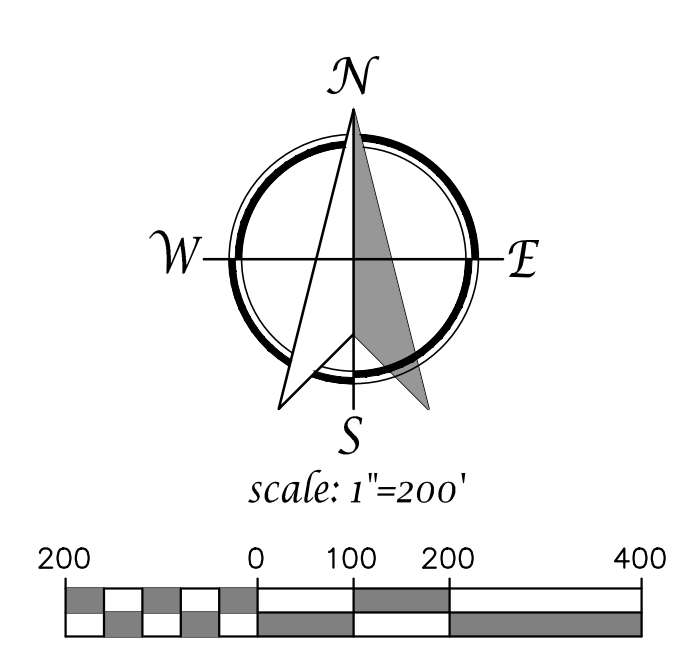
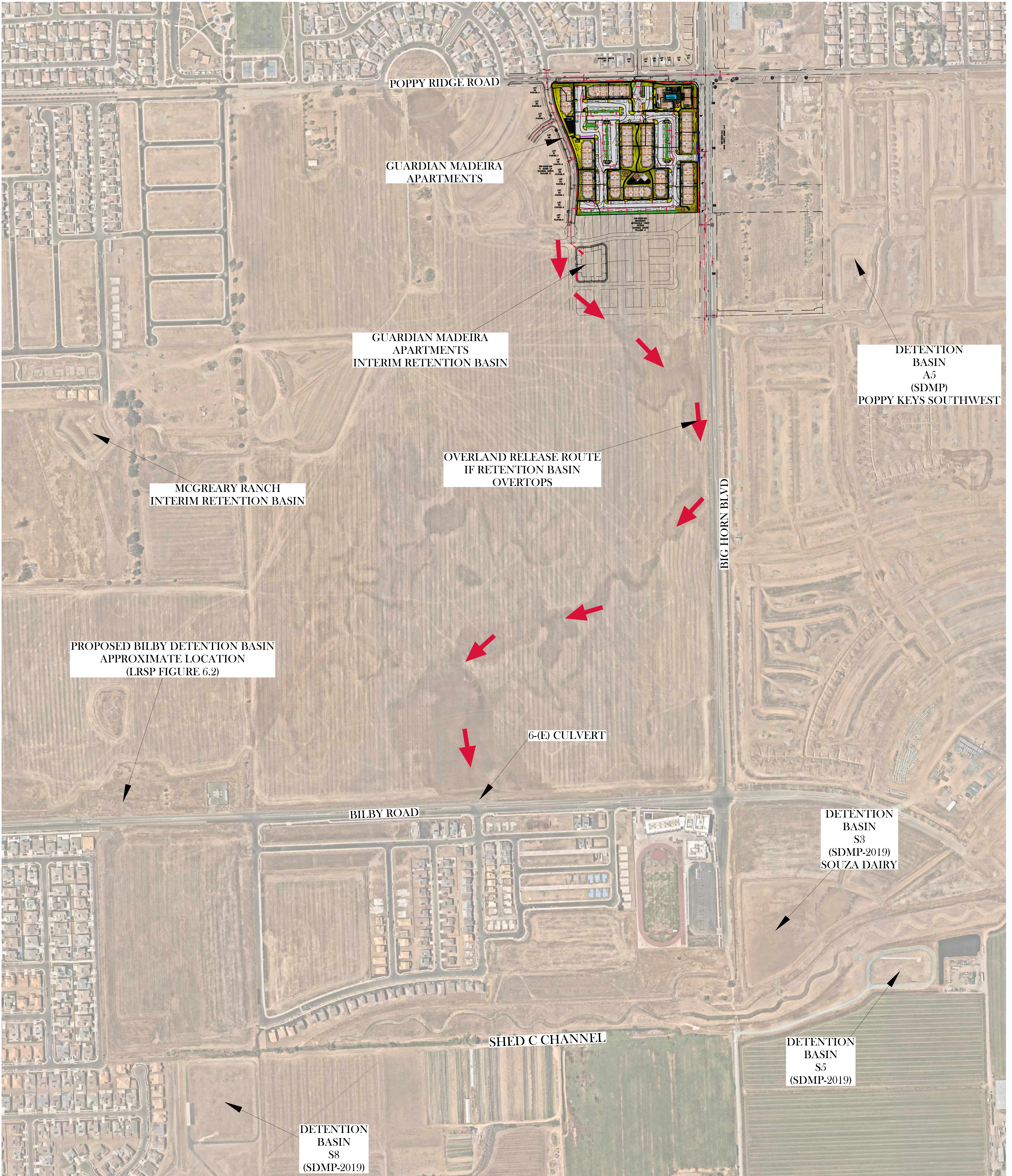
In Association With: Gillum Consulting (Land Consultant), RHA (Architects), TSD Engineering, Inc. (Civil), and Furhman Leamy Land Group (Landscape Architecture)

**TSD ENGINEERING, INC.**  
 785 Orchard Drive, Suite #110  
 Folsom, CA 95630  
 Phone: (916) 608-0797  
 Fax: (916) 608-0701

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OVERLAND RELEASE EXHIBIT  
**GUARDIAN MADEIRA APARTMENTS**  
 CITY OF ELK GROVE, CA



OVERLAND RELEASE EXHIBIT  
 MARCH 1, 2023

**TSD ENGINEERING, INC.**  
 expect more.  
 785 Orchard Drive Street, Suite #110  
 Folsom, CA 95630  
 Phone: (916) 608-0707  
 Fax: (916) 608-0701

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## APPENDIX B - HYDROLOGY

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*SacCalc Report – Existing Conditions (10-, 100-Year, 24-hour)*

*SacCalc Report – Developed Conditions (10-, 100-Year, 24-hour)*

*SacCalc Report – Developed Conditions (Nolte)*

[View HEC-1 output](#)

**Sacramento method results**  
**(Project: Guardian Madeira Apartments - Sacramento Method)**  
**(100-year, 1-day rainfall)**

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
XA	29.	12:09	.02			

**(10-year, 1-day rainfall)**

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
XA	15.	12:12	.02			

**Nolte method results**  
**(Project: Guardian Madeira Apartments - Nolte)**  
**(Hydrologic zone 3)**

ID	Drainage area (acres)	Impervious area (%)	Design Q (cfs)
NODE1	0.43	80.00	0.19
NODE2	0.86	80.00	0.37
NODE3	0.14	80.00	0.06
NODE4	0.47	80.00	0.20
NODE5	1.21	80.00	0.52
NODE6	1.48	80.00	0.64
NODE7	3.49	80.00	1.51
NODE8	5.69	80.00	2.46
NODE9	6.45	80.00	2.80
NODE10	1.41	80.00	0.61
NODE11	2.38	80.00	1.03
NODE12	0.47	80.00	0.20
NODE13	3.30	80.00	1.43
NODE14	5.49	80.00	2.38
NODE15	12.36	80.00	5.33

[View HEC-1 output](#)

**Sacramento method results**  
**(Project: Gaurdian Medeira Apartments - Sac Method)**  
**(100-year, 1-day rainfall)**

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
NODE1	1.5	12:02	.00			
NODE2	3.1	12:02	.00			
NODE3	.5	12:02	.00			
NODE4	1.7	12:02	.00			
NODE5	4.3	12:02	.00			
NODE6	5.3	12:02	.00			
NODE7	12.	12:02	.01			
NODE8	20.	12:02	.01			
NODE9	23.	12:02	.01			
NODE10	5.0	12:02	.00			
NODE11	8.5	12:02	.00			
NODE12	1.7	12:02	.00			
NODE13	12.	12:02	.01			
NODE14	19.	12:02	.01			
NODE15	44.	12:02	.02			

**(10-year, 1-day rainfall)**

ID	Peak flow (cfs)	Time of peak (hours)	Basin area (sq. mi)	Peak stage (feet)	Peak storage (ac-ft)	Diversion volume (ac-ft)
NODE1	.9	12:02	.00			
NODE2	1.8	12:02	.00			
NODE3	.3	12:02	.00			
NODE4	1.0	12:02	.00			
NODE5	2.5	12:02	.00			
NODE6	3.0	12:02	.00			
NODE7	7.2	12:02	.01			
NODE8	12.	12:02	.01			
NODE9	13.	12:02	.01			
NODE10	2.9	12:02	.00			
NODE11	4.9	12:02	.00			
NODE12	1.0	12:02	.00			
NODE13	6.8	12:02	.01			
NODE14	11.	12:02	.01			
NODE15	25.	12:02	.02			

# 10-YEAR, 24-HOUR HYDROGRAPHS (DEVELOPED CONDITIONS)

Day/Time	FLOW NODE1	FLOW NODE2	FLOW NODE3	FLOW NODE4	FLOW NODE5	FLOW NODE6	FLOW NODE7	FLOW NODE8	FLOW NODE9	FLOW NODE10	FLOW NODE11	FLOW NODE12	FLOW NODE13	FLOW NODE14	FLOW NODE15
1/1/2000 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/1/2000 0:01	0.000512	0.001026	0.001539	0.002052	0.002565	0.003078	0.003591	0.004104	0.004617	0.005130	0.005643	0.006156	0.006669	0.007182	0.007695
1/1/2000 0:02	0.001693	0.003386	0.005079	0.006772	0.008465	0.010158	0.011851	0.013544	0.015237	0.016930	0.018623	0.020316	0.022009	0.023702	0.025395
1/1/2000 0:03	0.00379	0.00758	0.01137	0.01516	0.01895	0.02274	0.02653	0.03032	0.03411	0.03790	0.04169	0.04548	0.04927	0.05306	0.05685
1/1/2000 0:04	0.00693	0.01386	0.02079	0.02772	0.03465	0.04158	0.04851	0.05544	0.06237	0.06930	0.07623	0.08316	0.09009	0.09702	0.10395
1/1/2000 0:05	0.009984	0.019968	0.029952	0.039936	0.049920	0.059904	0.069888	0.079872	0.089856	0.099840	0.109824	0.119808	0.129792	0.139776	0.149760
1/1/2000 0:06	0.012129	0.024258	0.036387	0.048516	0.060645	0.072774	0.084903	0.097032	0.109161	0.121290	0.133419	0.145548	0.157677	0.169806	0.181935
1/1/2000 0:07	0.013734	0.027467	0.041199	0.054932	0.068665	0.082398	0.096131	0.109864	0.123597	0.137330	0.151063	0.164796	0.178529	0.192262	0.206005
1/1/2000 0:08	0.014973	0.029946	0.044919	0.059892	0.074865	0.089838	0.104811	0.119784	0.134757	0.149730	0.164703	0.179676	0.194649	0.209622	0.224595
1/1/2000 0:09	0.015942	0.031884	0.047826	0.063768	0.079710	0.095652	0.111594	0.127536	0.143478	0.159420	0.175362	0.191304	0.207246	0.223188	0.239130
1/1/2000 0:10	0.016717	0.033433	0.050149	0.066865	0.083581	0.100297	0.117013	0.133729	0.150445	0.167161	0.183877	0.200593	0.217309	0.234025	0.250741
1/1/2000 0:11	0.017349	0.034697	0.051645	0.068693	0.085741	0.102789	0.119837	0.136885	0.153933	0.170981	0.188029	0.205077	0.222125	0.239173	0.256221
1/1/2000 0:12	0.017878	0.035755	0.053632	0.071509	0.089386	0.107263	0.125140	0.143017	0.160894	0.178771	0.196648	0.214525	0.232402	0.250279	0.268156
1/1/2000 0:13	0.018317	0.036632	0.054957	0.073282	0.091607	0.109932	0.128257	0.146582	0.164907	0.183232	0.201557	0.219882	0.238207	0.256532	0.274857
1/1/2000 0:14	0.018699	0.037397	0.056098	0.074803	0.093508	0.112213	0.130918	0.149623	0.168328	0.187033	0.205738	0.224443	0.243148	0.261853	0.280558
1/1/2000 0:15	0.019033	0.038065	0.057519	0.077073	0.096627	0.116181	0.135735	0.155289	0.174843	0.194397	0.213951	0.233505	0.253059	0.272613	0.292167
1/1/2000 0:16	0.019326	0.038651	0.058592	0.078646	0.098700	0.118754	0.138808	0.158862	0.178916	0.198970	0.219024	0.239078	0.259132	0.279186	0.299240
1/1/2000 0:17	0.019585	0.039168	0.059429	0.079690	0.099951	0.120212	0.140473	0.160734	0.181005	0.201266	0.221527	0.241788	0.262049	0.282310	0.302571
1/1/2000 0:18	0.019811	0.039622	0.060183	0.080644	0.101105	0.121566	0.142027	0.162488	0.182949	0.203410	0.223871	0.244332	0.264793	0.285254	0.305715
1/1/2000 0:19	0.020008	0.040015	0.060521	0.081028	0.101545	0.122062	0.142579	0.163096	0.183613	0.204130	0.224647	0.245164	0.265681	0.286198	0.306715
1/1/2000 0:20	0.020184	0.040363	0.060984	0.081605	0.102226	0.122847	0.143468	0.164089	0.184710	0.205331	0.225952	0.246573	0.267194	0.287815	0.308436
1/1/2000 0:21	0.020336	0.040672	0.061393	0.082114	0.102835	0.123556	0.144277	0.165008	0.185729	0.206450	0.227171	0.247892	0.268613	0.289334	0.310055
1/1/2000 0:22	0.020471	0.040949	0.061770	0.082591	0.103412	0.124233	0.145054	0.165896	0.186738	0.207579	0.228421	0.249263	0.270105	0.290947	0.311789
1/1/2000 0:23	0.020589	0.041178	0.062099	0.083020	0.103941	0.124862	0.145783	0.166704	0.187625	0.208546	0.229467	0.250388	0.271309	0.292230	0.313151
1/1/2000 0:24	0.020691	0.041382	0.062393	0.083314	0.104235	0.125156	0.146077	0.167008	0.187929	0.208850	0.229771	0.250692	0.271613	0.292534	0.313455
1/1/2000 0:25	0.020782	0.041562	0.062676	0.083597	0.104518	0.125439	0.146360	0.167281	0.188202	0.209123	0.230044	0.250965	0.271886	0.292807	0.313728
1/1/2000 0:26	0.020861	0.041721	0.062875	0.083796	0.104719	0.125640	0.146561	0.167482	0.188403	0.209324	0.230245	0.251166	0.272087	0.293008	0.313929
1/1/2000 0:27	0.020933	0.041865	0.063081	0.083902	0.104818	0.125741	0.146662	0.167583	0.188504	0.209425	0.230346	0.251267	0.272188	0.293109	0.314010
1/1/2000 0:28	0.020996	0.041991	0.063286	0.084003	0.104923	0.125842	0.146763	0.167684	0.188605	0.209526	0.230447	0.251368	0.272289	0.293211	0.314091
1/1/2000 0:29	0.021015	0.042098	0.063490	0.084104	0.105024	0.125943	0.146864	0.167785	0.188706	0.209627	0.230548	0.251469	0.272390	0.293312	0.314172
1/1/2000 0:30	0.021028	0.042195	0.063695	0.084205	0.105125	0.126044	0.146965	0.167886	0.188807	0.209728	0.230649	0.251570	0.272491	0.293413	0.314253
1/1/2000 0:31	0.021014	0.042279	0.063883	0.084296	0.105216	0.126145	0.147066	0.167987	0.188908	0.210029	0.230750	0.251671	0.272592	0.293514	0.314334
1/1/2000 0:32	0.021178	0.042355	0.064095	0.084397	0.105317	0.126246	0.147167	0.168088	0.189009	0.210130	0.230851	0.251772	0.272693	0.293615	0.314415
1/1/2000 0:33	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:34	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:35	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:36	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:37	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:38	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:39	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:40	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:41	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:42	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:43	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:44	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:45	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:46	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:47	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:48	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:49	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:50	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:51	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:52	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:53	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:54	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:55	0.021212	0.042423	0.064290	0.084488	0.105418	0.126347	0.147268	0.168189	0.189110	0.210231	0.230952	0.251873	0.272794	0.293716	0.314496
1/1/2000 0:56	0.021212	0.042423													











1/1/2000 8:43	0.038386	0.07677	0.012497	0.041955	0.108014	0.132111	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490076	1.103336
1/1/2000 8:44	0.038386	0.07677	0.012497	0.041955	0.108014	0.132111	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490076	1.103336
1/1/2000 8:45	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.294581	0.490077	1.103337
1/1/2000 8:46	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507935	0.575774	0.125865	0.212454	0.041955	0.294581	0.490077	1.103338
1/1/2000 8:47	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507934	0.575774	0.125865	0.212454	0.041955	0.294581	0.490077	1.103338
1/1/2000 8:48	0.038386	0.07677	0.012497	0.041955	0.108014	0.132111	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490076	1.103336
1/1/2000 8:49	0.038386	0.07677	0.012497	0.041955	0.108014	0.132111	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490076	1.103336
1/1/2000 8:50	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490077	1.103337
1/1/2000 8:51	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507935	0.575774	0.125865	0.212454	0.041955	0.294581	0.490077	1.103338
1/1/2000 8:52	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507934	0.575774	0.125865	0.212454	0.041955	0.294581	0.490077	1.103338
1/1/2000 8:53	0.038386	0.07677	0.012497	0.041955	0.108014	0.132111	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490076	1.103336
1/1/2000 8:54	0.038386	0.07677	0.012497	0.041955	0.108014	0.132111	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490076	1.103336
1/1/2000 8:55	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490077	1.103337
1/1/2000 8:56	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507935	0.575774	0.125865	0.212454	0.041955	0.294581	0.490077	1.103338
1/1/2000 8:57	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507934	0.575774	0.125865	0.212454	0.041955	0.294581	0.490077	1.103338
1/1/2000 8:58	0.038386	0.07677	0.012497	0.041955	0.108014	0.132111	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490076	1.103336
1/1/2000 8:59	0.038386	0.07677	0.012497	0.041955	0.108014	0.132111	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490076	1.103336
1/1/2000 9:00	0.038386	0.07677	0.012497	0.041955	0.108014	0.132112	0.311543	0.507934	0.575773	0.125865	0.212454	0.041955	0.29458	0.490077	1.103337
1/1/2000 9:01	0.038813	0.077625	0.012636	0.042422	0.109216	0.133583	0.315011	0.513589	0.582183	0.127266	0.214819	0.042422	0.29786	0.495532	1.115619
1/1/2000 9:02	0.039797	0.079593	0.012957	0.043497	0.111984	0.136968	0.322995	0.526605	0.596398	0.130491	0.220264	0.043497	0.305409	0.508091	1.143893
1/1/2000 9:03	0.041545	0.083087	0.013526	0.045407	0.116901	0.142982	0.337177	0.549726	0.623147	0.136221	0.229935	0.045407	0.318818	0.530399	1.194116
1/1/2000 9:04	0.044161	0.088321	0.014378	0.048267	0.124265	0.151988	0.358416	0.584353	0.6624	0.144802	0.244419	0.048267	0.338901	0.563809	1.269337
1/1/2000 9:05	0.046706	0.093411	0.015206	0.051049	0.131426	0.160747	0.379069	0.618026	0.70057	0.153146	0.258503	0.051049	0.35843	0.596298	1.342483
1/1/2000 9:06	0.048493	0.096985	0.015788	0.053002	0.136456	0.166899	0.393577	0.641679	0.727383	0.159007	0.268397	0.053002	0.372148	0.61912	1.393863
1/1/2000 9:07	0.049831	0.099666	0.016223	0.054464	0.140219	0.171502	0.404431	0.659376	0.747444	0.163393	0.275799	0.054464	0.382412	0.636195	1.432303
1/1/2000 9:08	0.050863	0.101724	0.016559	0.055922	0.143123	0.175055	0.412809	0.673035	0.762926	0.166777	0.281512	0.055922	0.390333	0.649373	1.461972
1/1/2000 9:09	0.051671	0.103341	0.016822	0.056476	0.145397	0.177836	0.419368	0.683729	0.775048	0.169427	0.285985	0.056476	0.396535	0.659691	1.485201
1/1/2000 9:10	0.052316	0.104631	0.017033	0.057181	0.147213	0.180056	0.426404	0.692266	0.784726	0.171542	0.289556	0.057181	0.401486	0.667929	1.503744
1/1/2000 9:11	0.052843	0.105684	0.017204	0.057757	0.148695	0.181869	0.428878	0.699235	0.792626	0.17327	0.292472	0.057757	0.405528	0.674653	1.518888
1/1/2000 9:12	0.053284	0.106566	0.017347	0.058238	0.149935	0.183386	0.432454	0.705065	0.799234	0.174714	0.29491	0.058238	0.408909	0.680278	1.531542
1/1/2000 9:13	0.05365	0.107297	0.017466	0.058638	0.150964	0.184645	0.435422	0.709904	0.804719	0.175913	0.296934	0.058638	0.411715	0.684946	1.542055
1/1/2000 9:14	0.053969	0.107935	0.01757	0.058986	0.151861	0.185742	0.43801	0.714123	0.809501	0.176958	0.298699	0.058986	0.414162	0.689017	1.551222
1/1/2000 9:15	0.054247	0.108491	0.017661	0.05929	0.152644	0.186699	0.440268	0.717804	0.813674	0.17787	0.300238	0.05929	0.416297	0.69257	1.559218
1/1/2000 9:16	0.054491	0.108979	0.017774	0.059557	0.153331	0.187539	0.442248	0.721033	0.817335	0.178671	0.301589	0.059557	0.41817	0.695685	1.566235
1/1/2000 9:17	0.054706	0.10941	0.017811	0.059792	0.153936	0.18828	0.443997	0.723884	0.820565	0.179377	0.302781	0.059792	0.419823	0.698435	1.572743
1/1/2000 9:18	0.054895	0.109787	0.017872	0.059998	0.154467	0.188929	0.445527	0.726379	0.823393	0.179996	0.303824	0.059998	0.421127	0.700842	1.577785
1/1/2000 9:19	0.055059	0.110116	0.017925	0.060178	0.15493	0.189496	0.446863	0.728557	0.825863	0.180535	0.304736	0.060178	0.422533	0.702943	1.582584
1/1/2000 9:20	0.055204	0.110406	0.017972	0.060337	0.155337	0.189994	0.448039	0.730473	0.828035	0.181011	0.305537	0.060337	0.423645	0.704792	1.586744
1/1/2000 9:21	0.055332	0.110662	0.018014	0.060477	0.155698	0.190435	0.449078	0.732168	0.829956	0.18143	0.306246	0.060477	0.424627	0.706427	1.590423
1/1/2000 9:22	0.055445	0.110887	0.018051	0.0606	0.156015	0.190822	0.449992	0.733657	0.831644	0.181799	0.306868	0.0606	0.425491	0.707865	1.593659
1/1/2000 9:23	0.055544	0.111085	0.018083	0.060708	0.156293	0.191162	0.450794	0.734966	0.833127	0.182123	0.307415	0.060708	0.42625	0.709126	1.596503
1/1/2000 9:24	0.055629	0.111255	0.018111	0.060801	0.156532	0.191455	0.451484	0.736091	0.834403	0.182402	0.307886	0.060801	0.426903	0.710213	1.598944
1/1/2000 9:25	0.055704	0.111405	0.018135	0.060883	0.156744	0.191714	0.452095	0.737087	0.835532	0.182649	0.308303	0.060883	0.42748	0.711174	1.601105
1/1/2000 9:26	0.05577	0.111538	0.018157	0.060956	0.15693	0.191941	0.452633	0.737964	0.836526	0.182866	0.308669	0.060956	0.427989	0.712019	1.603009
1/1/2000 9:27	0.05583	0.111658	0.018176	0.061021	0.157099	0.192147	0.453118	0.738755	0.837423	0.183062	0.309	0.061021	0.428448	0.712783	1.604729
1/1/2000 9:28	0.055882	0.111762	0.018193	0.061079	0.157247	0.192328	0.453545	0.739451	0.838211	0.183234	0.309291	0.061079	0.428851	0.713454	1.60624
1/1/2000 9:29	0.055927	0.111852	0.018208	0.061128	0.157373	0.192484	0.45391	0.740046	0.838886	0.183382	0.30954	0.061128	0.429196	0.714028	1.607533
1/1/2000 9:30	0.055967	0.111932	0.018221	0.061171	0.157486	0.192621	0.454235	0.740576	0.839486	0.183513	0.309761	0.061171	0.429503	0.71454	1.608688
1/1/2000 9:31	0.056003	0.112003	0.018233	0.061211	0.157585	0.192742	0.45452	0.741042	0.840015	0.183629	0.309956	0.061211	0.429773	0.714989	1.609694
1/1/2000 9:32	0.056035	0.112066	0.018243	0.061244	0.157674	0.192851	0.454777	0.74146	0.84049	0.183733	0.310132	0.061244	0.430016	0.715393	1.610605
1/1/2000 9:33	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840913	0.183825	0.310288	0.061275	0.430232	0.715753	1.611415
1/1/2000 9:34	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840913	0.183825	0.310288	0.061275	0.430232	0.715753	1.611415
1/1/2000 9:35	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840912	0.183825	0.310287	0.061275	0.430232	0.715753	1.611414
1/1/2000 9:36	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840912	0.183825	0.310287	0.061275	0.430232	0.715753	1.611414
1/1/2000 9:37	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840912	0.183825	0.310287	0.061275	0.430232	0.715753	1.611414
1/1/2000 9:38	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840913	0.183825	0.310288	0.061275	0.430232	0.715753	1.611415
1/1/2000 9:39	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840913	0.183825	0.310288	0.061275	0.430232	0.715753	1.

1/1/2000 10:28	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840913	0.183825	0.310288	0.061275	0.430232	0.715753	1.611415
1/1/2000 10:29	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741834	0.840913	0.183825	0.310288	0.061275	0.430232	0.715753	1.611415
1/1/2000 10:30	0.056062	0.112123	0.018252	0.061275	0.157753	0.192948	0.455006	0.741833	0.840912	0.183825	0.310287	0.061275	0.430232	0.715753	1.611414
1/1/2000 10:31	0.056577	0.113153	0.018482	0.061338	0.159203	0.194721	0.459188	0.748651	0.848641	0.185514	0.313139	0.061833	0.434186	0.722331	1.662623
1/1/2000 10:32	0.057764	0.115526	0.018806	0.061335	0.162541	0.198804	0.468815	0.764348	0.866434	0.189404	0.319705	0.063135	0.44329	0.737475	1.660319
1/1/2000 10:33	0.059871	0.11974	0.019492	0.065438	0.168471	0.206056	0.485918	0.79223	0.89804	0.196313	0.331367	0.065438	0.459461	0.764377	1.720885
1/1/2000 10:34	0.063027	0.126051	0.02052	0.068887	0.177351	0.216917	0.51153	0.833987	0.945376	0.206661	0.348834	0.068887	0.483679	0.804667	1.811594
1/1/2000 10:35	0.066095	0.132189	0.021519	0.072241	0.185986	0.227479	0.536436	0.874594	0.991406	0.216723	0.365818	0.072241	0.507229	0.843846	1.899802
1/1/2000 10:36	0.068251	0.1365	0.022221	0.074597	0.192052	0.234899	0.553931	0.903118	1.023739	0.223791	0.377749	0.074597	0.523772	0.871367	1.961762
1/1/2000 10:37	0.069864	0.139725	0.022743	0.07636	0.196559	0.240449	0.56702	0.924458	1.04793	0.229058	0.386676	0.07636	0.536148	0.891957	2.008116
1/1/2000 10:38	0.071109	0.142214	0.023151	0.07772	0.200092	0.244733	0.577123	0.940929	1.0666	0.233161	0.393565	0.07772	0.545701	0.907849	2.043893
1/1/2000 10:39	0.072083	0.144164	0.023468	0.078785	0.202834	0.248087	0.585032	0.953824	1.081217	0.236356	0.398959	0.078785	0.553179	0.920291	2.071905
1/1/2000 10:40	0.072861	0.14572	0.023721	0.079636	0.205023	0.250765	0.591347	0.96412	1.092889	0.238907	0.403265	0.079636	0.55915	0.930225	2.094266
1/1/2000 10:41	0.073497	0.14699	0.023928	0.08033	0.206811	0.252951	0.596501	0.972525	1.102415	0.24099	0.406781	0.08033	0.564024	0.938334	2.11252
1/1/2000 10:42	0.074028	0.148053	0.024101	0.080911	0.208306	0.25478	0.600813	0.979554	1.110384	0.242732	0.409721	0.080911	0.568102	0.945117	2.127788
1/1/2000 10:43	0.074469	0.148934	0.024244	0.081393	0.209546	0.256297	0.604391	0.985389	1.116998	0.244178	0.412162	0.081393	0.571485	0.950747	2.140465
1/1/2000 10:44	0.074854	0.149704	0.02437	0.081813	0.210628	0.257621	0.607512	0.990476	1.122765	0.245348	0.41429	0.081813	0.574435	0.956555	2.151519
1/1/2000 10:45	0.075189	0.150374	0.024479	0.082179	0.211573	0.258775	0.610235	0.994916	1.127798	0.246538	0.416147	0.082179	0.577011	0.95994	2.161162
1/1/2000 10:46	0.075483	0.150963	0.024575	0.082501	0.212401	0.259788	0.612624	0.998811	1.132212	0.247504	0.417775	0.082501	0.579269	0.963697	2.169625
1/1/2000 10:47	0.075743	0.151483	0.024659	0.082785	0.213132	0.260682	0.614732	1.002248	1.136108	0.248356	0.419213	0.082785	0.581263	0.967013	2.177095
1/1/2000 10:48	0.07597	0.151937	0.024733	0.083033	0.213771	0.261464	0.616577	1.005256	1.139517	0.249101	0.420471	0.083033	0.583007	0.969915	2.18363
1/1/2000 10:49	0.076169	0.152334	0.024798	0.08325	0.21433	0.262147	0.618189	1.007882	1.142495	0.249752	0.42157	0.08325	0.58453	0.972449	2.189337
1/1/2000 10:50	0.076344	0.152683	0.024855	0.083441	0.214821	0.262748	0.619606	1.010194	1.145115	0.250325	0.422536	0.083441	0.585871	0.974679	2.194356
1/1/2000 10:51	0.076498	0.152993	0.024905	0.08361	0.215255	0.26328	0.620859	1.012237	1.147431	0.250831	0.423391	0.08361	0.587056	0.976651	2.198792
1/1/2000 10:52	0.076634	0.153264	0.024949	0.083759	0.215637	0.263747	0.621961	1.014034	1.149467	0.251276	0.424142	0.083759	0.588098	0.978384	2.202695
1/1/2000 10:53	0.076753	0.153503	0.024987	0.083889	0.215973	0.264157	0.622928	1.015611	1.151255	0.251667	0.424801	0.083889	0.589012	0.979905	2.206123
1/1/2000 10:54	0.076855	0.153708	0.025021	0.084002	0.216261	0.26451	0.623761	1.016968	1.152793	0.252003	0.425369	0.084002	0.5898	0.981215	2.209067
1/1/2000 10:55	0.076946	0.153889	0.025005	0.084101	0.216517	0.264822	0.624498	1.018169	1.154155	0.252301	0.425871	0.084101	0.590497	0.982374	2.211674
1/1/2000 10:56	0.077026	0.154049	0.025077	0.084188	0.216742	0.265097	0.625146	1.019227	1.155354	0.252563	0.426313	0.084188	0.59111	0.983394	2.213397
1/1/2000 10:57	0.077098	0.154193	0.025101	0.084267	0.216945	0.265345	0.625732	1.020182	1.156437	0.252799	0.426713	0.084267	0.591664	0.984315	2.216045
1/1/2000 10:58	0.077161	0.154319	0.025121	0.084336	0.217123	0.265563	0.626246	1.021012	1.157386	0.253007	0.427063	0.084336	0.59215	0.985124	2.217865
1/1/2000 10:59	0.077215	0.154428	0.025139	0.084395	0.217276	0.26575	0.626686	1.021737	1.1582	0.253184	0.427363	0.084395	0.592566	0.985816	2.219423
1/1/2000 11:00	0.077264	0.154524	0.025155	0.084448	0.217412	0.265917	0.627078	1.022377	1.158924	0.253343	0.42763	0.084448	0.592936	0.986433	2.220809
1/1/2000 11:01	0.077348	0.154624	0.025143	0.084511	0.217591	0.266891	0.634257	1.03408	1.172191	0.256243	0.432526	0.084511	0.599723	0.997724	2.246231
1/1/2000 11:02	0.080125	0.160247	0.026087	0.087575	0.225463	0.275764	0.650299	1.060236	1.201841	0.262724	0.443467	0.087575	0.614892	1.022961	2.303047
1/1/2000 11:03	0.083603	0.167201	0.027219	0.091376	0.235248	0.287732	0.678522	1.106247	1.253998	0.274126	0.462712	0.091376	0.641578	1.067355	2.402995
1/1/2000 11:04	0.088759	0.177515	0.028898	0.097012	0.249759	0.30548	0.720375	1.174484	1.33135	0.291035	0.491254	0.097012	0.681153	1.133193	2.551225
1/1/2000 11:05	0.093773	0.187545	0.03053	0.102923	0.263877	0.322739	0.761075	1.240841	1.40657	0.307479	0.51901	0.102493	0.719638	1.197217	2.69537
1/1/2000 11:06	0.097296	0.194589	0.031677	0.106343	0.273782	0.334863	0.789665	1.287453	1.459407	0.319029	0.538507	0.106343	0.746671	1.24219	2.79662
1/1/2000 11:07	0.099932	0.19986	0.032535	0.109224	0.281198	0.343934	0.811054	1.323236	1.498938	0.327671	0.553094	0.109224	0.766896	1.275837	2.87237
1/1/2000 11:08	0.101966	0.203928	0.033197	0.111447	0.286921	0.350934	0.827563	1.349241	1.529447	0.33434	0.564351	0.111447	0.782506	1.301807	2.930834
1/1/2000 11:09	0.103558	0.207113	0.033715	0.113187	0.291402	0.356414	0.840487	1.370314	1.553333	0.339562	0.573165	0.113187	0.794726	1.322138	2.976607
1/1/2000 11:10	0.10483	0.209656	0.034129	0.114577	0.29498	0.360791	0.858087	1.387139	1.572407	0.343731	0.580203	0.114577	0.804484	1.338372	3.01315
1/1/2000 11:11	0.105868	0.211732	0.034467	0.115712	0.297901	0.364364	0.85923	1.400873	1.587975	0.347135	0.585948	0.115712	0.812449	1.351624	3.042979
1/1/2000 11:12	0.106736	0.213469	0.03475	0.116661	0.300344	0.367352	0.866276	1.412361	1.600996	0.349981	0.590753	0.116661	0.819112	1.362708	3.067929
1/1/2000 11:13	0.107457	0.214909	0.034984	0.117449	0.302371	0.369832	0.872124	1.421895	1.611804	0.352343	0.594741	0.117449	0.824641	1.371907	3.088646
1/1/2000 11:14	0.108086	0.216166	0.035189	0.118135	0.304139	0.371995	0.877224	1.43021	1.62123	0.354403	0.598219	0.118135	0.829463	1.37993	3.106711
1/1/2000 11:15	0.108634	0.217262	0.035368	0.118734	0.305683	0.373882	0.881674	1.437466	1.629454	0.356201	0.601254	0.118734	0.833672	1.386931	3.122447
1/1/2000 11:16	0.109115	0.218224	0.035524	0.119259	0.307036	0.375536	0.885577	1.443828	1.636667	0.357778	0.603915	0.119259	0.837361	1.39307	3.136297
1/1/2000 11:17	0.10954	0.219074	0.035662	0.119723	0.30823	0.376997	0.889023	1.449447	1.643034	0.359171	0.606264	0.119723	0.84062	1.39849	3.148507
1/1/2000 11:18	0.109911	0.219817	0.035783	0.120129	0.309275	0.378276	0.892039	1.454363	1.648607	0.360389	0.60832	0.120129	0.843471	1.403234	3.159189
1/1/2000 11:19	0.110235	0.220465	0.035889	0.120484	0.310188	0.379392	0.894672	1.458565	1.653473	0.361453	0.610116	0.120484	0.84596	1.407375	3.168516
1/1/2000 11:20	0.110521	0.221036	0.035981	0.120796	0.310991	0.380374	0.896989	1.462433	1.657754	0.36239	0.611696	0.120796	0.848151	1.411019	3.176716
1/1/2000 11:21	0.110773	0.221541	0.036063	0.121072	0.311701	0.381242	0.899036	1.465771	1.661538	0.363216	0.613091	0.121072	0.850087	1.414239	3.183963
1/1/2000 11:22	0.110925	0.221985	0.036135	0.121315	0.312325	0.382006	0.900837	1.468707	1.664866	0.363944	0.614319	0.121315	0.85179	1.417073	3.190343
1/1/2000 11:23	0.11119	0.222375	0.036198	0.121528	0.312874	0.382677	0.902418	1.471286	1.667789	0.364582	0.615397	0.121528	0.853285	1.41956	3.195947
1/1/2000 11:24	0.111357	0.22271	0.036253	0.121711	0.313345	0.383253	0.903778	1.473503	1.670303	0.365132	0.616324				

