



SIERRA MADRE GENERAL PLAN UPDATE DRAFT SEIR APPENDICES

**August 2021 | Draft Environmental Impact Report
State Clearing House No. 2021040369**



Appendix A
NOP and NOP Comment Letters



NOTICE OF PREPARATION FOR AN ENVIRONMENTAL IMPACT REPORT

PROPOSED SIERRA MADRE GENERAL PLAN HOUSING, LAND USE, SAFETY, and CIRCULATION ELEMENT UPDATE

To: Agencies, Organizations, and Interested Parties

Subject: Notice of Preparation of a Draft Environmental Impact Report in Compliance with the California Environmental Quality Act

Date: April 15, 2021

From: City of Sierra Madre; Planning & Community Preservation Department
232 West Sierra Madre Boulevard
Sierra Madre, CA 91024

Contact: Vincent Gonzalez
Director of Planning & Community Preservation
(626) 355-7138

The City of Sierra Madre is the Lead Agency for this project and intends to prepare an Environmental Impact Report (EIR) to comply with the requirements of the California Environmental Quality Act (CEQA). Pursuant to the CEQA Guidelines Section 15082, after a Lead Agency decides an EIR is required, a Notice of Preparation (NOP) describing the project and its potential environmental effects shall be prepared.

Agencies: The City requests your agency's views on the scope and content of the environmental information relevant to your agency's statutory responsibilities in connection with the proposed project, in accordance with California Code of Regulations, Title 14, Section 15082(a).

Organizations and Interested Parties: The City requests your comments and concerns regarding the environmental issues associated with adoption of the 2021-2029 Housing Element and associated minor updates to the Land Use, Safety, and Circulation Elements of the City of Sierra Madre General Plan.

Project Title: City of Sierra Madre 2021-2029 Housing, Land Use, Safety, and Circulation Element General Plan Update EIR.

Project Location: City of Sierra Madre (citywide) in the County of Los Angeles (see Figure 1 attached).

Project Description: The project consists of a comprehensive update to the Housing Element and related updates to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan. The project also includes updates to the City's Zoning Code, Zoning Map, and updates to the Safety Element and Circulation Element in compliance with new State rules. The City does not include designated environmental justice communities. Therefore, policies addressing environmental justice issues will be included in the Land Use, Safety, and Circulation Element updates and a standalone Environmental Justice Element is not required.

Housing Element Update

The City of Sierra Madre, along with all cities and counties in California, is mandated by California State law to prepare a Housing Element update for State certification every eight years. The Housing Element is a state-mandated part of the City's General Plan and includes goals, policies, programs and objectives to further the development, improvement and preservation of housing in Sierra Madre in a manner that is aligned with community desires, as well as regional growth objectives and State law. Local governments must adequately plan to meet the existing and projected housing needs of all economic segments of the community. Specifically, State Government Code Section 65583 requires the Housing Element to identify and analyze existing and projected housing needs, and establish goals, policies, and actions to address these housing needs, including adequate provision of affordable and special-needs housing (e.g., housing for seniors and persons with disabilities). State law requires local jurisdictions to identify available sites that have the appropriate land use and zoning to accommodate estimated housing growth projections.

On January 28, 2014, the City of Sierra Madre adopted the 2014–2021 Housing Element. The Element included the provision of sufficient land for the construction of the housing units that the City of Sierra Madre needed to accommodate the Regional Housing Needs Allocation (RHNA) by 2021. The 2014-2021 RHNA allocation equaled 55 new housing units.

The RHNA quantifies the need for housing in every region throughout the state and is determined by the California Department of Housing and Community Development (HCD). The RHNA is mandated by state law and is meant to inform the local planning process by addressing existing and future housing need resulting from estimated growth in population, employment, and households. The Southern California Association of Governments (SCAG) is responsible for allocating the RHNA to each city and county in its region, which includes Sierra Madre.

In August 2019, the HCD issued its final Regional Housing Need Determination to SCAG, stating that the minimum regional housing need for the SCAG region is 1.3 million new housing units. HCD then directed SCAG to develop a methodology to allocate all 1.34 million units throughout the region, based on statutory guidelines for housing needs and development.

SCAG developed a methodology and distributed a RHNA allocation to all the cities and counties in its region, including the City of Sierra Madre for the 2021-2029 Housing Element planning period. The City's total RHNA for the 2021-2029 planning period is 204 units, allocated to specific income groups as shown in Table 1.

Table 1: City of Sierra Madre Regional Housing Needs Allocation

	Housing Units Needed by Income Category (% of Los Angeles County Area Median Income)				Total RHNA
	Very Low (31-50%)	Low (51-80%)	Moderate (81-120%)	Above Moderate (120% or more)	
Housing units needed	79	39	35	51	204

One of the important steps in the Housing Element update process is to identify sites that can accommodate the housing units assigned to Sierra Madre per the above RHNA allocation table, at all income levels. Site selection is conducted based on an analysis of site-specific constraints, including zoning, access to utilities, location, development potential, density and whether or not the site is identified in a previous Housing Element. In order to count toward the RHNA allocation, sites must be in a zoning

category that meets a minimum residential density standard, have a minimum lot size, and are either vacant or underutilized. Underutilized sites are sites that have not been developed to the maximum capacity allowed by the zoning category and thus provide the potential for more residential homes on a site. When a local jurisdiction cannot demonstrate that there are enough vacant or underutilized sites to adequately meet their RHNA allocation, a 'rezoning program' must be put into place. A rezoning program ensures that there are enough sites with sufficient densities to address the housing need identified through the RHNA.

Sierra Madre does not currently have an adequate number of sites with zoning in place to meet the RHNA requirements for the income groups identified in Table 1. Through a yearlong process with input both from the community and City decision-making bodies, the City has identified 10 possible housing sites (3 existing and 7 new candidate sites) along with accessory dwelling units to be dispersed throughout the residential zones, to address Sierra Madre's RHNA obligation by income category. Table 2 provides information on the existing and proposed General Plan designations and zoning for the proposed housing sites. Figure 1 shows the proposed project site locations.

Land Use Element

The Land Use Element of the General Plan will be updated to reflect new housing sites identified in the Housing Element. This will include establishing two new multi-family residential land use categories (R-3-20 and R-3-30), creating an Affordable Housing Overlay on select congregational sites, along with minor changes to the Land Use table and map to accommodate residential land uses on the sites identified to meet the RHNA allocation.

Safety Element

The purpose of the Safety Element Update is to ensure consistency with the Housing Element Update and to comply with recent State legislation and guidelines (including Assembly Bill 162, Senate Bill 1241, Senate Bill 99, Assembly Bill 747, Senate Bill 1035 and Senate Bill 379). Technical amendments will be made to the Safety Element to achieve compliance with State, regional, and local policies and guidelines. The technical amendments will incorporate data and maps, address vulnerability to climate change; and incorporate policies and programs from the City's Hazard Mitigation Plan. The Safety Element amendments will be submitted to the California Geological Survey, California Office of Emergency Services, California State Board of Forestry and Fire Protection, and Federal Emergency Management Agency for review.

**Table 2: Proposed Project Sites
Existing and Proposed General Plan and Zoning Designations**

Map ID	Site Acreage	Existing General Plan	Proposed General Plan	Existing Zoning	Proposed Zoning	Net Dwelling Unit Capacity Potential
1	2.44	Residential High Density-13 du/acre (1.64 ac) Residential High Density-20 du/acre (0.8 ac)	Residential High Density-30 du/acre	R-2, R-3, R-3H	R-3-30	48
2	2.81	Residential High Density-13 du/acre	Residential High Density- 20 du/acre	R-3	R-3-20	27
3	0.92	Residential High Density-13 du/acre	Residential High Density-30 du/acre	R-3	R-3-30	10

Map ID	Site Acreage	Existing General Plan	Proposed General Plan	Existing Zoning	Proposed Zoning	Net Dwelling Unit Capacity Potential
4	0.34	Residential High Density-13 du/acre	Residential High Density-20 du/acre	R-3	R-3-20	5
A	0.73	I	Affordable Housing Overlay	I	AHO 32-35 du/ac	24
B	0.66	I	Affordable Housing Overlay	I	AHO 32-35 du/ac	21
C	0.73	RH	Affordable Housing Overlay	R-3, C	AHO 32-35 du/ac	23
D	0.83	I	Affordable Housing Overlay	I	AHO 32-35 du/ac	27
The Meadows	17	I	RL	I	R-1	42
Stonegate	32	H	RL	HM	HM	27

Source: City of Sierra Madre, City of Sierra Madre 2015 General Plan Map and 2017 Zoning Map

AHO = Affordable Housing Overlay

C = Commercial

HM = Hillside Management

H = Hillside

I = Institutional

RH = Residential Medium/High Density

RL = Residential Low Density

R-1 = One Family Residential

R-2 = Two Family Residential

R-3 = Multiple Family Residential

Circulation Element

Minor updates will be made to the Circulation Element to replace references to adopted level of service (LOS thresholds with vehicle miles traveled (VMT) as a metric to evaluate environmental impacts of proposed projects. Level of service is a measure to describe how well roadway intersections and other transportation facilities operate for drivers. Vehicle miles traveled evaluates the number of miles traveled by each vehicle. This shift in standard is mandated by the State as part of Senate Bill 375 in keeping with the State's goals to reduce greenhouse gas emissions, encourage infill development and improve public health through active transportation (e.g., bicycling and walking).

Requested Actions: The City take the following actions:

- Certification of the EIR prepared for the project;
- Adoption of the General Plan amendments to update the Housing Element;
- Adoption of General Plan Land Use Element policies and Map;
- Adoption of General Plan amendments to the Safety Element;
- Adoption of General Plan amendments to the Circulation Element; and
- Adoption of Zoning Code amendments.

Upon adoption, the 2021-2029 Housing Element will be submitted to the California Department of Housing and Community Development for final review and certification.

Probable Environmental Effects: The EIR will evaluate whether implementing the proposed project would potentially result in one or more significant environmental effects. The following issue areas will be addressed in the EIR:

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

Issues Scoped Out from Analysis in the EIR

The City anticipates that the project would have less than significant or no impacts on the following environmental issue areas. These areas will not be discussed in the EIR for the reasons discussed below.

Agriculture and Forestry Resources

No forestry resources or timberlands are located within the city, nor does the city (or surrounding communities) contain agricultural land in active production. Therefore, this issue will not be discussed in the EIR.


Mineral Resources

No significant mineral resources have been identified in the city, as stated in the City's General Plan. None of the candidate housing sites are used for mineral extraction, nor are any of the sites designated as an important mineral recovery site. Therefore, there would be no impact on mineral resources and this issue will not be discussed in the EIR.

Public Review Period: The City has made this Notice of Preparation (NOP) available for public review and comment pursuant to Californian Code of Regulations, Title 14, Section 15082(a). The comment period for the NOP begins April 15, 2021 and ends May 14, 2021.

Comment: This notice commences a thirty-day review period during which the City welcomes and will consider all written comments regarding potential environmental impacts of the project and issues to be addressed in the EIR. Comment should be submitted by Wednesday, May 14, 2021 by 3 PM. If you are commenting on behalf of an agency or organization, please indicate a contact person for your agency or organization. Please direct your comments to Vincent Gonzalez, Director of Planning and Community Preservation Department, City of Sierra Madre, 232 W. Sierra Madre Boulevard, Sierra Madre, CA 91024; (626) 355-4239; vgonzalez@cityofsierramadre.com.