1/1/2000 12:13	0.368092	0.736167	0.119829	0.402274	1.035748	1.266815	2.987423	4.870625	5.521098	1.20694	2.037211	0.402274	2.824745	4.69939	10.58042
1/1/2000 12:14	0.349391	0.698753	0.113739	0.381864	0.983136	1.202446	2.835658	4.623188	5.240613	1.145644	1.933719	0.381864	2.681263	4.460637	10.0429
1/1/2000 12:15	0.334268	0.668503	0.108806	0.365343	0.940541	1.150382	2.712889	4.423009	5.013688	1.096055	1.849983	0.365343	2.565156	4.267487	9.608044
1/1/2000 12:16	0.320081	0.640179	0.104181	0.34987	0.900672	1.10162	2.597896	4.235559	4.801216	1.049581	1.771573	0.34987	2.456439	4.086609	9.20067
1/1/2000 12:17	0.305636	0.611251	0.099483	0.334082	0.860017	1.051885	2.4806	4.044299	4.584416	1.002188	1.691568	0.334082	2.345531	3.902088	8.785168
1/1/2000 12:18	0.28987	0.579774	0.094348	0.318662	0.815689	0.997658	2.352724	3.835854	4.348134	0.950514	1.604373	0.318662	2.224646	3.700953	8.332355
1/1/2000 12:19	0.271651	0.543334	0.088419	0.296955	0.76444	0.934947	2.204857	3.594813	4.074885	0.890776	1.503534	0.296955	2.084844	3.4684	7.808454
1/1/2000 12:20	0.254752	0.509496	0.082924	0.278465	0.716867	0.876741	2.067593	3.370989	3.821195	0.835296	1.409924	0.278465	1.955036	3.252458	7.322282
1/1/2000 12:21	0.241631	0.483266	0.078672	0.264153	0.679961	0.831603	1.961184	3.1975	3.624526	0.79233	1.337353	0.264153	1.854423	3.085057	6.945395
1/1/2000 12:22	0.231086	0.462201	0.075254	0.252636	0.659034	0.795357	1.87569	3.058109	3.466568	0.75777	1.279072	0.252636	1.773572	2.950573	6.642606
1/1/2000 12:23	0.222414	0.444833	0.072436	0.243135	0.625919	0.765516	1.805313	2.943341	3.33645	0.729337	1.231063	0.243135	1.707034	2.839846	6.3932
1/1/2000 12:24	0.215042	0.430088	0.070042	0.235055	0.605176	0.740177	1.745499	2.845806	3.225892	0.705173	1.19027	0.235055	1.650442	2.745731	6.181418
1/1/2000 12:25	0.208818	0.417668	0.068017	0.228242	0.587677	0.718785	1.695008	2.763528	3.132616	0.68477	1.155841	0.228242	1.6027	2.666344	6.002657
1/1/2000 12:26	0.203517	0.407028	0.066285	0.222421	0.572709	0.700464	1.651789	2.693053	3.052752	0.667312	1.126401	0.222421	1.561825	2.598373	5.849752
1/1/2000 12:27	0.198907	0.397784	0.064764	0.21738	0.559696	0.684548	1.614299	2.631923	2.983477	0.652189	1.100845	0.21738	1.526361	2.539416	5.716988
1/1/2000 12:28	0.194949	0.389895	0.063468	0.213059	0.548563	0.670921	1.582216	2.57962	2.924194	0.639925	1.078978	0.213059	1.496031	2.488932	5.603314
1/1/2000 12:29	0.190262	0.38052	0.061923	0.207936	0.535363	0.654767	1.54413	2.517541	2.85382	0.623864	1.053015	0.207936	1.460038	2.42904	5.468538
1/1/2000 12:30	0.186109	0.372226	0.060579	0.203316	0.523678	0.640487	1.510465	2.462643	2.791591	0.610268	1.030057	0.203316	1.428204	2.376052	5.349444
1/1/2000 12:31	0.181106	0.362206	0.058941	0.197929	0.509596	0.62328	1.469869	2.396446	2.716543	0.593854	1.002363	0.197929	1.389823	2.31219	5.205612
1/1/2000 12:32	0.174701	0.349426	0.056861	0.190944	0.491607	0.601288	1.417995	2.31188	2.626057	0.572894	0.96698	0.190944	1.340786	2.230582	5.021835
1/1/2000 12:33	0.166284	0.332567	0.054131	0.181741	0.467902	0.572285	1.349569	2.200321	2.494209	0.545247	0.920331	0.181741	1.276078	2.122966	4.77951
1/1/2000 12:34	0.156489	0.312973	0.050934	0.171034	0.440332	0.538556	1.27004	2.070666	2.347233	0.513114	0.866098	0.171034	1.200887	1.997872	4.497863
1/1/2000 12:35	0.147088	0.29417	0.047878	0.160765	0.413878	0.506201	1.193748	1.946273	2.206229	0.482292	0.814071	0.160765	1.128747	1.877846	4.227714
1/1/2000 12:36	0.140247	0.280488	0.04565	0.153285	0.394631	0.482667	1.13825	1.855785	2.103649	0.459867	0.776217	0.153285	1.076272	1.79054	4.03114
1/1/2000 12:37	0.134959	0.269928	0.043933	0.147511	0.379771	0.464493	1.095385	1.785902	2.024424	0.442545	0.746982	0.147511	1.035746	1.723105	3.879316
1/1/2000 12:38	0.130772	0.26154	0.042576	0.142932	0.367981	0.450072	1.061361	1.730426	1.961542	0.428798	0.723782	0.142932	1.003571	1.66959	3.75881
1/1/2000 12:39	0.127871	0.255736	0.04163	0.139759	0.359815	0.440085	1.037807	1.692023	1.918011	0.419281	0.707719	0.139759	0.981299	1.632536	3.675403
1/1/2000 12:40	0.125524	0.251044	0.040866	0.137194	0.353211	0.432009	1.018764	1.660975	1.882815	0.411589	0.694732	0.137194	0.963291	1.602578	3.607976
1/1/2000 12:41	0.12359	0.247175	0.040236	0.135078	0.347768	0.425352	1.003605	1.635378	1.8538	0.405244	0.684027	0.135078	0.948447	1.577882	3.552388
1/1/2000 12:42	0.121954	0.243904	0.039702	0.133291	0.343166	0.419724	0.989795	1.613742	1.829273	0.399885	0.674976	0.133291	0.935899	1.557006	3.50539
1/1/2000 12:43	0.120586	0.24117	0.039257	0.131796	0.339316	0.415013	0.978689	1.595636	1.808751	0.395399	0.667404	0.131796	0.925398	1.539536	3.466049
1/1/2000 12:44	0.119396	0.23879	0.038868	0.130498	0.335969	0.410916	0.969029	1.57989	1.790901	0.391497	0.660818	0.130498	0.916268	1.524345	3.431841
1/1/2000 12:45	0.118354	0.236707	0.03853	0.12936	0.333035	0.4073	0.960574	1.566103	1.775273	0.388081	0.655052	0.12936	0.908271	1.51104	3.401908
1/1/2000 12:46	0.117439	0.234877	0.038231	0.128361	0.330462	0.404185	0.953156	1.554008	1.761562	0.385083	0.649993	0.128361	0.901258	1.49937	3.375621
1/1/2000 12:47	0.116629	0.233258	0.037969	0.127477	0.328187	0.401402	0.94659	1.543303	1.749427	0.382429	0.645515	0.127477	0.895051	1.489041	3.352354
1/1/2000 12:48	0.115921	0.231839	0.037733	0.126702	0.326191	0.398961	0.94083	1.533913	1.738783	0.380101	0.641588	0.126702	0.889605	1.479983	3.331952
1/1/2000 12:49	0.115398	0.230794	0.037569	0.126129	0.324272	0.397162	0.936585	1.526994	1.73094	0.378386	0.638694	0.126129	0.885592	1.473309	3.316919
1/1/2000 12:50	0.114938	0.229874	0.03742	0.125626	0.323426	0.395579	0.93285	1.520904	1.724038	0.376876	0.636147	0.125626	0.88206	1.467433	3.303698
1/1/2000 12:51	0.114532	0.229059	0.037288	0.125181	0.322281	0.394179	0.929549	1.51552	1.717934	0.375543	0.633896	0.125181	0.878938	1.462239	3.29201
1/1/2000 12:52	0.114173	0.228344	0.037171	0.12479	0.321275	0.392948	0.926647	1.510789	1.712572	0.374371	0.631917	0.12479	0.876193	1.457673	3.281729
1/1/2000 12:53	0.11386	0.227716	0.03707	0.124447	0.320392	0.391868	0.924101	1.506636	1.707865	0.373343	0.630181	0.124447	0.873785	1.453668	3.272703
1/1/2000 12:54	0.113559	0.227176	0.036981	0.124151	0.319631	0.390939	0.921908	1.503061	1.703813	0.372457	0.628687	0.124151	0.871711	1.450218	3.264949
1/1/2000 12:55	0.11335	0.226698	0.036904	0.12389	0.318957	0.390116	0.919966	1.499896	1.700224	0.371673	0.627362	0.12389	0.869875	1.447163	3.258079
1/1/2000 12:56	0.113141	0.226277	0.036834	0.123658	0.318365	0.389392	0.918257	1.497109	1.697065	0.370981	0.626197	0.123658	0.868259	1.444475	3.252028
1/1/2000 12:57	0.112951	0.225897	0.036772	0.123451	0.31783	0.388738	0.916715	1.494595	1.694214	0.370359	0.625146	0.123451	0.866801	1.442025	3.246565
1/1/2000 12:58	0.112784	0.225664	0.036718	0.12327	0.317361	0.388164	0.915361	1.492389	1.691714	0.369813	0.624224	0.12327	0.865521	1.439921	3.241772
1/1/2000 12:59	0.112642	0.22528	0.036667	0.123114	0.31696	0.387671	0.914202	1.4905	1.689573	0.369345	0.623434	0.123114	0.864426	1.4381	3.23767
1/1/2000 13:00	0.112514	0.225025	0.036629	0.122976	0.316601	0.387233	0.913169	1.488815	1.687663	0.368928	0.62273	0.122976	0.86345	1.436473	3.234019
1/1/2000 13:01	0.111561	0.223115	0.036318	0.121932	0.313916	0.38395	0.905427	1.476192	1.673354	0.3658	0.617449	0.121932	0.85613	1.424294	3.206598
1/1/2000 13:02	0.10952	0.219038	0.035654	0.119703	0.308178	0.376932	0.888878	1.449211	1.642768	0.359114	0.606162	0.119703	0.840483	1.398261	3.147987
1/1/2000 13:03	0.105988	0.211972	0.034505	0.115842	0.298238	0.364774	0.860205	1.402464	1.589776	0.347529	0.58661	0.115842	0.81337	1.353158	3.046442
1/1/2000 13:04	0.100831	0.201658	0.032826	0.110206	0.283727	0.347025	0.81835	1.334225	1.512423	0.330619	0.558607	0.110206	0.773794	1.287318	2.898207
1/1/2000 13:05	0.095817	0.191628	0.031193	0.104725	0.269615	0.329766	0.77765	1.267869	1.437203	0.314176	0.530312	0.104725	0.735309	1.223295	2.754064
1/1/2000 13:06	0.092294	0.184584	0.030046	0.100876	0.259703	0.317642	0.74906	1.221257	1.384366	0.302625	0.510815	0.100876	0.708276	1.178322	2.652813
1/1/2000 13:07	0.089658	0.179314	0.029189	0.097995	0.252288	0.308571	0.727671	1.186383	1.344834	0.293984	0.496227	0.097995	0.688051	1.144674	2.577063
1/1/2000 13:08	0.087624	0.175245	0.028527	0.095771	0.246564	0.301571	0.711162	1.159468	1.314325	0.287314	0.48497	0.095771	0.672441	1.118705	2.518598
1/1/2000 13:09	0.086032	0.17206	0.028008	0.094031	0.242083	0.296091	0.698238	1.138395	1.290438	0.282092	0.476155	0.094031	0.6		







1/1/2000 17:28	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:29	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:30	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:31	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:32	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:33	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:34	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:35	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:36	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:37	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:38	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:39	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:40	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:41	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:42	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:43	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:44	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:45	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:46	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:47	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:48	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:49	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:50	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:51	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:52	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:53	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:54	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:55	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:56	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:57	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:58	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 17:59	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 18:00	0.038386	0.076771	0.012497	0.041955	0.108015	0.132113	0.311546	0.507939	0.575779	0.125866	0.212456	0.041955	0.294583	0.490081	1.103347
1/1/2000 18:01	0.037984	0.075966	0.012366	0.041516	0.106883	0.130728	0.308028	0.502614	0.569744	0.124547	0.210229	0.041516	0.291496	0.489494	1.091783
1/1/2000 18:02	0.037058	0.074115	0.012064	0.040504	0.104277	0.127541	0.300765	0.490362	0.555855	0.121512	0.205104	0.040504	0.28439	0.473123	1.065169
1/1/2000 18:03	0.035413	0.070826	0.011529	0.038706	0.099649	0.121881	0.287418	0.468602	0.531188	0.116119	0.196002	0.038706	0.271769	0.452128	1.017901
1/1/2000 18:04	0.032951	0.06659	0.010727	0.036014	0.092719	0.113405	0.267429	0.436012	0.494245	0.108043	0.182371	0.036014	0.252868	0.420684	0.947107
1/1/2000 18:05	0.030556	0.06111	0.009947	0.033397	0.085979	0.105161	0.24799	0.40432	0.45832	0.10019	0.169115	0.033397	0.234488	0.390105	0.878262
1/1/2000 18:06	0.028873	0.057745	0.0099	0.031558	0.081246	0.099371	0.234336	0.382059	0.433086	0.094674	0.159803	0.031558	0.221577	0.368627	0.829908
1/1/2000 18:07	0.027614	0.055228	0.00894	0.030182	0.077703	0.095038	0.22412	0.365401	0.414203	0.090546	0.152836	0.030182	0.211917	0.352555	0.793724
1/1/2000 18:08	0.026643	0.053284	0.008674	0.029112	0.074969	0.091694	0.216233	0.352544	0.399629	0.08736	0.147458	0.029112	0.20446	0.340149	0.765795
1/1/2000 18:09	0.025882	0.051763	0.008426	0.028289	0.072829	0.089077	0.21006	0.342478	0.388219	0.084866	0.143248	0.028289	0.198623	0.330438	0.743932
1/1/2000 18:10	0.025275	0.050549	0.008228	0.027265	0.071121	0.086987	0.205132	0.334444	0.379112	0.082875	0.139887	0.027265	0.193963	0.322686	0.726482
1/1/2000 18:11	0.024779	0.049558	0.008067	0.027083	0.069726	0.085281	0.201111	0.327887	0.371679	0.08125	0.137144	0.027083	0.19016	0.316359	0.712241
1/1/2000 18:12	0.024364	0.048728	0.007932	0.02663	0.068559	0.083854	0.197745	0.322399	0.365458	0.07989	0.134849	0.02663	0.186977	0.311063	0.70032
1/1/2000 18:13	0.02402	0.04804	0.00782	0.026253	0.06759	0.082668	0.19495	0.317842	0.360293	0.078761	0.132943	0.026253	0.184335	0.306667	0.69042
1/1/2000 18:14	0.02372	0.047439	0.007722	0.025926	0.066746	0.081635	0.192514	0.313872	0.355792	0.077777	0.131282	0.025926	0.182032	0.302836	0.681792
1/1/2000 18:15	0.023458	0.046916	0.007637	0.02564	0.066009	0.080734	0.190389	0.310408	0.351865	0.076919	0.129833	0.02564	0.180023	0.299494	0.674269
1/1/2000 18:16	0.023228	0.046457	0.007532	0.025389	0.065363	0.079945	0.188527	0.307371	0.348423	0.076166	0.128563	0.025389	0.178262	0.296563	0.666767
1/1/2000 18:17	0.023025	0.046051	0.007436	0.025167	0.064792	0.079247	0.18688	0.304686	0.345381	0.075501	0.12744	0.025167	0.176705	0.293974	0.661836
1/1/2000 18:18	0.022848	0.045696	0.007348	0.024973	0.064293	0.078636	0.185439	0.302336	0.342717	0.074919	0.126458	0.024973	0.175342	0.291706	0.656733
1/1/2000 18:19	0.022693	0.045386	0.007388	0.024804	0.063857	0.078102	0.184181	0.300286	0.340392	0.07441	0.1256	0.024804	0.174153	0.289729	0.652275
1/1/2000 18:20	0.022557	0.045114	0.007344	0.024655	0.063474	0.077634	0.183075	0.298483	0.338349	0.073963	0.124846	0.024655	0.173107	0.287989	0.648362
1/1/2000 18:21	0.022437	0.044873	0.007305	0.024523	0.063135	0.07722	0.182099	0.296891	0.336544	0.073569	0.12418	0.024523	0.172184	0.286453	0.644905
1/1/2000 18:22	0.02233	0.044661	0.00727	0.024407	0.062837	0.076854	0.181238	0.295487	0.334953	0.073221	0.123593	0.024407	0.17137	0.285099	0.641855
1/1/2000 18:23	0.022237	0.044474	0.00724	0.024305	0.062574	0.076534	0.180482	0.294254	0.333555	0.072916	0.123078	0.024305	0.170655	0.283909	0.639175
1/1/2000 18:24	0.022157	0.044314	0.007214	0.024217	0.062349	0.076258	0.179832	0.293195							









# 100-YEAR, 24-HOUR HYDROGRAPHS (DEVELOPED CONDITIONS)

Day/Time	FLOW NODE1	FLOW NODE2	FLOW NODE3	FLOW NODE4	FLOW NODE5	FLOW NODE6	FLOW NODE7	FLOW NODE8	FLOW NODE9	FLOW NODE10	FLOW NODE11	FLOW NODE12	FLOW NODE13	FLOW NODE14	FLOW NODE15
1/1/2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/1/2000 0.01	0.000663	0.001327	0.000216	0.000725	0.001867	0.002284	0.005386	0.008781	0.009953	0.002175	0.003673	0.000725	0.005092	0.008471	0.019071
1/1/2000 0.02	0.002191	0.004382	0.000714	0.002395	0.006166	0.007542	0.017784	0.028995	0.032867	0.007184	0.012128	0.002395	0.016816	0.027974	0.06298
1/1/2000 0.03	0.004905	0.009809	0.001598	0.005361	0.013802	0.016881	0.039808	0.064901	0.073569	0.016802	0.027147	0.005361	0.03764	0.062619	0.140976
1/1/2000 0.04	0.008969	0.017937	0.002921	0.009803	0.025237	0.030868	0.077791	0.118675	0.134527	0.029407	0.049639	0.009803	0.068828	0.114503	0.257791
1/1/2000 0.05	0.01292	0.025841	0.004207	0.014122	0.036358	0.044469	0.104865	0.170969	0.193805	0.042366	0.071512	0.014122	0.099156	0.164958	0.371385
1/1/2000 0.06	0.015696	0.031393	0.005111	0.017156	0.044169	0.054024	0.127396	0.207701	0.235444	0.051468	0.086877	0.017156	0.12046	0.200399	0.451176
1/1/2000 0.07	0.017774	0.035546	0.005787	0.019426	0.050013	0.061172	0.144252	0.235184	0.266597	0.058279	0.098373	0.019426	0.136398	0.226915	0.510872
1/1/2000 0.08	0.019377	0.038752	0.006309	0.021178	0.054523	0.066689	0.157262	0.256395	0.29064	0.063534	0.107244	0.021178	0.1487	0.247381	0.556945
1/1/2000 0.09	0.020631	0.041262	0.006717	0.02255	0.058055	0.071008	0.167447	0.273001	0.309464	0.067649	0.114191	0.02255	0.15833	0.263403	0.593018
1/1/2000 0.10	0.021633	0.043266	0.007044	0.023645	0.060874	0.074456	0.175579	0.28626	0.324494	0.070935	0.119737	0.023645	0.16602	0.276197	0.621815
1/1/2000 0.11	0.022452	0.044902	0.00731	0.024539	0.063176	0.077272	0.182217	0.297083	0.336763	0.073617	0.124264	0.024539	0.172297	0.284539	0.645322
1/1/2000 0.12	0.023136	0.046271	0.007532	0.025287	0.065101	0.079627	0.187769	0.306137	0.347025	0.07586	0.128051	0.025287	0.177547	0.295375	0.664984
1/1/2000 0.13	0.023704	0.047406	0.007717	0.025908	0.066699	0.081581	0.192378	0.31365	0.355541	0.077722	0.131193	0.025908	0.181904	0.302624	0.68131
1/1/2000 0.14	0.024199	0.048396	0.007879	0.026449	0.068092	0.083286	0.196397	0.320201	0.362968	0.079345	0.133934	0.026449	0.185704	0.308945	0.695545
1/1/2000 0.15	0.024631	0.04926	0.008019	0.026921	0.069308	0.084773	0.199904	0.32592	0.36945	0.080762	0.136325	0.026921	0.189021	0.314463	0.707963
1/1/2000 0.16	0.02501	0.050018	0.008143	0.027335	0.070375	0.086077	0.20298	0.330935	0.375134	0.082005	0.138423	0.027335	0.191929	0.319302	0.718861
1/1/2000 0.17	0.025345	0.050688	0.008252	0.0277	0.071316	0.087228	0.205695	0.335361	0.380152	0.083102	0.140274	0.0277	0.194496	0.323572	0.728482
1/1/2000 0.18	0.025638	0.051273	0.008347	0.02802	0.07214	0.088235	0.208071	0.339235	0.384542	0.084062	0.141894	0.02802	0.196742	0.327309	0.736898
1/1/2000 0.19	0.025893	0.051784	0.00843	0.0283	0.072859	0.089115	0.210146	0.342617	0.388377	0.0849	0.143309	0.0283	0.198704	0.330572	0.744248
1/1/2000 0.20	0.026118	0.052234	0.008503	0.028546	0.073491	0.089889	0.211972	0.345594	0.391751	0.085638	0.144554	0.028546	0.200431	0.333445	0.75071
1/1/2000 0.21	0.026317	0.052632	0.008567	0.028763	0.074051	0.090573	0.213585	0.348226	0.394734	0.08629	0.145654	0.028763	0.201957	0.335983	0.756423
1/1/2000 0.22	0.026492	0.052982	0.008624	0.028954	0.074543	0.091175	0.215005	0.350539	0.397356	0.086863	0.146621	0.028954	0.203299	0.338216	0.76145
1/1/2000 0.23	0.026645	0.053289	0.008674	0.029122	0.074975	0.091703	0.21625	0.35257	0.399658	0.087366	0.14747	0.029122	0.204476	0.340175	0.765846
1/1/2000 0.24	0.026777	0.053553	0.008717	0.029267	0.075347	0.092157	0.217322	0.354318	0.401639	0.087799	0.148201	0.029267	0.20549	0.341861	0.769655
1/1/2000 0.25	0.026894	0.053786	0.008755	0.029395	0.075676	0.092559	0.218271	0.355865	0.403393	0.088182	0.148848	0.029395	0.206388	0.343534	0.773013
1/1/2000 0.26	0.026997	0.053992	0.008789	0.029508	0.075965	0.092913	0.219106	0.357227	0.404937	0.08852	0.149418	0.029508	0.207178	0.344668	0.77597
1/1/2000 0.27	0.02709	0.054178	0.00882	0.029609	0.076227	0.093233	0.21986	0.358456	0.406331	0.088824	0.149932	0.029609	0.20789	0.345854	0.778642
1/1/2000 0.28	0.027171	0.054341	0.008846	0.029698	0.076457	0.093514	0.220522	0.359535	0.407554	0.089092	0.150383	0.029698	0.208517	0.346895	0.780986
1/1/2000 0.29	0.027241	0.054548	0.008869	0.029774	0.076653	0.093755	0.221089	0.360459	0.408601	0.089321	0.150769	0.029774	0.209052	0.347786	0.782992
1/1/2000 0.30	0.027303	0.054605	0.008889	0.029842	0.076828	0.093969	0.221594	0.361283	0.409535	0.089525	0.151114	0.029842	0.209529	0.348581	0.784777
1/1/2000 0.31	0.027358	0.054715	0.008907	0.029902	0.076982	0.094157	0.222038	0.362006	0.410355	0.089704	0.151417	0.029902	0.209949	0.349279	0.78635
1/1/2000 0.32	0.027407	0.054813	0.008923	0.029956	0.077121	0.094326	0.222437	0.362657	0.411093	0.089866	0.151689	0.029956	0.210326	0.349908	0.787765
1/1/2000 0.33	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.34	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.35	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.36	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.37	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.38	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.39	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.40	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.41	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.42	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.43	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.44	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.45	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.46	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.47	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.48	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.49	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.50	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.51	0.027451	0.0549	0.008937	0.030003	0.077243	0.094476	0.222792	0.363236	0.411749	0.090009	0.151931	0.030003	0.210661	0.350465	0.789022
1/1/2000 0.52	0.027451	0.0													







1/1/2000 5:19	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:20	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:21	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163536	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:22	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:23	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:24	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:25	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:26	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163536	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:27	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:28	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:29	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:30	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:31	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163536	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:32	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:33	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:34	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:35	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:36	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163536	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:37	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:38	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:39	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:40	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:41	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163536	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:42	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:43	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:44	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:45	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:46	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163536	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:47	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:48	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:49	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:50	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:51	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163536	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:52	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:53	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:54	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:55	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:56	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163536	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:57	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 5:58	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 5:59	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377237	0.849294
1/1/2000 6:00	0.029548	0.059094	0.00962	0.032295	0.083144	0.101693	0.23981	0.390982	0.443202	0.096885	0.163537	0.032295	0.226753	0.377236	0.849293
1/1/2000 6:01	0.030113	0.060225	0.009084	0.032913	0.084735	0.10364	0.2444	0.398465	0.451684	0.098739	0.166667	0.032913	0.231093	0.384456	0.865547
1/1/2000 6:02	0.031415	0.062829	0.010228	0.034336	0.088399	0.108121	0.254967	0.415693	0.471213	0.103007	0.173873	0.034336	0.241085	0.401078	0.902969
1/1/2000 6:03	0.033728	0.067454	0.010981	0.036864	0.094907	0.11608	0.273738	0.446295	0.505903	0.110591	0.186673	0.036864	0.258833	0.430605	0.969444
1/1/2000 6:04	0.037191	0.074382	0.012109	0.04065	0.104653	0.128001	0.301848	0.492126	0.557856	0.121948	0.205843	0.04065	0.285414	0.474825	1.069002
1/1/2000 6:05	0.040559	0.081118	0.013205	0.044331	0.114131	0.139593	0.329184	0.536694	0.608376	0.132992	0.224485	0.044331	0.311262	0.517825	1.165815
1/1/2000 6:06	0.042925	0.085849	0.013976	0.046916	0.120788	0.147736	0.348386	0.568	0.643864	0.14075	0.237579	0.046916	0.329418	0.548031	1.233818
1/1/2000 6:07	0.044696	0.089389	0.014552	0.048851	0.125769	0.153828	0.362752	0.591423	0.670415	0.146554	0.247377	0.048851	0.343002	0.57063	1.284695
1/1/2000 6:08	0.046062	0.092121	0.014996	0.050344	0.129612	0.15853	0.37384	0.609091	0.690906	0.151033	0.254938	0.050344	0.353486	0.588072	1.323964
1/1/2000 6:09	0.047131	0.094261	0.015345	0.051514	0.132622	0.162211	0.382521	0.623654	0.70695	0.154541	0.260858	0.051514	0.361694	0.601728	1.354707
1/1/2000 6:10	0.047985	0.095969	0.015623	0.052447	0.135025	0.16515	0.389451	0.634954	0.719759	0.157341	0.265585	0.052447	0.368248	0.612621	1.37925
1/1/2000 6:11	0.048682	0.097363	0.015849	0.053209	0.136987	0.167549	0.395109	0.644178	0.730215	0.159626	0.269443	0.053209	0.373597	0.621531	1.399283
1/1/2000 6:12	0.049266	0.098529	0.016039	0.053846	0.138628	0.169557	0.399841	0.651894	0.738962	0.161538	0.272671	0.053846	0.378072	0.628977	1.416042
1/1/2000 6:13	0.04975	0.099497	0.016197	0.054376	0.13999	0.171223	0.403769	0.658298	0.746221	0.163125	0.275349	0.054376	0.381786	0.635156	1.429957
1/1/2000 6:14	0.050172	0.100341	0.016335	0.054836	0.141177	0.172675	0.407195	0.663882	0.752551	0.164508	0.277685	0.054836	0.385025	0.640544	1.442091
1/1/2000 6:15	0.050554	0.101078	0.016454	0.055239	0.142214	0.173943	0.410184	0.668756	0.758076	0.165716	0.279724	0.055239	0.387852	0.645247	1.452676
1/1/2000 6:16															