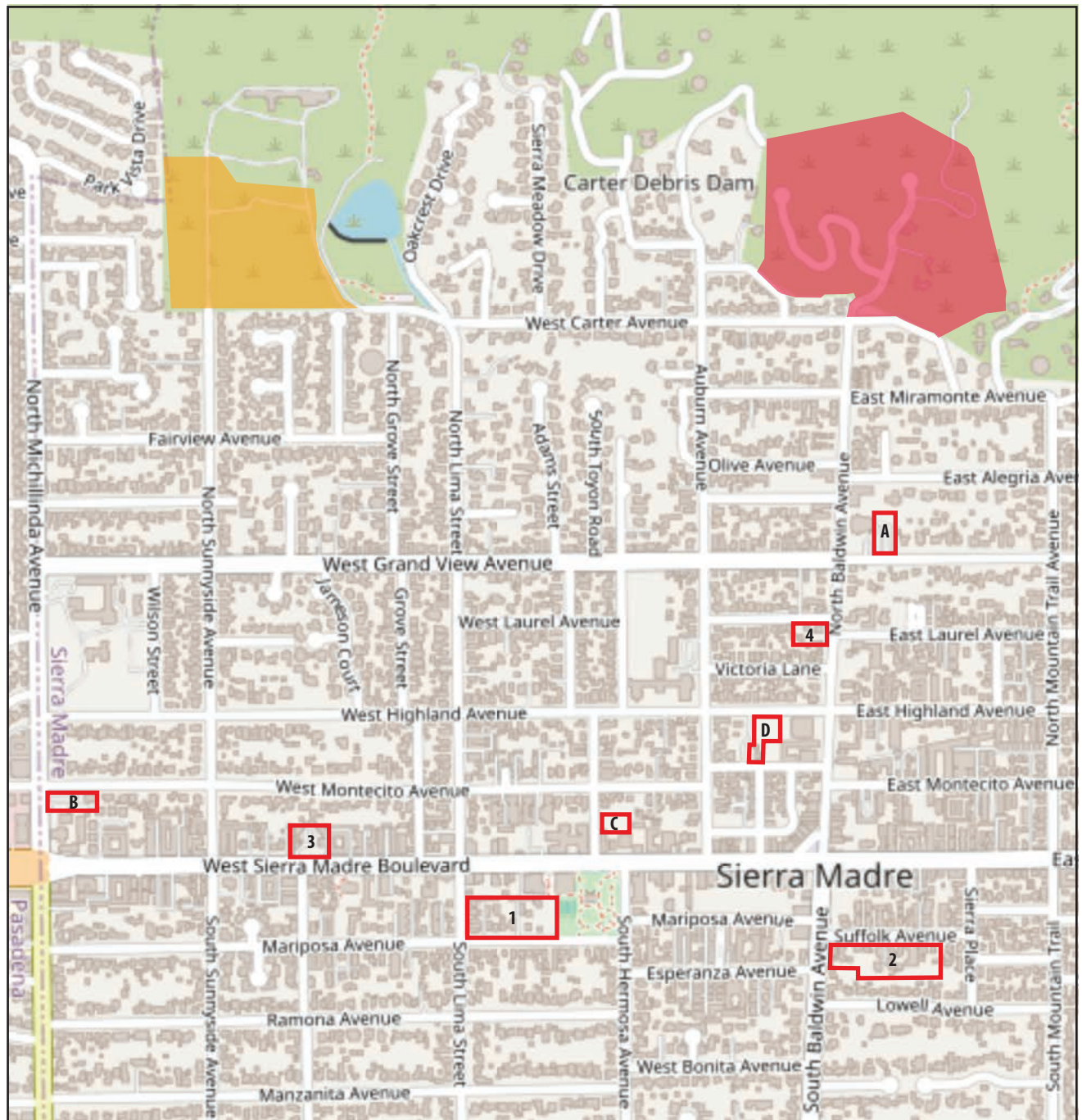
Date: April 15, 2021

Signature: 
Vincent Gonzalez

Title: Director of Planning and Community Preservation

Telephone: (626) 355-7138

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.



LEGEND

Site 1 261 Mariposa Ave
271 Mariposa Ave
293 Mariposa Ave
297 Mariposa Ave
307 Mariposa Ave
313 Mariposa Ave
30 Lima Street
46 Lima Street
54 Lima Street

Site 2 80 Baldwin Ave
18 Suffolk Ave
30 Suffolk Ave
40 Suffolk Ave
56 & 58 Suffolk Ave
62, 64, 66 Suffolk Ave
68 Suffolk Ave
90 Suffolk Ave
92 & 100 Suffolk Ave

Site 3 491 W Sierra Madre Blvd

Site 4 215 N Baldwin Ave

Site A St. Rita Catholic Church & School
318 N Baldwin Ave
34 E Alegria Ave
50 E Alegria Ave
50 E Alegria Ave

Site B United Methodist Church
695 W Sierra Madre Blvd

Site C Old North Church
191 W Sierra Madre Blvd
201 W Sierra Madre Blvd
191 W Sierra Madre Blvd
34 N Hermosa Ave
40 N Hermosa Ave

Site D Bethany Church & School
93 N Baldwin Ave
41 W Montecito Ave
49 W Montecito Ave
65 W Montecito Ave
71 W Montecito Ave
70 W Highland Ave
56 W Highland Ave
42 W Highland Ave

MEADOWS SUBDIVISION: This lot is the planned subdivision of the lower 20 acres of the existing Mater Dolorosa property, then planned to be subdivided into 42 Residential lots and 1 City Park.

STONEGATE SUBDIVISION: These parcels are the completed subdivision of the One Carter property to 27 Residential lots and 2 undevelopable lots.



Source: OpenStreetMaps, March 2021.

Figure 1
Project Vicinity Map

DEPARTMENT OF TRANSPORTATION

DISTRICT 7 – Office of Regional Planning
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 897-0475
FAX (213) 897-1337
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Making Conservation
a California Way of Life.

Governor's Office of Planning & Research

Apr 21 2021

STATE CLEARINGHOUSE

April 21, 2021

Clare Lin
City of Sierra Madre
232 West Sierra Madre Boulevard
Sierra Madre, CA 91024

RE: Sierra Madre General Plan Housing, Land
Use, Safety, and Circulation Element
Update – Notice of Preparation of an
Environmental Impact Report (NOP)
SCH # 2021040369
GTS # 07-LA-2021-03556

Dear Clare Lin:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced NOP. The project consists of a comprehensive update to the Housing Element as well as related updates to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan. The project also includes updates to the City's Zoning Code, Zoning Map, Safety Element, and Circulation Element. The City of Sierra Madre is the Lead Agency under the California Environmental Quality Act (CEQA).

The citywide project is located near the Interstate 210. From reviewing the NOP, Caltrans has the following comments:

- We support replacing references to level of service (LOS) thresholds in the Circulation Element with vehicle miles traveled (VMT) thresholds, because Senate Bill 743 (2013) mandates that VMT be used as the primary metric in identifying transportation impacts of all future development projects under CEQA, starting July 1, 2020.
- For information on determining transportation impacts in terms of VMT on the State Highway System, see the *Technical Advisory on Evaluating Transportation Impacts in CEQA* by the California Governor's Office of Planning and Research (OPR), dated December 2018: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.
- The City can also refer to Caltrans' updated *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (TISG), dated May 2020 and released on Caltrans' website in July 2020: <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf>. Caltrans' new TISG is largely based on the OPR 2018 Technical Advisory.
- The updated TISG states, "Additional future guidance will include the basis for requesting transportation impact analysis that is not based on VMT. This guidance will include a simplified safety analysis approach that reduces risks to all road users and that focuses on multi-modal conflict analysis as well as access management issues." Since releasing the TISG, Caltrans has released interim safety analysis guidance, dated December 2020 and found here, for the City's reference: <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-12-22-updated-interim-ldigr-safety-review-guidance-a11y.pdf>.



NATIVE AMERICAN HERITAGE COMMISSION

April 20, 2021

Governor's Office of Planning & Research

Clare Lin
City of Sierra Madre
232 West Sierra Madre Boulevard
Sierra Madre, CA 91024

Apr 23 2021

STATE CLEARINGHOUSE

Re: 2021040369, Sierra Madre General Plan Housing, Land Use, Safety, and Circulation Element Update Project, Los Angeles County

Dear Ms. Lin:

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

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

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

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

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain
Apache

COMMISSIONER
Julie Tumamait-Stenslie
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AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:

Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- a. A brief description of the project.
- b. The lead agency contact information.
- c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report:

A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1 (b)).

- a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- a. Alternatives to the project.
- b. Recommended mitigation measures.
- c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- a. Type of environmental review necessary.
- b. Significance of the tribal cultural resources.
- c. Significance of the project's impacts on tribal cultural resources.
- d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
- b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

- 7. Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
- a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).
- 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:** Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).
- 9. Required Consideration of Feasible Mitigation:** If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).
- 10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**
- a.** Avoidance and preservation of the resources in place, including, but not limited to:
 - i.** Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii.** Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - b.** Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i.** Protecting the cultural character and integrity of the resource.
 - ii.** Protecting the traditional use of the resource.
 - iii.** Protecting the confidentiality of the resource.
 - c.** Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - d.** Protecting the resource. (Pub. Resource Code §21084.3 (b)).
 - e.** Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
 - f.** Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).
- 11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:** An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a.** The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
 - b.** The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c.** The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

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

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
 - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
 - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
 - a. If part or all of the APE has been previously surveyed for cultural resources.
 - b. If any known cultural resources have already been recorded on or adjacent to the APE.
 - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
 - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.

- b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.
- 3.** Contact the NAHC for:
- a.** A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
 - b.** A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
- 4.** Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
- a.** Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, § 15064.5(f) (CEQA Guidelines § 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b.** Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c.** Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code § 7050.5, Public Resources Code § 5097.98, and Cal. Code Regs., tit. 14, § 15064.5, subdivisions (d) and (e) (CEQA Guidelines § 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address:
Andrew.Green@nahc.ca.gov.

Sincerely,



Andrew Green
Cultural Resources Analyst

cc: State Clearinghouse



State of California – Natural Resources Agency
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 South Coast Region
 3883 Ruffin Road
 San Diego, CA 92123
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GAVIN NEWSOM, Governor
 CHARLTON H. BONHAM, Director



May 10, 2021

Governor's Office of Planning & Research

May 11 2021

Clare Lin
 City of Sierra Madre
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 Sierra Madre, CA 91024
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STATE CLEARINGHOUSE

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Proposed Sierra Madre General Plan Housing, Land Use, Safety, and Circulation Element Update, SCH #2021040369, City of Sierra Madre, Los Angeles County

Dear Ms. Lin:

The California Department of Fish and Wildlife (CDFW) has reviewed the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) from the City of Sierra Madre (City; Lead Agency) for the Proposed Sierra Madre General Plan Housing, Land Use, Safety, and Circulation Element Update (Project). Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW's Role

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State [Fish & G. Code, §§ 711.7, subdivision (a) & 1802; Pub. Resources Code, § 21070; California Environmental Quality Act (CEQA) Guidelines, § 15386, subdivision (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect State fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 *et seq.*). Likewise, to the extent implementation of the Project as proposed may result in "take", as defined by State law, of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 *et seq.*), or CESA-listed rare plant pursuant to the Native Plant Protection Act (NPPA; Fish & G. Code, § 1900 *et seq.*), CDFW recommends the Project proponent obtain appropriate authorization under the Fish and Game Code.

Conserving California's Wildlife Since 1870

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Project Description and Summary

Objective: The Project consists of a comprehensive update to the Housing Element and related updates to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan. The Project also includes updates to the City's Zoning Code, Zoning Map, and updates to the Safety Element and Circulation Element in compliance with new State rules. Specifically, State Government Code Section 65583 requires the Housing Element to identify and analyze existing and projected housing needs. It would then establish goals, policies, and actions to address these housing needs, including adequate provision of affordable and special-needs housing.

Location: The Project would apply to the entire geographic area located within the boundaries of the City of Sierra Madre in Los Angeles County.