1/1/2000 8:53	0.052943	0.105884	0.017236	0.057866	0.148976	0.182212	0.429689	0.700558	0.794124	0.173597	0.293023	0.057866	0.406294	0.675928	1.521755
1/1/2000 8:54	0.052943	0.105884	0.017236	0.057866	0.148976	0.182212	0.429689	0.700557	0.794124	0.173597	0.293023	0.057866	0.406294	0.675928	1.521755
1/1/2000 8:55	0.052943	0.105884	0.017236	0.057866	0.148976	0.182212	0.429689	0.700558	0.794125	0.173597	0.293023	0.057866	0.406295	0.675929	1.521756
1/1/2000 8:56	0.052943	0.105884	0.017236	0.057866	0.148976	0.182212	0.429689	0.700558	0.794125	0.173597	0.293023	0.057866	0.406295	0.675929	1.521756
1/1/2000 8:57	0.052943	0.105884	0.017236	0.057866	0.148976	0.182212	0.429689	0.700558	0.794125	0.173597	0.293023	0.057866	0.406294	0.675929	1.521756
1/1/2000 8:58	0.052943	0.105884	0.017236	0.057866	0.148976	0.182212	0.429689	0.700558	0.794124	0.173597	0.293023	0.057866	0.406294	0.675928	1.521755
1/1/2000 8:59	0.052943	0.105884	0.017236	0.057866	0.148976	0.182212	0.429689	0.700557	0.794124	0.173597	0.293023	0.057866	0.406294	0.675928	1.521755
1/1/2000 9:00	0.052943	0.105884	0.017236	0.057866	0.148976	0.182212	0.429689	0.700558	0.794125	0.173597	0.293023	0.057866	0.406295	0.675929	1.521756
1/1/2000 9:01	0.053822	0.107644	0.017523	0.058828	0.151451	0.185241	0.43683	0.7122	0.80732	0.176481	0.297893	0.058828	0.413046	0.68716	1.547041
1/1/2000 9:02	0.055848	0.111694	0.018183	0.061041	0.157151	0.192211	0.453267	0.738998	0.837699	0.183122	0.309102	0.061041	0.428588	0.713017	1.605253
1/1/2000 9:03	0.059446	0.118889	0.019355	0.064974	0.167274	0.204593	0.482466	0.786601	0.891661	0.194918	0.329013	0.064974	0.456196	0.758947	1.708657
1/1/2000 9:04	0.064833	0.129665	0.021109	0.070862	0.182435	0.223136	0.526193	0.857893	0.972475	0.212585	0.358833	0.070862	0.497544	0.827733	1.863525
1/1/2000 9:05	0.070072	0.140144	0.022814	0.076588	0.191718	0.241168	0.568715	0.927221	1.051063	0.229764	0.387831	0.076588	0.537752	0.894623	2.014123
1/1/2000 9:06	0.073753	0.147504	0.024012	0.08061	0.207534	0.253835	0.598586	0.97592	1.106266	0.241832	0.408202	0.08061	0.565996	0.94161	2.119908
1/1/2000 9:07	0.076507	0.15301	0.024908	0.08362	0.215282	0.263312	0.620933	1.012356	1.147568	0.250861	0.423442	0.08362	0.587126	0.976764	2.199049
1/1/2000 9:08	0.078632	0.157226	0.0256	0.085943	0.221261	0.270626	0.638181	1.040477	1.179444	0.257829	0.435204	0.085943	0.603435	1.003897	2.260133
1/1/2000 9:09	0.080295	0.160588	0.026142	0.087761	0.225943	0.276352	0.651685	1.062493	1.204401	0.263284	0.44413	0.087761	0.616203	1.025139	2.307958
1/1/2000 9:10	0.081624	0.163245	0.026574	0.089213	0.229681	0.280924	0.662466	1.080071	1.224326	0.26764	0.451766	0.089213	0.626398	1.0421	2.346135
1/1/2000 9:11	0.082709	0.165414	0.026927	0.090399	0.232733	0.284656	0.671266	1.09442	1.240592	0.271196	0.457767	0.090399	0.634719	1.055944	2.377299
1/1/2000 9:12	0.083616	0.167228	0.027223	0.09139	0.235285	0.287778	0.678627	1.106422	1.254197	0.274169	0.462788	0.09139	0.64168	1.067525	2.403367
1/1/2000 9:13	0.084369	0.168733	0.027468	0.092213	0.237403	0.29037	0.684737	1.116384	1.265488	0.276638	0.466954	0.092213	0.647457	1.077137	2.425012
1/1/2000 9:14	0.085026	0.170047	0.027682	0.09293	0.23925	0.292629	0.690066	1.125069	1.275335	0.27879	0.470588	0.09293	0.652494	1.085517	2.443884
1/1/2000 9:15	0.085598	0.171192	0.027868	0.093556	0.240863	0.2946	0.694715	1.13265	1.283927	0.280668	0.473758	0.093556	0.656891	1.092832	2.460347
1/1/2000 9:16	0.086101	0.172197	0.028032	0.094105	0.242277	0.29633	0.698793	1.139298	1.291464	0.282316	0.476539	0.094105	0.660747	1.099247	2.474795
1/1/2000 9:17	0.086545	0.173084	0.028176	0.094589	0.243524	0.297856	0.702392	1.145167	1.298115	0.283771	0.478993	0.094589	0.664415	1.104908	2.487549
1/1/2000 9:18	0.086932	0.17386	0.028302	0.095014	0.244616	0.299191	0.705543	1.150303	1.303937	0.285043	0.48114	0.095014	0.667128	1.109863	2.498708
1/1/2000 9:19	0.087271	0.174538	0.028413	0.095385	0.245569	0.300358	0.708294	1.154787	1.30902	0.286155	0.483017	0.095385	0.66973	1.11419	2.508453
1/1/2000 9:20	0.087569	0.175134	0.028509	0.095711	0.246408	0.301384	0.710714	1.158733	1.313493	0.287133	0.484667	0.095711	0.672018	1.117997	2.517019
1/1/2000 9:21	0.087833	0.175662	0.028595	0.095999	0.24715	0.302291	0.712853	1.162222	1.317448	0.287997	0.486126	0.095999	0.674041	1.121362	2.524594
1/1/2000 9:22	0.088065	0.176125	0.02867	0.096252	0.247802	0.303089	0.714735	1.16529	1.320924	0.288757	0.487408	0.096252	0.675821	1.124322	2.531257
1/1/2000 9:23	0.088268	0.176533	0.028736	0.096475	0.248375	0.303789	0.716386	1.167982	1.323976	0.289424	0.488534	0.096475	0.677382	1.126292	2.537111
1/1/2000 9:24	0.088443	0.176883	0.028793	0.096667	0.248868	0.304391	0.717807	1.170299	1.326603	0.289998	0.489503	0.096667	0.678726	1.129156	2.542137
1/1/2000 9:25	0.088598	0.177192	0.028844	0.096836	0.249305	0.304924	0.719065	1.17235	1.328928	0.290506	0.490361	0.096836	0.679916	1.131135	2.546587
1/1/2000 9:26	0.088734	0.177465	0.028889	0.096986	0.249688	0.305393	0.720173	1.174156	1.330975	0.290954	0.491116	0.096986	0.680963	1.132876	2.550508
1/1/2000 9:27	0.088857	0.177711	0.028929	0.09712	0.250035	0.305817	0.721172	1.175785	1.332822	0.291357	0.491797	0.09712	0.681908	1.134448	2.554049
1/1/2000 9:28	0.088965	0.177927	0.028964	0.097238	0.250339	0.30619	0.72205	1.177217	1.334444	0.291712	0.492395	0.097238	0.682738	1.135829	2.557158
1/1/2000 9:29	0.089058	0.178112	0.028995	0.097339	0.2506	0.306509	0.722802	1.178442	1.335833	0.292015	0.492908	0.097339	0.683448	1.137011	2.559819
1/1/2000 9:30	0.08914	0.178277	0.029022	0.097428	0.250832	0.306793	0.723471	1.179533	1.33707	0.292285	0.493364	0.097428	0.684081	1.138065	2.562184
1/1/2000 9:31	0.089213	0.178423	0.029045	0.097508	0.251036	0.307042	0.724059	1.180492	1.338157	0.292523	0.493766	0.097508	0.684636	1.138989	2.564269
1/1/2000 9:32	0.089279	0.178553	0.029066	0.09758	0.25122	0.307266	0.724588	1.181354	1.339136	0.292738	0.494127	0.09758	0.685136	1.139822	2.566144
1/1/2000 9:33	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567811
1/1/2000 9:34	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567809
1/1/2000 9:35	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567809
1/1/2000 9:36	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567809
1/1/2000 9:37	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567811
1/1/2000 9:38	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567809
1/1/2000 9:39	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567809
1/1/2000 9:40	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567809
1/1/2000 9:41	0.089336	0.178669	0.029084	0.097643	0.251382	0.307465	0.725057	1.18212	1.340003	0.292928	0.494447	0.097643	0.68558	1.14056	2.567807
1/1/2000 9:42	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140561	2.567809
1/1/2000 9:43	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725059	1.182122	1.340006	0.292928	0.494448	0.097643	0.685582	1.140563	2.567812
1/1/2000 9:44	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725059	1.182122	1.340006	0.292928	0.494448	0.097643	0.685582	1.140563	2.567812
1/1/2000 9:45	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182122	1.340006	0.292928	0.494447	0.097643	0.685581	1.140562	2.567811
1/1/2000 9:46	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340004	0.292928	0.494447	0.097643	0.685581	1.140561	2.567809
1/1/2000 9:47	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725058	1.182121	1.340005	0.292928	0.494447	0.097643	0.685581	1.140562	2.567811
1/1/2000 9:48	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725059	1.182123	1.340007	0.292928	0.494448	0.097643	0.685582	1.140563	2.567813
1/1/2000 9:49	0.089336	0.178669	0.029085	0.097643	0.251382	0.307465	0.725059	1.182123	1.340007	0.292928	0.494448	0.097643	0.685582	1.140563	2.567813
1/1/2000 9:50	0.089336	0													



1/1/2000 10:40	0.104086	0.208169	0.033887	0.113764	0.292887	0.358231	0.844771	1.3773	1.561252	0.341293	0.576086	0.113764	0.798777	1.328878	2.991776
1/1/2000 10:41	0.104644	0.209284	0.034068	0.114374	0.294457	0.36015	0.849297	1.384679	1.569617	0.343121	0.579173	0.114374	0.803057	1.335998	3.007803
1/1/2000 10:42	0.105111	0.210217	0.03422	0.114884	0.295769	0.361756	0.853083	1.390851	1.576614	0.344651	0.581755	0.114884	0.806636	1.341954	3.021209
1/1/2000 10:43	0.105498	0.210991	0.034346	0.115307	0.296859	0.363089	0.856226	1.395975	1.582421	0.34592	0.583898	0.115307	0.809608	1.346898	3.032343
1/1/2000 10:44	0.105836	0.211667	0.034456	0.115676	0.297809	0.364251	0.858966	1.400442	1.587486	0.347027	0.585766	0.115676	0.812198	1.351208	3.042049
1/1/2000 10:45	0.10613	0.212256	0.034552	0.115998	0.298638	0.365265	0.861357	1.40434	1.591904	0.347993	0.587397	0.115998	0.814459	1.354699	3.050514
1/1/2000 10:46	0.106389	0.212773	0.034636	0.11628	0.299365	0.366154	0.863454	1.407759	1.595779	0.348884	0.588827	0.11628	0.816442	1.358268	3.057944
1/1/2000 10:47	0.106617	0.213229	0.034711	0.116529	0.300007	0.366939	0.865305	1.410777	1.5992	0.349588	0.590089	0.116529	0.818192	1.361179	3.064503
1/1/2000 10:48	0.106816	0.213628	0.034775	0.116747	0.300568	0.367626	0.866926	1.413419	1.602195	0.350243	0.591194	0.116747	0.819724	1.363728	3.070243
1/1/2000 10:49	0.106991	0.213977	0.034832	0.116938	0.301059	0.368226	0.868341	1.415726	1.60481	0.350815	0.592158	0.116938	0.821062	1.365954	3.075256
1/1/2000 10:50	0.107144	0.214283	0.034882	0.117106	0.30149	0.368753	0.869585	1.417754	1.607109	0.351318	0.593007	0.117106	0.822239	1.367911	3.079659
1/1/2000 10:51	0.107279	0.214555	0.034926	0.117254	0.301871	0.36922	0.870685	1.419548	1.609143	0.351762	0.593757	0.117254	0.823279	1.369642	3.083555
1/1/2000 10:52	0.107399	0.214793	0.034965	0.117384	0.302207	0.36963	0.871653	1.421126	1.61093	0.352153	0.594417	0.117384	0.824194	1.371164	3.086982
1/1/2000 10:53	0.107503	0.215003	0.034999	0.117499	0.302502	0.36999	0.872502	1.422511	1.612501	0.352496	0.594996	0.117499	0.824998	1.3725	3.089993
1/1/2000 10:54	0.107593	0.215183	0.035028	0.117598	0.302755	0.3703	0.873233	1.423703	1.613852	0.352791	0.595494	0.117598	0.825689	1.37365	3.092579
1/1/2000 10:55	0.107673	0.215342	0.035054	0.117685	0.302979	0.370574	0.87388	1.424757	1.615047	0.353052	0.595935	0.117685	0.8263	1.374667	3.094866
1/1/2000 10:56	0.107743	0.215482	0.035077	0.117762	0.303177	0.370815	0.874449	1.425686	1.616099	0.353283	0.596323	0.117762	0.826839	1.375633	3.096882
1/1/2000 10:57	0.107806	0.215609	0.035098	0.117831	0.303355	0.371033	0.874963	1.426524	1.61705	0.35349	0.596674	0.117831	0.827325	1.376372	3.098703
1/1/2000 10:58	0.107862	0.21572	0.035116	0.117891	0.303512	0.371225	0.875415	1.42726	1.617884	0.353672	0.596982	0.117891	0.827752	1.377082	3.100303
1/1/2000 10:59	0.107909	0.215815	0.035132	0.117943	0.303646	0.371389	0.875802	1.427891	1.618599	0.353829	0.597245	0.117943	0.828118	1.37769	3.101672
1/1/2000 11:00	0.107952	0.2159	0.035146	0.117989	0.303765	0.371535	0.876145	1.428451	1.619234	0.353967	0.59748	0.117989	0.828442	1.378231	3.102887
1/1/2000 11:01	0.109245	0.218488	0.035568	0.119404	0.307406	0.375989	0.886548	1.445574	1.638643	0.35821	0.604642	0.119404	0.838372	1.379475	3.140079
1/1/2000 11:02	0.112173	0.224341	0.036521	0.122603	0.315643	0.386603	0.910402	1.484302	1.682545	0.367806	0.620842	0.122603	0.860833	1.432118	3.224205
1/1/2000 11:03	0.117343	0.234679	0.038204	0.128253	0.330188	0.403853	0.952356	1.552701	1.76008	0.384756	0.649451	0.128253	0.900503	1.498112	3.377782
1/1/2000 11:04	0.125039	0.250073	0.04071	0.136665	0.351846	0.430343	1.014825	1.654547	1.875531	0.409994	0.692051	0.136665	0.959571	1.596379	3.594023
1/1/2000 11:05	0.132523	0.265043	0.043146	0.144845	0.372908	0.456103	1.07557	1.753587	1.987798	0.434536	0.733477	0.144845	1.01701	1.691936	3.809161
1/1/2000 11:06	0.137781	0.275557	0.044858	0.150591	0.387702	0.474198	1.118241	1.823155	2.066659	0.451776	0.762576	0.150591	1.057357	1.759059	3.960279
1/1/2000 11:07	0.141715	0.283423	0.046138	0.154891	0.39877	0.487737	1.150166	1.875206	2.125661	0.464674	0.784349	0.154891	1.087544	1.809279	4.07334
1/1/2000 11:08	0.144751	0.289495	0.047126	0.158209	0.407312	0.498185	1.174806	1.915379	2.171199	0.474628	0.801151	0.158209	1.110843	1.84804	4.160603
1/1/2000 11:09	0.147127	0.294249	0.0479	0.160807	0.414	0.506365	1.194096	1.946831	2.206851	0.482422	0.814307	0.160807	1.129083	1.878386	4.228922
1/1/2000 11:10	0.149025	0.298045	0.048518	0.162881	0.41934	0.512897	1.209498	1.971942	2.235316	0.488644	0.824811	0.162881	1.143646	1.902616	4.283461
1/1/2000 11:11	0.150575	0.301143	0.049022	0.164575	0.4237	0.518228	1.222069	1.992439	2.25855	0.493724	0.833384	0.164575	1.155533	1.922392	4.327978
1/1/2000 11:12	0.151871	0.303735	0.049444	0.165991	0.427346	0.522689	1.232586	2.009586	2.277987	0.497972	0.840556	0.165991	1.165478	1.938937	4.36522
1/1/2000 11:13	0.152947	0.305885	0.049794	0.167167	0.430372	0.526391	1.241314	2.023817	2.294118	0.501498	0.846509	0.167167	1.17373	1.952668	4.396142
1/1/2000 11:14	0.153885	0.307761	0.0501	0.168191	0.43301	0.529619	1.248926	2.036225	2.308185	0.504572	0.851699	0.168191	1.180926	1.96464	4.423103
1/1/2000 11:15	0.154703	0.309397	0.050366	0.169085	0.435314	0.532345	1.255568	2.047054	2.32046	0.507256	0.856229	0.169085	1.187208	1.97509	4.446621
1/1/2000 11:16	0.155421	0.310833	0.0506	0.169869	0.437334	0.534904	1.261393	2.056551	2.331224	0.50961	0.8602	0.169869	1.192715	1.984252	4.467258
1/1/2000 11:17	0.156055	0.312101	0.050806	0.170561	0.439116	0.537085	1.266536	2.064936	2.340727	0.511688	0.863706	0.170561	1.197578	1.992341	4.485479
1/1/2000 11:18	0.156609	0.313209	0.050986	0.171167	0.440676	0.538993	1.271036	2.072273	2.349045	0.513506	0.866775	0.171167	1.201833	1.99942	4.501422
1/1/2000 11:19	0.157093	0.314177	0.051144	0.171697	0.442038	0.540659	1.274966	2.078679	2.356307	0.515094	0.869455	0.171697	1.205548	2.0056	4.515343
1/1/2000 11:20	0.157519	0.315029	0.051282	0.172163	0.443236	0.542125	1.278424	2.084316	2.362696	0.516492	0.871813	0.172163	1.208818	2.01104	4.527581
1/1/2000 11:21	0.157895	0.315783	0.051404	0.172575	0.444296	0.54342	1.281479	2.089299	2.368344	0.517726	0.873896	0.172575	1.211707	2.015846	4.538398
1/1/2000 11:22	0.158227	0.316445	0.051512	0.172937	0.445228	0.544561	1.284168	2.093682	2.373311	0.518812	0.875728	0.172937	1.212425	2.020075	4.547919
1/1/2000 11:23	0.158517	0.317027	0.051606	0.173255	0.446046	0.545561	1.286526	2.097529	2.377672	0.519764	0.877337	0.173255	1.212648	2.023786	4.556282
1/1/2000 11:24	0.158767	0.317527	0.051688	0.173529	0.44675	0.546421	1.288556	2.100839	2.381424	0.520584	0.878721	0.173529	1.21284	2.02698	4.563463
1/1/2000 11:25	0.158989	0.317969	0.05176	0.173771	0.447374	0.547183	1.290354	2.103768	2.384746	0.52131	0.879947	0.173771	1.2201	2.029808	4.56982
1/1/2000 11:26	0.159183	0.318359	0.051824	0.173985	0.447922	0.547852	1.291935	2.106347	2.387668	0.52195	0.881024	0.173985	1.221595	2.032294	4.575418
1/1/2000 11:27	0.159359	0.318711	0.051882	0.174177	0.448418	0.548459	1.293363	2.108676	2.390309	0.522526	0.881998	0.174177	1.222946	2.034541	4.58048
1/1/2000 11:28	0.159513	0.319019	0.051932	0.174345	0.448852	0.548991	1.294618	2.110721	2.392627	0.523032	0.882853	0.174345	1.224133	2.036514	4.584922
1/1/2000 11:29	0.159645	0.319283	0.051976	0.174489	0.449224	0.549447	1.295692	2.112471	2.39461	0.523466	0.883585	0.174489	1.225146	2.038202	4.588723
1/1/2000 11:30	0.159763	0.319519	0.052014	0.174617	0.449556	0.549853	1.296648	2.11403	2.396378	0.523852	0.884237	0.174617	1.22605	2.039708	4.592101
1/1/2000 11:31	0.161537	0.32307	0.052593	0.176559	0.45455	0.555962	1.311053	2.137516	2.423	0.529671	0.894061	0.176559	1.239669	2.062366	4.643116
1/1/2000 11:32	0.16548	0.330952	0.053876	0.180866	0.465641	0.569526	1.34304	2.189666	2.482117	0.545294	0.915476	0.180866	1.269915	2.112684	4.756399
1/1/2000 11:33	0.172398	0.344788	0.056128	0.188428	0.485108	0.593335	1.399189	2.281208	2.585887	0.565279	0.954165	0.188428	1.323006	2.201007	4.955248
1/1/2000 11:34	0.182634	0.365262	0.059461	0.199616	0.513913	0.628657	1.482271	2.416663	2.739436	0.598845	1.010823	0.199616	1.401567	2.331701	5.249497
1/1/2000 11:35	0.192588	0.385172	0.062701	0.210495	0.541925	0.662288	1.563064	2.548386	2.888752	0.631486	1.065919	0.210495	1.477962	2.458793	5.535634
1/1/2000 11:36	0.199581	0.399155	0.064978	0.218138	0.561601	0.686895	1.619817	2.640914	2.993638	0.654415	1.104622	0.218138	1.531625	2.548068	5.736622
1/1/2000 11:															

1/1/2000 12:27	0.284673	0.569294	0.092692	0.311101	0.801025	0.979707	2.310345	3.766743	4.269891	0.933399	1.575498	0.311101	2.184472	3.634359	8.181984
1/1/2000 12:28	0.277496	0.554988	0.090341	0.303266	0.780835	0.954992	2.252126	3.671889	4.162379	0.909933	1.535841	0.303266	2.129466	3.542802	7.975829
1/1/2000 12:29	0.268969	0.537934	0.087531	0.293948	0.756824	0.925606	2.182876	3.585959	4.034359	0.881944	1.48861	0.293948	2.063992	3.433851	7.730649
1/1/2000 12:30	0.261414	0.526245	0.085085	0.285723	0.735568	0.899628	2.121636	3.459093	3.921157	0.857211	1.446847	0.285723	2.006083	3.33746	7.514007
1/1/2000 12:31	0.25311	0.508283	0.082366	0.276617	0.712194	0.871073	2.054262	3.349227	3.7966	0.829966	1.400882	0.276617	1.942384	3.231469	7.275281
1/1/2000 12:32	0.243296	0.486664	0.07918	0.265917	0.686463	0.837393	1.974812	3.21971	3.649739	0.797863	1.346689	0.265917	1.867284	3.106476	6.99379
1/1/2000 12:33	0.231249	0.462497	0.075278	0.252743	0.650702	0.795862	1.87682	3.059946	3.468655	0.758267	1.279887	0.252743	1.774613	2.952368	6.646755
1/1/2000 12:34	0.218351	0.436698	0.071066	0.238646	0.6144	0.751449	1.772098	2.889223	3.275126	0.715956	1.208476	0.238646	1.675608	2.787655	6.275903
1/1/2000 12:35	0.206304	0.412062	0.067063	0.225193	0.57974	0.709056	1.672143	2.726243	3.090383	0.675574	1.140311	0.225193	1.581092	2.630394	5.92198
1/1/2000 12:36	0.196957	0.393905	0.064107	0.215266	0.554201	0.677832	1.598507	2.606181	2.954273	0.645819	1.090083	0.215266	1.511468	2.514553	5.661151
1/1/2000 12:37	0.18986	0.379742	0.061805	0.20752	0.534269	0.653456	1.54012	2.512448	2.848008	0.622583	1.05087	0.20752	1.457112	2.424101	5.457503
1/1/2000 12:38	0.184196	0.368385	0.05997	0.201323	0.518311	0.633937	1.494955	2.43735	2.762885	0.603973	1.019466	0.201323	1.413555	2.351661	5.294372
1/1/2000 12:39	0.180411	0.360812	0.058735	0.197182	0.507656	0.620907	1.464224	2.387244	2.706088	0.591557	0.998509	0.197182	1.384496	2.303315	5.185555
1/1/2000 12:40	0.177331	0.354659	0.057733	0.193819	0.498993	0.610314	1.439243	2.346518	2.659921	0.581466	0.981473	0.193819	1.360875	2.264018	5.097113
1/1/2000 12:41	0.174784	0.349563	0.056903	0.19103	0.491824	0.601547	1.418566	2.312803	2.621703	0.573109	0.967373	0.19103	1.341322	2.23149	5.023894
1/1/2000 12:42	0.172621	0.345236	0.056197	0.188667	0.485735	0.594101	1.40101	2.28418	2.589255	0.566019	0.9554	0.188667	1.324722	2.203873	4.961718
1/1/2000 12:43	0.170805	0.341606	0.055606	0.186683	0.480626	0.587848	1.386268	2.260146	2.562015	0.560065	0.94535	0.186683	1.310783	2.180684	4.909499
1/1/2000 12:44	0.169227	0.338451	0.055089	0.184961	0.476187	0.582414	1.373459	2.239269	2.538347	0.554892	0.936617	0.184961	1.298678	2.160541	4.864142
1/1/2000 12:45	0.167844	0.335685	0.054644	0.183452	0.472293	0.577654	1.362234	2.220963	2.517598	0.550357	0.928961	0.183452	1.288061	2.142876	4.824407
1/1/2000 12:46	0.166629	0.333255	0.054244	0.182124	0.468876	0.573478	1.352384	2.204903	2.499391	0.546375	0.922242	0.182124	1.278749	2.12738	4.7895
1/1/2000 12:47	0.165551	0.331104	0.053895	0.180949	0.465851	0.569779	1.343656	2.190674	2.48326	0.542847	0.91629	0.180949	1.270499	2.11365	4.75857
1/1/2000 12:48	0.164609	0.329215	0.053591	0.179918	0.463196	0.566532	1.335993	2.178179	2.469097	0.53975	0.911065	0.179918	1.263252	2.101598	4.731425
1/1/2000 12:49	0.163966	0.327928	0.053381	0.179213	0.461385	0.564316	1.330765	2.169659	2.459439	0.537638	0.907501	0.179213	1.25831	2.093379	4.712912
1/1/2000 12:50	0.163399	0.326795	0.053197	0.178593	0.459791	0.562366	1.326165	2.162159	2.450938	0.535778	0.904364	0.178593	1.25396	2.086142	4.696629
1/1/2000 12:51	0.162899	0.325791	0.053035	0.178045	0.458381	0.560641	1.322099	2.155527	2.443421	0.534136	0.901591	0.178045	1.250115	2.079745	4.682233
1/1/2000 12:52	0.162457	0.324911	0.052891	0.177564	0.457142	0.559126	1.318525	2.149701	2.436817	0.532692	0.899155	0.177564	1.246734	2.074123	4.669574
1/1/2000 12:53	0.162072	0.324137	0.052766	0.177141	0.456054	0.557796	1.315391	2.144588	2.431021	0.531426	0.897018	0.177141	1.24377	2.069191	4.658461
1/1/2000 12:54	0.161739	0.323472	0.052657	0.176777	0.455118	0.556652	1.312691	2.140186	2.426032	0.530336	0.895177	0.176777	1.242126	2.064943	4.648911
1/1/2000 12:55	0.161444	0.322884	0.052561	0.176455	0.454288	0.555639	1.310298	2.136287	2.421611	0.52937	0.893546	0.176455	1.238954	2.06118	4.640449
1/1/2000 12:56	0.161186	0.322365	0.052476	0.17617	0.453558	0.554747	1.308193	2.132853	2.41772	0.528518	0.892111	0.17617	1.236963	2.057869	4.632996
1/1/2000 12:57	0.160952	0.321897	0.052399	0.175915	0.452899	0.553941	1.306294	2.129758	2.41421	0.527752	0.890816	0.175915	1.235169	2.054883	4.626269
1/1/2000 12:58	0.160747	0.321488	0.052332	0.175692	0.452322	0.553234	1.304628	2.127042	2.411132	0.527008	0.889681	0.175692	1.233593	2.052262	4.620368
1/1/2000 12:59	0.160571	0.321137	0.052274	0.1755	0.451827	0.552628	1.3032	2.124715	2.408494	0.526503	0.888708	0.1755	1.232244	2.050018	4.615315
1/1/2000 13:00	0.160414	0.320823	0.052223	0.17533	0.451386	0.552087	1.301927	2.122638	2.406141	0.525899	0.88784	0.17533	1.231041	2.048013	4.610816
1/1/2000 13:01	0.15902	0.318032	0.051768	0.173804	0.447461	0.547287	1.290608	2.104183	2.38522	0.521416	0.880119	0.173804	1.220339	2.030208	4.570726
1/1/2000 13:02	0.156001	0.311998	0.050786	0.170506	0.43897	0.536903	1.26612	2.06426	2.339962	0.511523	0.863419	0.170506	1.197185	1.991687	4.484
1/1/2000 13:03	0.155072	0.3015	0.049078	0.167469	0.4242	0.518838	1.23516	1.994802	2.261226	0.49431	0.834367	0.167469	1.156901	1.924671	4.333122
1/1/2000 13:04	0.143056	0.286106	0.046572	0.156357	0.402542	0.492349	1.161049	1.892956	2.145777	0.469072	0.791767	0.156357	1.097833	1.826406	4.111883
1/1/2000 13:05	0.135572	0.271136	0.044136	0.148177	0.38148	0.466589	1.100303	1.793917	2.03351	0.44453	0.750342	0.148177	1.040394	1.730849	3.896745
1/1/2000 13:06	0.130314	0.260622	0.042424	0.142431	0.366687	0.448493	1.057633	1.72435	1.954651	0.427291	0.721243	0.142431	1.000047	1.663727	3.745631
1/1/2000 13:07	0.12638	0.252756	0.041144	0.138131	0.356519	0.434955	1.025708	1.672298	1.895647	0.414392	0.69947	0.138131	0.956986	1.613505	3.632567
1/1/2000 13:08	0.123344	0.246684	0.040156	0.134813	0.347076	0.424506	1.001066	1.632123	1.850108	0.404438	0.682667	0.134813	0.946561	1.574743	3.545301
1/1/2000 13:09	0.120968	0.24193	0.039382	0.132215	0.340388	0.416326	0.981776	1.600671	1.814455	0.396644	0.669511	0.132215	0.928321	1.544397	3.476981
1/1/2000 13:10	0.11907	0.238134	0.038764	0.130141	0.335048	0.409795	0.966375	1.575561	1.785991	0.390422	0.659008	0.130141	0.913758	1.520168	3.422444
1/1/2000 13:11	0.11752	0.235036	0.03826	0.128447	0.330689	0.404063	0.953805	1.555065	1.767258	0.385343	0.650435	0.128447	0.901871	1.500393	3.37793
1/1/2000 13:12	0.116224	0.232444	0.037838	0.127031	0.327043	0.400003	0.943288	1.537918	1.74332	0.381094	0.643262	0.127031	0.891926	1.483847	3.340687
1/1/2000 13:13	0.115148	0.230294	0.037488	0.125855	0.324016	0.3963	0.934558	1.523685	1.727188	0.377568	0.637309	0.125855	0.883673	1.470115	3.309761
1/1/2000 13:14	0.11421	0.228418	0.037182	0.124831	0.321378	0.393072	0.926946	1.511277	1.713121	0.374494	0.632119	0.124831	0.876477	1.458143	3.2828
1/1/2000 13:15	0.113392	0.226782	0.036916	0.123937	0.319074	0.390257	0.920305	1.500448	1.700847	0.37181	0.62759	0.123937	0.870196	1.447694	3.259284
1/1/2000 13:16	0.112674	0.225346	0.036682	0.123153	0.317055	0.387787	0.914481	1.490953	1.690084	0.369457	0.623619	0.123153	0.864689	1.438533	3.23865
1/1/2000 13:17	0.112004	0.224078	0.036476	0.122461	0.315273	0.385607	0.909338	1.482568	1.68058	0.367378	0.620112	0.122461	0.859826	1.430443	3.220427
1/1/2000 13:18	0.111486	0.22297	0.036296	0.121855	0.313712	0.383698	0.904836	1.475229	1.672262	0.36556	0.617043	0.121855	0.855571	1.423363	3.204841
1/1/2000 13:19	0.111002	0.222002	0.036138	0.121325	0.31235	0.382032	0.900906	1.468823	1.664999	0.363972	0.614363	0.121325	0.851855	1.417183	3.190561
1/1/2000 13:20	0.110576	0.22115	0.036	0.120859	0.311152	0.380567	0.897449	1.463187	1.658611	0.362574	0.612006	0.120859	0.848585	1.411744	3.178324
1/1/2000 13:21	0.1102	0.220396	0.035878	0.120447	0.310093	0.379271	0.894395	1.458205	1.652964	0.361341	0.609923	0.120447	0.845697	1.406939	3.16751
1/1/2000 13:22	0.109868	0.219734	0.03577	0.120085	0.309161	0.378131	0.891706	1.453822	1.647996	0.360254	0.60809	0.120085	0.843154	1.402709	3.157986
1/1/2000 13:23	0.109578	0.219152	0.035676	0.119767	0.308342	0.37713	0.889346	1.449973	1.643634	0.359302	0.606481	0.119767	0.840		