Comments and Recommendations

CDFW offers the comments and recommendations below to assist the City in adequately identifying, avoiding, and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife (biological) resources.

Specific Comments

- 1) Adequate Sites Inventory. CDFW recommends the City prepare a map of the following areas if present within or adjacent to the City boundary. In addition, the City should consider the Project's potential impacts on the following areas if present within or adjacent to the Project boundary:
 - a) Conservation easements or mitigation lands;
 - b) U.S. Fish and Wildlife Service [Threatened & Endangered Species Active Critical Habitat](#) (USFWS 2020);
 - c) County of Los Angeles Significant Ecological Areas (SEAs);
 - d) Wildlife corridors, such as those found along the foothills of the San Gabriel Mountains.
 - e) Sensitive Natural Communities [see General Comment #3 (Biological Baseline Assessment)];
 - f) Aquatic and riparian resources including (but not limited to) rivers, channels, streams, wetlands, and vernal pools, and associated natural plant communities; and
 - g) Urban forests, particularly areas with dense and large trees [see Specific Comment #4 (Loss of Bird and Raptor Nesting Habitat)].

CDFW recommends the City avoid sites that may have a direct or indirect impact on conservation easements or lands set aside as mitigation. CDFW recommends the DEIR include measures where future housing development facilitated by the Project mitigates (avoids if feasible) for impacts on biological resources occurring within SEAs and critical habitat, as well as mitigates for impacts on wildlife corridors, sensitive natural communities, aquatic and riparian resources, and urban forests.

- 2) Impacts on Wildlife Corridors and Wildlife. CDFW is concerned that the Project would impact wildlife corridors, such as along the foothills of the San Gabriel Mountains. Additionally, development occurring adjacent to natural habitat areas such as wildlife corridors could have direct or indirect impacts on wildlife. Impacts could result from increased human

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presence, traffic, noise, and artificial lighting. Increased human-wildlife interactions could lead to injury or mortality of wildlife. For instance, as human population and communities expand into wildland areas, there has been a commensurate increase in direct and indirect interaction between mountain lions and people (CDFW 2013). As a result, the need to relocate or humanely euthanize mountain lions (depredation kills) may increase for public safety.

CDFW recommends the DEIR include measures where future housing development facilitated by the Project thoroughly analyzes whether the project may impact wildlife corridors. Impacts include habitat loss and fragmentation, narrowing of a wildlife corridor, and introduction of barriers to wildlife movement. Additionally, CDFW recommends future development projects thoroughly analyze whether the project may have direct and indirect impacts wildlife resulting from increased human presence, traffic, noise, and artificial lighting.

- 3) Nesting Birds. CDFW recommends the DEIR include measures where future housing development facilitated by the Project avoids potential impacts to nesting birds. Project activities occurring during the bird and raptor breeding and nesting season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment.
 - a) Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (Code of Federal Regulations, Title 50, § 10.13). Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). It is unlawful to take, possess, or needlessly destroy the nest or eggs of any raptor.
 - b) CDFW recommends that measures be taken to fully avoid impacts to nesting birds and raptors. Ground-disturbing activities (e.g., mobilizing, staging, drilling, and excavating) and vegetation removal should occur outside of the avian breeding season which generally runs from February 15 through August 31 (as early as January 1 for some raptors) to avoid take of birds, raptors, or their eggs.
 - c) If impacts to nesting birds and raptors cannot be avoided, CDFW recommends the DEIR include measures where future housing development facilitated by the Project mitigates for impacts. CDFW recommends surveys by a qualified biologist with experience conducting breeding bird and raptor surveys. Surveys are needed to detect protected native birds and raptors occurring in suitable nesting habitat that may be disturbed and any other such habitat within 300 feet of the project disturbance area, to the extent allowable and accessible. For raptors, this radius should be expanded to 500 feet and 0.5 mile for special status species, if feasible. Project personnel, including all contractors working on site, should be instructed on the sensitivity of the area. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.
- 4) Loss of Bird and Raptor Nesting Habitat. The biggest threat to birds is habitat loss and conversion of natural vegetation into another land use such as development (e.g., commercial, residential, industrial). In the greater Los Angeles region, urban forests and street trees, both native and some non-native species, provide habitat for a high diversity of

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birds (Wood and Esaian 2020). Some species of raptors have adapted to and exploited urban areas for breeding and nesting (Cooper et al. 2020). For example, raptors (*Accipitridae*, *Falconidae*) such as red-tailed hawks (*Buteo jamaicensis*) and Cooper's hawks (*Accipiter cooperii*) can nest successfully in urban sites. Red-tailed hawks commonly nest in ornamental vegetation such as eucalyptus (Cooper et al. 2020). According to iNaturalist, there are multiple observations of red-tailed hawks and Cooper's hawks within the City.

- a) CDFW recommends the DEIR provide measures where future housing development facilitated by the Project avoids removal of any native trees, large and dense-canopied native and non-native trees, and trees occurring in high density (Wood and Esaian 2020). CDFW also recommends avoiding impacts to trees protected by the City's Heritage Tree Program and Tree Ordinance. CDFW also recommends avoiding impacts to understory vegetation (e.g., ground cover, subshrubs, shrubs, and trees).
 - b) If impacts to trees cannot be avoided, trees should be replaced to compensate for the temporal or permanent loss habitat within a project site. Depending on the status of the bird or raptor species impacted, replacement habitat acres should increase with the occurrence of a California Species of Special Concern. Replacement habitat acres should further increase with the occurrence of a CESA-listed threatened or endangered species.
 - c) CDFW recommends planting native tree species preferred by birds. This includes coast live oak (*Quercus agrifolia*) and California sycamore (*Platanus racemosa*) (Wood and Esaian 2020). CDFW recommends Audubon Society's [Plants for Birds](#) for more information on selecting native plants and trees beneficial to birds (Audubon Society 2020).
- 5) Bats. Numerous bat species are known to roost in trees and structures throughout Los Angeles County (Remington and Cooper 2014). In urbanized areas, bats use trees and man-made structures for daytime and nighttime roosts. Accordingly, CDFW recommends the DEIR provide measures where future housing development facilitated by the Project avoids potential impacts to bats.
- a) Bats are considered non-game mammals and are afforded protection by state law from take and/or harassment (Fish & G. Code, § 4150; Cal. Code of Regs., § 251.1). Project construction and activities, including (but not limited to) ground disturbance, vegetation removal, and any activities leading to increased noise levels may have direct and/or indirect impacts on bats and roosts.
 - b) CDFW recommends a project-level biological resources survey provide a thorough discussion and adequate disclosure of potential impacts to bats and roosts from project construction and activities including (but not limited to) ground-disturbing activities (e.g., mobilizing, staging, drilling, and excavating) and vegetation removal. If necessary, to reduce impacts to less than significant, a project-level environmental document should provide bat-specific avoidance and/or mitigation measures [CEQA Guidelines, § 15126.4(a)(1)].

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General Comments

- 1) Disclosure. An environmental document should provide an adequate, complete, and detailed disclosure about the effect which a proposed project is likely to have on the environment (Pub. Resources Code, § 20161; CEQA Guidelines, §15151). Adequate disclosure is necessary so CDFW may provide comments on the adequacy of proposed avoidance, minimization, or mitigation measures, as well as to assess the significance of the specific impact relative to the species (e.g., current range, distribution, population trends, and connectivity).
- 2) Mitigation Measures. Public agencies have a duty under CEQA to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of feasible alternatives or mitigation measures [CEQA Guidelines, §§ 15002(a)(3), 15021]. Pursuant to CEQA Guidelines section 15126.4, an environmental document shall describe feasible measures which could mitigate for impacts below a significant level under CEQA.
 - a) Level of Detail. Mitigation measures must be feasible, effective, implemented, and fully enforceable/imposed by the lead agency through permit conditions, agreements, or other legally binding instruments (Pub. Resources Code, § 21081.6(b); CEQA Guidelines, §§ 15126.4, 15041). A public agency shall provide the measures that are fully enforceable through permit conditions, agreements, or other measures (Pub. Resources Code, § 21081.6). CDFW recommends that the City prepare mitigation measures that are specific, detailed (i.e., responsible party, timing, specific actions, location), and clear in order for a measure to be fully enforceable and implemented successfully via a mitigation monitoring and/or reporting program (CEQA Guidelines, § 15097; Pub. Resources Code, § 21081.6). Adequate disclosure is necessary so CDFW may provide comments on the adequacy and feasibility of proposed mitigation measures.
 - b) Disclosure of Impacts. If a proposed mitigation measure would cause one or more significant effects, in addition to impacts caused by the Project as proposed, the environmental document should include a discussion of the effects of proposed mitigation measures [CEQA Guidelines, § 15126.4(a)(1)]. In that regard, the environmental document should provide an adequate, complete, and detailed disclosure about a project's proposed mitigation measure(s). Adequate disclosure is necessary so CDFW may assess the potential impacts of proposed mitigation measures.
- 3) Biological Baseline Assessment. An adequate biological resources assessment should provide a complete assessment and impact analysis of the flora and fauna within and adjacent to a project site and where a project may result in ground disturbance. The assessment and analysis should place emphasis upon identifying endangered, threatened, sensitive, regionally, and locally unique species, and sensitive habitats. Impact analysis will aid in determining any direct, indirect, and cumulative biological impacts, as well as specific mitigation or avoidance measures necessary to offset those impacts. CDFW recommends avoiding any sensitive natural communities found on or adjacent to a project. CDFW also considers impacts to Species of Special Concern a significant direct and cumulative adverse effect without implementing appropriate avoid and/or mitigation measures. A project-level environmental document should include the following information:

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- a) Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region [CEQA Guidelines, § 15125(c)]. An environmental document should include measures to fully avoid and otherwise protect Sensitive Natural Communities from project-related impacts. CDFW considers these communities as threatened habitats having both regional and local significance. Plant communities, alliances, and associations with a state-wide ranking of S1, S2, S3 and S4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by visiting [Vegetation Classification and Mapping Program - Natural Communities](#) webpage (CDFW 2020a);
- b) A thorough, recent, floristic-based assessment of special status plants and natural communities following CDFW's [Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities](#) (CDFW 2018). Adjoining habitat areas should be included where project construction and activities could lead to direct or indirect impacts off site;
- c) Floristic, alliance- and/or association-based mapping and vegetation impact assessments conducted at a project site and within the neighboring vicinity. The [Manual of California Vegetation](#) (MCV), second edition, should also be used to inform this mapping and assessment (Sawyer et al. 2009). Adjoining habitat areas should be included in this assessment where project activities could lead to direct or indirect impacts off site. Habitat mapping at the alliance level will help establish baseline vegetation conditions;
- d) A complete, recent, assessment of the biological resources associated with each habitat type on site and within adjacent areas that could also be affected by a project. CDFW's [California Natural Diversity Database](#) (CNDDDB) in Sacramento should be contacted to obtain current information on any previously reported sensitive species and habitat (CDFW 2020b). An assessment should include a nine-quadrangle search of the CNDDDB to determine a list of species potentially present at a project site. A lack of records in the CNDDDB does not mean that rare, threatened, or endangered plants and wildlife do not occur in the project site. Field verification for the presence or absence of sensitive species is necessary to provide a complete biological assessment for adequate CEQA review [CEQA Guidelines, § 15003(i)];
- e) A complete, recent, assessment of rare, threatened, and endangered, and other sensitive species on site and within the area of potential effect, including California Species of Special Concern, and California Fully Protected Species (Fish & G. Code, §§ 3511, 4700, 5050, and 5515). Species to be addressed should include all those which meet the CEQA definition of endangered, rare, or threatened species (CEQA Guidelines, § 15380). Seasonal variations in use of a project site should also be addressed such as wintering, roosting, nesting, and foraging habitat. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, may be required if suitable habitat is present. See CDFW's [Survey and Monitoring Protocols and Guidelines](#) for established survey protocol for select species (CDFW 2020c). Acceptable species-specific survey procedures may be developed in consultation with CDFW and the U.S. Fish and Wildlife Service; and,