1/1/2000 17:48	0.052943	0.105885	0.017236	0.057866	0.148977	0.182213	0.429692	0.700561	0.794128	0.173598	0.293025	0.057866	0.406296	0.675932	1.521763
1/1/2000 17:49	0.052943	0.105885	0.017236	0.057866	0.148977	0.182213	0.429692	0.700561	0.794127	0.173598	0.293024	0.057866	0.406296	0.675931	1.521761
1/1/2000 17:50	0.052943	0.105885	0.017236	0.057866	0.148977	0.182214	0.429692	0.700563	0.79413	0.173598	0.293025	0.057866	0.406297	0.675933	1.521766
1/1/2000 17:51	0.052943	0.105885	0.017236	0.057866	0.148977	0.182214	0.429693	0.700563	0.79413	0.173598	0.293025	0.057866	0.406297	0.675933	1.521766
1/1/2000 17:52	0.052943	0.105885	0.017236	0.057866	0.148977	0.182214	0.429693	0.700563	0.79413	0.173598	0.293025	0.057866	0.406297	0.675933	1.521766
1/1/2000 17:53	0.052943	0.105885	0.017236	0.057866	0.148977	0.182213	0.429692	0.700561	0.794128	0.173598	0.293025	0.057866	0.406296	0.675932	1.521763
1/1/2000 17:54	0.052943	0.105885	0.017236	0.057866	0.148977	0.182213	0.429691	0.700561	0.794127	0.173598	0.293024	0.057866	0.406296	0.675931	1.521761
1/1/2000 17:55	0.052943	0.105885	0.017236	0.057866	0.148977	0.182214	0.429692	0.700563	0.79413	0.173598	0.293025	0.057866	0.406297	0.675933	1.521766
1/1/2000 17:56	0.052943	0.105885	0.017236	0.057866	0.148977	0.182214	0.429693	0.700563	0.79413	0.173598	0.293025	0.057866	0.406297	0.675933	1.521766
1/1/2000 17:57	0.052943	0.105885	0.017236	0.057866	0.148977	0.182214	0.429693	0.700563	0.79413	0.173598	0.293025	0.057866	0.406297	0.675933	1.521766
1/1/2000 17:58	0.052943	0.105885	0.017236	0.057866	0.148977	0.182213	0.429692	0.700561	0.794128	0.173598	0.293025	0.057866	0.406296	0.675932	1.521763
1/1/2000 17:59	0.052943	0.105885	0.017236	0.057866	0.148977	0.182213	0.429691	0.700561	0.794127	0.173598	0.293024	0.057866	0.406296	0.675931	1.521761
1/1/2000 18:00	0.052943	0.105885	0.017236	0.057866	0.148977	0.182214	0.429692	0.700563	0.79413	0.173598	0.293025	0.057866	0.406297	0.675933	1.521766
1/1/2000 18:01	0.052378	0.104754	0.017052	0.057248	0.147386	0.180267	0.425102	0.693079	0.785647	0.171744	0.289895	0.057248	0.401957	0.668713	1.505512
1/1/2000 18:02	0.051076	0.10215	0.016628	0.055825	0.143722	0.175786	0.414535	0.675851	0.766117	0.167476	0.282688	0.055825	0.391965	0.652091	1.468089
1/1/2000 18:03	0.048763	0.097524	0.015875	0.053297	0.137213	0.167825	0.395763	0.645246	0.731425	0.159891	0.269888	0.053297	0.374216	0.622562	1.401609
1/1/2000 18:04	0.045299	0.090597	0.014747	0.049511	0.127467	0.155904	0.367651	0.599413	0.67947	0.148534	0.250717	0.049511	0.347634	0.57834	1.320246
1/1/2000 18:05	0.041932	0.08386	0.013651	0.04583	0.117989	0.144312	0.340316	0.554846	0.62895	0.13749	0.232075	0.04583	0.321786	0.535339	1.205235
1/1/2000 18:06	0.039565	0.079129	0.01288	0.043244	0.111331	0.136169	0.321113	0.523539	0.593461	0.129732	0.21898	0.043244	0.303629	0.505133	1.137228
1/1/2000 18:07	0.037795	0.075589	0.012304	0.0411309	0.106351	0.130077	0.306747	0.500115	0.566909	0.123928	0.209182	0.041309	0.290045	0.482533	1.08635
1/1/2000 18:08	0.036429	0.072856	0.01186	0.039816	0.102506	0.125374	0.295657	0.482036	0.546416	0.119448	0.20162	0.039816	0.27956	0.465089	1.047078
1/1/2000 18:09	0.035359	0.070717	0.011511	0.038647	0.099496	0.121693	0.286976	0.467881	0.530371	0.11594	0.1957	0.038647	0.271351	0.451432	1.016331
1/1/2000 18:10	0.034505	0.069009	0.011233	0.037714	0.097094	0.118754	0.280046	0.456583	0.517563	0.113141	0.190974	0.037714	0.264798	0.44053	0.991792
1/1/2000 18:11	0.033808	0.067615	0.011006	0.036951	0.095132	0.116355	0.274389	0.447358	0.507107	0.110855	0.187115	0.036951	0.259448	0.43163	0.971758
1/1/2000 18:12	0.033225	0.066448	0.010817	0.036314	0.093491	0.114348	0.269656	0.439642	0.49836	0.108943	0.183888	0.036314	0.254973	0.424185	0.955
1/1/2000 18:13	0.03274	0.065481	0.010659	0.035785	0.092129	0.112681	0.265728	0.433237	0.4911	0.107356	0.181208	0.035785	0.251259	0.418005	0.941082
1/1/2000 18:14	0.032318	0.064636	0.010521	0.035324	0.090942	0.111229	0.262302	0.427652	0.484769	0.105972	0.178873	0.035324	0.24802	0.412616	0.928947
1/1/2000 18:15	0.03195	0.0639	0.010402	0.034922	0.089905	0.109962	0.259314	0.422781	0.479247	0.104765	0.176835	0.034922	0.245194	0.407916	0.918368
1/1/2000 18:16	0.031627	0.063254	0.010296	0.034569	0.088996	0.10885	0.256692	0.418507	0.474402	0.103706	0.175048	0.034569	0.242716	0.403792	0.90908
1/1/2000 18:17	0.031342	0.062684	0.010204	0.034257	0.088194	0.107869	0.254378	0.414734	0.470126	0.102771	0.17347	0.034257	0.240528	0.400152	0.900881
1/1/2000 18:18	0.031092	0.062185	0.010123	0.033985	0.087492	0.10701	0.252352	0.411431	0.466382	0.101952	0.172088	0.033985	0.238613	0.396966	0.893704
1/1/2000 18:19	0.030875	0.061749	0.010051	0.033746	0.086879	0.10626	0.250583	0.408547	0.463113	0.101237	0.170882	0.033746	0.23694	0.394184	0.887438
1/1/2000 18:20	0.030683	0.061366	0.009989	0.033537	0.086304	0.105601	0.249029	0.406013	0.46024	0.100609	0.169822	0.033537	0.23547	0.391738	0.881935
1/1/2000 18:21	0.030514	0.061027	0.009934	0.033351	0.085863	0.105018	0.247653	0.40377	0.457698	0.100053	0.168884	0.033351	0.234169	0.389574	0.877066
1/1/2000 18:22	0.030364	0.060729	0.009886	0.033188	0.085444	0.104505	0.246444	0.401798	0.455463	0.099565	0.16806	0.033188	0.233025	0.387672	0.872782
1/1/2000 18:23	0.030234	0.060466	0.009844	0.033045	0.085075	0.104055	0.245382	0.400066	0.453499	0.099136	0.167335	0.033045	0.232021	0.386001	0.869016
1/1/2000 18:24	0.030121	0.060241	0.009807	0.032922	0.084758	0.103667	0.244468	0.398575	0.45181	0.098767	0.166712	0.032922	0.231156	0.384562	0.865783
1/1/2000 18:25	0.030022	0.060043	0.009774	0.032813	0.084478	0.103325	0.24366	0.397259	0.450317	0.098441	0.166161	0.032813	0.230393	0.383292	0.862926
1/1/2000 18:26	0.029934	0.059867	0.009745	0.032717	0.084232	0.103024	0.242948	0.396098	0.449002	0.098153	0.165676	0.032717	0.229719	0.382172	0.860406
1/1/2000 18:27	0.029855	0.059709	0.009719	0.03263	0.084008	0.102751	0.242305	0.39505	0.447814	0.097893	0.165238	0.03263	0.229112	0.381162	0.858129
1/1/2000 18:28	0.029786	0.05957	0.009697	0.032554	0.083813	0.102511	0.24174	0.394129	0.44677	0.097665	0.164853	0.032554	0.228577	0.380273	0.856128
1/1/2000 18:29	0.029726	0.059451	0.009677	0.03249	0.083645	0.102306	0.241256	0.393341	0.445876	0.09747	0.164523	0.03249	0.22812	0.379512	0.854416
1/1/2000 18:30	0.029673	0.059345	0.00966	0.032432	0.083496	0.102123	0.240828	0.392641	0.445083	0.097297	0.164231	0.032432	0.227715	0.378837	0.8529
1/1/2000 18:31	0.029626	0.059252	0.009645	0.032381	0.083365	0.101963	0.24045	0.392024	0.444384	0.097144	0.163973	0.032381	0.227358	0.378242	0.851559
1/1/2000 18:32	0.029584	0.059168	0.009631	0.032335	0.083247	0.101819	0.240109	0.39147	0.443755	0.097006	0.16374	0.032335	0.227036	0.377707	0.850353
1/1/2000 18:33	0.029547	0.059093	0.009619	0.032294	0.083142	0.101691	0.239806	0.390975	0.443194	0.096883	0.163534	0.032294	0.226749	0.377223	0.849279
1/1/2000 18:34	0.029547	0.059093	0.009619	0.032294	0.083142	0.101691	0.239805	0.390974	0.443193	0.096883	0.163533	0.032294	0.226749	0.377223	0.849279
1/1/2000 18:35	0.029547	0.059093	0.009619	0.032294	0.083142	0.101691	0.239807	0.390977	0.443195	0.096883	0.163534	0.032294	0.22675	0.377231	0.849282
1/1/2000 18:36	0.029547	0.059093	0.009619	0.032294	0.083143	0.101691	0.239807	0.390977	0.443196	0.096883	0.163534	0.032294	0.22675	0.377231	0.849282
1/1/2000 18:37	0.029547	0.059093	0.009619	0.032294	0.083143	0.101692	0.239807	0.390977	0.443196	0.096883	0.163534	0.032294	0.22675	0.377231	0.849282
1/1/2000 18:38	0.029547	0.059093	0.009619	0.032294	0.083142	0.101691	0.239806	0.390975	0.443194	0.096883	0.163534	0.032294	0.226749	0.377223	0.849279
1/1/2000 18:39	0.029547	0.059093	0.009619	0.032294	0.083142	0.101691	0.239805	0.390974	0.443193	0.096883	0.163533	0.032294	0.226749	0.377229	0.849277
1/1/2000 18:40	0.029547	0.059093	0.009619	0.032294	0.083142	0.101691	0.239807	0.390977	0.443195	0.096883	0.163534	0.032294	0.22675	0.377231	0.849282
1/1/2000 18:41	0.029547	0.059093	0.009619	0.032294	0.083143	0.101691	0.239807	0.390977	0.443196	0.096883	0.163534	0.032294	0.22675	0.377231	0.849282
1/1/2000 18:42	0.029547	0.059093	0.009619	0.032294	0.083143	0.101692	0.239807	0.390977	0.443196	0.096883	0.163534	0.032294	0.22675	0.377231	0.849282
1/1/2000 18:43	0.029547	0.059093	0.009619	0.032294	0.083142	0.101691	0.239806	0.390975	0.443194	0.096883	0.163534	0.032294	0.226749	0.377223	0.849279
1/1/2000 18:44	0.029547	0.059093	0.009619	0.032294	0.083142	0.101691	0.239805	0.390974	0.443193	0.096883					









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## APPENDIX C - HYDRUALICS

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*Network Preview*

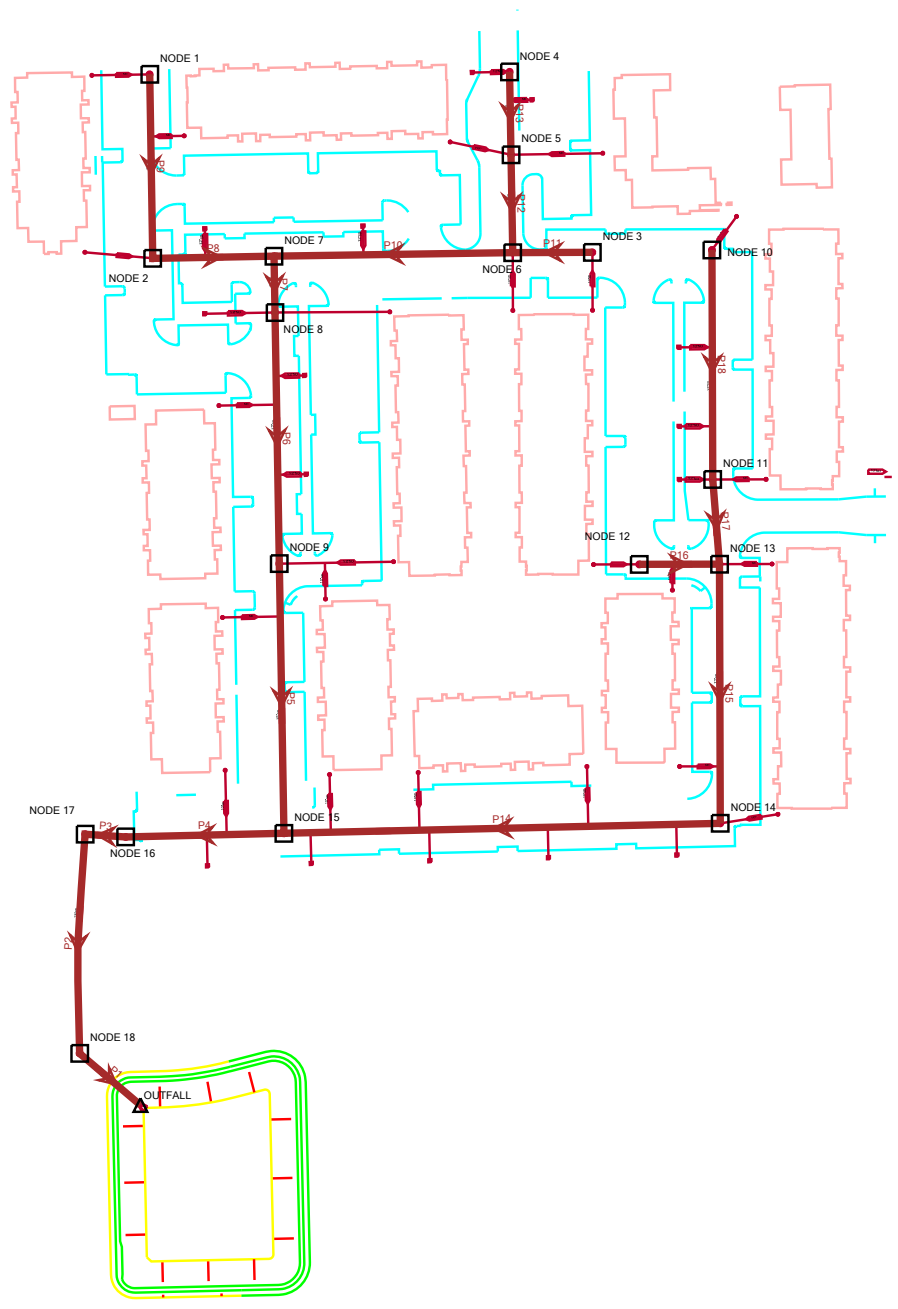
*Catch Basin Table*

*Conduit Table*

*Outfall Table*

*Conduit Profiles*

### Scenario: Base



### FlexTable: Catch Basin Table

ID	Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Flow (Known) (cfs)	Hydraulic Grade Line (Out) (ft)
31	NODE 1	37.00	31.90	0.19	35.49
32	NODE 2	36.80	31.48	0.37	35.48
53	NODE 3	38.00	31.93	0.06	35.56
57	NODE 4	37.00	32.15	0.20	35.59
55	NODE 5	37.50	31.96	0.52	35.59
51	NODE 6	38.00	31.74	0.64	35.56
34	NODE 7	36.50	31.20	1.51	35.47
36	NODE 8	36.50	31.07	2.46	35.45
38	NODE 9	37.00	30.50	2.80	35.29
66	NODE 10	38.00	32.17	0.61	36.00
64	NODE 11	37.00	31.65	1.03	35.92
68	NODE 12	37.00	31.64	0.20	35.84
62	NODE 13	37.00	31.46	1.43	35.83
61	NODE 14	37.00	30.87	2.38	35.33
40	NODE 15	37.00	29.88	5.33	35.05
42	NODE 16	36.50	29.52	5.33	34.56
44	NODE 17	36.50	29.43	5.33	34.43
46	NODE 18	37.50	28.93	5.33	33.75

**FlexTable: Conduit Table**

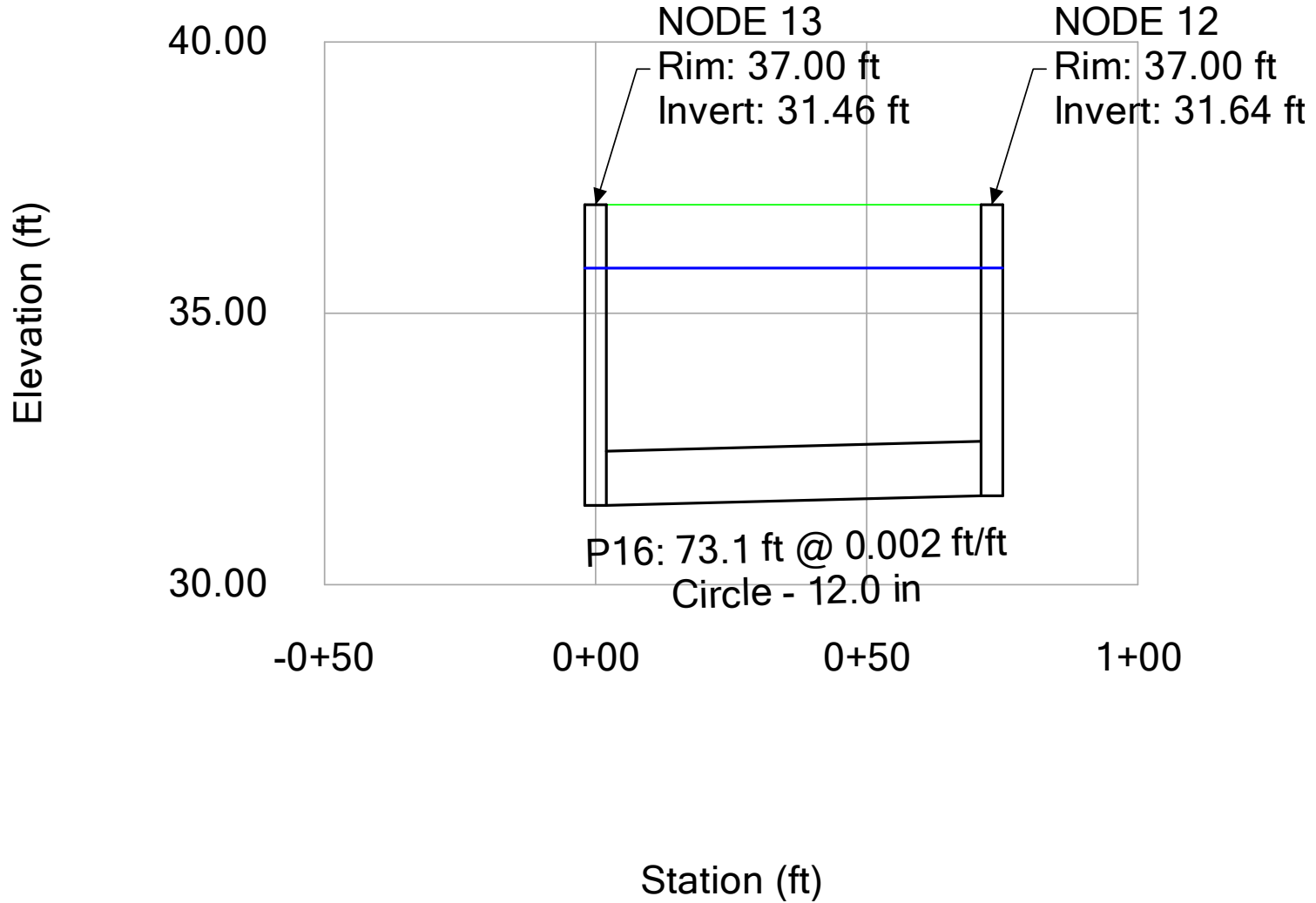
Label	Start Node	Stop Node	Manning's n	Invert (Start) (ft)	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	System Known Flow (cfs)	Elevation Ground (Stop) (ft)	Hydraulic Grade Line (Out) (ft)	Elevation Ground (Start) (ft)	Hydraulic Grade Line (In) (ft)	Headloss (ft)
P1	NODE 18	OUTFALL	0.015	28.93	28.75	72.6	0.002	5.33	36.50	33.50	37.50	33.75	0.25
P2	NODE 17	NODE 18	0.015	29.43	28.93	199.8	0.003	5.33	37.50	33.75	36.50	34.43	0.69
P3	NODE 16	NODE 17	0.015	29.52	29.43	36.9	0.002	5.33	36.50	34.43	36.50	34.56	0.13
P4	NODE 15	NODE 16	0.015	29.88	29.52	144.2	0.002	5.33	36.50	34.56	37.00	35.05	0.49
P5	NODE 9	NODE 15	0.015	30.50	29.88	245.6	0.003	2.80	37.00	35.05	37.00	35.29	0.23
P6	NODE 8	NODE 9	0.015	31.07	30.50	228.7	0.002	2.46	37.00	35.29	36.50	35.45	0.17
P7	NODE 7	NODE 8	0.015	31.20	31.07	51.3	0.003	1.51	36.50	35.45	36.50	35.47	0.01
P8	NODE 2	NODE 7	0.015	31.48	31.20	110.5	0.003	0.37	36.50	35.47	36.80	35.48	0.02
P9	NODE 1	NODE 2	0.015	31.90	31.48	167.6	0.003	0.19	36.80	35.48	37.00	35.49	0.01
P10	NODE 6	NODE 7	0.015	31.74	31.20	217.3	0.002	0.64	36.50	35.47	38.00	35.56	0.09
P11	NODE 3	NODE 6	0.015	31.93	31.74	72.6	0.003	0.06	38.00	35.56	38.00	35.56	0.00
P12	NODE 5	NODE 6	0.015	31.96	31.74	89.2	0.002	0.52	38.00	35.56	37.50	35.59	0.03
P13	NODE 5	NODE 4	0.015	31.96	32.15	75.4	-0.003	0.20	37.00	35.59	37.50	35.59	0.00
P14	NODE 14	NODE 15	0.015	30.87	29.88	397.4	0.002	2.38	37.00	35.05	37.00	35.33	0.27
P15	NODE 13	NODE 14	0.015	31.46	30.87	236.0	0.003	1.43	37.00	35.33	37.00	35.83	0.51
P16	NODE 12	NODE 13	0.015	31.64	31.46	73.1	0.002	0.20	37.00	35.83	37.00	35.84	0.00
P17	NODE 11	NODE 13	0.015	31.65	31.46	77.4	0.002	1.03	37.00	35.83	37.00	35.92	0.09
P18	NODE 10	NODE 11	0.015	32.17	31.65	209.0	0.002	0.61	37.00	35.92	38.00	36.00	0.08

### FlexTable: Outfall Table

ID	Label	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Elevation (User Defined Tailwater) (ft)	Hydraulic Grade (ft)
50	OUTFALL	36.50	28.75	33.50	33.50

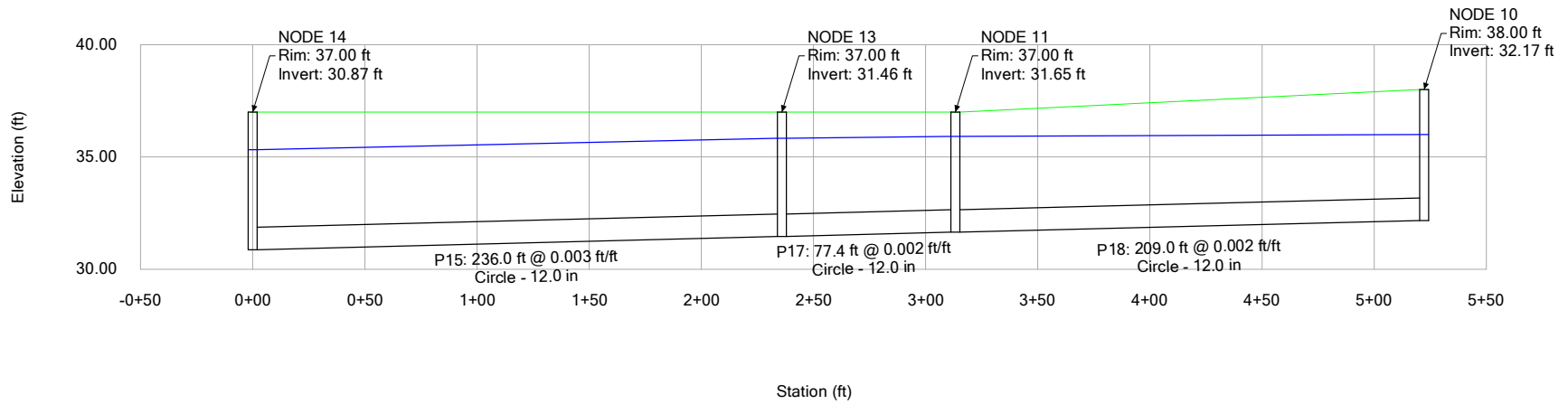
### Profile Report

#### Engineering Profile - Node 12 - Node 13 (2023-0228 GMA-Nolte.stsw)



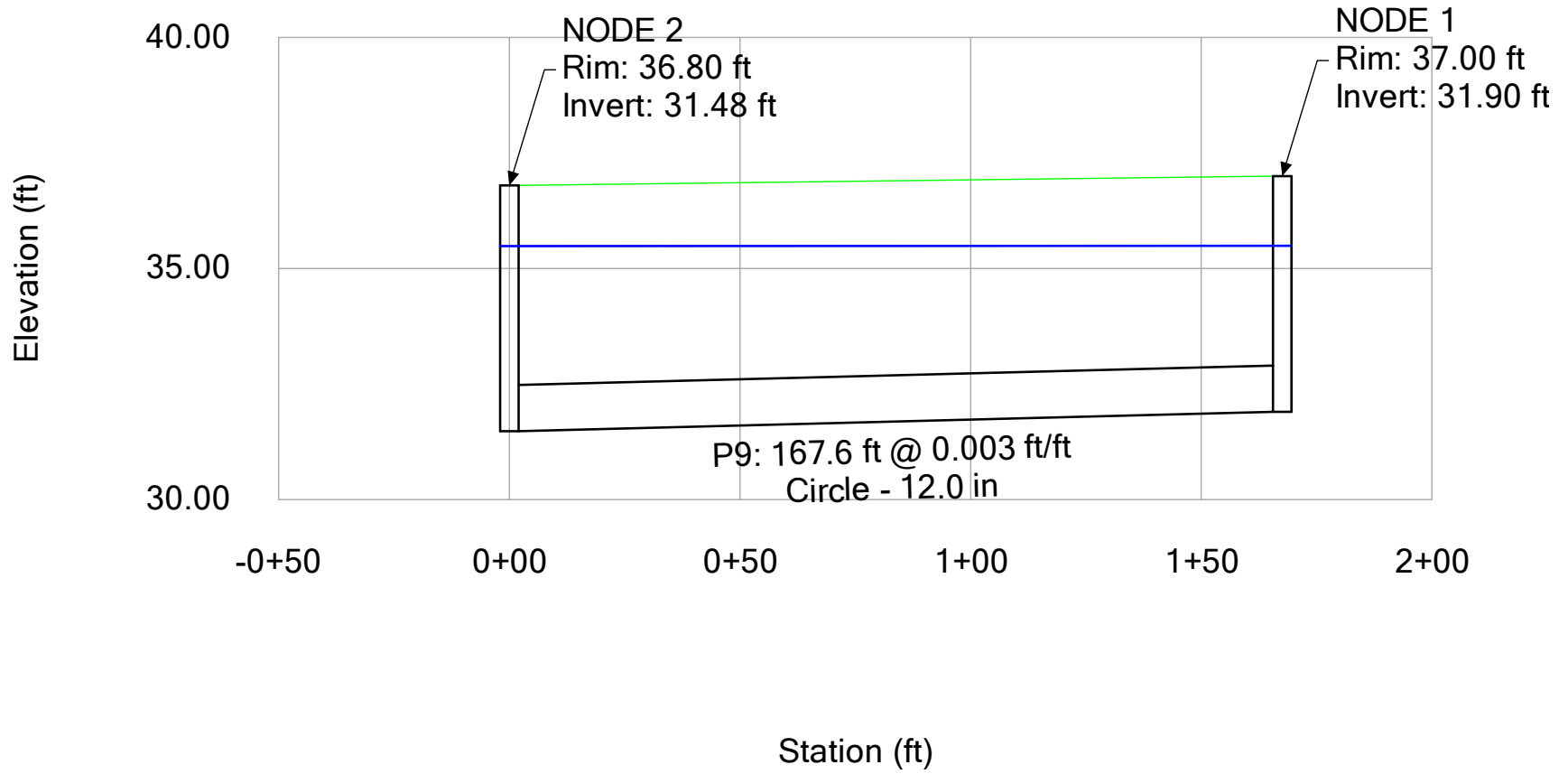
# Profile Report

## Engineering Profile - Node 14 - Node 10 (2023-0228 GMA-Nolte.stsw)



# Profile Report

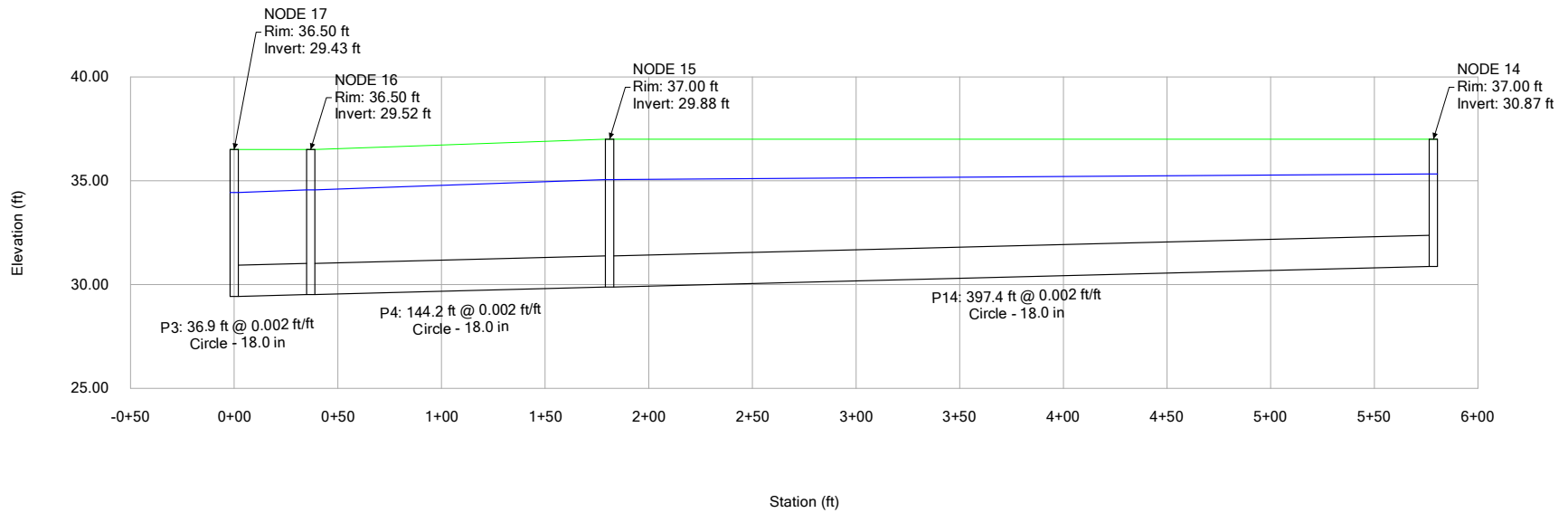
## Engineering Profile - Node 2 - Node 1 (2023-0228 GMA-Nolte.stsw)