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- f) A recent wildlife and rare plant survey. CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of a proposed project may warrant periodic updated surveys for certain sensitive taxa, particularly if build out could occur over a protracted time frame or in phases.
 - g) A biological resources survey should include identification and delineation of any rivers, streams, and lakes and their associated natural plant communities/habitats. This includes any culverts, ditches, storm channels that may transport water, sediment, pollutants, and discharge into rivers, streams, and lakes.
- 4) Data. CEQA requires that information developed in environmental impact reports be incorporated into a database which may be used to make subsequent or supplemental environmental determinations [Pub. Resources Code, § 21003, subd. (e)]. Accordingly, please report any special status species and natural communities detected by completing and submitting [CNDDB Field Survey Forms](#) (CDFW 2020d). The City should ensure data collected at a project-level has been properly submitted, with all data fields applicable filled out. The data entry should also list pending development as a threat and then update this occurrence after impacts have occurred.
- 5) Biological Direct, Indirect, and Cumulative Impacts. CDFW recommends providing a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts. The DEIR should address the following:
- a) A discussion regarding Project-related indirect impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands [e.g., preserve lands associated with a Natural Community Conservation Plan (NCCP, Fish & G. Code, § 2800 et. seq.)]. Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated in the DEIR;
 - b) A discussion of both the short-term and long-term effects to species population distribution and concentration and alterations of the ecosystem supporting the species impacted [CEQA Guidelines, § 15126.2(a)];
 - c) A discussion of potential adverse impacts from lighting, noise, temporary and permanent human activity, and exotic species, and identification of any mitigation measures;
 - d) A discussion on Project-related changes on drainage patterns; the volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and, post-Project fate of runoff from the Project sites. The discussion should also address the potential water extraction activities and the potential resulting impacts on the habitat (if any) supported by the groundwater. Mitigation measures proposed to alleviate such Project impacts should be included;
 - e) An analysis of impacts from proposed changes to land use designations and zoning, and existing land use designation and zoning located nearby or adjacent to natural areas that

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may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the DEIR; and,

- f) A cumulative effects analysis, as described under CEQA Guidelines section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant and wildlife species, habitat, and vegetation communities. If the City determines that the Project would not have a cumulative impact, the environmental document should indicate why the cumulative impact is not significant. The City's conclusion should be supported by facts and analyses [CEQA Guidelines, § 15130(a)(2)].
- 6) Project Description and Alternatives. To enable CDFW to adequately review and comment on the proposed Project from the standpoint of the protection of plants, fish, and wildlife, we recommend the following information be included in the DEIR:
- a) A complete discussion of the purpose and need for, and description of, the proposed Project;
 - b) CEQA Guidelines section 15126.6(a) states that an environmental document shall describe a reasonable range of potentially feasible alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives of the Project but would avoid or substantially lessen any of the significant effects of the Project. CEQA Guidelines section 15126.6(f)(2) states if the Lead Agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion and should include reasons in the environmental document; and,
 - c) A range of feasible alternatives to Project component location and design features to avoid or otherwise minimize direct and indirect impacts to sensitive biological resources and wildlife movement areas. CDFW recommends the City consider configuring Project construction and activities, as well as the development footprint, in such a way as to fully avoid impacts to sensitive and special status plants and wildlife species, habitat, and sensitive vegetation communities. CDFW also recommends the City consider establishing appropriate setbacks from sensitive and special status biological resources. Setbacks should not be impacted by ground disturbance or hydrological changes for the duration of the Project and from any future development. As a general rule, CDFW recommends reducing or clustering the development footprint to retain unobstructed spaces for vegetation and wildlife and provide connections for wildlife between properties and minimize obstacles to open space.

Project alternatives should be thoroughly evaluated, even if an alternative would impede, to some degree, the attainment of the Project objectives or would be more costly (CEQA Guidelines, § 15126.6).

- d) Where the Project may impact aquatic and riparian resources, CDFW recommends the City consider alternatives that would fully avoid impacts to such resources. CDFW also recommends alternatives that would allow not impede, alter, or otherwise modify existing surface flow; watercourse and meander; and water-dependent ecosystems and vegetation communities. Project-related designs should consider elevated crossings to

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avoid channelizing or narrowing of streams. Any modifications to a river, creek, or stream may cause or magnify upstream bank erosion, channel incision, and drop in water level and cause the stream to alter its course of flow.

- 7) CESA. CDFW considers adverse impacts to a species protected by CESA to be significant without mitigation under CEQA. As to CESA, take of any endangered, threatened, candidate species, or CESA-listed plant species that results from the Project is prohibited, except as authorized by state law (Fish & G. Code §§ 2080, 2085; Cal. Code Regs., tit. 14, §786.9). Consequently, if the Project or any Project-related activity during the life of the Project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, CDFW recommends that the Project proponent seek appropriate take authorization under CESA prior to implementing the Project. Appropriate authorization from CDFW may include an Incidental Take Permit (ITP) or a consistency determination in certain circumstances, among other options [Fish & Game Code, §§ 2080.1, 2081, subds. (b) and (c)]. Early consultation is encouraged, as significant modification to a Project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that CDFW issue a separate CEQA document for the issuance of an ITP unless the Project CEQA document addresses all Project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.
- 8) Jurisdictional Waters. As a Responsible Agency under CEQA, CDFW has authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (including vegetation associated with the stream or lake) of a river or stream, or use material from a streambed. For any such activities, the project applicant (or "entity") must provide written notification to CDFW pursuant to Fish and Game Code Section 1600 *et seq.*
 - a) CDFW's issuance of a Lake and Streambed Alteration (LSA) Agreement for a project that is subject to CEQA will require CEQA compliance actions by CDFW as a Responsible Agency. As a Responsible Agency, CDFW may consider the environmental document of the local jurisdiction (Lead Agency) for the project. To minimize additional requirements by CDFW pursuant to section 1600 *et seq.* and/or under CEQA, the environmental document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the LSA Agreement. Please visit CDFW's [Lake and Streambed Alteration Program](#) webpage for information about LSA Notification (CDFW 2020e).
 - b) In the event the project area may support aquatic, riparian, and wetland habitats; a preliminary delineation of the streams and their associated riparian habitats should be included in the environmental document. The delineation should be conducted pursuant to the U.S. Fish and Wildlife Service (USFWS) wetland definition adopted by CDFW (Cowardin et al. 1970). Be advised that some wetland and riparian habitats subject to CDFW's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers' Section 404 permit and Regional Water Quality Control Board Section 401 Certification.

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- c) In project areas which may support ephemeral or episodic streams, herbaceous vegetation, woody vegetation, and woodlands also serve to protect the integrity of these resources and help maintain natural sedimentation processes; therefore, CDFW recommends effective setbacks be established to maintain appropriately-sized vegetated buffer areas adjoining ephemeral drainages.
 - d) Project-related changes in upstream and downstream drainage patterns, runoff, and sedimentation should be included and evaluated in the environmental document.
 - e) As part of the LSA Notification process, CDFW requests a hydrological evaluation of the 100, 50, 25, 10, 5, and 2-year frequency storm event for existing and proposed conditions. CDFW recommends the environmental document evaluate the results and address avoidance, minimization, and/or mitigation measures that may be necessary to reduce potential significant impacts.
- 9) Wetland Resources. CDFW, as described in Fish and Game Code section 703(a), is guided by the Fish and Game Commission's (Commission) policies. The [Wetlands Resources](#) policy the Commission "...seek[s] to provide for the protection, preservation, restoration, enhancement and expansion of wetland habitat in California (CFGC 2020). Further, it is the policy of the Fish and Game Commission to strongly discourage development in or conversion of wetlands. It opposes, consistent with its legal authority, any development or conversion that would result in a reduction of wetland acreage or wetland habitat values. To that end, the Commission opposes wetland development proposals unless, at a minimum, project mitigation assures there will be 'no net loss' of either wetland habitat values or acreage. The Commission strongly prefers mitigation which would achieve expansion of wetland acreage and enhancement of wetland habitat values."
- a) The Wetlands Resources policy provides a framework for maintaining wetland resources and establishes mitigation guidance. CDFW encourages avoidance of wetland resources as a primary mitigation measure and discourages the development or type conversion of wetlands to uplands. CDFW encourages activities that would avoid the reduction of wetland acreage, function, or habitat values. Once avoidance and minimization measures have been exhausted, a project must include mitigation measures to assure a "no net loss" of either wetland habitat values, or acreage, for unavoidable impacts to wetland resources. Conversions include, but are not limited to, conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether ephemeral, intermittent, or perennial, should be retained and provided with substantial setbacks, which preserve the riparian and aquatic values and functions for the benefit to on-site and off-site wildlife populations. CDFW recommends mitigation measures to compensate for unavoidable impacts be included in an environmental document and these measures should compensate for the loss of function and value.
 - b) The Fish and Game Commission's Water policy guides CDFW on the quantity and quality of the waters of this State that should be apportioned and maintained respectively so as to produce and sustain maximum numbers of fish and wildlife; to provide maximum protection and enhancement of fish and wildlife and their habitat; encourage and support programs to maintain or restore a high quality of the waters of this State; prevent the degradation thereof caused by pollution and contamination; and, endeavor

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to keep as much water as possible open and accessible to the public for the use and enjoyment of fish and wildlife. CDFW recommends avoidance of water practices and structures that use excessive amounts of water, and minimization of impacts that negatively affect water quality, to the extent feasible (Fish & G. Code, § 5650).

- 10) Translocation/Salvage of Plants and Animal Species. Translocation and transplantation is the process of moving an individual from a project site and permanently moving it to a new location. CDFW generally does not support the use of, translocation or transplantation as the primary mitigation strategy for unavoidable impacts to rare, threatened, or endangered plant or animal species. Studies have shown that these efforts are experimental and the outcome unreliable. CDFW has found that permanent preservation and management of habitat capable of supporting these species is often a more effective long-term strategy for conserving sensitive plants and animals and their habitats.
- 11) Compensatory Mitigation. An environmental document should include mitigation measures for adverse Project related direct or indirect impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of project-related impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed. Areas proposed as mitigation lands should be protected in perpetuity with a conservation easement, financial assurance and dedicated to a qualified entity for long-term management and monitoring. Under Government Code, section 65967, the Lead Agency must exercise due diligence in reviewing the qualifications of a governmental entity, special district, or nonprofit organization to effectively manage and steward land, water, or natural resources on mitigation lands it approves.
- 12) Long-term Management of Mitigation Lands. For proposed preservation and/or restoration, an environmental document should include measures to protect the targeted habitat values from direct and indirect negative impacts in perpetuity. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include (but are not limited to) restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, and increased human intrusion. An appropriate non-wasting endowment should be set aside to provide for long-term management of mitigation lands.

Conclusion

We appreciate the opportunity to comment on the NOP for the Proposed Sierra Madre General Plan Housing, Land Use, Safety, and Circulation Element Update to assist the City of Sierra Madre in identifying and mitigating Project impacts on biological resources. If you have any questions or comments regarding this letter, please contact Andrew Valand, Environmental Scientist, at Andrew.Valand@wildlife.ca.gov.

Clare Lin
City of Sierra Madre
May 10, 2021
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Sincerely,

DocuSigned by:

Erinn Wilson-Olgin

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Erinn Wilson-Olgin
Environmental Program Manager I
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- Caltrans looks forward to reviewing the forthcoming DEIR for this project and providing comments, if warranted.

The following information is included for your consideration. The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. Furthermore, Caltrans encourages Lead Agencies to implement Transportation Demand Management (TDM) strategies that reduce VMT and Greenhouse Gas (GHG) emissions. For more TDM options to include in this project's updated elements and codes, please refer to:

- The 2010 *Quantifying Greenhouse Gas Mitigation Measures* report by the California Air Pollution Control Officers Association (CAPCOA), available at <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>, or
- *Integrating Demand Management into the Transportation Planning Process: A Desk Reference* (Chapter 8) by the Federal Highway Administration (FHWA), available at <https://ops.fhwa.dot.gov/publications/fhwahop12035/index.htm>.

If you have any questions about these comments, please contact Emily Gibson, the project coordinator, at Emily.Gibson@dot.ca.gov, and refer to GTS # 07-LA-2021-03556.

Sincerely,



MIYA EDMONSON
IGR/CEQA Branch Chief
cc: Scott Morgan, State Clearinghouse

Appendix B
Air Quality and Greenhouse Gas Emissions Report

Sierra Madre General Plan Housing Element Update Air Quality and Greenhouse Gas Impact Study City of Sierra Madre, CA

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GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH ₄	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DPM	Diesel particulate matter
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
LST	Localized Significant Thresholds
MTCO ₂ e	Metric tons of carbon dioxide equivalent
MMTCO ₂ e	Million metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
NO ₂	Nitrogen dioxide
N ₂ O	Nitrous oxide
O ₃	Ozone
PFCs	Perfluorocarbons
PM	Particle matter
PM ₁₀	Particles that are less than 10 micrometers in diameter
PM _{2.5}	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SF ₆	Sulfur hexafluoride
SIP	State Implementation Plan
SO _x	Sulfur Oxides
SRA	Source/Receptor Area
TAC	Toxic air contaminants
VOC	Volatile organic compounds
WRCC	Western Regional Climate Center

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the future development that would be accommodated by the General Plan 2021-2029 Housing Element Update for the City of Sierra Madre would cause a significant impact to the air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by South Coast Air Quality Management District (SCAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project is the adoption of the City of Sierra Madre's 2021-2029 Housing Element (Housing Element), related updates to the Land Use, Safety, and Circulation Elements, and the inclusion of required Environmental Justice policies. Therefore, the project includes a variety of sites that have been recommended for re-designation throughout the City of Sierra Madre, California. The project sites recommended for re-designation and analyzed in this report are shown in Exhibit A.

1.2.2 Project Description

The project is the adoption of the City of Sierra Madre's 2021-2029 Housing Element (Housing Element), related updates to the Land Use, Safety, and Circulation Elements, and the inclusion of required Environmental Justice policies. The Housing Element requires amending General Plan designations on some of the proposed Housing Element opportunity sites, which requires revisions to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan. The Housing Element also necessitates rezoning of some proposed opportunity sites; therefore, the project includes changes to the City's Zoning Code and Zoning Map.

In addition to the Housing and Land Use Element updates, the City is required to make other changes to the General Plan in response to recent State legislation. To comply with Senate Bill (SB) 379, Assembly Bill (AB) 2140, and SB 1241, the project updates the Safety Element. The City recently adopted Transportation Study Guidelines for Vehicle Miles Traveled in July 2020. These Guidelines are incorporated into the General Plan Circulation Element. Lastly, to comply with SB 100, the City is adopting Environmental Justice Element policies.

The City has conducted extensive community outreach, meetings with City decisionmakers and discussions with property owners to identify those sites most suitable for rezoning to address the City's RHNA shortfall. Sites recommended for re-designation were selected based on several factors: existing land use and feasibility for redevelopment within the planning period; neighborhood compatibility and community context; property owner interest; and an overriding goal to disperse affordable housing

opportunities throughout the community. The following describes the opportunity sites proposed for the Housing Element and analyzed in this Air Quality and Greenhouse Gas Impact Study.

Site 1. Rezoning of nine properties on the 200 block of West Mariposa Avenue to R-3-30 (30 to 34 du/acre). Properties are currently developed with older single-family, duplex and fourplex units, ranging in age from 1895 to 1948. Most units are modest, with a low improvement to land value ratio and numerous units exhibiting deferred maintenance. The combined site consists of 25 existing units with a potential net gain of 48 units under the new R-3-30 zoning designation. Two of the parcels were identified as R3-H (20 units/acre) in the prior Housing Element, and therefore to carry over to the 2021-2029 Element, will allow 20 du/acre by-right for inclusion of 20% low-income units.

Site 2. Rezoning of ten properties to R-3-20 (20 to 24 du/acre) on Suffolk Avenue. Two of the parcels have been combined (93 Suffolk) and have an application for development with five apartments, including one restricted to moderate income households. Another property owner at 92 Suffolk has approached the City regarding potential lot consolidation and redevelopment with seven units of multi-family housing. Existing units identified for redevelopment range in age from 1902 to 1947, have a low improvement to land value ratio, and exhibit deferred maintenance. The combined site consists of 13 existing units with a potential net gain of 27 units under the new R-3-20 zoning designation.

Site 3. Rezoning of one property just under one acre fronting on West Sierra Madre Boulevard at the terminus of Park Avenue. The property is currently developed with the Park Avenue Apartments consisting of three buildings developed in 1960 with three to six units each, and a two-unit building constructed in 1935, for a total of seventeen units. The improvement to land value ratio is just 25%, rendering the site economically suitable for redevelopment. The site includes a large surface parking area and undeveloped open space area. The property owner has expressed an interest in potential higher density development on the site, either through infill or redevelopment.

Site 4. Designation of one property on the southwest corner of North Baldwin Avenue and West Laurel Avenue. The site is currently zoned R-3 (13 units/acre) and underdeveloped with an older (1947) single-family home. The improvement to land value ratio is just 30%. The property owner's architect has shared concept plans with the City to redevelop the site with six to seven units, potentially utilizing State density bonus incentives to achieve the extra unit.

Affordable Housing on Congregational Land

Inspired by proposed State legislation to allow affordable housing to be developed on congregational land, City staff began reaching out to pastors and religious leaders in the community in the fall of 2020 to explore the concept of adding an affordable housing overlay to Sierra Madre's religious sites. Several congregations have large parking areas and other underutilized land that, with the necessary zoning in place, could be used to build affordable housing and further the congregation's mission.

Four church sites were identified as having capacity and suitable conditions to accommodate housing. Conceptual site plans illustrating feasible affordable housing development concepts were prepared for each site and provided the basis for establishing development standards for the Overlay.

All residential development within the Religious Housing Overlay will be subject to the following affordability requirements:

- Rental housing: minimum 50% of units restricted to lower income households (up to 80% area median income) for 55 years
- Ownership housing: minimum 50% of units restricted to lower income households, or 90% of units restricted to moderate income households (up to 120% area median income) for 45 years

Approved/Pending Residential Projects

Sierra Madre has two residential subdivisions in various stages of development entitlement that will contribute towards addressing its future RHNA needs, as described below. For the environmental analyses, these projects will be considered as part of the future environmental baseline and not as part of the project.

- Stonegate. The One Carter hillside property at the northern terminus of North Baldwin Avenue has been subdivided into 27 residential lots and two undevelopable lots. The custom homes being developed in Stonegate are subject to the City's Residential Hillside Management Zone, and the Stonegate Design Guidelines. As of April 2021, the City has received 24 applications for development, and has thus far approved seven homes for development.
- The Meadows at Bailey Canyon. The lower 20 acres of the 88-acre Mater Dolorosa Passionist Retreat Center is being proposed for development with 42 detached single-family dwellings and a 3 to 3.5 acre dedicated neighborhood park. An additional 45 acres of hillside open space north of the Retreat Center is to be dedicated to the City of Sierra Madre. The property is currently identified as an institutional land use in the General Plan, and will be amended to include Open Space, Civic/City Park, Institutional, and One Family Residential (7,500 sq. ft. minimum) land use designations. The project is projected to go before City Council in August 2021.

Table 1 summarizes the land uses modeled in this analysis for the future development opportunity sites in the Housing Element under the Existing scenario, 2015 General Plan Update scenario, and the proposed Housing Element scenario. The existing uses were modeled under both the existing year 2021 and the Housing Element's buildout year of 2029, while the 2015 General Plan Update and the proposed Housing Element scenarios were only modeled under the Housing Element's buildout year of 2029..

< Table 1, next page >

Table 1: Land Use Summary

Site ¹	Total Site Acreage	Existing			2015 General Plan Update ⁵			Housing Element		
		Land Use	Unit Amount	Size Metric	Land Use	Unit Amount	Size Metric	Land Use	Unit Amount	Size Metric
Site 1	2.44	Multi-Family Residential Housing (Low-Rise)	25	DU	Multi-Family Housing (Low Rise)	37	DU	Multi-Family Residential Housing (Low-Rise)	73	DU
Site 2 ²	2.11	Multi-Family Residential Housing (Low-Rise)	13	DU	Multi-Family Housing (Low Rise)	37	DU	Multi-Family Residential Housing (Low-Rise)	40	DU
Site 3	0.92	Multi-Family Residential Housing (Low-Rise)	17	DU	Multi-Family Housing (Low Rise)	12	DU	Multi-Family Residential Housing (Low-Rise)	27	DU
Site 4	0.34	Multi-Family Residential Housing (Low-Rise)	1	DU	Multi-Family Housing (Low Rise)	4	DU	Multi-Family Residential Housing (Low-Rise)	5	DU
Site A	0.71	Parking Lot	30.90	TSF	Parking Lot	30.90	TSF	Multi-Family Residential	30	DU
Site B	0.65	Parking Lot	28.50	TSF	Parking Lot	28.50	TSF	Multi-Family Residential	28	DU
Site C ³	0.53	Parking Lot	10.80	TSF	Parking Lot	10.80	TSF	Multi-Family Residential Housing (Low-Rise)	23	DU
		Church Use	12.281	TSF	Church Use	12.281	TSF			
Site D ⁴	0.93	Parking Lot	26.486	TSF	Parking Lot	26.486	TSF	Multi-Family Residential Housing (Low-Rise)	40	DU
		Landscaped Areas	14.143	TSF	Landscaped Areas	14.143	TSF			
Stonegate ⁶	23	Vacant Land	23	AC	Single-Family Housing	27	DU	Single-Family Housing	27	DU
The Meadows ⁶	17	Vacant Land	17	AC	Single-Family Housing	42	DU	Single-Family Housing	42	DU

AC= Acre; DU= Dwelling Unit; TSF= Thousand Square Foot

¹ Existing residential uses at Sites 1 through 4 modeled as multi-family residential to be consistent with the Traffic Analysis.

² Site 2 has a total acreage of 2.81 acres; however, two parcels are not anticipated to be re-developed under the Housing Element Updates. These include the 12 unit apartment building located at 90 Suffolk Avenue and the two-story single-family dwelling unit located at 68 Suffolk Avenue. Therefore, the total acreage was 2.11 acres with a total of 13 existing residential dwelling units (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029).

³ Site C includes an existing 10,800 square foot parking lot and a 12,281 square foot lot containing a 900 square foot building. Both sites are currently associated with the Old North Church. (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029)

⁴ Site D includes an existing 6,977 square foot grassy area, 7,166 square feet of vacant land (landscaped), and 26,486 square feet of existing parking lots which are all currently associated with the Bethany Church and School. (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029)

⁵ For the 2015 General Plan Update Scenario, as Sites A through D are zoned for institutional uses and the existing development on the site is associated with existing institutional (i.e., church) uses it was assumed that these sites would have the same uses under this scenario as they do in the existing scenario. Furthermore, as Stonegate and The Meadows are approved projects and in the Project Description of the SEIR are to be "considered as part of the future environmental baseline" they were assumed to be developed as part of the 2015 General Plan Update scenario as well as the Housing Element scenario.

⁶ Stonegate and The Meadows under existing conditions are vacant land. Therefore, they are not incorporated into the uses modeled in CalEEMod for the Existing scenario.