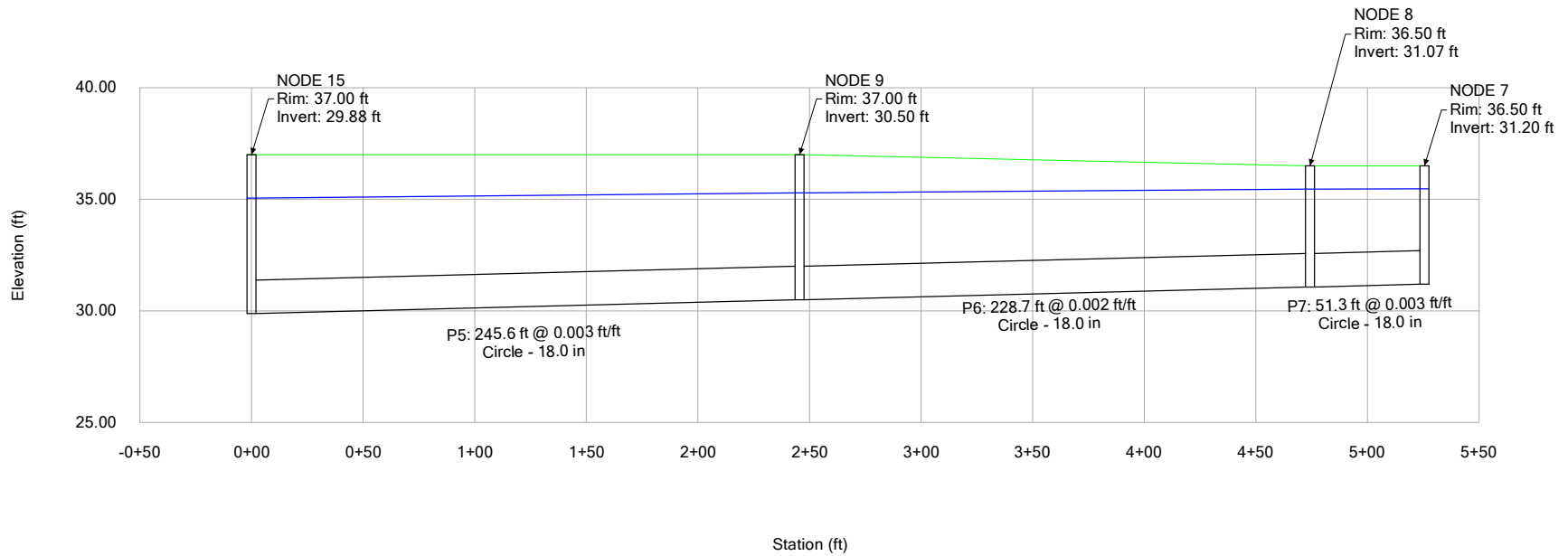
# Profile Report

## Engineering Profile - Node 17 - Node 14 (2023-0228 GMA-Nolte.stsw)



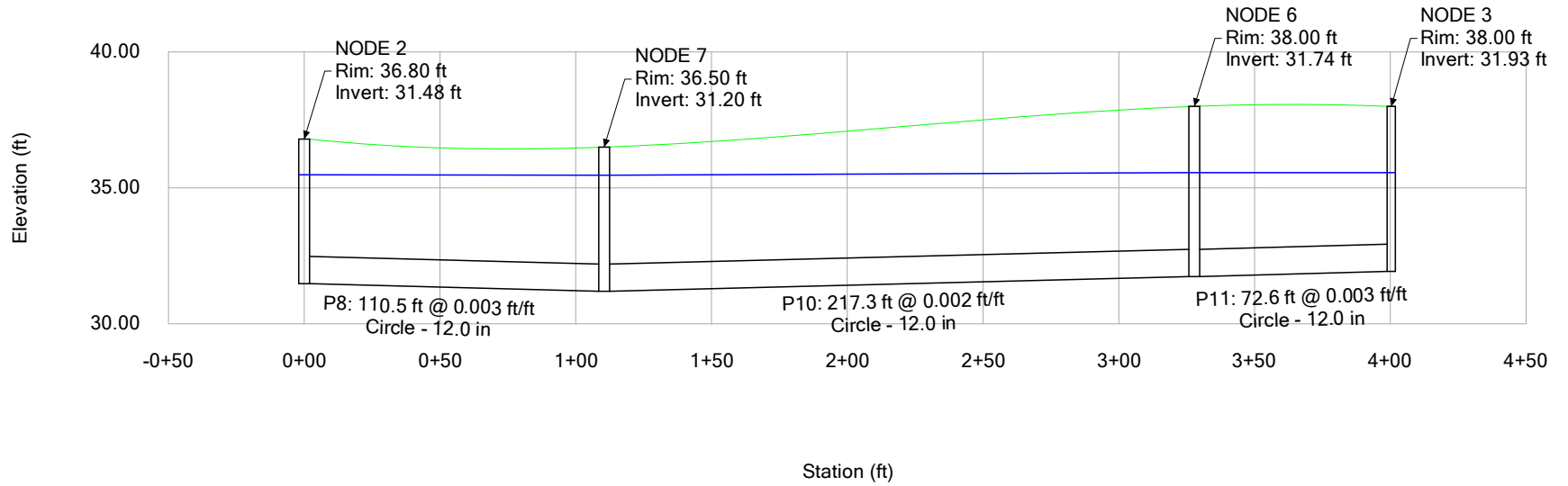
# Profile Report

## Engineering Profile - Node 15 - Node 7 (2023-0228 GMA-Nolte.stsw)



# Profile Report

## Engineering Profile - Node 2 - Node 3 (2023-0228 GMA-Nolte.stsw)



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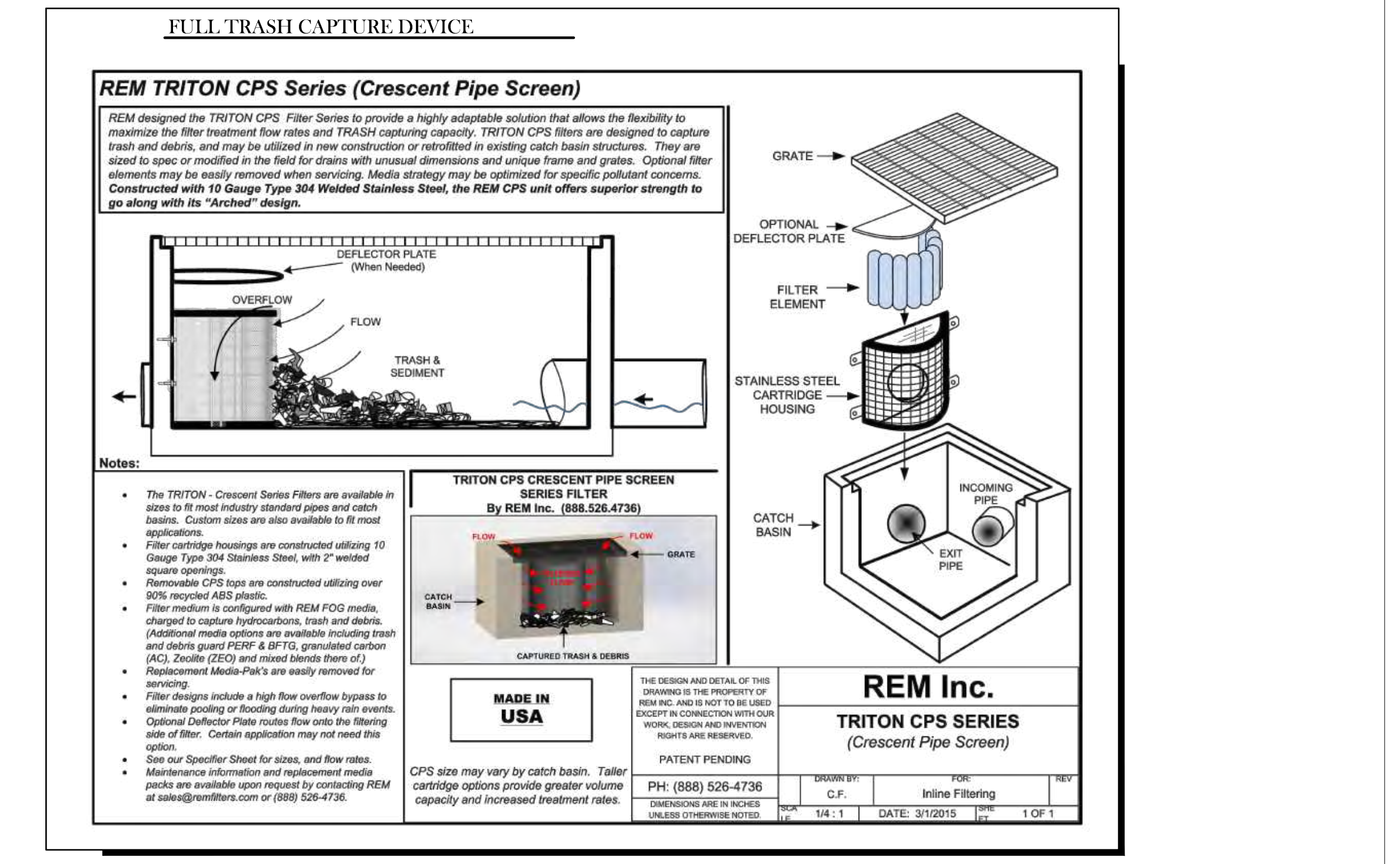
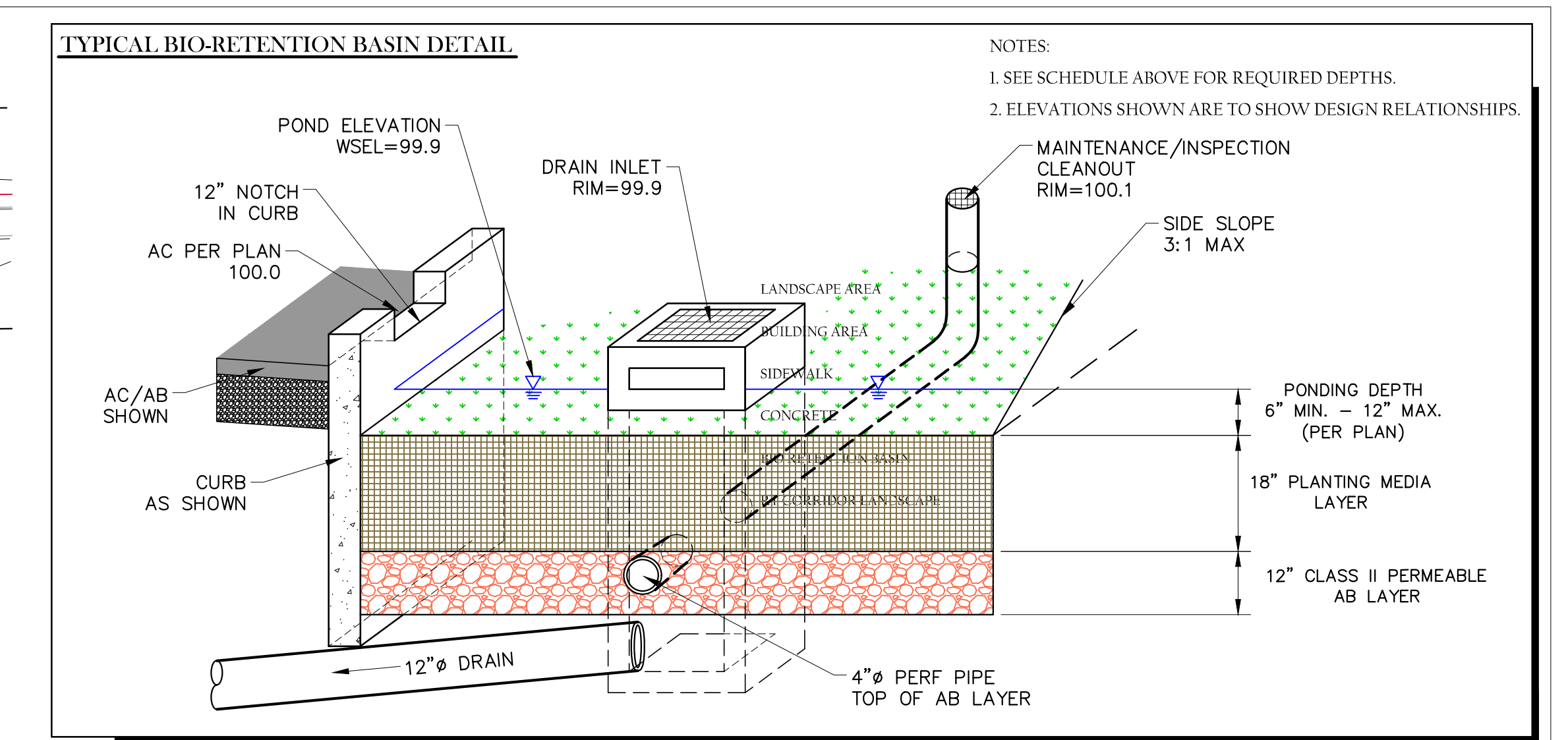
APPENDIX D - STORM WATER QUALITY

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*DMA Map*

*LID Worksheets*





**STORMWATER REQUIREMENTS**

SITE IS LOCATED WITHIN THE CITY OF ELK GROVE 2011 STORM DRAINAGE MASTER PLAN SHEDS C (±12.4 ACERS). THE STORM DRAIN SYSTEM DESIGN CRITERIA:

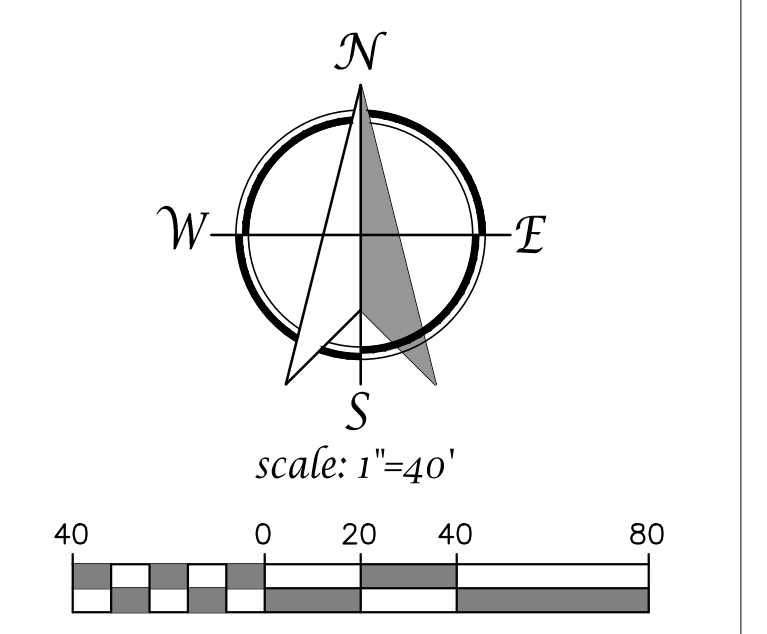
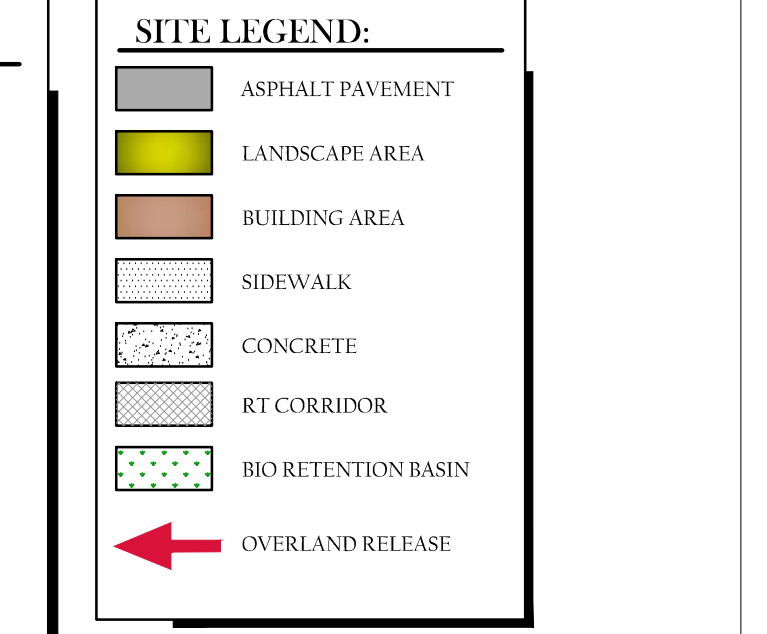
- THE PROJECT SITE DRAINS TO REGIONAL DRAINAGE FACILITIES.
- THE DRAINAGE FACILITIES WERE SIZED ASSUMING DEVELOPED CONDITIONS
- INTERIM DRAINAGE FACILITY (INTERIM BASIN) HAS BEEN SIZED TO:
  - RETAIN THE VOLUME GENERATED BY THE 100-YEAR, 24-HOUR STORM EVENT
  - OWNER REQUIRED TO PUMP WATER FROM BASIN WHEN THE WATER SURFACE ELEVATION REACHES 35.5 TO EXISTING OVERLAND RELEASE ROUTE
- THE ULTIMATE DRAINAGE FACILITIES (FUTURE BASIN) WILL BE SIZED TO:
  - MITIGATE INCREASED RUNOFF DUE TO DEVELOPMENT TO PRE-DEVELOPED RATES.
  - PROVIDE STORAGE TO ACHIEVE HYDROMODIFICATION

**DESIGN CRITERIA:**

- CONVEY RUNOFF GENERATED BY THE NOLTE STORM EVENT (PER VOLUME 2 HYDROLOGY STANDARDS OF THE CITY/COUNTY DRAINAGE MANUAL)
- DRAINS TO A REGIONAL BASIN SIZED TO PROVIDE HYDROMODIFICATION
  - ONSITE HYDROMODIFICATION IS NOT REQUIRED.
- STORMWATER QUALITY TREATMENT (PER 2018 SACRAMENTO REGION STORMWATER QUALITY DESIGN MANUAL LID WORKSHEETS)
  - BIO-RETENTION BASINS HAVE BEEN SIZED TO RETAIN THE RUNOFF GENERATED BY THE 85TH PERCENTILE STORM EVENT.
- IMPLEMENT LOW IMPACT DEVELOPMENT (PER 2018 SACRAMENTO REGION STORMWATER QUALITY DESIGN MANUAL LID WORKSHEETS)
  - DISCONNECT ROOF DRAINS
  - INSTALL INTERCEPTOR TREES
  - IMPLEMENT FULL TRASH CAPTURE
    - REMOVE PARTICLE LARGER THAN 5 MM PRIOR TO DISCHARGING TO THE CITY STORM DRAIN SYSTEM.
    - INSTALL REM TRITON CRESCENT PIPE SCREEN OR APPROVED EQUAL IN LAST MANHOLE PRIOR TO DISCHARGING TO THE CITY STORM DRAIN SYSTEM.

**DMA SUMMARY**

DMA	AREA (SQ FT)	AREA OF BIO-RETENTION (SQ FT)	PONDING DEPTH (FT)	DISCONNECTED ROOF DRAINS (SQ FT)	DISCONNECTED PAVEMENT (SQ FT)	LANDSCAPING (SQ FT)	INTERCEPTOR TREES	LID POINTS FROM WORMSLET
							EVERGREEN	DECIDUOUS
A1	19,138	0	0	24,466	10,516	11,196	28	142.8
A2	14,466	675	12	0	0	3,894	8	218.9
A3	6,373	275	12	0	0	1,756	9	216.4
A4	22,541	0	0	14,940	180	7,416	2	131.9
A5	50,900	3,900	12	0	0	5,716	0	209.9
A6	18,408	959	12	0	0	1,605	0	219.1
A7	62,981	0	0	28,396	954	31,093	27	157.6
A8	44,053	2,725	12	0	0	1,881	0	202.2
A9	64,760	3,900	12	0	0	1,993	0	207.7
A10	29,360	0	0	18,215	7,846	11,123	0	138.9
A11	25,080	0	0	14,940	1,095	3,565	0	138.7
A12	50,746	6,725	6	0	0	6,725	0	213.3



**GUARDIAN MADEIRA APARTMENTS**

Elk Grove, California  
 Proposed By: **GUARDIAN ENGINEERS**  
 Guardian Capital  
 555 University Avenue, Suite 275  
 Sacramento, CA 95825

In Association With: **Gillum Consulting (Land Consultant), RHA (Architects), TSD Engineering, Inc. (Civil), and Furhman Leamy Land Group (Landscape Architecture)**

**TSD ENGINEERING, INC.**  
 285 Orchard Drive, Suite #110  
 Folsom, CA 95630  
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 Fax: (916) 608-0701



**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A1** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

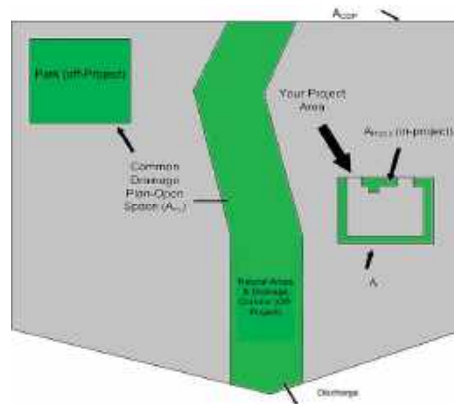
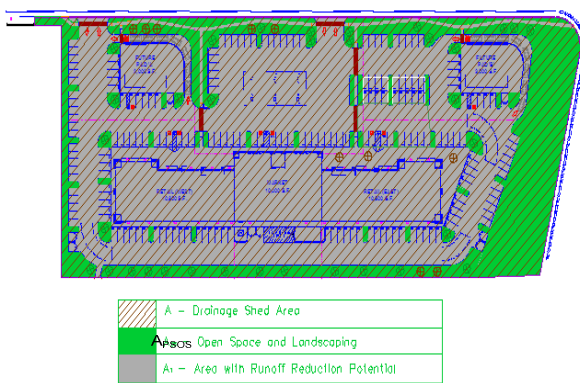
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (Ac)
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.000"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.24"/> acres	=	= <input type="text" value="0.24"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.56"/> acres	=	= <input type="text" value="0.56"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.02"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.82"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="102"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2



**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**  A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**  $A_{LIDC}/A_T \times 200 =$   pts

**Total LID Credits (Step 1+2+3)** LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**  $A_T - A_C - A_{LIDC} =$   A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**  $A_{AT} / A =$   I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

**Flow = 0.95 \* i \* A<sub>AT</sub>**  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): **Treatment volume = A x (P<sub>0</sub> / 12)**  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A2** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

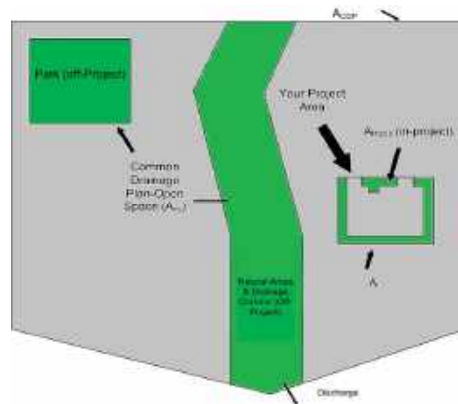
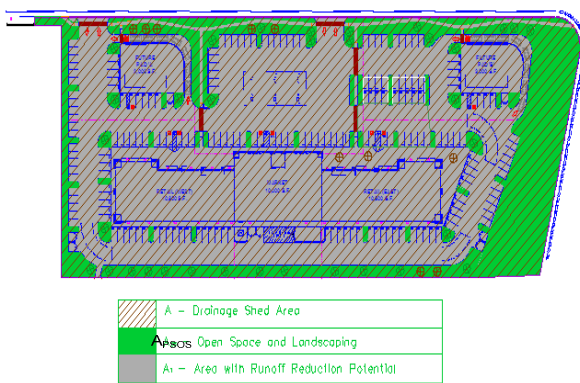
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (A <sub>c</sub> )
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.00"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.01"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.01"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	<input type="text" value="3"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**

A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**

$A_{LIDC}/A_T * 200 =$   pts

**Total LID Credits (Step 1+2+3)**

LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**

$A_T - A_C - A_{LIDC} =$   A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**

$A_{AT} / A =$   I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

Flow = 0.95 \* i \* A<sub>AT</sub>  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): Treatment volume = A x (P<sub>0</sub> / 12)  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A3** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

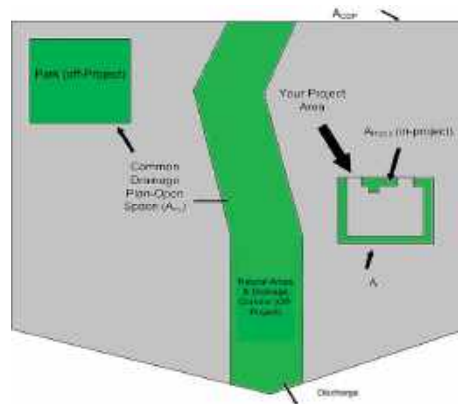
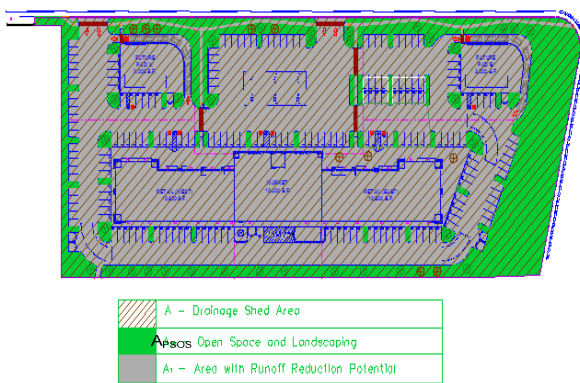
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (Ac)
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.000"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.00"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.00"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	<input type="text" value="2"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**

A<sub>LIDc</sub>

**Runoff Management Credit (Step 3)**

A<sub>LIDc</sub>/A<sub>T</sub>\*200 =  pts

**Total LID Credits (Step 1+2+3)**

LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**

A<sub>T</sub> - A<sub>C</sub> - A<sub>LIDc</sub> =  A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**

A<sub>AT</sub> / A =  I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

Flow = 0.95 \* i \* A<sub>AT</sub>  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): Treatment volume = A x (P<sub>0</sub> / 12)  Acre-Feet



**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A4** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

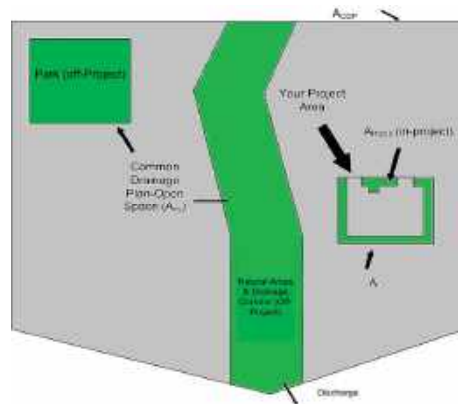
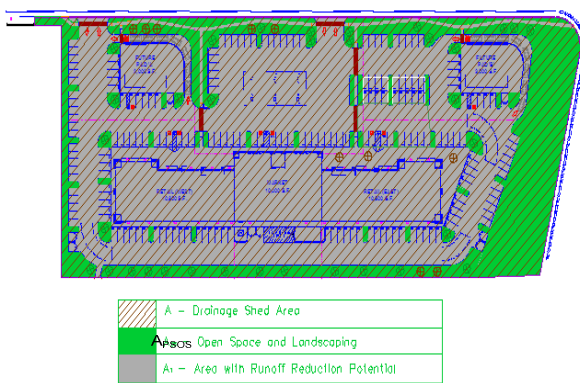
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (Ac)
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.00"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.34"/> acres	=	= <input type="text" value="0.34"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.00"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.35"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="101"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**  A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**  $A_{LIDC}/A_T \times 200 =$   pts

**Total LID Credits (Step 1+2+3)** LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**  $A_T - A_C - A_{LIDC} =$   A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**  $A_{AT} / A =$   I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

**Flow = 0.95 \* i \* A<sub>AT</sub>**  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): **Treatment volume = A x (P<sub>0</sub> / 12)**  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A5** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

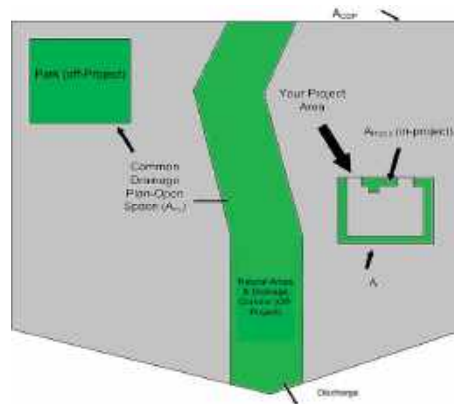
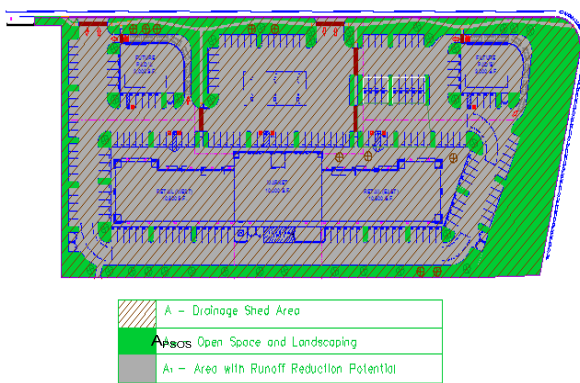
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (Ac)
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.000"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.01"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.01"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="1"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**

A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**

A<sub>LIDC</sub>/A<sub>T</sub>\*200 =  pts

**Total LID Credits (Step 1+2+3)**

LID compliant, check for treatment sizing in Step 4

**209.9**

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**

A<sub>T</sub> - A<sub>C</sub> - A<sub>LIDC</sub> =  A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**

A<sub>AT</sub> / A =  I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs):

Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

Flow = 0.95 \* i \* A<sub>AT</sub>  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet):

WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft):

Treatment volume = A x (P<sub>0</sub> / 12)  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A6** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

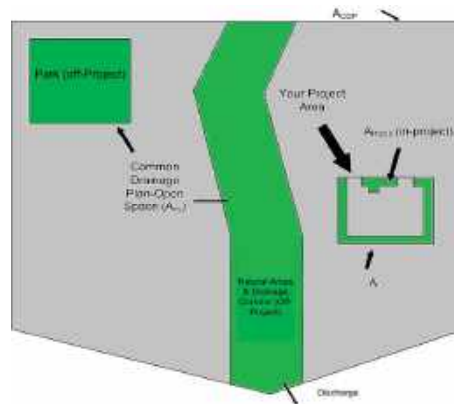
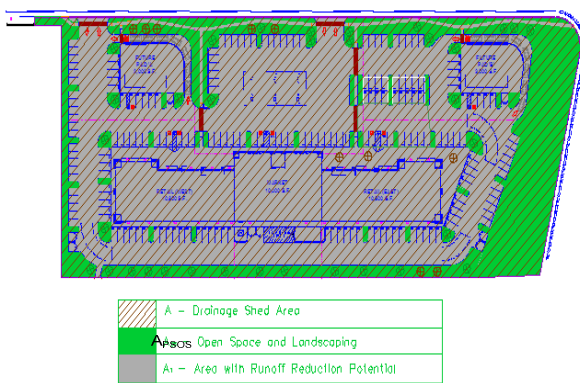
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed ( $A_c$ )
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.000"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.00"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.00"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="1"/> pts



**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**

A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**

A<sub>LIDC</sub>/A<sub>T</sub>\*200 =  pts

**Total LID Credits (Step 1+2+3)**

LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**

A<sub>T</sub> - A<sub>C</sub> - A<sub>LIDC</sub> =  A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**

A<sub>AT</sub> / A =  I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

Flow = 0.95 \* i \* A<sub>AT</sub>  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): Treatment volume = A x (P<sub>0</sub> / 12)  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A7** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

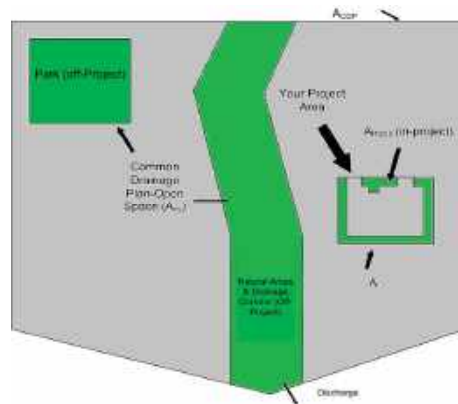
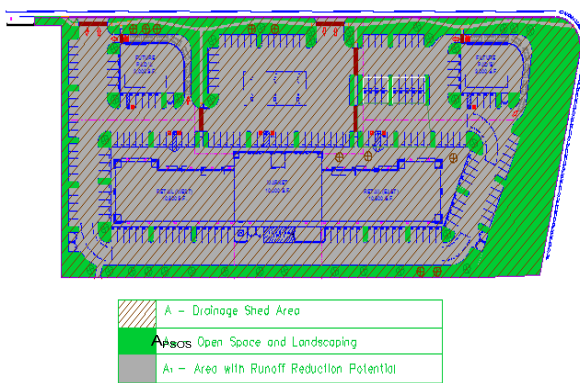
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (Ac)
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.00"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.02"/> acres	=	= <input type="text" value="0.02"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.65"/> acres	=	= <input type="text" value="0.65"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.03"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.70"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="105"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**  A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**  $A_{LIDC}/A_T \times 200 =$   pts

**Total LID Credits (Step 1+2+3)** LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**  $A_T - A_C - A_{LIDC} =$   A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**  $A_{AT} / A =$   I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

**Flow = 0.95 \* i \* A<sub>AT</sub>**  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): **Treatment volume = A x (P<sub>0</sub> / 12)**  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A8** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

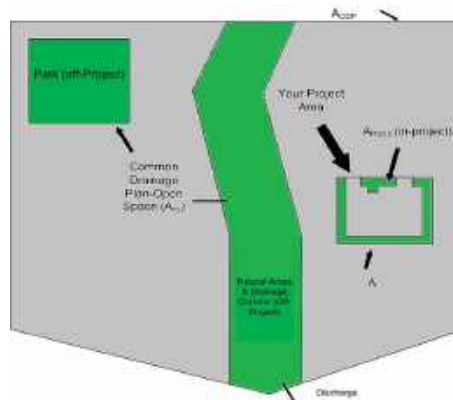
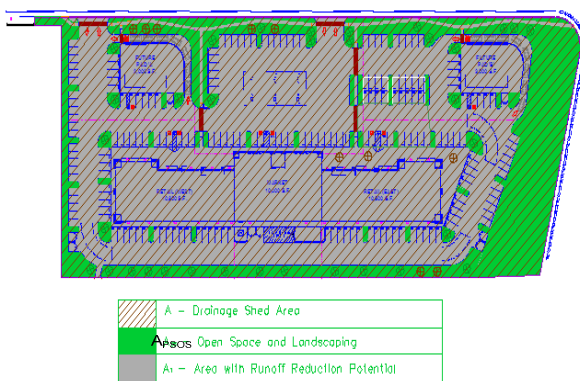
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (A <sub>c</sub> )
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.000"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.01"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.01"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="1"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2



**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**

A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**

A<sub>LIDC</sub>/A<sub>T</sub>\*200 =  pts

**Total LID Credits (Step 1+2+3)**

LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**

A<sub>T</sub> - A<sub>C</sub> - A<sub>LIDC</sub> =  A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**

A<sub>AT</sub> / A =  I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

Flow = 0.95 \* i \* A<sub>AT</sub>  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): Treatment volume = A x (P<sub>0</sub> / 12)  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A9** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

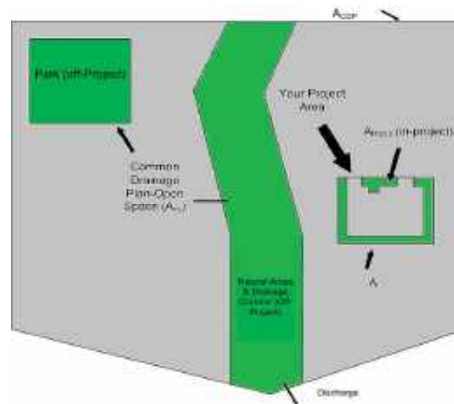
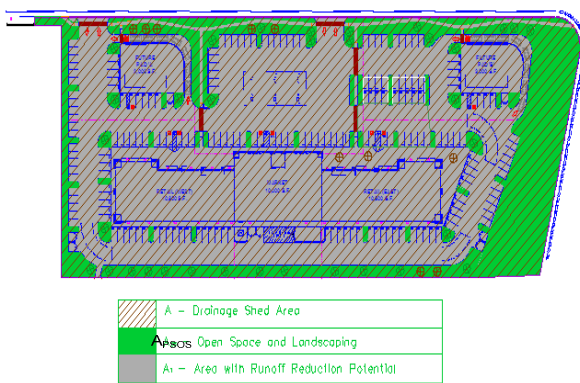
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed ( $A_c$ )
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.00"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.01"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.01"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="1"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**

A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**

A<sub>LIDC</sub>/A<sub>T</sub>\*200 =  pts

**Total LID Credits (Step 1+2+3)**

LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**

A<sub>T</sub> - A<sub>C</sub> - A<sub>LIDC</sub> =  A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**

A<sub>AT</sub> / A =  I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs):

Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

Flow = 0.95 \* i \* A<sub>AT</sub>  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet):

WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft):  
**Treatment volume = A x (P<sub>0</sub> / 12)**  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed:  Fill in Blue Highlighted boxes  
 Location of project:

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  see area example below

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  see area example below

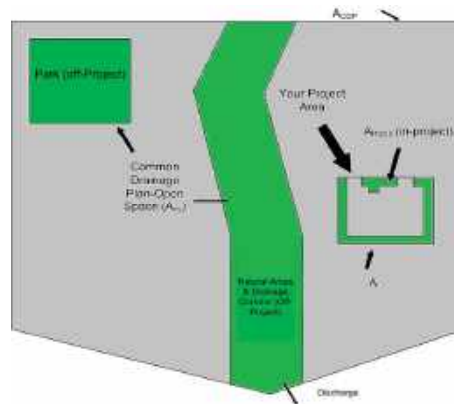
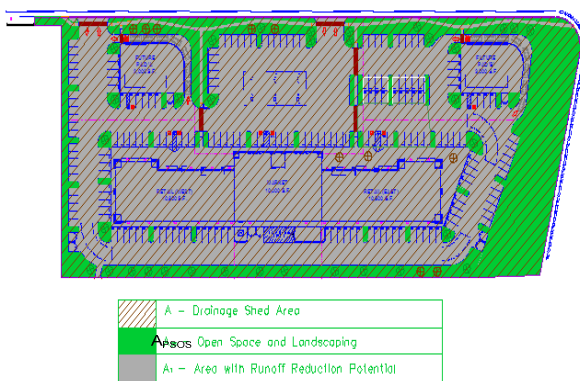
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (A <sub>c</sub> )
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.000"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.18"/> acres	=	= <input type="text" value="0.18"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="1.34"/> acres	=	= <input type="text" value="1.34"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.01"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="1.53"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="100"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**  A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**  $A_{LIDC}/A_T \times 200 =$   pts

**Total LID Credits (Step 1+2+3)** LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**  $A_T - A_C - A_{LIDC} =$   A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**  $A_{AT} / A =$   I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

**Flow = 0.95 \* i \* A<sub>AT</sub>**  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): **Treatment volume = A x (P<sub>0</sub> / 12)**  Acre-Feet



**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed: **A11** Fill in Blue Highlighted boxes  
 Location of project: **Sacramento**

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

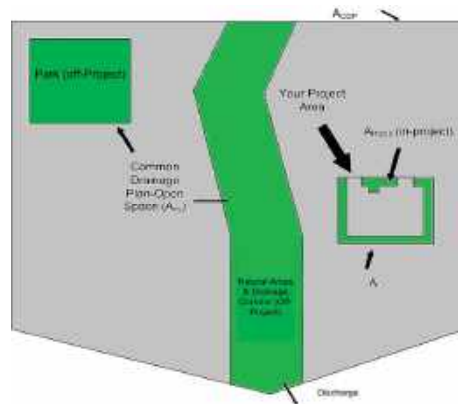
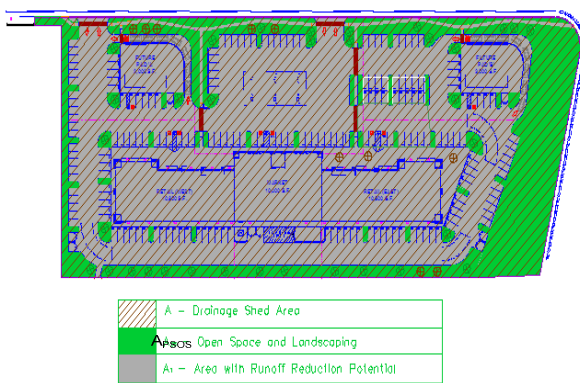
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (A <sub>c</sub> )
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.000"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.03"/> acres	=	= <input type="text" value="0.03"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.34"/> acres	=	= <input type="text" value="0.34"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.01"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.37"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="101"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter it into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**  A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**  $A_{LIDC}/A_T \times 200 =$   pts

**Total LID Credits (Step 1+2+3)** LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**  $A_T - A_C - A_{LIDC} =$   A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**  $A_{AT} / A =$   I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

**Flow = 0.95 \* i \* A<sub>AT</sub>**  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): **Treatment volume = A x (P<sub>0</sub> / 12)**  Acre-Feet

**Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations**

Name of Drainage Shed:  Fill in Blue Highlighted boxes  
 Location of project:

**Step 1 - Open Space and Pervious Area Credits**

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

**1 a. Common Drainage Plan Area**  acres  $A_{CDP}$

**Common Drainage Plan Open Space (Off-project)**  acres  $A_{OS}$  **see area example below**

a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Common landscape area/park  acres  
 e. Regional Flood Control/Drainage basins  acres

**1 b. Project Drainage Shed Area (Total)**  acres  $A$

**Project-Specific Open Space (In-project, communal\*\*)**  acres  $A_{PSOS}$  **see area example below**

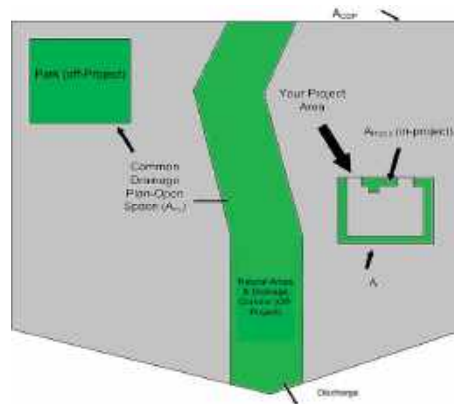
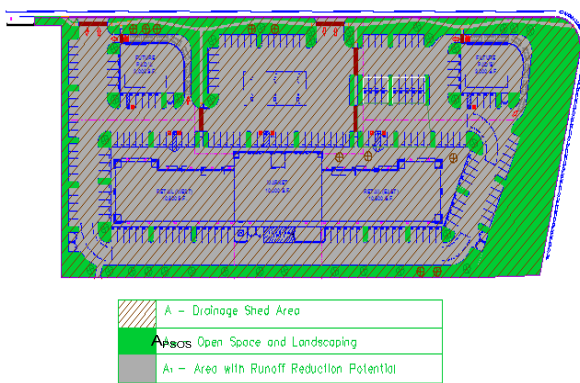
a. Natural storage reservoirs and drainage corridors  acres  
 b. Buffer zones for natural water bodies  acres  
 c. Natural areas including existing trees, other vegetation, and soil  acres  
 d. Landscape area/park  acres  
 e. Flood Control/Drainage basins  acres

\*\* Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

**Area with Runoff Reduction Potential**  $A - A_{PSOS} =$   acres  $A_T$

**Assumed Initial Impervious Fraction**  $A_T / A =$    $I$

**Open Space & Pervious Area LID Credit (Step 1)**  
 $(A_{OS}/A_{CDP} + A_{PSOS}/A) \times 100 =$   pts



**Step 2 - Runoff Reduction Credits**

Runoff Reduction Treatments	Impervious Area Managed	Efficiency Factor	Effective Area Managed (Ac)
<b>Porous Pavement:</b>			
<b>Option 1: Porous Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 2)	<input type="text" value="0"/> acres	x <input type="text" value=""/>	= <input type="text" value="0.000"/> acres
<b>Option 2: Disconnected Pavement</b> (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits	→	= <input type="text" value="0.00"/> acres
<b>Landscaping used to Disconnect Pavement</b> (see Fact Sheet)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Disconnected Roof Drains</b> (see Fact Sheet and/or Table D-2b for summary of requirements)	<input type="text" value="0.00"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Ecoroof</b> (see Fact Sheet)	<input type="text" value="0"/> acres	=	= <input type="text" value="0.00"/> acres
<b>Interceptor Trees</b> (see Fact Sheet)	use Form D-2b for credits	→	= <input type="text" value="0.01"/> acres
<b>Total Effective Area Managed by Runoff Reduction Measures</b>		$A_c$	= <input type="text" value="0.01"/> acres
<b>Runoff Reduction Credit (Step 2)</b>		$(A_c / A_T) \times 100 =$	= <input type="text" value="1"/> pts

**Table D-2a**

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

**Table D-2b**

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

**Form D-2a: Disconnected Pavement Worksheet**

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A<sub>c</sub>)

**Pavement Draining to Porous Pavement**

2. Enter area draining onto Porous Pavement  acres Box K1

3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)  acres Box K2

4. Ratio of Areas (Box K1 / Box K2)  Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4

6. Enter Efficiency of Porous Pavement (see table below)  Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement	0.75
Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6  acres Box K6

8. Multiply Boxes K1, K4, and K5 and enter the result in Box K7  acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8  acres

This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

**Form D-2b: Interceptor Tree Worksheet**

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

**New Evergreen Trees**

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.  trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2  sq. ft. Box L2

**New Deciduous Trees**

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.  trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4  sq. ft. Box L4

**Existing Tree Canopy**

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.  sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6  sq. ft. Box L6

**Total Interceptor Tree EAM Credits**

Add Boxes L2, L4, and L6 and enter into Box L7  sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8  acres Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

**Step 3 - Runoff Management Credits**

**Capture and Use Credits**

**Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems**

(see Fact Sheet)  enter gallons, for simple rain barrels  acres

**Automated-Control Capture and Use System**

(see Fact Sheet, then enter impervious area managed by the system)  acres

**Bioretention/Infiltration Credits**

**Impervious Area Managed by Bioretention BMPs**

(see Fact Sheet) Bioretention Area  sq ft  
 Subdrain Elevation  inches  
 Ponding Depth, inches  inches  acres

**Impervious Area Managed by Infiltration BMPs**

(see Fact Sheet) Drawdown Time, hrs  drawdown\_hrs\_inf  
 Soil Infiltration Rate, in/hr  soil\_inf\_rate

Sizing Option 1: Capture Volume, acre-ft  capture\_vol\_inf  acres

Sizing Option 2: Infiltration BMP surface area, sq ft  soil\_surface\_area  acres

Basin or trench?  approximate BMP depth  ft

**Impervious Area Managed by Amended Soil or Mulch Beds**

(see Fact Sheet) Mulched Infiltration Area, sq ft  mulch\_area  acres

**Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs**

A<sub>LIDC</sub>

**Runoff Management Credit (Step 3)**

$A_{LIDC}/A_T * 200 =$   pts

**Total LID Credits (Step 1+2+3)**

LID compliant, check for treatment sizing in Step 4

Does project require hydromodification management? If yes, proceed to using SachM.

**Adjusted Area for Flow-Based, Non-LID Treatment**

$A_T - A_C - A_{LIDC} =$   A<sub>AT</sub>

**Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment**

$A_{AT} / A =$   I<sub>A</sub>

**STOP: No additional treatment needed**

**Step 4a Treatment - Flow-Based (Rational Method)**

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)  i

Obtain A<sub>AT</sub> from Step 3  A<sub>AT</sub>

Use C = 0.95  C

Flow = 0.95 \* i \* A<sub>AT</sub>  cfs

**Table D-2c**

Rainfall Intensity	
Roseville	i = 0.20 in/hr
Sacramento	i = 0.18 in/hr
Folsom	i = 0.20 in/hr

**Step 4b Treatment - Volume-Based (ASCE-WEF)**

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P<sub>0</sub>)

Obtain A from Step 1  A  hrs Specified Draw Down time

Obtain P<sub>0</sub>: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I<sub>k</sub> from Step 2.  P<sub>0</sub>

Calculate treatment volume (acre-ft): Treatment volume = A x (P<sub>0</sub> / 12)  Acre-Feet

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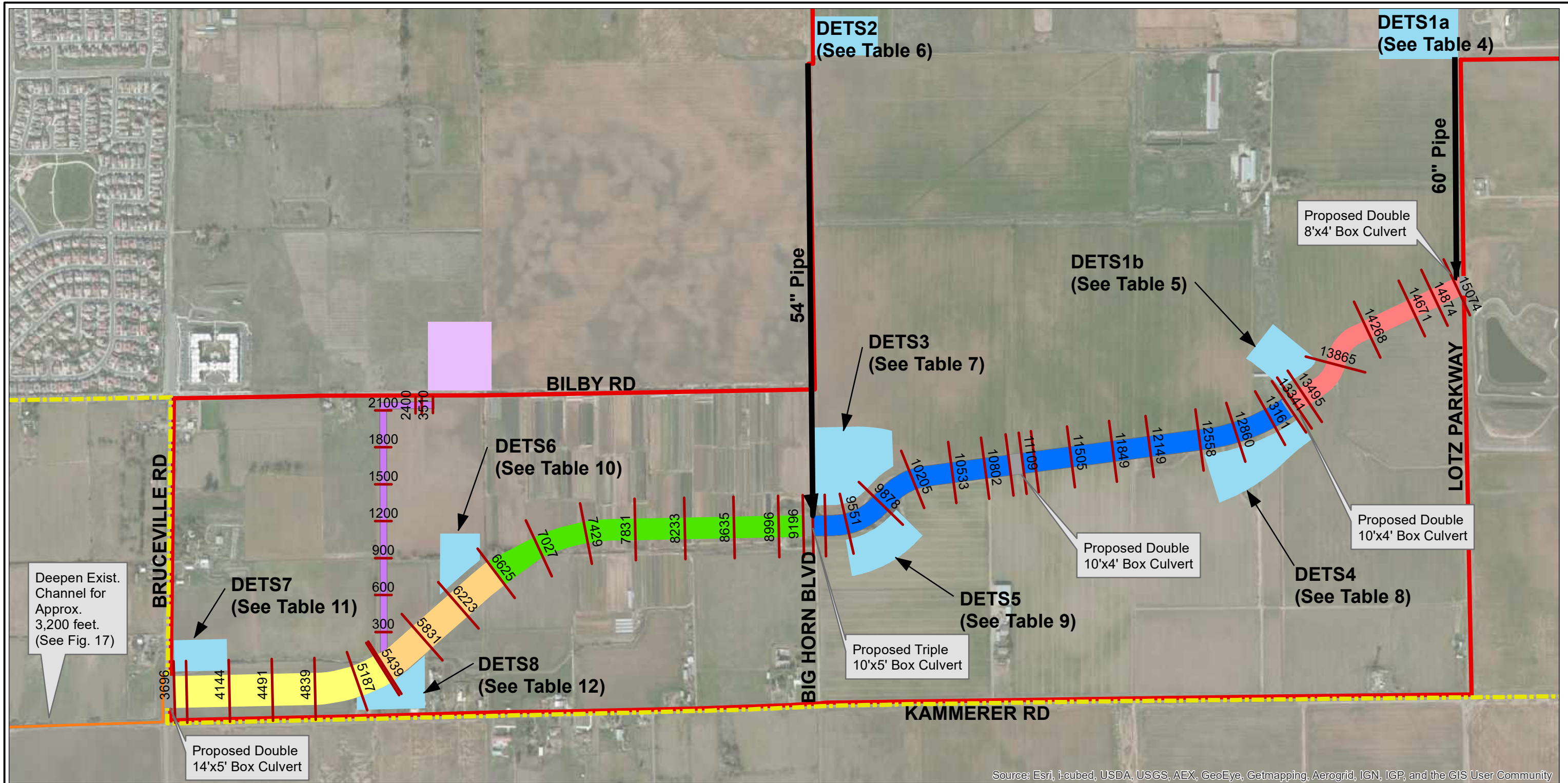
APPENDIX E - SUPPORTING DOCUMENTS

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*Figure 16 – City of Elk Grove Storm Drain Master Plan  
Amended 2019*

*Figure 6.2 – Backbone Drainage  
Laguna Ridge Specific Plan 2019*





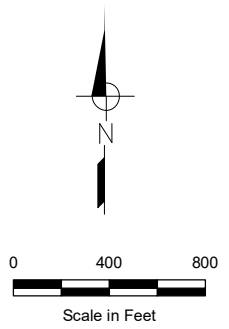
Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

**Legend**

- City Limits
- Proposed Detention Basin
- HEC-RAS Cross Section Location and Station
- Proposed Channel Reach 1
- Proposed Channel Reach 2
- Proposed Channel Reach 3
- Proposed Channel Reach 3b
- Proposed Channel Reach 4
- Channel Proposed with Laguna Ridge Specific Plan
- Detention Proposed with Laguna Ridge Specific Plan
- Offsite Channel Improvements
- Southeast Policy Area

**Notes**

1. Detention basin locations and sizes are approximate. See Tables 4 through 12 for required storage volumes.
2. See Table 14 for channel dimensions.



**FIGURE 16**  
**City of Elk Grove**  
**Southeast Policy Area**  
**Drainage Study**  
**PROPOSED FACILITIES**  
**AND CHANNEL REACHES**



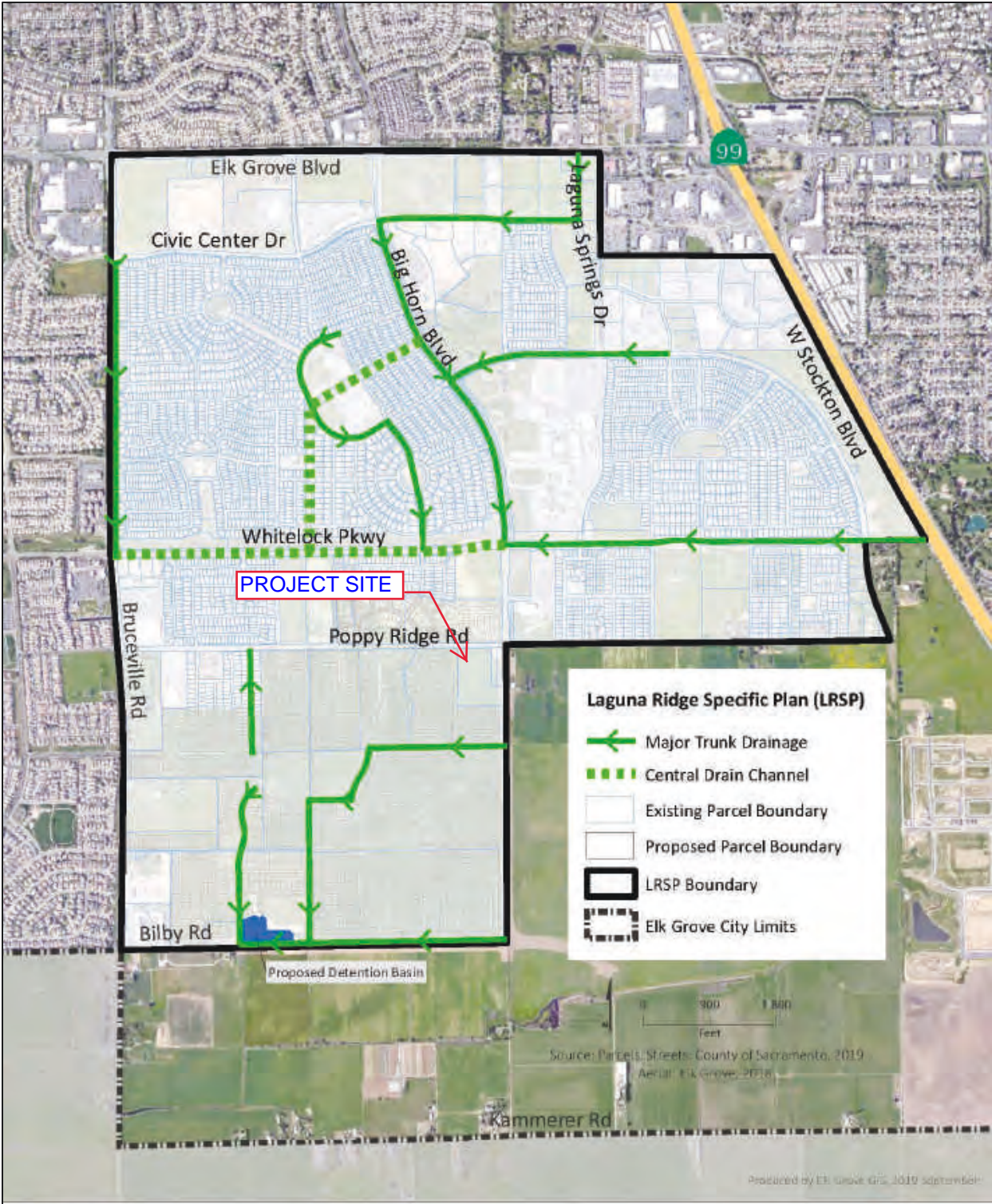


Figure 6.2 - Backbone Drainage

# **APPENDIX C**

## **VMT ANALYSIS**

# Memorandum

Date: April 12, 2023  
To: Rod Stinson, RANEY Planning & Management, Inc.  
From: David B. Robinson, Fehr & Peers  
Subject: **Guardian Madeira Apartments – VMT Analysis**

SA23-0194

Fehr & Peers completed a vehicle miles of travel (VMT) analysis of the Guardian Madeira Apartments project. The purpose of the VMT analysis is to support the preparation of an Addendum to the 2004 Laguna Ridge Specific Plan EIR by determining if the project would result in new significant impacts or a substantial increase in the severity of impacts previously identified. This memorandum outlines SB 743, the proposed Project, the analysis methodology, the evaluation criteria, presents the analysis results that include an evaluation of bicycle, pedestrian, transit, and roadway facilities.

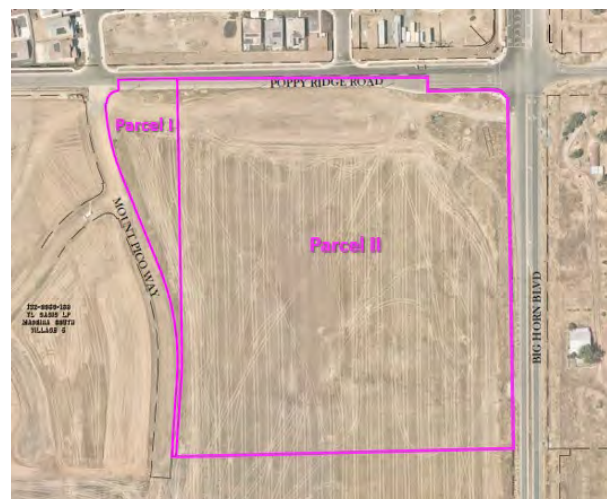
## SB 743

SB 743 (Stats. 2013, ch. 386) resulted in several statewide CEQA changes. It required the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metrics beyond TPAs. OPR selected VMT as the preferred transportation impact metric and applied their discretion to require its use statewide. This legislation also established that aesthetic and parking effects of a residential, mixed-use residential, or employment center projects on an infill site within a TPA are not significant impacts on the environment. The revised CEQA Guidelines that implement this legislation became effective on December 28, 2018, and state that vehicle level of service (LOS) and similar measures related to delay shall not be used as the sole basis for determining the significance of transportation impacts.

## Proposed Project

The Project is located at the southwest corner of the intersection of Poppy Ridge Road/Big Horn Boulevard in the City of Elk Grove, California. The Project site is approximately 13 acres and consists of two the following two contiguous parcels:

- Parcel I – 1.1 acres (APN 152-050-170)
- Parcel II – 11.9 acres (APN 132-0050-171)



The Project site is undeveloped and is located within the Laguna Ridge Specific Plan (LRSP). Adjacent existing uses include single-family residences to the north (i.e., across Poppy Ridge Road) and undeveloped land within the LRSP area to the south, east, and west. The City of Elk Grove General Plan designates Parcel I as Low Density Residential (LDR) and Parcel II as High Density Residential (HDR). Parcel I is zoned Residential Density five dwelling units per acre (RD-5), as well as Parkway and Open Space (P/OS). Parcel II is zoned Residential Density 30 dwelling units per acre (RD-30).

As shown in **Figure 1**, the Project includes development of 11 three-story apartment buildings with a total of 324 residential units. The unit mix would consist of 122 one-bedroom units, 151 two-bedroom units, and 51 three-bedroom units. The proposed Project would also include a 9,135-square foot clubhouse with a pool area, an operational building, and other amenities. A total of 543 automobile parking spaces and 108 bicycle parking spaces would be provided throughout the site. Primary site access would be provided by Poppy Ridge Road to the north and secondary access would be provided by Big Horn Boulevard to the east.

The proposed Project will require the approval of the following entitlements:

- General Plan Amendment to change Parcel I from LDR to HDR
- Rezone to change Parcel I from RD-5 and P/OS to RD-30
- Specific Plan Amendment to
- change Parcel I from RD-5 to RD-25
- change Parcel II from RD-25 to RD-30
- Major Design Review
- Boundary Line Adjustment

The proposed Project will require approval of a General Plan Amendment and Rezone for Parcel I and a Specific Plan Amendment for Parcel I and Parcel II. However, the proposed Project is consistent with the existing General Plan land use and zoning designations for Parcel II.

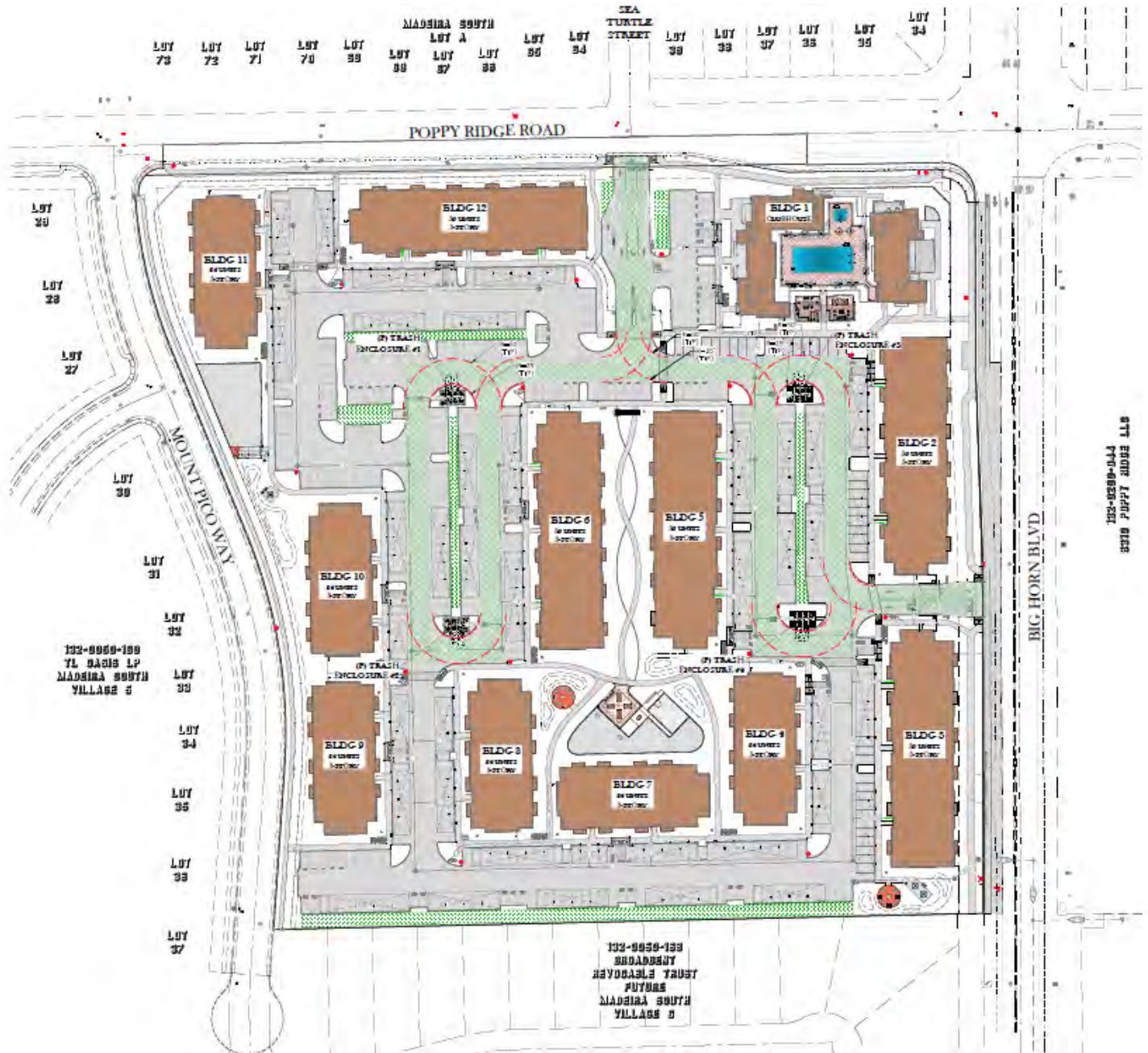
### **Laguna Ridge Specific Plan**

The LRSP (P96-082) and its associated EIR were previously approved and certified by the City of Elk Grove in 2004. The 1,900-acre study area is in the southern portion of the City of Elk Grove and is bounded by Elk Grove Boulevard to the north, State Route 99 to the east, Bilby Road to the south, and Bruceville Road to the west. The LRSP includes development of a mix of land uses, including low, medium, and high density residential; neighborhood and community commercial; and parks, open space, schools, and infrastructure. Although Parcel II was analyzed as HDR, the LRSP did not rezone Parcel II. Thus, the zoning for Parcel II remained Agricultural (AG-20). The 2013 Housing Element EIR rezoned Parcel II from AG-20 to RD-25 and the 2021 Housing Element Update EIR rezoned Parcel II from RD-25 to RD-30.

The 2004 LRSP EIR anticipated five residential units on Parcel I and 236 residential units on Parcel II for a total of 241 residential units. The proposed Project would include development of 324 residential units, which would result in an increase in the number of planned residential units for the Project site of 83 units. Therefore, an Addendum to the 2004 LRSP EIR is proposed to focus on whether the Project would result in new significant impacts or a substantial increase in the severity of impacts previously identified.



Figure 1 – Proposed Project



## Analysis Methodology

We used the transportation analysis conducted for the City of Elk Grove Housing Element and Safety Element Update Draft Subsequent Environmental Impact Report (SEIR), State Clearinghouse No. 2020069032, as the basis for the analysis of the proposed Project. The Housing Element and Safety Element Update analyzed 43 sites throughout the City to demonstrate that the City could accommodate its Regional Housing Needs Allocation. The proposed Project was one of the 43 sites (Site E-13) analyzed in the SEIR.

The City uses total daily VMT and VMT per service population as the basis for VMT analysis. The following describes these two VMT metrics and their intended use:

- VMT per Service Population – Includes the sum of all vehicle miles of travel produced by the project including employees and visitors to the project. The VMT per service population metric is used to assess a project against specific land use VMT limits.
- Total Daily VMT – Includes the sum of all daily vehicle miles of travel produced by all uses within the City of applicable Study Area. Since the project is located in the City limits, the Citywide cumulative VMT limit that is outlined in Policy MOB-1-1(a)(ii) is used to assess the project.

Origin-destination/tour-based transportation analysis VMT forecasts were developed using the modified version of SACOG's SACSIM regional travel demand forecasting model, developed for the City of Elk Grove General Plan Update and subsequently updated for clarity. The VMT forecasts VMT estimates include all trips that have one end in a project location and includes the following:

- Trip Types – Includes internal-to-internal (II), internal-to-external (IX), and external-to-internal (XI) trips. External-to-external (XX) trips are excluded.
- Trip Length – Fully accounts for entire length of each trip.
- Trip Tours – Includes trip tours without an origin or destination at the home.

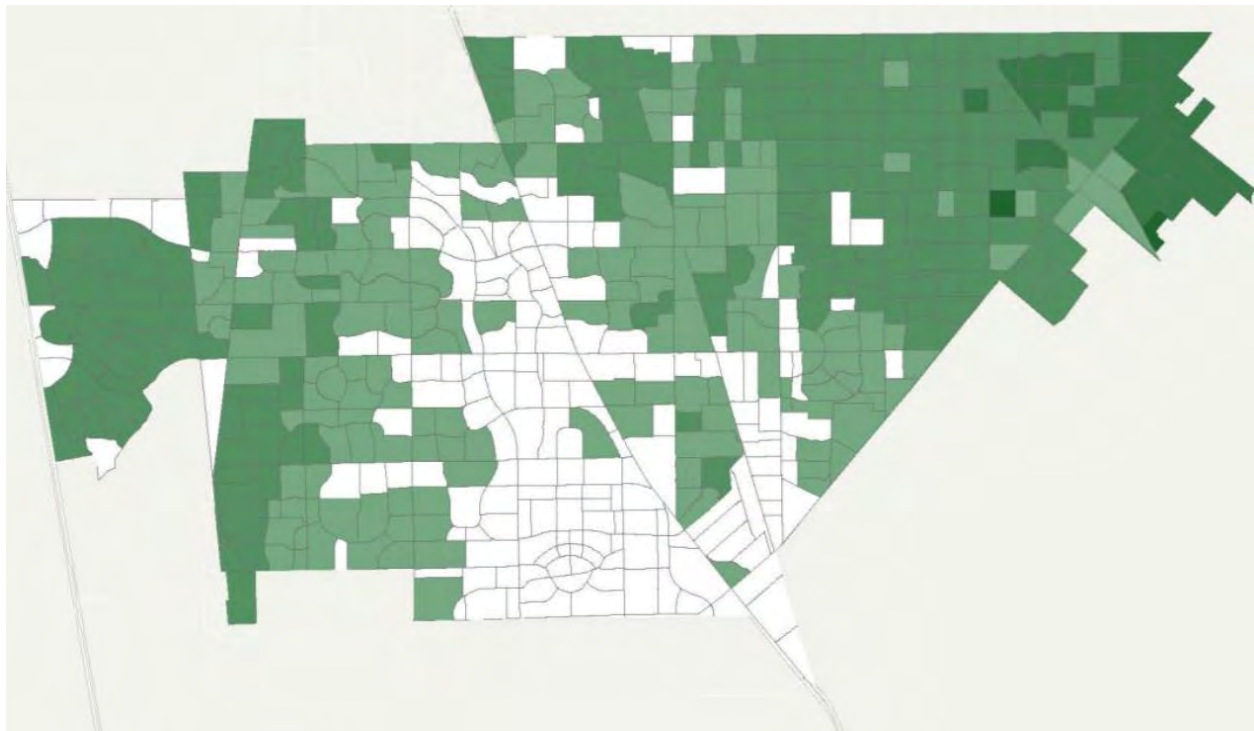
Details of the VMT calculation process are included in Appendix E of the City of Elk Grove Transportation Analysis Guidelines. **Attachment A** includes the Elk Grove Housing Element Update VMT Analysis.

## Analysis Evaluation Criteria

We used the following evaluation criteria from Policy MOB-1-1 of the City of Elk Grove General Plan to determine if the addition of the proposed Project would result in an impact in the City of Elk Grove. The City desires to achieve a reduction in VMT. Reductions in VMT, which can be accomplished through a combination of land use and mobility actions. To reduce VMT, the City has established the following metrics and limits.

The following VMT Screening Map identifies areas in the City that are exempt from VMT analysis. These include sites that have been pre-screened through Citywide VMT analysis. Pre-screened areas are shown in white and have been determined to result in 15 percent or below the average service population VMT established for that land use designation if built to the specifications of the Land Use Plan. With an average VMT per service population of 12.0, the City's target VMT per service population threshold is 10.2.





For projects that have not been pre-screened and that do not achieve the limits outlined below shall be subject to all feasible mitigation measures necessary to reduce the VMT for, or induced by, the project to the applicable limits.