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, a sensitive receptor would be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc).

The closest existing sensitive receptor (to each site area) include the following:

Site 1: Site 1 is located at the northeast corner of Lima Street and Mariposa Avenue. The nearest sensitive receptors include the single-family residential dwelling units located approximately 60 feet to the east (across Lima Street) and 60 feet south (across Mariposa Avenue) of the project site.

- Site 2:* Site 2 is located along the southern side of Suffolk Avenue between Baldwin Avenue and Sierra Place. The nearest sensitive receptors include the single-family residential uses located adjacent to the east and south of the site. In addition, multi-family residential uses located approximately 60 feet north (across Suffolk Avenue) and the single-family residential uses located approximately 75 feet west of the site (across Baldwin Avenue).
- Site 3:* Site 3 is located at 491 W Sierra Madre Boulevard. The nearest sensitive receptors to Site 3 include the single-family residential uses located adjacent to the north and the multi-family residential uses located adjacent to the east and west and approximately 80 feet south (across Sierra Madre Boulevard).
- Site 4:* Site 4 is located at 215 N Baldwin Avenue. The nearest sensitive receptors to Site 4 include the single-family and multi-family residential uses located adjacent to the south and east of the project site. In addition, single-family residential uses are located approximately 50 feet north (across W Laurel Avenue) and a Gooden School is located approximately 75 feet southeast (across Baldwin Avenue) of the project site.
- Site A:* Site A is located within a portion of the property associated with the St. Rita Catholic Church and School. The nearest sensitive receptors include the school associated with the St. Rita Catholic Church which is located adjacent to the northeast and the single-family residential uses located adjacent to the east of the project site. Single-family and multi-family residential uses are also located approximately 60 feet south (across Grandview Avenue) and 60 feet north (across Alegria Avenue) of Site A.
- Site B:* Site B is located at 695 W Sierra Madre Boulevard within a portion of the property associated with the United Methodist Church. The nearest sensitive receptors to Site B include the single-family residential use located adjacent to the east and the multi-family residential uses located adjacent to the southeast. In addition, single-family residential uses are located approximately 55 feet north (across Montecito Avenue) of the project site.
- Site C:* Site C is located within a portion of the property associated with Old North Church. The nearest sensitive receptors to Site C include the single-family residential uses located adjacent to the north and east of the project site. Multi-family and single-family residential uses are located approximately 50 feet west (across Hermosa Avenue) and multi-family residential uses are also located approximately 75 feet east of the project site.
- Site D:* Site D is located within a portion of the property associated with Bethany Church. The nearest sensitive receptors to Site D include the multi-family residential uses located adjacent to the west and the single-family residential use adjacent to the southeast of the project site. In addition, single-family residential uses are located approximately 60 feet north (across Highland Avenue) and 40 feet south (across Montecito Avenue).
- The Meadows:* The Meadows is located within the lower 20 acres of the existing Mater Dolorosa Passionist Retreat Center property. The nearest sensitive receptors to The Meadows

include the single-family residential uses located adjacent to the west, south, and southeast of the project site.

Stonegate: Stonegate is part of the One Carter property located at the northern terminus of North Baldwin Avenue. The nearest sensitive receptors to Stonegate include the single-family residential uses located adjacent to the west, south, and east of the project site.

All other sensitive receptors in the project site vicinity would be located at further distances and would have lower air quality emissions impacts.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Construction-Source Emissions

Construction activities associated with the future development of the Housing Element would occur over buildout of the Housing Plan Update, which includes the year 2021 through 2029, and would cause short-term emission of criteria air pollutants. Information regarding each specific development project accommodated under the Housing Element (such as construction timeline, earthworks information, amount and type of construction equipment etc.) would be needed in order to quantify the level of impact associated with construction activity. The air quality emissions related to construction must be addressed on a project-by-project level basis. Future development would be comprised of multiple smaller development projects, each having its own construction timeline and activities. For this policy level analysis developed for the Housing Element, it is not possible to determine whether the scale and phasing of individual development projects would exceed the SCAQMD's short-term regional or localized construction emissions thresholds. Future development associated with the Housing Element could exceed applicable regional and localized thresholds of significance established by the SCAQMD. Therefore, construction-related air quality impacts associated with the future development of the Housing Element would be significant and mitigation is required.

As project's that exceed the regional significance thresholds will contribute to the current nonattainment designations, the construction-source emissions associated with the future development accommodated under the Housing Element could conflict with the Basin Air Quality Management Plan (AQMP). However, the 2015 General Plan Update DEIR also identified potentially significant impacts associated with construction. Therefore, the future development associated with the Housing Element would not cause an increase in the frequency or severity of previously identified violations. Furthermore, future development associated with the Housing Element will be required to comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Therefore, although project construction source emissions could cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS), they would not create new violations that has not already been identified under the General Plan Update.

As identified in Mitigation Measure 1 below, if during subsequent project-level environmental review conducted for individual development projects, construction-related criteria air pollutants are

determined to have the potential to exceed the South Coast Air Quality Management District (SCAQMD) adopted thresholds of significance, the City of Sierra Madre Planning and Community Preservation Department shall require that applicants for new development projects incorporate mitigation measures as identified in the CEQA document prepared for the project to reduce air pollutant emissions during construction activities. This mitigation measure will reduce potential construction related emissions, but as specific development information is not yet available, despite adherence to Mitigation Measure 1, construction impacts would still be considered significant.

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

Operational-Source Emissions

The future development associated with the Housing Element would not result in operational-sourced emissions that would exceed applicable regional thresholds of significance established by the SCAQMD. Therefore, the net change from both the Existing and 2015 General Plan scenarios would also not exceed SCAQMD regional thresholds of significance. Due to the nature of the future development of the Housing Element, the operational-source emissions would also not result in or cause a significant localized air quality impact as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, traffic related to the future development of the Housing Element will not cause or result in CO concentrations exceeding applicable state and/or federal standards (CO “hotspots”). Operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the future developments within the Housing Element and would be considered less than significant.

The operational-source emissions associated with the future development accommodated under the Housing Element would not conflict with the Basin Air Quality Management Plan (AQMP). The emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impacts. The future development associated with the Housing Element includes that of residential uses and does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

The GHG emissions associated with the future development of the Housing Element meet the SCAQMD draft screening threshold of 4.1 metric tons of carbon dioxide equivalents (MTCO₂e) per service population per year for 2035 for plans and are also considered to be less than significant. Furthermore, the future development associated with the Housing Element would result in a reduction in per service population emissions from that of both the Existing and 2015 General Plan Update scenarios. The future development accommodated under the Housing Element also complies with the goals of the Capacity of Sierra Madre Energy Action Plan, CARB Scoping Plan, AB-32, and SB-32.

Comparison of Impacts to the 2015 General Plan Update

As discussed further in Section 8, future development accommodated under the Housing Element were found to result in impacts associated with AQMP consistency, construction, operations, and odor were found to either be consistent with or lower than the impacts determined under the 2015 General Plan Update.

Mitigation Measures

A. Construction Measures

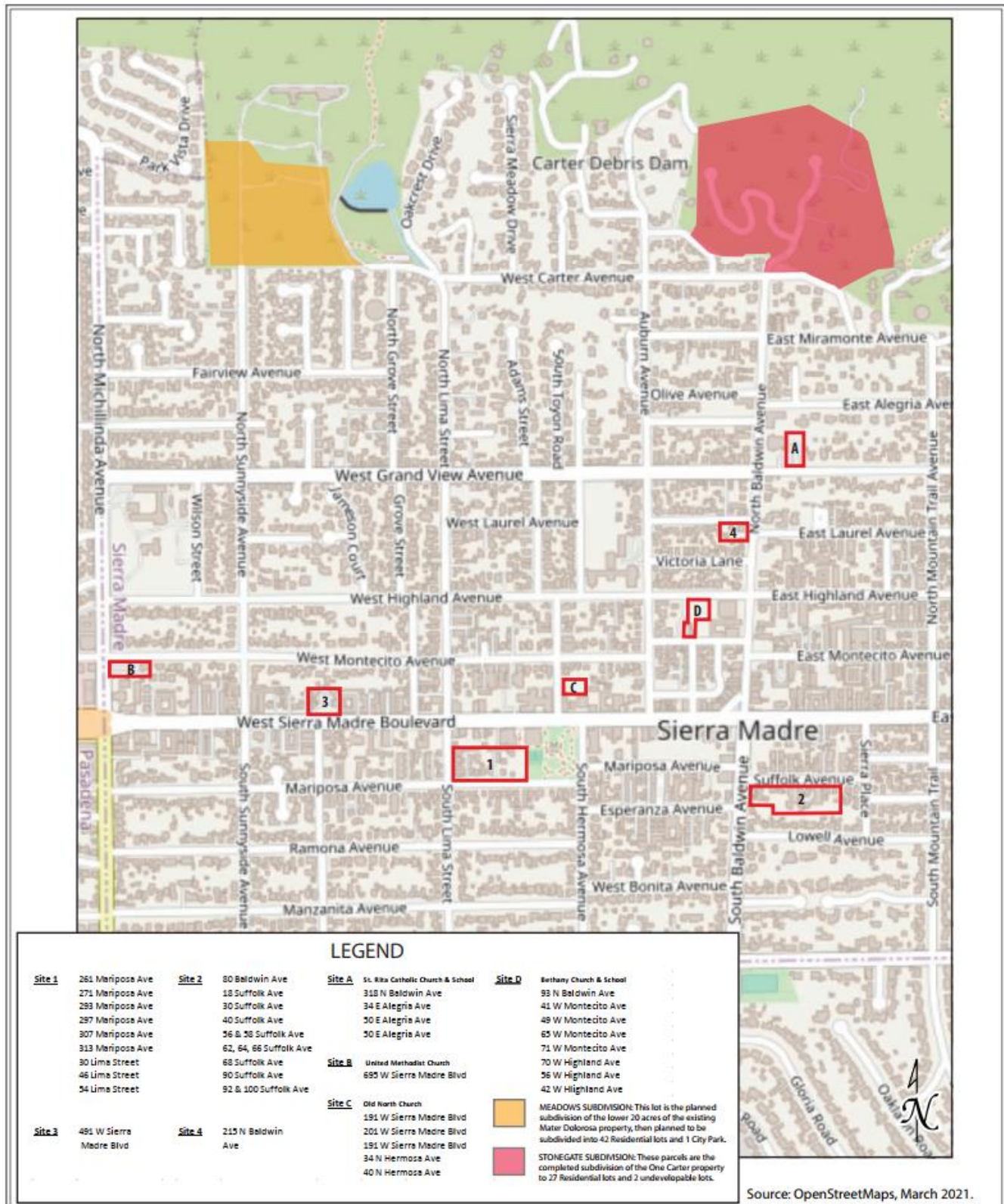
Mitigation Measure 1 (Mitigation Measure 2-1 of the General Plan Update EIR). If, during subsequent project-level environmental review conducted for individual development projects, construction-related criteria air pollutants are determined to have the potential to exceed the South Coast Air Quality Management District (SCAQMD) adopted thresholds of significance, the City of Sierra Madre Planning and Community Preservation Department shall require that applicants for new development projects incorporate mitigation measures as identified in the CEQA document prepared for the project to reduce air pollutant emissions during construction activities. Mitigation measures that may be identified during the environmental review include but are not limited to:

- Using construction equipment rated by the United States Environmental Protection Agency as having Tier 3 (model year 2006 or newer) or Tier 4 (model year 2008 or newer) emission limits, applicable to engines between 50 and 750 horsepower.
- Ensuring construction equipment is properly serviced and maintained to the manufacturer's standards.
- Limiting nonessential idling of construction equipment to no more than five consecutive minutes.
- Water all active construction areas at least three times daily, or as often as needed to control dust emissions. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever possible.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required spaced between the top of the load and the top of the trailer).
- Pave, apply water three times daily or as often as necessary to control dust, or apply (non-toxic) soil stabilizer on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers using reclaimed water if possible), or as often as needed, all paved access roads, parking areas, and staging areas at the construction site to control dust.
- Sweep public streets daily (with water sweepers using reclaimed water if possible) in the vicinity of the project site, or as often as needed, to keep streets free of visible soil material.
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.
- Enclose, cover, water three times daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.)

B. Operational Measures to Reduce Greenhouse Gas Emissions

No operational mitigation measures required.

Exhibit A Location Map



2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The South Coast Air Quality Management District (SCAQMD) regulates at the air basin level.

2.1.1 National and State

The EPA is responsible for global, international, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Air Quality Standards, also known as federal standards. There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the Clean Air Act of 1970.

- Ozone
- Nitrogen Dioxide
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide
- Particulate Matter
- Sulfur Dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. See <http://www.arb.ca.gov/research/aqgs/aqgs.htm> for additional information on criteria pollutants and air quality standards.

The federal and state ambient air quality standards are summarized in Table 2 and can also be found at <http://www.arb.ca.gov/research/aqgs/aqgs2.pdf>.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentrations ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O3)	1-Hour	0.09 ppm	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm		0.070 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10) ⁸	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µ/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		--		
Fine Particulate Matter (PM2.5) ⁸	24-Hour	--	--	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 µg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m³)	--	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 µg/m³)		9 ppm (10 µg/m³)	--	
	8-Hour (Lake Tahoe)	6 ppm (7 µg/m³)		--	--	
Nitrogen Dioxide (NO ₂) ⁹	1-Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (357 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO ₂) ¹⁰	1-Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	--		--	0.5 ppm (1300 mg/m³)	
	24-Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas) ¹⁰	--	
	Annual Arithmetic Mean	--		0.130ppm (for certain areas) ¹⁰	--	
Lead ^{11,12}	30 Day Average	1.5 µg/m³	Atomic Absorption	--	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Calendar Qtr	--		1.5 µg/m³ (for certain areas) ¹²		
	Rolling 3-Month Average	--		0.15 µg/m³		
Visibility Reducing Particles ¹³	8-Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹¹	24-Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Notes:

- California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
10. On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the uses associated with the General Plan Housing Element is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The General Plan Housing Element is not expected to generate or be exposed to vinyl chloride because proposed General Plan Housing Element uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed General Plan Housing Element is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 South Coast Air Quality Management District

The agency for air pollution control for the South Coast Air Basin (basin) is the South Coast Air Quality Management District (SCAQMD). SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the basin. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded.

Every three (3) years the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon.

On March 23, 2017 CARB approved the 2016 AQMP. The 2016 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air.

The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time. As with every AQMP, a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures is updated with the latest data and methods. The most significant air quality challenge in the Basin is to reduce nitrogen oxide (NOx) emissions sufficiently to meet the upcoming ozone standard deadlines. The primary goal of the 2016 AQMP is to meet clean air standards and protect public health, including ensuring benefits to environmental justice and disadvantaged communities. Now that the plan has been approved by CARB, it has been forwarded to the U.S. Environmental Protection Agency for its review. If approved by EPA, the plan becomes federally enforceable.

South Coast AQMD has initiated the development of the 2022 AQMP to address the attainment of the 2015 8-hour ozone standard (70 ppb) for South Coast Air Basin and Coachella Valley. To support the development of mobile source strategies for the 2022 AQMP, South Coast AQMD, in conjunction with California Air Resources Board, has established Mobile Source Working Groups which are open to all interested parties..

South Coast Air Quality Management District Rules

The AQMP for the basin establishes a program of rules and regulations administered by SCAQMD to obtain attainment of the state and federal standards. Some of the rules and regulations that apply to this Project include, but are not limited to, the following:

SCAQMD Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the

emission source. In addition, Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable suppression techniques are indicated below and include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas in active for 10 days or more).
- Water active sites at least three times daily.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114.
- Pave construction access roads at least 100 feet onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets.

SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of the future development of the General Plan Housing Element must comply with Rule 1113.

Idling Diesel Vehicle Trucks – Idling for more than 5 minutes in any one location is prohibited within California borders.

Rule 2702. The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

2.1.3 Local

Local jurisdictions, such as the City of Sierra Madre, have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2016 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic

signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

The City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Air Quality Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

City of Sierra Madre 2035 General Plan

The City of Sierra Madre adopted their General Plan in 2015. The Natural Environment Element in the General Plan, contains the following air quality-related objectives and policies that are applicable to the future development of the General Plan Housing Element :

Objective R-22 Attaining safe air standards.

Policy R22.1 Cooperate with the South Coast Air Quality Management District and incorporate the provisions of the Air Quality Management Plan.

Policy R22.2 Prohibit the development of land uses and land use practices which would contribute significantly to poor air quality.

Policy R22.3 Establish controls and monitor uses in the City which contain operations or materials characterized by air pollutants which individually or cumulatively could significantly add to the air basin's degradation (e.g., furniture manufacturers using paints and finishes, and dry cleaners).

Policy R22.4 Encourage and participate in regional initiatives and programs to improve the South Coast Air Basin's air quality.

Policy R22.5 Publicize the incentives offered by the Southern California Air Quality Management District, such as leaf blower and lawnmower exchanges.

Objective R-23 Reducing the amount of vehicular emissions in Sierra Madre.

Policy R23.1 Establish a transportation system management program to encourage the use of transit, carpooling, shuttles and other transportation options to reduce vehicle miles traveled and vehicle trips.

Policy R23.2 Encourage public and school bus owners to convert to lower emission burning fuel, which is part of the Southern California Air Quality Management District Plan.

Policy R23.3 Continue to purchase automobiles and other vehicles that use zero or low emission fuels for the City's fleet of vehicles.

Policy R23.4 Allow for local job opportunities including home based businesses and telecommuting in Sierra Madre.

Policy R23.5 Provide opportunities through appropriate zoning for the development of residential units in concert with commercial uses.

Policy R23.6 Provide and enhance local transit service to reduce personal vehicle trips.

Policy R23.7 Maintain links to the MTA Gold Line light rail system.

Policy R23.8 Pursue funding sources for facilities and programs linked to regional transit.

Objective R-24 Reducing fugitive dust generated from the use of gardening equipment and construction activity.

Policy R24.1 Continue to review guidelines from time to time regarding the use of gas -powered lawn equipment, and consider tightening the restrictions on the type of equipment, hours and duration of operation.

Policy R24.2 Require dust abatement measures during grading and construction operations. This may include use of reclaimed water or other methods to control fugitive dust.

Policy R24.3 Develop and enforce a fugitive dust control ordinance that regulates the following: visible dust emissions, soil stabilization, the carrying and tracking of dirt offsite, unpaved access and haul roads, storage piles and bulk materials, demolition, and dust control plans; the ordinance should include penalties to encourage compliance.

Objective R-24 Reducing harmful secondhand smoke in living areas.

Policy R25.1 Consider developing an ordinance to address second-hand smoke and other indoor air pollutants in multiple-family dwelling units.

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and

share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. This Rule also excludes CO2-equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.¹

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The following link provides more information on the EPA Plan: <https://www.epa.gov/arc-x/planning-climate-change-adaptation>

2.2.3 California

California Code of Regulations (CCR) Title 24, Part 6. CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency

¹ National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: <https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf>.

technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013, 2016, and 2019 standards have been approved and became effective July 1, 2014, January 1, 2016, and January 1, 2020, respectively.

California Code of Regulations (CCR) Title 24, Part 11. All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The following links provide more information on Title 24, Part 11:

<https://www.dgs.ca.gov/BSC/Codes>

https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

California Green Building Standards On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Housing and Community Development (HCD) updated CALGreen through the 2015 Triennial Code Adoption Cycle, during the 2016 to 2017 fiscal year. During the 2019-2020 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle.

The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The 2019 CalGreen Code includes the following changes and/or additional regulations:

Single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards. Once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy

than those under the 2016 standards. Nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades².

HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2 for projects that disturb one or more acres of land. This section requires projects that disturb one acre or more of land or less than one acre of land but are part of a larger common plan of development or sale must comply with the post-construction requirement detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board. The NPDES permits require post-construction runoff (post-project hydrology) to match the preconstruction runoff pre-project hydrology) with installation of post-construction stormwater management measures.

HCD added sections 5.106.4.1.3 and 5.106.4.1.5 in regards to bicycle parking. Section 5.106.4.1.3 requires new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. In addition, Section 5.106.4.1.5 states that acceptable bicycle parking facility for Sections 5.106.4.1.2 through 5.106.4.1.4 shall be convenient from the street and shall meeting one of the following: (1) covered, lockable enclosures with permanently anchored racks for bicycles; (2) lockable bicycle rooms with permanently anchored racks; or (3) lockable, permanently anchored bicycle lockers.

HCD amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles.

HCD updated section 5.303.3.3 in regards to showerhead flow rates. This update reduced the flow rate to 1.8 GPM.

HCD amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3. The update requires nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resource's' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent. Some updates were also made in regards to the outdoor potable water use in landscape areas for public schools and community colleges.

HCD updated Section 5.504.5.3 in regards to the use of MERV filters in mechanically ventilated buildings. This update changed the filter use from MERV 8 to MERV 13.

² https://ww2.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official. The following link provides more on CalGreen Building Standards:

<http://www.bsc.ca.gov/Home/CALGreen.aspx>

Executive Order S-3-05. California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following targets:

- By 2010, California shall reduce greenhouse gas emissions to 2000 levels;
- By 2020, California shall reduce greenhouse gas emissions to 1990 levels.
- By 2050, California shall reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-01-07. Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are “back-loaded”, with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today’s fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

SB 97. Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor’s Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.

- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation.”
- OPR’s emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. “Greenhouse gases” as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

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

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO₂e) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO₂e. Emissions in 2020 in a “business as usual” scenario are estimated to be 596 MMTCO₂e.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO₂e by 2020, representing approximately 25 percent of the 2020 target.

The ARB’s Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State’s emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and-trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.⁴

Senate Bill 100. Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

SB 375. Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years

2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The City is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements.

On September 3, 2020, SCAG's Regional Council approved and fully adopted the Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), and the addendum to the Connect SoCal Program Environmental Impact Report. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal outlines more than \$638 billion in transportation system investments through 2045. Connect SoCal is supported by a combination of transportation and land use strategies that help the region achieve state greenhouse gas emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry and utilize resources more efficiently. By integrating the Forecasted Development Pattern with a suite of financially constrained transportation investments, Connect SoCal can reach the regional target of reducing greenhouse gases, or GHGs, from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels).

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Assembly Bill 939, Assembly Bill 341, and Senate Bill 1374. Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. AB 341 requires at least 75 percent of generated waste be source reduced, recycled, or composted by the year 2020. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California

Climate Adaptation Strategy (California Natural Resource Agency 2009) was adopted, which is the “... first statewide, multi-sector, region-specific, and information-based climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

Executive Order B-29-15. Executive Order B-29-15, mandates a statewide 25% reduction in potable water usage and was signed into law on April 1, 2015.

Executive Order B-37-16. Executive Order B-37-16, continuing the State’s adopted water reduction, was signed into law on May 9, 2016. The water reduction builds off the mandatory 25% reduction called for in EO B-29-15.