- **New Development** – Any new land use plans, amendments to such plans, and other discretionary development proposals (referred to as “development projects”) are required to demonstrate a 15 percent reduction in VMT from existing (2015) conditions. To demonstrate this reduction, conformance with following land use and cumulative VMT limits is required:
  1. **Land Use** – Development projects shall demonstrate that the VMT produced by the project at buildout is equal to or less than the VMT limit of the project’s General Plan land use designation, as shown in the following table, which incorporates the 15 percent reduction from 2015 conditions:

**Vehicle Miles Traveled Limits by Land Use Designation**

Land Use Designation	VMT Limit (daily per service population)
<b>Commercial and Employment Land Use Designations</b>	
Community Commercial	41.6
Regional Commercial	44.3
Employment Center	47.1
Light Industrial/Flex	24.5
Light Industrial	24.5
Heavy Industrial	39.5
<b>Mixed Use Land Use Designations</b>	

<b>Land Use Designation</b>	<b>VMT Limit (daily per service population)</b>
Village Center Mixed Use	41.6
Residential Mixed Use	21.2
<b>Public/Quasi Public and Open Space Land Use Designations</b>	
Parks and Open Space	0.0
Resource Management and Conservation	0.0
Public Services	53.1
<b>Residential Land Use Designations</b>	
Rural Residential	34.7
Estate Residential	49.2
Low Density Residential	21.2
Medium Density Residential	20.9
High Density Residential	20.6
<b>Other Land Use Designations</b>	
Agriculture	34.7

*Notes:*

- These land use designations are not anticipated to produce substantial VMT, as they have no residents and few to no employees. These land use designations therefore have no limit and are exempt from analysis.*
- Cumulative for Development Projects within the Existing City** – Development projects located within the existing (2017) City limits shall demonstrate that cumulative VMT within the City including the project would be equal to or less than the established Citywide limit of 6,367,833 VMT (total daily VMT).
- Cumulative for Development Projects within Growth Areas** – Development projects located in Study Areas shall demonstrate that cumulative VMT within the applicable Study Area would be equal to or less than the established limit shown in the following table.

#### Study Area Total Vehicle Miles Traveled Limits

<b>Study Area</b>	<b>VMT Limit (total VMT at buildout)</b>
North Study Area	37,622
East Study Area	420,612
South Study Area	1,311,107
West Study Area	705,243

The Project is located within the City limits. The Project and remainder of the City shall meet the buildout VMT Limit of 6,367,833.

## Analysis Results

The following presents the analysis of Project VMT under cumulative conditions, relative to the threshold of significance presented above. The VMT analysis includes all of the roadway improvements included as part of the General Plan VMT analysis.

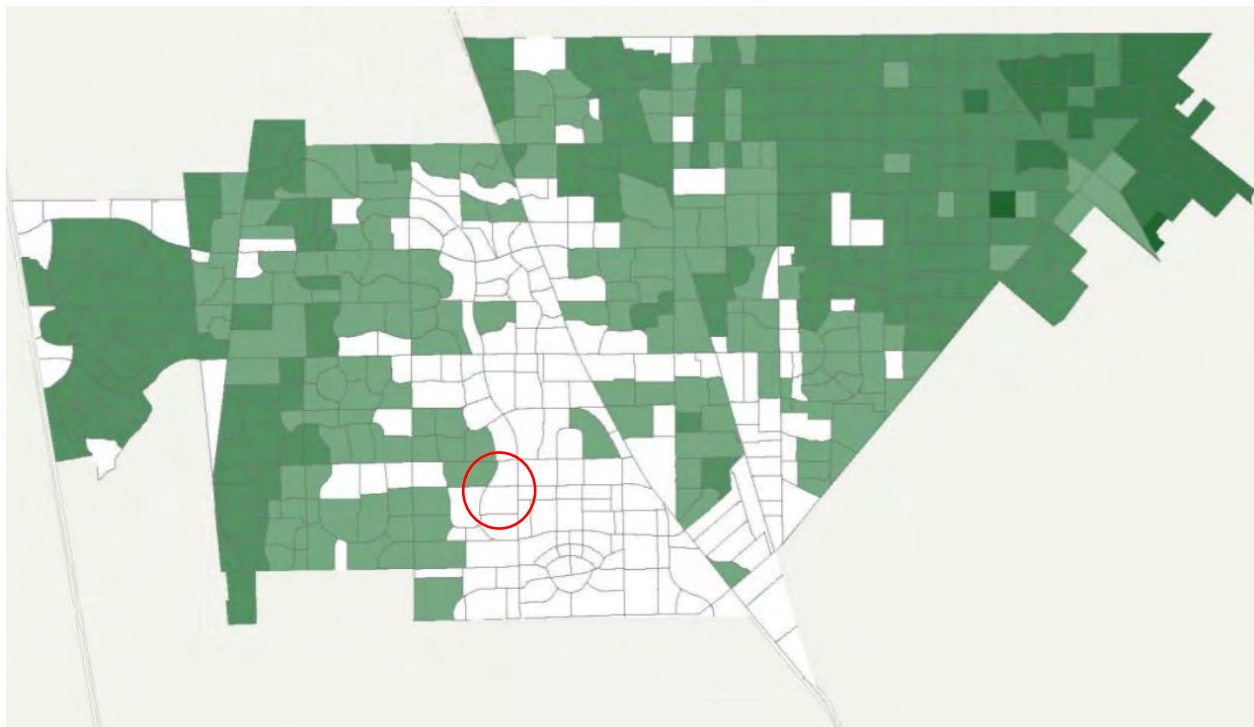
### Project-Type VMT Exemption

The City has identified the following project types that are exempt from VMT analysis:

- A residential project of < 10 dwelling units
- A commercial, office, or industrial project of < 50,000 square feet
- A mixed-use project containing < 10 dwelling units and < 50,000 square feet of commercial, office, or industrial space
- A project that is high density low-income housing on a high-density housing site as designated in the Housing Element

Based on these criteria, the Project is not exempt from VMT analysis due to the size of the Project (i.e., 324 dwelling units), which exceeds the 9 dwelling units threshold outlined above for residential projects.

However, the proposed Project is located within a pre-screened area (as outlined in red below) that has been determined to result in 15 percent or below the average service population VMT established for that land use designation if built to the specifications of the Land Use Plan.



Typically, no further analysis would be required for projects located in a pre-screened area that are consistent with the General Plan land use designation. However, since the Project requires a General Plan Amendment and Rezone and a Specific Plan Amendment, additional analysis is required for the proposed Project to confirm VMT performance for the proposed HDR land use designation.

### Project VMT Performance

A modified version of SACOG’s SACSIM15 regional travel demand forecasting model, developed for the analysis of the City of Elk Grove General Plan Update, was used to calculate the VMT per service population for the parcels that represent the proposed Project. **Attachment B** details the VMT calculation methodology that includes the SACSIM15 model input files and calculation steps by trip type (II, IX, and XI).

**Table 1** compares the Project’s VMT per service population to the City’s VMT limit for that land use (which incorporates a 15% reduction in total VMT from the 2015 baseline). As shown, the Project’s VMT per service population would be 18.5. That VMT performance would be 10.2% lower than the City’s VMT limit for the HDR land use. The VMT performance would not exceed the City’s VMT limit for the HDR land use.

**Table 1: VMT by Land Use Designation Limits – Project Buildout Conditions**

Project	Land Use Designation	VMT Per Service Population		Limit Exceeded?
		Limit	Project	
Buildout	High Density Residential	20.6	18.5	No

Streetlight Data – IN Storage, 9200 Brinkman Ct, Elk Grove CA, 95624 (January 1, 2019, to January 31, 2020)

Source: Fehr & Peers, 2023.

**Table 2** compares the daily, AM peak hour, and PM peak hour trip generation with the 2004 LRSP EIR and proposed Project land uses. As shown, the proposed Project would generate fewer daily trips and higher AM peak hour, and PM peak hour trips. The lower trip generation of the proposed Project is due to higher densities. The proposed Project would increase the density of the project site by about 34.6 percent, from 18.5 dwelling units per acre for the LRSP to 24.9 dwelling units per acre for the proposed Project.

**Table 2: Trip Generation Comparison**

Lane Use	Units	Quantity	Trip Generation <sup>1</sup>			
			Daily	Peak Hour		
				AM	PM	
2004 LRSP EIR	Single Family <sup>2</sup>	Dwelling Units	5	47	4	5
	Multi-Family Housing <sup>3</sup>	Dwelling Units	236	1,728	109	132
	Total		241	1,775	113	137
Proposed Project	Multi-Family Housing <sup>4</sup>	Dwelling Units	324	1,763	117	143
<b>Difference (Proposed Project - 2004 LRSP EIR)</b>			<b>83</b>	<b>-12</b>	<b>4</b>	<b>6</b>

1 Trip Generation Manual, 10th Edition

2 ITE Code 210 – Single Family Detached Housing

3 ITE Code 221 – Multi-Family Housing (Low-Rise)

4 ITE Code 220 – Multi-Family Housing (Mid-Rise)

Source: Fehr & Peers, 2023

**Table 3** compares total VMT for the proposed Project to the VMT based LRSP land uses. As shown, the proposed Project would result in less total VMT. The lower VMT is a result of the 34.6 percent increase in residential density provided by the proposed Project. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing residential density results in shorter and fewer trips by single-occupancy vehicles and a corresponding reduction in VMT.

**Table 3: Total VMT Comparison**

Land Use	Daily	Average Trip Length <sup>1</sup>	VMT			
			Base	Density Adjustment <sup>2,3</sup>	Final	
2004 LRSP EIR	Single Family	47	5.79	272	-	9,707
	Multi-Family	1,728	5.46	9,435	-	
	Total	1,775	-	9,707	-	
Proposed Project	1,763	5.46	9,626	-5.62%	9,085	
<b>Difference (Proposed Project - 2004 LRSP EIR)</b>						<b>-622</b>

1 Average trip lengths from EGSIM20 travel demand forecasting model for low density and high density residential land uses.

2 Ewing, R., Bartholomew, K., Winkelman, S., Walters, J., Chen, D. 2007. *Growing Cooler: The Evidence on Urban Development and Climate Change*. October. Available: [https://www.nrdc.org/sites/default/files/cit\\_07092401a.pdf](https://www.nrdc.org/sites/default/files/cit_07092401a.pdf). Accessed: January 2021.

3 Stevens, M. 2016. Does Compact Development Make People Drive Less? *Journal of the American Planning Association* 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available:

[https://www.researchgate.net/publication/309890412\\_Does\\_Compact\\_Development\\_Make\\_People\\_Drive\\_Less](https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less). Accessed: January 2021.

Source: Fehr & Peers, 2023

As outlined above, land use development projects located within the existing (2017) City limits shall demonstrate that cumulative VMT within the City, including the Project, would be equal to or less than the City's established total VMT limit. **Table 4** compares the citywide total VMT limit to the City's total VMT limit with buildout of the proposed Project. As shown in **Table 4**, the addition of the Project would not cause cumulative VMT to exceed the established citywide limit. As outlined above, lower VMT is a result of the 34.6 percent increase in residential density provided by the proposed Project.

**Table 4: Citywide VMT Limit – Project Buildout Conditions**

Development Projects in Existing City	Total VMT		Limit Exceeded?
	Limit	Project	
Citywide	6,367,833	6,367,211	No

Source: Fehr & Peers, 2023.

### Other CEQA Considerations

The following discusses the conditions of bicycle facilities, pedestrian facilities, transit service, and roadway design targets with the addition of the proposed Project.

#### Bicycle Facilities

Bicycle LTS refers to the comfort associated with roadways, or the mental ease people experience riding on them. Metrics for bicycling LTS were developed at the Mineta Transportation Institute (MTI) and published in the report "Low-Stress Bicycling and Network Connectivity."<sup>1</sup> The criteria establish a "weakest link" approach, as roadways are classified based on their segments with the highest level of traffic stress, assuming that only those that are comfortable riding under the higher stress would travel on that road. Factors influencing LTS include:

- Number of travel lanes
- Speed of traffic
- Number of vehicles
- Presence of bike lanes
- Width of bike lanes
- Presence of physical barrier

Bicycle riders vary in experience, skill, ability, and confidence. As such, they rely on the bikeway system to cater to their specific needs and abilities. Some cyclists are more comfortable riding in traffic and value bikeways and routes that are direct and limit unnecessary delay. They more comfortably utilize facilities that share the roadway with automobiles or have limited bicycle infrastructure. People with limited bicycling

<sup>1</sup> Mekuria, Maaza C., Peter G. Furth, and Hilary Nixon, (2012). *Low-Stress Bicycling and Network Connectivity*. San Jose, California: Mineta Transportation Institute.

confidence and lower or developing skill levels such as children and older adult riders may desire more separation from traffic to feel comfortable enough to ride. Different bicycle types also require more space in bicycle facilities, such as trailers for children or cargo or adult tricycles. For these reasons, facilities should be designed to accommodate the lowest skill levels, especially in heavily traveled areas.

Recent research has correlated these different bicycle riders with the level of “traffic stress” they are willing to experience while cycling. Bicycle LTS criteria span from 1 to 4, with 1 being the least stressful and 4 being the most stressful:

- **LTS 1:** Most children and elderly riders can tolerate this level of stress and feel safe and comfortable. LTS 1 roadways typically require more separation from traffic.
- **LTS 2:** This is the highest level of stress that the mainstream adult population will tolerate while still feeling safe.
- **LTS 3:** Bicyclists who are considered “enthused and confident” but still prefer having their own dedicated space for riding will tolerate this level of stress and feel safe while bicycling.
- **LTS 4:** For bicyclists, this is tolerated only by those characterized as “strong and fearless,” which comprises a small percentage of the population. These roadways have high speed limits, multiple travel lanes, limited or non-existent bike lanes and signage, and large distances to cross at intersections.

Class II bike lanes (on-street with signage and striping) are provided in both directions on Big Horn Boulevard. Bike lanes are not currently provided on Poppy Ridge Road. A Class I Multi-Use Path is proposed for Poppy Ridge Road between Bruceville Road and Big Horn Boulevard. The City of Elk Grove Bicycle, Pedestrian, & Trails Master Plan (May 2021) identifies Big Horn Boulevard and Poppy Ridge Road as Bicycle LTS 4. With lower trip generation and VMT, the proposed project would not worsen the Bicycle LTS.

### Pedestrian Facilities

The Pedestrian Streetscore+ Level of Traffic Stress (LTS) refers to the pedestrian comfort associated with a roadway or intersection.

The Pedestrian LTS methodology builds on Mekuria, Furth, and Nixon’s 2012 Low Stress Bicycling and Network Connectivity report and LTS methodology with a corresponding index for pedestrian comfort. A tool to evaluate Pedestrian and Bicycle LTS called Streetscore+ was developed by Fehr & Peers and includes recommended parameters for the pedestrian environment provided by the NACTO Urban Streets Design Guide (USDG) and additional considerations of comfort informed by practitioner and best practice experience. Roadway segments and intersection approaches receive individual scores based on different considerations. The following factors are considered in developing the Pedestrian Streetscore+ for roadways and intersections:

#### **Roadways**

Usable sidewalk space  
Driveways  
Pedestrian-scale lighting

#### **Intersections**

Crossing distance  
Accessibility  
Channelized right-turns



Street trees and landscaping  
 Speed  
 Sidewalk quality  
 Number of travel lanes  
 Heavy vehicle volumes  
 Crosswalk frequency

Leading pedestrian intervals (LPIs) and pedestrian scrambles

The Pedestrian Streetscore+ uses a scale that ranges from 1 to 4:

- **Streetscore+ 1:** Highly comfortable, pedestrian-friendly, and easily navigable for pedestrians of all ages and abilities, including seniors or school-aged children walking unaccompanied to school. These streets provide an ideal “pedestrian-friendly” environment.
- **Streetscore+ 2:** Generally comfortable for many pedestrians, but parents may not feel comfortable with children walking alone. Seniors may have concerns about the walking environment and take more caution. These streets may be part of a “pedestrian-friendly” environment where it intersects with a more auto-oriented roadway or other environmental constraints.
- **Streetscore+ 3:** Walking is uncomfortable but possible. Minimum sidewalk and crossing facilities may be present, but barriers are also present that make the walking experience uninviting and uncomfortable.
- **Streetscore+ 4:** Walking is a barrier and is very uncomfortable or even impossible. Streets have limited or no accommodation for pedestrians and are inhospitable and possibly unsafe environment for pedestrians.

Pedestrian facilities are provided along improved frontages on Big Horn Boulevard and Poppy Ridge Road. Most sidewalks are buffered from the roadway by landscape planters. **Table 5** summarizes pedestrian LTS with the addition of the proposed Project. As shown in **Table 5**, the addition of the proposed Project will not degrade the Pedestrian Streetscore LTS.

**Table 5: Pedestrian Streetscore LTS**

Roadway Segment/Intersection		LTS	
		Current Conditions	With Project <sup>1</sup>
Big Horn Boulevard	Whitelock Parkway to Kammerer Road	4	4

Source: Fehr & Peers, 2023

Transit Service

Transit service within the study area is provided by Regional Transit. Currently, the closest service to the proposed Project is Commuter Route E10, Local Route E11, and Local Route E12. These routes all provide service to/from the Civic Center Area, including Big Horn Boulevard and Civic Center Drive.

Elk Grove Transit (e-tran), which is currently operated by Sacramento Regional Transit, receives funding from state sources (Transit Development Act [TDA] funds), federal sources (Federal Transportation Administration), and through fare collection. State and federal funds are generally allocated based on population, with a portion of TDA funds derived from a ¼-cent general sales tax and a sales tax on diesel fuel. Therefore, development of the proposed Project would increase funding for transit, through these sources, because of population growth.

The Federal Transit Administration maintains a database of transit system performance. The City of Elk Grove 2021 Annual Agency Profile<sup>2</sup> identifies that local bus service had unlinked trips per vehicle revenue hour of 2.2, or about 2 passengers per hour. Generally, this level of performance is indicative of low demand and productivity. Routes performing at this level would have excess seated and standing capacity. Consequently, the proposed Project would not create demand for public transit services above the crush load capacity of the transit system.

### Roadways

General Plan Policy MOB-1-4 includes performance targets for intersections and roadways. The objective of the policy is to balance the effectiveness of design requirements to achieve the targets with the character of the surrounding area, cost, and maintenance. The General Plan Transportation Network Diagram reflects the implementation of roadway performance targets at General Plan Buildout. Big Horn Boulevard is planned as a 4-lane arterial, and Poppy Ridge Road is a planned 2-lane collector roadway in the General Plan along the Project.

As outlined above, the proposed Project would generate fewer daily trips and higher AM peak hour, and PM peak hour trips. The peak hour increase would be 4 trips during the AM peak hour and 6 trips during the PM peak hour, which is within the daily variation in travel. Therefore, since the Project would result in less daily traffic and similar peak hour traffic compared to the trip generation based on the LRSP land uses, the Project would not change the classification of Big Horn Boulevard or Poppy Ridge Road needed to accommodate buildout of the General Plan.

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<sup>2</sup> [https://www.transit.dot.gov/sites/fta.dot.gov/files/transit\\_agency\\_profile\\_doc/2021/90205.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2021/90205.pdf)

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**Attachment A:  
Elk Grove Housing Element Update VMT  
Analysis Memorandum  
January 15, 2021**



## MEMORANDUM

Date: January 15, 2021  
 To: Cori Resha, Ascent  
 From: David B. Robinson, Fehr & Peers  
**Subject: Elk Grove Housing Element Update VMT Analysis**

RS20-3929

Fehr & Peers completed a vehicle miles of travel (VMT) analysis to support the update to the City of Elk Grove Housing Element. The update to the Housing Element is necessary to demonstrate that the City can accommodate its Regional Housing Needs Allocation (RHNA). Specifically, the City must identify locations where 4,265 Low and Very Low-Income housing units can be built and the policies and strategies necessary to meet the City’s housing needs.

This memorandum describes the City’s RHNA, existing and candidate locations, the analysis methodology, the evaluation criteria, and presents the analysis results.

### RHNA and Candidate Locations

**Table 1** compares the City of Elk Grove RHNA to the SACOG region. As shown, the City’s total RHNA is 8,263 dwellings with 51.6% in the Low and Very Low-Income categories, which is the bases of the analysis. Analysis of the Moderate and Above-moderate income categories is not required. The City of Elk Grove’s total allocation represents 5.4 % of the SACOG region and 6.8% of the lower income units. **Figure 1** shows existing and candidate locations that can accommodate the lower income units.

**Table 1: Land Use Comparison**

Jurisdiction	Lower Income Units				Higher Income Units		Total RHNA
	Very Low	Low	Very Low + Low	% of Total RHNA	Moderate	Above Moderate	
Elk Grove	2,661	1,604	4,265	51.6%	1,186	2,812	8,263
SACOG Region	38,999	23,503	62,502	40.7%	26,993	64,017	153,512
Elk Grove’s Share of SACOG Region	6.8%	6.8%	6.8%	-	4.4%	4.4%	5.4%

Source: SACOG Regional Housing Needs Plan, Cycle 6 (2021-2029), Adopted March 2020.

## Analysis Methodology

We developed origin-destination/tour-based transportation analysis VMT forecasts, using the modified version of SACOG's SACSIM regional travel demand forecasting model, developed for the City of Elk Grove General Plan Update and subsequently updated for clarity. Due to uncertainty on the exact location of where development will occur, we tested four scenarios that varied the amount and location of RHNA dwelling units allocated to the existing and candidate sites shown on **Figure 1**. This approach was applied to identify a worst case VMT scenario for analysis. **Tables 2 through 5** summarizes the allocation assumptions for the four analyzed scenarios, which are briefly described below:

- Scenario 1 – Applies existing zoning on the existing sites and rezones all candidate sites.
- Scenario 2 – Applies up-zoning on some existing sites and rezones all of the candidate sites.
- Scenario 3 – Applies existing zoning on the existing sites, rezones/includes sites furthest out from the core.
- Scenario 4 – Applies up-zoning on some existing sites and rezones on some candidate sites.

**Table 2: Analysis Scenario 1**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
<b>Existing Sites</b>			
E-1	RD-20	189	225
E-2	RD-25	181	215
E-3	RD-20	149	178
E-4	RD-25	166	198
E-5	SEPA-HDR (15.1-30)	137	163
E-6	SEPA-HDR (15.1-30)	151	180
E-7	SEPA-HDR (15.1-30)	195	233
E-8	SEPA-HDR (15.1-30)	176	210
E-9	SEPA-HDR (15.1-30)	278	300
E-10	SEPA-HDR (15.1-30)	92	110
E-11	SEPA-HDR (15.1-30)	64	77
E-12	SEPA-HDR (15.1-30)	61	73
E-13	RD-25	111	133
E-14	RD-25	189	225
E-15	RD-25	189	225

**Table 2: Analysis Scenario 1**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
E-16	RD-25	181	215
E-17	RD-25	149	178
E-18	RD-25	166	198
Total (Existing Sites)	-	2,887	3,610
<b>Candidate Sites</b>			
C-1	RD-30	267	289
C-2	RD-25	60	72
C-3	RD-30	190	205
C-4	RD-30	184	202
C-5	RD-30	308	332
C-6	RD-30	200	216
C-7	RD-25	74	88
C-8	RD-25	49	58
C-9	RD-25	74	88
C-10	RD-30	174	198
C-11	RD-30	78	70
C-12	RD-30	146	158
C-13	RD-30	95	103
C-14	RD-30	49	53
C-15	RD-25	97	115
C-16	RD-30	80	86
C-17	RD-30	125	135
C-18	RD-25	258	258
C-19	RD-25	42	53
C-20	RD-25	32	38
C-21	RD-25	35	42
C-22	RD-25	43	52
C-23	RD-25	42	21
C-24	RD-25	105	125
C-25	RD-25	109	129
Total (Candidate Sites)	-	2,916	3,186

**Table 2: Analysis Scenario 1**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
<b>Total</b>	-	<b>5,803</b>	<b>6,796</b>

Source: Fehr & Peers, 2020



**Table 3: Analysis Scenario 2**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
<b>Existing Sites</b>			
E-1	RD-20	230	230
E-2	RD-25	102	387
E-3	RD-30	387	418
E-4	RD-30	163	178
E-5	SEPA-HDR (15.1-30)	225	243
E-6	SEPA-HDR (15.1-30)	215	233
E-7	SEPA-HDR (15.1-30)	149	192
E-8	SEPA-HDR (15.1-30)	166	198
E-9	SEPA-HDR (15.1-30)	137	163
E-10	SEPA-HDR (15.1-30)	151	180
E-11	SEPA-HDR (15.1-30)	195	233
E-12	SEPA-HDR (15.1-30)	210	227
E-13	RD-25	278	300
E-14	RD-30	110	119
E-15	RD-30	77	83
E-16	RD-30	73	78
E-17	RD-30	133	143
E-18	RD-30	225	243
Total (Existing Sites)	-	3,226	3,848
<b>Candidate Sites</b>			
C-1	RD-30	267	289
C-2	RD-25	60	72
C-3	RD-30	190	205
C-4	RD-30	184	202
C-5	RD-30	308	332
C-6	RD-30	200	216
C-7	RD-25	74	88
C-8	RD-25	49	58
C-9	RD-25	74	88
C-10	RD-30	174	198

**Table 3: Analysis Scenario 2**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
C-11	RD-30	78	70
C-12	RD-30	146	158
C-13	RD-30	95	103
C-14	RD-30	49	53
C-15	RD-25	97	115
C-16	RD-30	80	86
C-17	RD-30	125	135
C-18	RD-25	258	258
C-19	RD-25	42	53
C-20	RD-25	32	38
C-21	RD-25	35	42
C-22	RD-25	43	52
C-23	RD-25	42	21
C-24	RD-25	105	125
C-25	RD-25	109	129
Total (Candidate Sites)	-	2,916	3,186
<b>Total</b>	-	<b>6,142</b>	<b>7,034</b>

Source: Fehr & Peers, 2020

**Table 4: Analysis Scenario 3**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
<b>Existing Sites</b>			
E-1	RD-20	230	230
E-2	RD-25	102	387
E-3	RD-20	279	310
E-4	RD-25	137	163
E-5	SEPA-HDR (15.1-30)	189	225

**Table 4: Analysis Scenario 3**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
E-6	SEPA-HDR (15.1-30)	181	215
E-7	SEPA-HDR (15.1-30)	149	178
E-8	SEPA-HDR (15.1-30)	166	198
E-9	SEPA-HDR (15.1-30)	137	163
E-10	SEPA-HDR (15.1-30)	151	180
E-11	SEPA-HDR (15.1-30)	195	233
E-12	SEPA-HDR (15.1-30)	176	210
E-13	RD-25	278	300
E-14	RD-25	92	110
E-15	RD-25	64	77
E-16	RD-25	61	73
E-17	RD-25	111	133
E-18	RD-25	189	225
Total (Existing Sites)	-	2,887	3,610

**Candidate Sites**

C-1	RD-30	267	289
C-2	SC		
C-3	RD-15		
C-4	RD-30	184	202
C-5	SC		
C-6	GC		
C-7	RD-25	74	88
C-8	RD-25	49	58
C-9	RD-25	74	88
C-10	RD-30	174	198
C-11	RD-30	78	70
C-12	RD-30	146	158
C-13	RD-20		
C-14	BP		
C-15	GC		
C-16	RD-5		

**Table 4: Analysis Scenario 3**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
C-17	RD-30	125	135
C-18	RD-6		
C-19	RD-25	42	53
C-20	RD-25	32	38
C-21	RD-25	35	42
C-22	RD-25	43	52
C-23	RD-25	42	21
C-24	RD-5		
C-25	RD-25	109	129
Total (Candidate Sites)	-	1,474	1,621
<b>Total</b>	-	<b>4,361</b>	<b>5,231</b>

Source: Fehr &amp; Peers, 2020

**Table 5: Analysis Scenario 4**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
<b>Existing Sites</b>			
E-1	RD-20	230	230
E-2	RD-25	102	387
E-3	RD-30	387	418
E-4	RD-25	137	163
E-5	SEPA-HDR (15.1-30)	189	225
E-6	SEPA-HDR (15.1-30)	181	215
E-7	SEPA-HDR (15.1-30)	149	178
E-8	SEPA-HDR (15.1-30)	166	198
E-9	SEPA-HDR (15.1-30)	137	163
E-10	SEPA-HDR (15.1-30)	151	180
E-11	SEPA-HDR (15.1-30)	195	233

**Table 5: Analysis Scenario 4**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
E-12	SEPA-HDR (15.1-30)	176	210
E-13	RD-25	278	300
E-14	RD-30	110	119
E-15	RD-30	77	83
E-16	RD-25	61	73
E-17	RD-30	133	143
E-18	RD-25	189	225
Total (Existing Sites)	-	3,048	3,743
<b>Candidate Sites</b>			
C-1	RD-30	267	289
C-2	RD-25	60	72
C-3	RD-30	190	205
C-4	RD-30	184	202
C-5	SC		
C-6	GC		
C-7	RD-25	74	88
C-8	RD-25	49	58
C-9	RD-25	74	88
C-10	RD-30	174	198
C-11	LC		
C-12	RD-30	146	158
C-13	RD-20		
C-14	BP		
C-15	GC		
C-16	RD-5		
C-17	RD-30	125	135
C-18	RD-6		
C-19	RD-25	42	53
C-20	AR-2		
C-21	RD-15		
C-22	RD-4		

**Table 5: Analysis Scenario 4**

Site ID (See Figure 1)	Assumptions		
	Zoning	RHNA Allocation	DU Potential
C-23	RD-25	42	21
C-24	RD-25	105	125
C-25	RD-25	109	129
Total (Candidate Sites)	-	1,641	1,821
<b>Total</b>	-	<b>4,689</b>	<b>5,564</b>

Source: Fehr & Peers, 2020

**Tables 6** compares the percent of the RHNA allocation achieved for each scenario presented above to the RHNA allocation for the Low and Very Low-Income categories. As shown, Scenario 2 includes the most RHNA dwelling units (i.e., 6,142) of the four analysis scenarios, which would provide a 44 percent buffer beyond the RHNA allocation for the Low and Very Low category.

**Table 6: RHNA Allocation for Low and Very Low-Income Categories by Analysis Scenario**

	Analysis Scenario				
	1	2	3	4	
Existing Site	2,887	3,226	2,887	3,048	
Candidate Site	2,916	2,916	1,474	1,641	
Total	5,803	6,142	4,361	4,689	
RHNA Allocation (Low/Very Low-Income Category)	4,265				
Buffer Achieved	Dwelling Units	1,538	1,877	96	424
	Percent of RHNA	136%	144%	102%	110%

Source: SACOG Regional Housing Needs Plan, Cycle 6 (2021-2029), Adopted March 2020.

The City uses total daily VMT and VMT per service population as the basis for VMT analysis. The following describes these two VMT metrics and their intended use:

- VMT per Service Population – Includes the sum of all vehicle miles of travel produced by individual land uses in a project, divide by the sum of total residents living in the project. The VMT per service population metric is used to assess a project against specific land use VMT limits. The Project includes multi-family residential land use. Therefore, the Project is compared to the high density residential VMT limit.
- Total Daily VMT – Includes the sum of all daily vehicle miles of travel produced by all uses within the City of applicable Study Area. Since the Project is located in the City limits, the Citywide cumulative VMT limit that is outlined in Policy MOB-1-1(a)(ii) is used to assess the Project.

The VMT estimates include all trips that have one end in a project location and includes the following:

- Trip Types – Includes internal-to-internal (II), internal-to-external (IX), and external-to-internal (XI) trips. External-to-external (XX) trips are excluded.
- Trip Length – Fully accounts for entire length of each trip.
- Trip Tours – Includes trip tours without an origin or destination at the home.

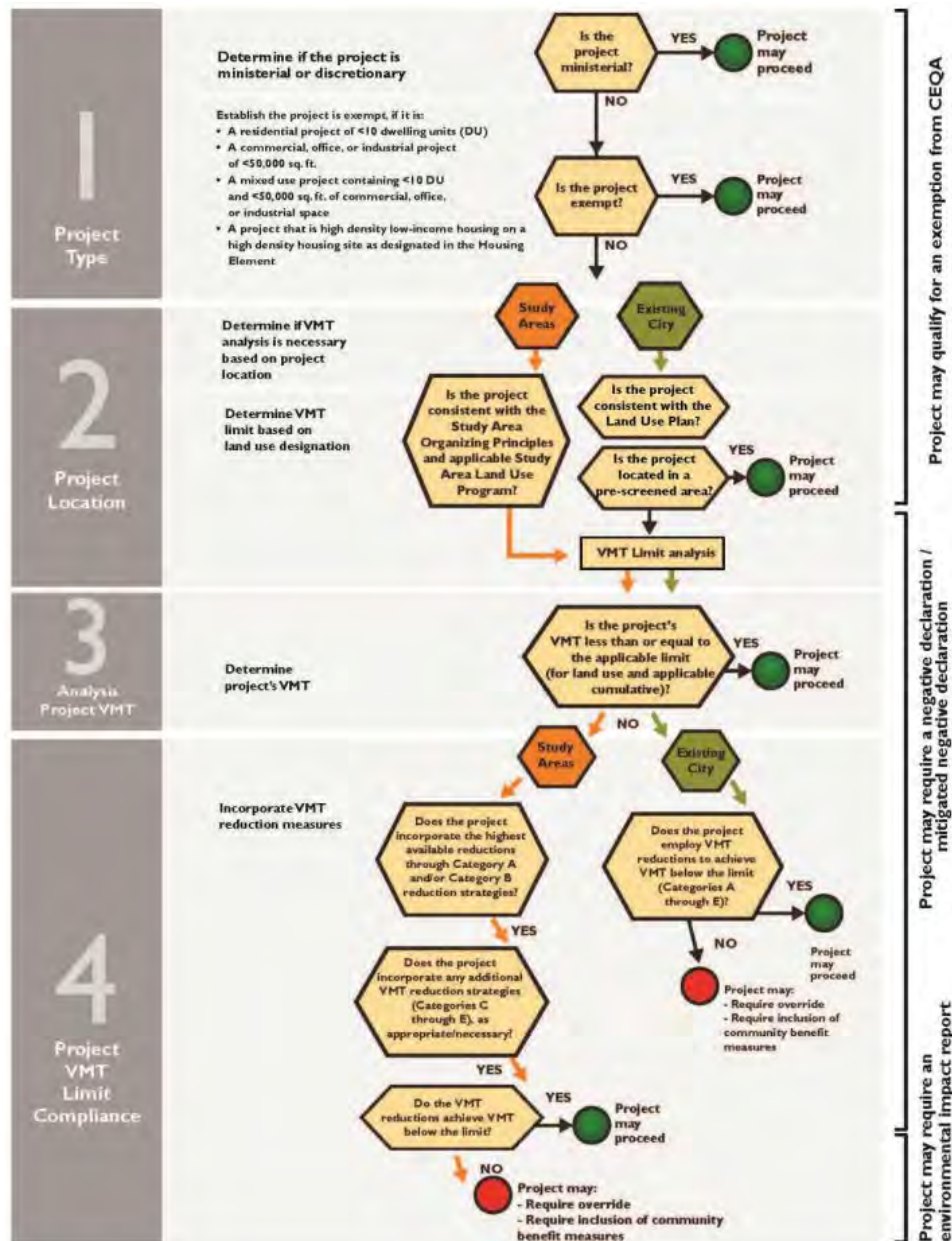
Details of the VMT calculation process are included in Appendix E of the City of Elk Grove Transportation Analysis Guidelines.

### **Analysis Evaluation Criteria**

The following evaluation criteria was used to determine if the addition of the proposed Project would result in an impact in the City of Elk Grove.

The City desires to achieve a reduction in VMT. Reductions in VMT can be accomplished through a combination of land use and mobility actions. To reduce VMT, the City has established the following metrics and limits depicted in the following graphic.

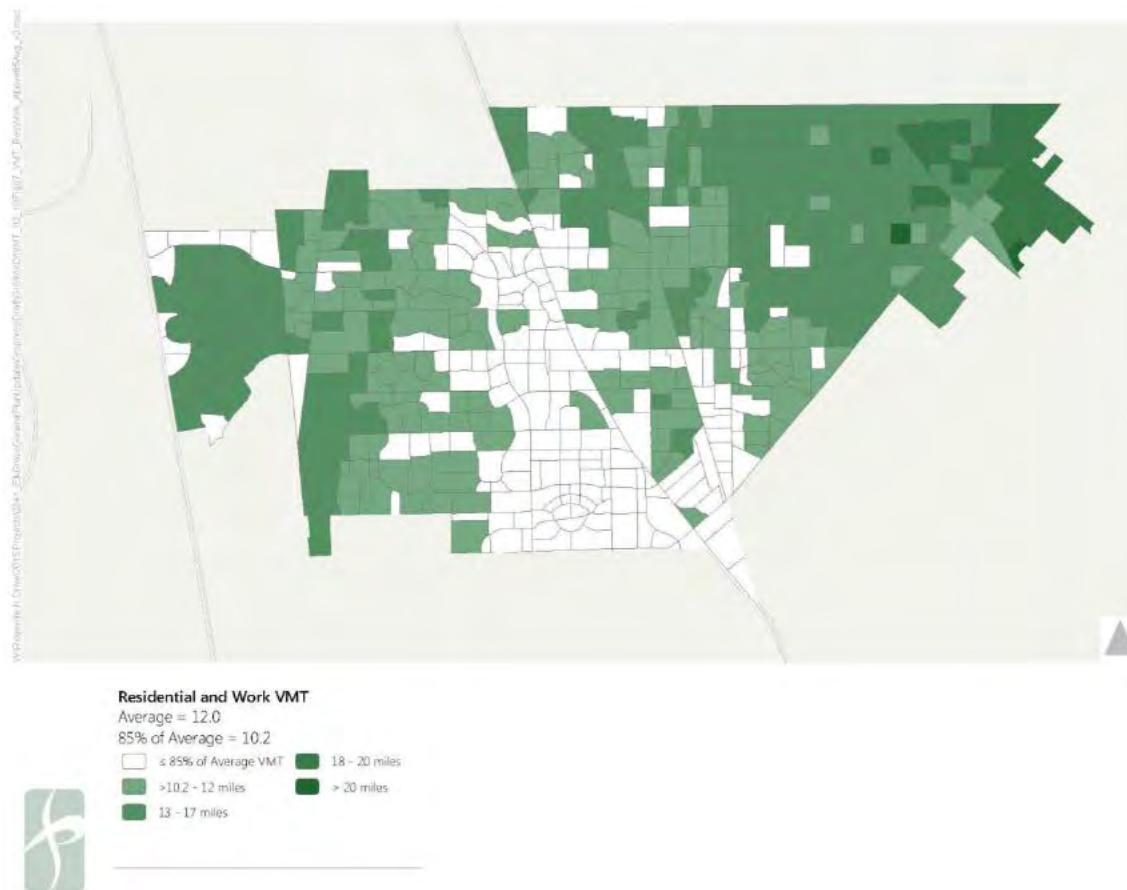




The VMT analysis process for land use projects outlined above includes the following four steps:

- Step 1 (Project Type) – Determine if the project is ministerial or discretionary or if the project is exempt from VMT analysis.
- Step 2 (Project Location) – Determine if VMT analysis is necessary based on project location and determine the Project’s VMT limit by land use designation.
- Step 3 (Analyze Project VMT) – Determine the Project’s VMT and compare to the VMT limit by land use designation (from Step 2) to determine if VMT mitigation is necessary.
- Step 4 (Project VMT Limit Compliance) – Identify VMT reduction mitigation measures and significance of VMT impacts with mitigation.

The following VMT Screening Map identifies areas in the City that are exempt from VMT analysis. These include sites that have been pre-screened through Citywide VMT analysis. Pre-screened areas are shown in white and have been determined to result in 15 percent or below the average service population VMT established for that land use designation if built to the specifications of the Land Use Plan. With an average VMT per service population of 12.0, the City's target VMT per service population threshold is 10.2.



For projects that have not been pre-screened and that do not achieve the limits outlined below shall be subject to all feasible mitigation measures necessary to reduce the VMT for, or induced by, the Project to the applicable limits. If the VMT for or induced by the Project cannot be reduced consistent with the performance metrics outlined below, the City may consider approval of the Project, subject to a finding of overriding consideration and mitigation of transportation impacts to the extent feasible, provided some other form of community benefit is achieved by the Project.

- **New Development** – Any new land use plans, amendments to such plans, and other discretionary development proposals (referred to as “development projects”) are required to demonstrate a 15 percent reduction in VMT from existing (2015) conditions. To demonstrate this reduction, conformance with following land use and cumulative VMT limits is required:
  1. **Land Use** – Development projects shall demonstrate that the VMT produced by the project at buildout is equal to or less than the VMT limit of the project’s General Plan land use

designation, as shown in the following table, which incorporates the 15 percent reduction from 2015 conditions:

**Vehicle Miles Traveled Limits by Land Use Designation**

<b>Land Use Designation</b>	<b>VMT Limit (daily per service population)</b>
<b>Commercial and Employment Land Use Designations</b>	
Community Commercial	41.6
Regional Commercial	44.3
Employment Center	47.1
Light Industrial/Flex	24.5
Light Industrial	24.5
Heavy Industrial	39.5
<b>Mixed Use Land Use Designations</b>	
Village Center Mixed Use	41.6
Residential Mixed Use	21.2
<b>Public/Quasi Public and Open Space Land Use Designations</b>	
Parks and Open Space <sup>1</sup>	0.0
Resource Management and Conservation <sup>1</sup>	0.0
Public Services	53.1
<b>Residential Land Use Designations</b>	
Rural Residential	34.7
Estate Residential	49.2
Low Density Residential	21.2
Medium Density Residential	20.9
High Density Residential	20.6
<b>Other Land Use Designations</b>	
Agriculture	34.7

*Notes:*

1. *These land use designations are not anticipated to produce substantial VMT, as they have no residents and few to no employees. These land use designations therefore have no limit and are exempt from analysis.*

2. Cumulative for Development Projects within the Existing City – Development projects located within the existing (2017) City limits shall demonstrate that cumulative VMT within the City including the project would be equal to or less than the established Citywide limit of 6,367,833 VMT (total daily VMT).
3. Cumulative for Development Projects within Growth Areas – Development projects located in Study Areas shall demonstrate that cumulative VMT within the applicable Study Area would be equal to or less than the established limit shown in the following table.

**Study Area Total Vehicle Miles Traveled Limits**

Study Area	VMT Limit (total VMT at buildout)
North Study Area	37,622
East Study Area	420,612
South Study Area	1,311,107
West Study Area	705,243

The Project is located within the City limits. The Project and remainder of the City will meet the buildout VMT Limit 6,367,833.

**Analysis Results**

The Project VMT analysis under cumulative conditions, relative to the threshold of significance presented above, is discussed below. The VMT analysis includes all the roadway improvements included as part of the General Plan VMT analysis.

VMT Screening

The VMT Screening Map identifies areas in the City that are exempt from VMT analysis. These include sites that have been pre-screened through Citywide VMT analysis. Pre-screened areas have been determined to result in 15 percent or below the average service population VMT established for the land use designations for the study area if built to the specifications of the Land Use Plan.

The Project would be implemented on sites throughout the City that fall within and outside of the pre-screened areas. In addition, the Project would require a general plan amendment to change some land use designations. Therefore, the Project is not eligible for pre-screening.

**Impact**

General Plan Impact 5.13.2 identified that implementation of the General Plan would result in increased VMT that would be significant and unavoidable. Project-generated VMT per service population associated with housing sites under the Housing Element Update would not result in an exceedance of the City's VMT per service population threshold for the High Density Residential land use designation (i.e., 20.6 VMT). However, the addition of Project-generated total daily VMT within the City could result in an exceedance of the established Citywide limit of 6,367,833 VMT, depending on the amount and location of development sites selected by the Council. The Council could select sites that would result in the exceedance of the established Citywide limit that would require additional mitigation measures to reduce total daily VMT to a less than significant level. Therefore, implementation of the Project would result in a **significant and unavoidable** impact to VMT.

VMT Limits by Land Use Designation

As outlined above, the Project must demonstrate that the VMT produced by the Project at buildout is equal to or less than the VMT limit of the underlying land use designation. The Project will have a General Plan

land use designation of High Density Residential after the required general plan amendment outlined above. **Tables 7 through 10** summarize the VMT per service population for Scenarios 1 through 4, respectively, by potential development site and the average for each analysis scenario.

**Table 7: VMT Performance – Scenario 1**

Site	Zoning	Dwelling Units	Service Population	Daily VMT	VMT Per Service Population
E-1	RD-20	230	575	11,129	19.35
E-2	RD-25	102	255	4,270	16.75
E-3	RD-20	279	698	13,045	18.70
E-4	RD-25	137	343	6,182	18.05
E-5	SEPA-HDR (15.1-30)	189	473	9,556	20.22
E-6	SEPA-HDR (15.1-30)	181	453	9,348	20.66
E-7	SEPA-HDR (15.1-30)	149	373	7,938	21.31
E-8	SEPA-HDR (15.1-30)	166	415	8,844	21.31
E-9	SEPA-HDR (15.1-30)	137	343	7,299	21.31
E-10	SEPA-HDR (15.1-30)	151	378	7,963	21.09
E-11	SEPA-HDR (15.1-30)	195	488	9,965	20.44
E-12	SEPA-HDR (15.1-30)	176	440	9,760	22.18
E-13	RD-25	278	695	12,847	18.48
E-14	RD-25	92	230	4,001	17.40
E-15	RD-25	64	160	3,514	21.96
E-16	RD-25	61	153	2,819	18.48
E-17	RD-25	111	278	4,767	17.18
E-18	RD-25	189	473	7,912	16.75
C-1	RD-30	267	668	13,790	20.66
C-2	RD-25	60	150	2,740	18.27
C-3	RD-30	190	475	7,644	16.09
C-4	RD-30	184	460	9,803	21.31
C-5	RD-30	308	770	13,396	17.40
C-6	RD-30	200	500	9,025	18.05
C-7	RD-25	74	185	3,420	18.48
C-8	RD-25	49	123	2,291	18.70
C-9	RD-25	74	185	3,259	17.61
C-10	RD-30	174	435	8,325	19.14
C-11	RD-30	78	195	3,986	20.44
C-12	RD-30	146	365	7,461	20.44

**Table 7: VMT Performance – Scenario 1**

Site	Zoning	Dwelling Units	Service Population	Daily VMT	VMT Per Service Population
C-13	RD-30	95	238	3,925	16.53
C-14	RD-30	49	123	2,051	16.75
C-15	RD-25	97	243	4,904	20.22
C-16	RD-30	80	200	3,262	16.31
C-17	RD-30	125	313	6,864	21.96
C-18	RD-25	258	645	12,063	18.70
C-19	RD-25	42	105	1,804	17.18
C-20	RD-25	32	80	1,427	17.83
C-21	RD-25	35	88	1,579	18.05
C-22	RD-25	43	108	2,291	21.31
C-23	RD-25	42	105	2,306	21.96
C-24	RD-25	105	263	5,195	19.79
C-25	RD-25	109	273	5,985	21.96
<b>Total</b>		<b>5,803</b>	<b>14,508</b>	<b>279,955</b>	<b>19.30</b>

Source: Fehr &amp; Peers, 2020.

**Table 8: VMT Performance – Scenario 2**

Site	Zoning	Dwelling Units	Service Population	Daily VMT	VMT Per Service Population
E-1	RD-20	230	575	11,137	19.37
E-2	RD-25	102	255	4,273	16.76
E-3	RD-30	387	968	18,108	18.72
E-4	RD-30	163	408	7,361	18.06
E-5	SEPA-HDR (15.1-30)	225	563	11,384	20.24
E-6	SEPA-HDR (15.1-30)	215	538	11,112	20.67
E-7	SEPA-HDR (15.1-30)	149	373	7,944	21.33
E-8	SEPA-HDR (15.1-30)	166	415	8,851	21.33
E-9	SEPA-HDR (15.1-30)	137	343	7,304	21.33
E-10	SEPA-HDR (15.1-30)	151	378	7,969	21.11
E-11	SEPA-HDR (15.1-30)	195	488	9,973	20.46
E-12	SEPA-HDR (15.1-30)	210	525	11,654	22.20

**Table 8: VMT Performance – Scenario 2**

Site	Zoning	Dwelling Units	Service Population	Daily VMT	VMT Per Service Population
E-13	RD-25	278	695	12,856	18.50
E-14	RD-30	110	275	4,788	17.41
E-15	RD-30	77	193	4,231	21.98
E-16	RD-30	73	183	3,376	18.50
E-17	RD-30	133	333	5,717	17.19
E-18	RD-30	225	563	9,426	16.76
C-1	RD-30	267	668	13,800	20.67
C-2	RD-25	60	150	2,742	18.28
C-3	RD-30	190	475	7,650	16.10
C-4	RD-30	184	460	9,810	21.33
C-5	RD-30	308	770	13,406	17.41
C-6	RD-30	200	500	9,031	18.06
C-7	RD-25	74	185	3,422	18.50
C-8	RD-25	49	123	2,293	18.72
C-9	RD-25	74	185	3,261	17.63
C-10	RD-30	174	435	8,331	19.15
C-11	RD-30	78	195	3,989	20.46
C-12	RD-30	146	365	7,467	20.46
C-13	RD-30	95	238	3,928	16.54
C-14	RD-30	49	123	2,053	16.76
C-15	RD-25	97	243	4,908	20.24
C-16	RD-30	80	200	3,264	16.32
C-17	RD-30	125	313	6,869	21.98
C-18	RD-25	258	645	12,072	18.72
C-19	RD-25	42	105	1,805	17.19
C-20	RD-25	32	80	1,428	17.85
C-21	RD-25	35	88	1,581	18.06
C-22	RD-25	43	108	2,293	21.33
C-23	RD-25	42	105	2,308	21.98
C-24	RD-25	105	263	5,198	19.80
C-25	RD-25	109	273	5,989	21.98
<b>Total</b>		<b>6,142</b>	<b>15,355</b>	<b>296,361</b>	<b>19.30</b>

Source: Fehr & Peers, 2020.



**Table 9: VMT Performance – Scenario 3**

Site	Zoning	Dwelling Units	Service Population	Daily VMT	VMT Per Service Population
E-1	RD-20	230	575	11,135	19.37
E-2	RD-25	102	255	4,272	16.75
E-3	RD-20	279	698	13,052	18.71
E-4	RD-25	137	343	6,185	18.06
E-5	SEPA-HDR (15.1-30)	189	473	9,561	20.24
E-6	SEPA-HDR (15.1-30)	181	453	9,353	20.67
E-7	SEPA-HDR (15.1-30)	149	373	7,943	21.32
E-8	SEPA-HDR (15.1-30)	166	415	8,849	21.32
E-9	SEPA-HDR (15.1-30)	137	343	7,303	21.32
E-10	SEPA-HDR (15.1-30)	151	378	7,967	21.11
E-11	SEPA-HDR (15.1-30)	195	488	9,971	20.45
E-12	SEPA-HDR (15.1-30)	176	440	9,765	22.19
E-13	RD-25	278	695	12,854	18.49
E-14	RD-25	92	230	4,004	17.41
E-15	RD-25	64	160	3,516	21.98
E-16	RD-25	61	153	2,820	18.49
E-17	RD-25	111	278	4,770	17.19
E-18	RD-25	189	473	7,916	16.75
C-1	RD-30	267	668	13,797	20.67
C-2	SC	-	-	-	-
C-3	RD-15	-	-	-	-
C-4	RD-30	184	460	9,809	21.32
C-5	SC	-	-	-	-
C-6	GC	-	-	-	-
C-7	RD-25	74	185	3,422	18.49
C-8	RD-25	49	123	2,292	18.71
C-9	RD-25	74	185	3,261	17.62
C-10	RD-30	174	435	8,329	19.15
C-11	RD-30	78	195	3,988	20.45
C-12	RD-30	146	365	7,465	20.45
C-13	RD-20	-	-	-	-
C-14	BP	-	-	-	-
C-15	GC	-	-	-	-
C-16	RD-5	-	-	-	-

**Table 9: VMT Performance – Scenario 3**

Site	Zoning	Dwelling Units	Service Population	Daily VMT	VMT Per Service Population
C-17	RD-30	125	313	6,867	21.98
C-18	RD-6	-	-	-	-
C-19	RD-25	42	105	1,805	17.19
C-20	RD-25	32	80	1,427	17.84
C-21	RD-25	35	88	1,580	18.06
C-22	RD-25	43	108	2,292	21.32
C-23	RD-25	42	105	2,307	21.98
C-24	RD-5	-	-	-	-
C-25	RD-25	109	273	5,988	21.98
<b>Total</b>		<b>4,361</b>	<b>10,903</b>	<b>215,869</b>	<b>19.80</b>

Source: Fehr &amp; Peers, 2020.

**Table 10: VMT Performance – Scenario 4**

Site	Zoning	Dwelling Units	Service Population	Daily VMT	VMT Per Service Population
E-1	RD-20	230	575	11,119	19.3
E-2	RD-25	102	255	4,266	16.7
E-3	RD-30	387	968	18,078	18.7
E-4	RD-25	137	343	6,176	18.0
E-5	SEPA-HDR (15.1-30)	189	473	9,547	20.2
E-6	SEPA-HDR (15.1-30)	181	453	9,340	20.6
E-7	SEPA-HDR (15.1-30)	149	373	7,931	21.3
E-8	SEPA-HDR (15.1-30)	166	415	8,836	21.3
E-9	SEPA-HDR (15.1-30)	137	343	7,292	21.3
E-10	SEPA-HDR (15.1-30)	151	378	7,956	21.1
E-11	SEPA-HDR (15.1-30)	195	488	9,956	20.4
E-12	SEPA-HDR (15.1-30)	176	440	9,751	22.2
E-13	RD-25	278	695	12,835	18.5
E-14	RD-30	110	275	4,780	17.4
E-15	RD-30	77	193	4,224	21.9
E-16	RD-25	61	153	2,816	18.5

**Table 10: VMT Performance – Scenario 4**

Site	Zoning	Dwelling Units	Service Population	Daily VMT	VMT Per Service Population
E-17	RD-30	133	333	5,707	17.2
E-18	RD-25	189	473	7,905	16.7
C-1	RD-30	267	668	13,777	20.6
C-2	RD-25	60	150	2,738	18.3
C-3	RD-30	190	475	7,637	16.1
C-4	RD-30	184	460	9,794	21.3
C-5	SC	-	-	-	-
C-6	GC	-	-	-	-
C-7	RD-25	74	185	3,417	18.5
C-8	RD-25	49	123	2,289	18.7
C-9	RD-25	74	185	3,256	17.6
C-10	RD-30	174	435	8,317	19.1
C-11	LC	-	-	-	-
C-12	RD-30	146	365	7,454	20.4
C-13	RD-20	-	-	-	-
C-14	BP	-	-	-	-
C-15	GC	-	-	-	-
C-16	RD-5	-	-	-	-
C-17	RD-30	125	313	6,857	21.9
C-18	RD-6	-	-	-	-
C-19	RD-25	42	105	1,802	17.2
C-20	AR-2	-	-	-	-
C-21	RD-15	-	-	-	-
C-22	RD-4	-	-	-	-
C-23	RD-25	42	105	2,304	21.9
C-24	RD-25	105	263	5,190	19.8
C-25	RD-25	109	273	5,980	21.9
<b>Total</b>		<b>4,689</b>	<b>11,723</b>	<b>229,326</b>	<b>19.56</b>

Source: Fehr &amp; Peers, 2020.

**Table 11: VMT by Land Use Designation Limits – Project Buildout Conditions by Analysis Scenario**

Land Use Designation	Scenario	VMT Per Service Population		Limit Exceeded?
		Scenario Buildout	Limit	
High Density Residential	1	19.3	20.6	No
	2	19.3		No
	3	19.8		No
	4	19.6		No

Source: Fehr & Peers, 2020.

**Table 11** compares the Project’s VMT per service population (i.e., residents) to the City’s VMT limit for High Density Residential land use (which incorporates a 15% reduction in total VMT from the 2015 baseline). The average VMT per service population for all potential development sites, for all four analysis scenarios, will perform better than the City’s VMT limit for the High Density Residential land use designation. However, as shown in **Tables 7 through 10**, some of the potential sites that make up the four development scenarios would perform worse than the City’s VMT per service population limit.

Citywide VMT Limits

As outlined above, land use development projects located with the existing (2019) City limits shall demonstrate that cumulative VMT within the City, including the Project, would be equal to or less than the City’s established total VMT limit. This VMT limit incorporates a 15% reduction in total VMT from the 2015 baseline. **Table 12** compares the citywide total VMT limit to the City’s total VMT limit with buildout of the four analysis scenarios. As shown in **Table 12**, the addition of the Project would increase cumulative VMT and would exceed the established citywide limit with most of the analysis scenarios except Scenario 3. Scenario 3 accommodates the RHNA allocation of Low and Very Low-Income units, but with the smallest buffer (only 2%).

**Table 12: Citywide VMT Limit – Project Buildout Conditions by Analysis Scenario**

Analysis Scenario	Total VMT		Limit Exceeded?
	Scenario Buildout	Limit	
1	6,430,455	6,367,833	Yes
2	6,446,861		Yes
3	6,366,369		No
4	6,379,826		Yes

Source: Fehr & Peers, 2020.

### Citywide VMT Limits

As detailed above, Project-generated VMT per service population would not result in an exceedance of the VMT per service population threshold for the High Density Residential land use designation (i.e., 20.6 VMT). However, the increase of total daily VMT within the City resulting from implementation of the Project as a whole could result in an exceedance of the established Citywide limit of 6,367,833 VMT, depending on the sites selected by the Council. Therefore, implementation of the Project may result in substantially more severe VMT impacts than identified in the General Plan EIR.

### **Mitigation**

**Table 13** summarizes VMT reduction strategies to achieve daily values below the established limits, which are documented in the City of Elk Grove Transportation Analysis Guidelines<sup>1</sup>. The VMT reduction strategies are grouped into the following five categories:

- Category A – Land Use and Location
- Category B – Site Enhancement
- Category C – Transit System Improvements
- Category D – Commute Trip Reduction
- Category E – In-Lieu Fee

The range of potential VMT reduction is identified for each category, along with the cross-category maximum that is applicable when multiple strategies are applied in combination. Since the final list of sites is not known at this time, the application of Category E (In-Lieu Fee) is not feasible because a fee cannot be calculated.

Implementation of one of the following options would reduce total average daily VMT within the City:

- Option A: - Implement Category A strategies (see **Table 13**). The City Council shall develop a modified scenario that provides the RHNA allocation to Low and Very Low-Income categories of 4,265 dwelling units and achieves an average daily VMT within the City that is less than the Citywide limit of 6,367,833 VMT.

OR

- Option B: - Implement Category B through D strategies (see **Table 13**). Prior to design review, the project applicant shall prepare and submit a VMT Reduction Strategy Technical Memorandum to the satisfaction of the Public Works Director (i.e., or their designee) documenting Category B through D strategies to reduce the project's proportional share of average daily VMT within the City. The proportional share of VMT shall be calculated based on the final list of project sites selected by the City Council and be directly proportional to the relative VMT efficiency (i.e.,

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<sup>1</sup> *Transportation Analysis Guidelines*, City of Elk Grove, Adopted February, and Updated December 2019.

measured by VMT per service population) of the proposed project site and the average VMT efficiency of all selected sites.

**Table 13: VMT Reduction Strategies**

Strategy Category		Description	Range of Potential VMT Reduction <sup>2</sup>	
			Category	Cross-Category
A	Land Use/ Location	Land use-related components such as project density, location, and efficiency related to other housing and jobs; and diversity of uses within the project. Also includes access and proximity to destinations, transit stations, and active transportation infrastructure.	Up to 21.3%	15% Maximum
B	Site Enhancement	Establishing or connecting to a pedestrian/bike network; traffic calming within and in proximity to the project; car sharing programs; shuttle programs.	Up to 5.7%	
C	Transit System Improvements <sup>1</sup>	Improvements to the transit system including reach expansion, service frequency, types of transit, access to stations, station safety and quality, parking (park-and-ride) and bike access (to transit itself and parking), last-mile connections.	Up to 10.5%	
D	Commute Trip Reduction <sup>1</sup>	<u>For Residential Sites:</u> transit fare subsidies, education/training of alternatives, rideshare programs, shuttle programs, bike share programs. <u>For Employment Sites:</u> transit fare subsidies, parking cash-outs, paid parking, alternative work schedules/telecommute, education/training of alternatives, rideshare programs, shuttle programs, bike share programs, end of trip facilities.	Up to 30.0%	
E	In-Lieu fee	A fee is levied that is used to provide non-vehicular transportation services that connect project residents to areas of employment or vice versa. This service may be provided by the project applicant in corporation with major employers.	Up to 10.5%	

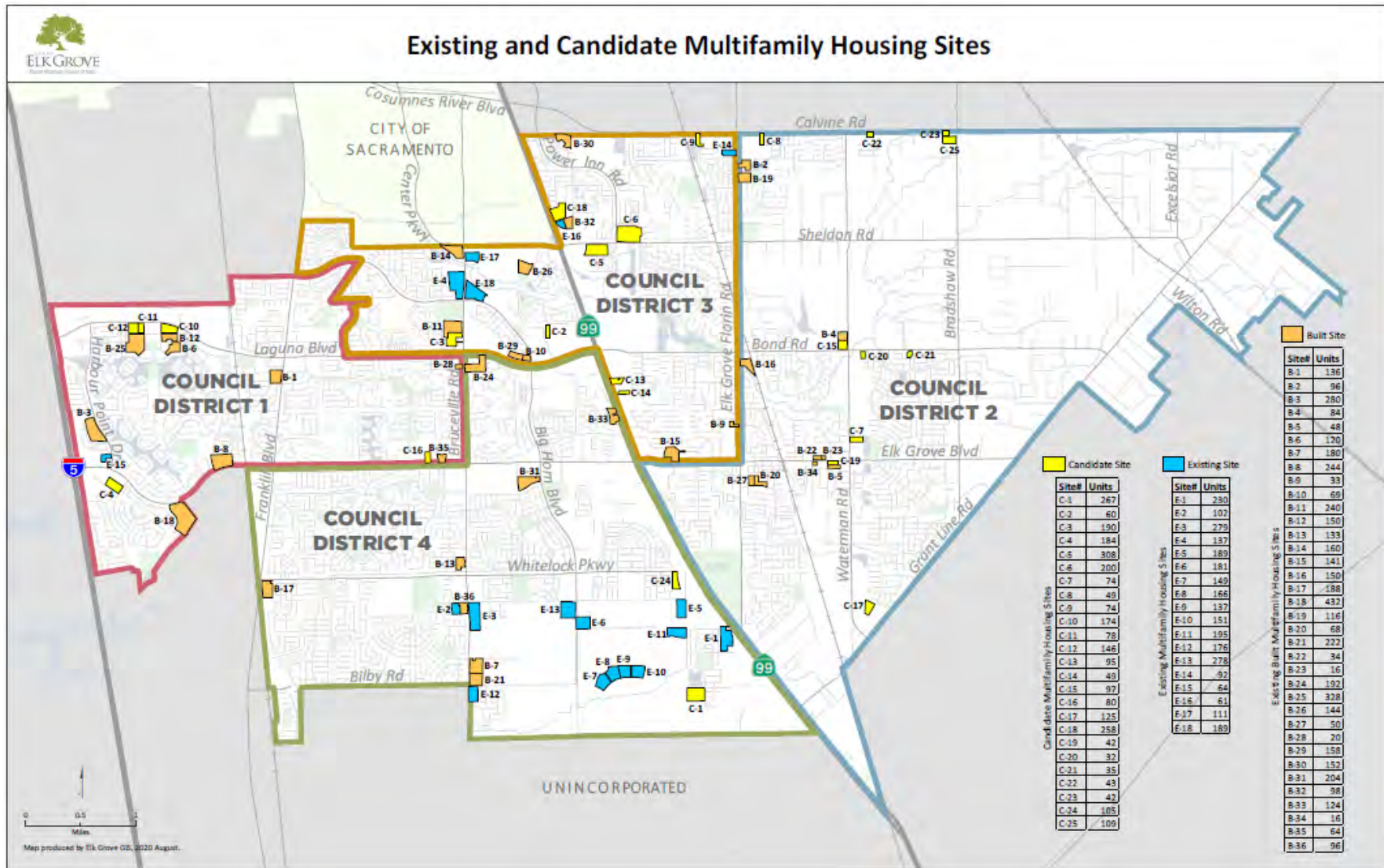
<sup>1</sup>Can be achieved through TDM program measures.

<sup>2</sup>

Source: Fehr & Peers, 2020.

Implementation of this mitigation would reduce total daily VMT. However, because the Council has not selected the final list of development sites and because an individual site may not be able to achieve its required reduction in total daily VMT within the City, the impact would remain **significant and unavoidable**.

Figure 1 – Existing and Candidate Low and Very Low-Income Housing Sites





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# **Attachment B: VMT Calculation Methodology**



Based on SB 743 and the modifications to the CEQA guidelines, the following origin-destination (OD) tour-based VMT was applied to develop the VMT thresholds for the City of Elk Grove General Plan Update.

Method		Analysis Application	Approach	Formula	Trip Types Included	Full Accounting?		Source
						Trip Length	Trips	
OD	Tour-Based	Transportation	Estimates/forecasts VMT based on all trips that have one end in a project location	Trips x Trip Length	II IX XI	Fully accounts for entire trip length	Includes trips without an origin or destination at the home	DAYSIM <sup>1</sup> travel diary

Notes:

<sup>1</sup>DAYSIM activity-based travel demand model

II – Internal to Internal Trips

IX – Internal to External Trips

XI – External to Internal Trips

Internal trips are trips that have an origin or destination SACSIM model (the Sacramento Regional Travel Simulation Model) area.

External trips have an origin or destination external to the SACSIM model area.

The OD (Tour-Based) methodology outlined above includes the following input files and calculation steps:

### Input Files

II VMT calculations:

- Trip Table (sout.dbf)
- Skim Tables (a3, md, p3, and ev)
- Script File – attach skims to trips.s

Internal-External (IX)/External-Internal (XI) VMT calculations:

- INTEGRATION\_11\_TRAVEL\_IXXI\_trip.sql
- ixxi\_taz.dbf
- parc\_(model year).dbf (parcel table for the specific model year)
- TAZ to RAD correspondence table
- Script File – 3\_ixxi\_cv\_taz\_res\_shr\_revise.s

### Calculation Steps

1. II VMT Calculations
  - a. Adjust auto trip distance in the output trip table from SACSIM model using skims
    - i. Run “attach skims to trips.s” script  
(script inputs: sout.dbf (the trip segment outputs from DAYSIM), skim tables; script



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output: sout\_2.dbf)

ii. Open Sout\_2.dbf

1. Calculate VMT by filtering for vehicle trips and multiplying DISTAU field (automobile trip segment distance) by mode (Mode 7 \*1, Mode 5 \*0.3, Mode 6 \*0.5)

b. Summarize VMT by parcel

- i. Select origins from trips that start in the study area and end in both the study area and outside the study area. Select destinations for trips that started outside the study area and ended in the study area. Remove any VMT internal to parcels and then summarize VMT by parcel.

2. IX/XI VMT Calculations

- a. Note – the previous process calculates VMT for trips starting and ending within the SACSIM model region. IX/XI VMT is calculated separately.

- i. Run "3\_ixxi\_cv\_taz\_res\_shr\_revise.s" script (script output: ixxi\_taz.dbf)

- ii. Calculate the total share of IX/XI VMT by parcel by summarizing the VMT shares by RAD and calculating ratio of VMT/population, VMT/employment and VMT/(population+employment) at the RAD level (adapting methodology outlined in INTEGRATION\_11\_TRAVEL\_IXXI\_trip.sql)

- iii. Apply RAD level ratios to parcel\_(model year).dbf

3. Total VMT is II VMT + IX/XI VMT divided by population + employment (i.e., service population) at the parcel level

4. Summarize service population by land use category using VMT by parcel and placetype field



**CERTIFICATION**  
**ELK GROVE CITY COUNCIL RESOLUTION NO. 2023-187**

STATE OF CALIFORNIA        )  
COUNTY OF SACRAMENTO    )       ss  
CITY OF ELK GROVE         )

*I, Jason Lindgren, City Clerk of the City of Elk Grove, California, do hereby certify that the foregoing resolution was duly introduced, approved, and adopted by the City Council of the City of Elk Grove at a regular meeting of said Council held on August 9, 2023 by the following vote:*

**AYES:**        **COUNCILMEMBERS:**       *Singh-Allen, Spease, Brewer, Robles, Suen*

**NOES:**       **COUNCILMEMBERS:**       *None*

**ABSTAIN:**   **COUNCILMEMBERS:**       *None*

**ABSENT:**    **COUNCILMEMBERS:**       *None*

  
\_\_\_\_\_  
**Jason Lindgren, City Clerk**  
**City of Elk Grove, California**