Executive Order N-79-20. Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

2.2.4 South Coast Air Quality Management District

The City is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

SCAQMD Threshold Development

The SCAQMD has established recommended significance thresholds for greenhouse gases for local lead agency consideration (“SCAQMD draft local agency threshold”). SCAQMD has published a five-tiered draft GHG threshold which includes a 10,000 metric ton of CO₂e per year for stationary/industrial sources and 3,000 metric tons of CO₂e per year significance threshold for residential/commercial projects (South Coast Air Quality Management District 2010c). Tier 3 is anticipated to be the primary tier by which the SCAQMD will determine significance for projects. The Tier 3 screening level for

stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90-percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to CEQA analysis. The 90-percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the SCAQMD's annual Emissions Reporting Program.

The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose but must be consistent. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
 - All land use types: 3,000 MTCO₂e per year
 - Based on land use types: residential is 3,500 MTCO₂e per year; commercial is 1,400 MTCO₂e per year; and mixed use is 3,000 MTCO₂e per year
- Tier 4 has the following options:
 - Option 1: Reduce emissions from business as usual by a certain percentage; this percentage is currently undefined
 - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
 - Option 3: Year 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO₂e/SP/year for projects and 6.6 MTCO₂e/SP/year for plans;
 - Option 3, 2035 target: 3.0 MTCO₂e/SP/year for projects and 4.1 MTCO₂e/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

2.2.5 Local

City of Sierra Madre General Plan

The Sierra Madre General Plan includes a range of policies that are designed to reduce the potential impacts related to GHG emissions within the Land Use Element, Resources Management Element, and Community Services Element. These policies are listed below.

Land Use Element

Policy L1.6 Require that new residential development, substantial remodeling and additions comply with all adopted water conservation measures that reduce and minimize the impact on the City's water supply and its ability to serve its water customers.

- Policy L4.3* Ensure that new development and the expansion of existing uses incorporate water conservation measures that reduce and minimize the impact on the City's water supply and its ability to serve its customers.
- Policy L8.1* Encourage the use of sustainable materials in the design and construction of structures and landscapes.
- Policy L8.2* Incorporate water conservation measures in the zoning development standards for new construction and substantial remodeling or building expansion, including but not limited to green building construction, the percentage of permeable ground surfaces, building floor area limitations, lot coverage, landscaping and irrigation, greywater plumbing requirements, rainwater capture, and design review.
- Policy L8.3* Consider a water impact fee to apply to new residential dwelling units and additions to existing development that increase water consumption, to fund water fixture retrofits of existing homes and other water conservation measures.
- Policy L8.5* Provide incentives for property owners to retrofit historically designated homes with water saving fixtures.
- Policy L15.4* Limit the use of irrigation systems in landscaping to comply with water conservation measures and provide for natural habitat and erosion control.
- Policy L16.1* Minimize the amount of grading and removal of natural vegetation.
- Policy L16.2* Require that home sites be planned, developed and designed to:
- Eliminate fire hazards.
 - Prevent land instability.
 - Prevent exposure to geological and geotechnical hazards.
 - Provide adequate drainage controls to prevent flooding and landslides.
 - Prevent any other hazard or threat to the public health, safety, and welfare.
 - Use the minimum amount of water possible for landscaping and interior uses.
- Policy L26.4* Provide incentives for property owners to retrofit historically designated properties with water saving fixtures.
- Policy L28.1* Encourage adaptive reuse of the existing structures and prohibit the demolition and replacement of residential structures with development which contains commercial uses only.
- Policy L29.1* Allow for existing structures to be converted to limited office and business use, but require that any new development (construction) include residential uses or both residential and limited business uses.

- Policy L41.2* Allow for the expansion of existing institutional sites, including height and density beyond that allowed in adjacent commercial and residential areas, provided that a comprehensive master plan is approved by the City which demonstrates that the project:
- Contains activities and functions which will be a significant asset for the City.
 - Adequately mitigates all impacts attributable to the increase in floor area ratio and height.
 - Conveys the village theme in its siting of structures, massing, scale, use of open space and architectural character.
 - Preserves historic structures to the maximum extent possible.
 - Provides additional benefits to the community above those which can be exacted to account for the direct impacts of the development. Such benefits can include making available parking to the public when not needed for the use, dedicating on-site recreational space or parkland facilities for public meetings, making day care available to the public, contributing to park site acquisition, and offsetting impacts to historic structures with monetary contribution to a preservation fund.
 - Will not displace or encroach into existing commercial uses.
 - Incorporates water conservation practices such as but not limited to greywater plumbing, permeable ground surfaces, drought tolerant landscaping, green building materials, rainwater capture devices, and low-flow fixtures.
- Policy L49.7* Improve pedestrian connections between the street and the public parking lots through signage, coordination with property owners, purchase of properties and other mechanisms.
- Policy L49.9* Encourage outdoor dining, sidewalk sales, street fairs, and other uses of the sidewalk which encourage pedestrian activity.
- Policy L51.3* Maintain existing facilities for bicyclists, pedestrians, and transit users.
- Policy L51.4* Explore the development of new facilities for bicyclists, pedestrians and transit users.
- Policy L51.5* Encourage and support the use of non-automotive travel throughout the City.
- Policy L51.6* Encourage City staff, employees, residents and visitors to walk and bicycle as often as possible.
- Policy L51.7* Utilize non-automotive transportation solutions as a tool to further goals related to environmental sustainability and economic development.
- Policy L51.8* Prioritize improvements for non-vehicular modes like bicycles, pedestrians, and transit to eliminate the need for new or expanded roadways and intersection improvements like traffic signals.

- Policy L52.1* Ensure that all pedestrians, particularly seniors and the disabled, are able to travel safely and easily throughout the City.
- Policy L52.2* Prioritize opportunities to implement traffic calming techniques and limit new driveway curb cuts along roadways, such as Sierra Madre Boulevard and East Montecito.
- Policy L52.3* Provide safe travel routes for bicyclists including designated bicycle lanes on streets where these facilities can be accommodated.
- Policy L52.4* Evaluate the impact of any capital improvement project on the travel needs of bicycles, pedestrians, and vehicle users.
- Policy L52.6* Improve pedestrian crossing opportunities work to increase pedestrian safety, and eliminate painted crosswalks where they provide a false sense of security, and make a more concerted effort to enforce laws related to pedestrian safety.
- Policy L52.7* Create and implement a City bikeway plan.
- Policy L52.8* Require the incorporation of bicycle facilities into the design of land use plans and capital improvements, including bicycle parking within new multi-family and non-residential sites or publicly accessible bicycle parking.
- Policy L52.9* Explore the possibility of sidewalk continuity where feasible.

Resource Management Element

- Policy R6.2* Discourage continuous all-night exterior lighting and encourage motion-sensored lighting.
- Policy R7.1* The City shall use the lowest wattage of lamp that is feasible and encourage the public to do the same.
- Policy R7.2* The City shall, whenever possible, turn off the lights or use motion sensor-controlled lighting and encourage the public to do the same.
- Policy R7.3* Investigate the possibility of having businesses turn off lights when they are closed.
- Policy R12.4* Identify ways in which reclaimed water can be utilized in Sierra Madre.
- Policy R15.1* Prohibit washing of concrete surfaces such as sidewalks and driveways with a hose.
- Policy R15.4* Restrict hours of water usage for landscape and irrigation.
- Policy R17.1* Diligently carry out minimum control measures and source reduction programs as required and/or is beneficial to water quality.
- Policy R19.1* Require the waste collection provider to provide recycling bins to all customers in the City, including in the business district. Cardboard should be collected at sites in the business district.

- Policy R19.3* Continue to enforce the Construction and Demolition Ordinance to require builders to separate and recycle discarded building materials, including lumber, metal, cement, etc.
- Policy R19.4* City offices shall purchase and use post-consumer and recycled products to the extent feasible.
- Policy R19.5* Promote green waste and recycling programs such as “green and clean” which increase the usage of green waste for compost and reduces the amount of green waste exported.
- Policy R22.1* Cooperate with the South Coast Air Quality Management District and incorporate the provisions of the Air Quality Management Plan.
- Policy R22.2* Prohibit the development of land uses and land use practices which would contribute significantly to poor air quality.
- Policy R22.3* Establish controls and monitor uses in the City which contain operations or materials characterized by air pollutants which individually or cumulatively could significantly add to the air basin’s degradation (e.g., furniture manufacturers using paints and finishes, automobile repair, printing, and reproduction, and dry cleaners).
- Policy R22.4* Encourage and participate in regional initiatives and programs to improve the South Coast Air Basin’s air quality.
- Policy R22.5* Publicize the incentives offered by the Southern California Air Quality Management District, such as leaf blower and lawnmower exchanges.
- Policy R23.1* Establish a transportation system management program to encourage the use of transit, carpooling, shuttles and other transportation options to reduce vehicle miles traveled and vehicle trips.
- Policy R23.2* Encourage public and school bus owners to convert to lower emission burning fuel, which is part of the Southern California Air Quality Management District Plan.
- Policy R23.3* Continue to purchase automobiles and other vehicles that use zero or low emission fuels for the City’s fleet of vehicles.
- Policy R23.4* Allow for local job opportunities including home based businesses and telecommuting in Sierra Madre.
- Policy R23.5* Provide opportunities through appropriate zoning for the development of residential units in concert with commercial uses.
- Policy R23.6* Provide and enhance local transit service to reduce personal vehicle trips.
- Policy R23.7* Maintain links to the MTA Gold Line light rail system.
- Policy R23.8* Pursue funding sources for facilities and programs linked to regional transit.

Policy R24.1 Continue to review guidelines from time to time regarding the use of gas-powered lawn equipment, and consider tightening the restrictions on the type of equipment, hours and duration of operation.

Community Services Element

Policy C26.1 Explore other transit funding sources.

Policy C26.2 Develop inter-jurisdictional coordination of the transportation program with Arcadia and/or Pasadena, thereby sharing the cost of the program.

Policy C26.4 Continue to provide the free fixed route services for the community.

Policy C26.5 Continue to coordinate discounted transit services for seniors, handicapped individuals, or low-income residents.

Policy C27.1 Continue to provide comprehensive information to the transit user that is informative, accessible, and easy to understand.

Policy C28.1 Continue to work with the Los Angeles County Metropolitan Transit Authority (Metro) to maintain the existing bus routes linking the City to the Gold Line train station in Pasadena and Arcadia.

Policy C30.6 Offer bicycle safety and traffic courses for the community sponsored by the Police and Community Services Departments.

City of Sierra Madre Energy Action Plan

The City of Sierra Madre prepared the Energy Action Plan (EAP) in conjunction with the San Gabriel Valley Council of Governments (SGVCOG), a SCAG subregion, and Southern California Edison (SCE) as part of supporting the California Long-Term Energy Efficiency Strategic Plan (CEESP). The EAP, although not officially adopted by the City, is a stand-alone document and was prepared with the intention of serving as an equivalent to an electricity efficiency chapter of a climate action plan. It identifies both municipal and community-wide strategies to achieve long-term electricity efficiency goals. It also serves as part of the state and regional effort for achieving energy efficiency and reducing GHG emissions. The specific objectives of the EAP are to:

- Create a long-term vision for energy efficiency;
- Provide and assess information related to energy use and GHG emissions;
- Establish reduction targets for energy efficiency;
- Identify goals, policies, and actions to achieve energy reductions; and
- Provide a framework to implement the identified goals, policies, and actions.

Under the premise of meeting the State-recommended GHG reduction target of 15 percent below baseline levels by year 2020, the EAP sets the following energy efficiency targets for Sierra Madre:

- Reduce annual existing residential electricity usage by 3,445,656 kilowatt-hours (kWh) to achieve a 10 percent reduction below year 2010 baseline residential electricity use by year 2020.
- Reduce annual existing nonresidential electricity use by 1,272,644 kWh to achieve a 10 percent reduction below year 2010 baseline nonresidential electricity use by year 2020.
- Reduce annual municipal electricity use by 342,140 kWh to achieve a 10 percent reduction below year 2010 baseline municipal electricity use by year 2020.
- Achieve a net zero electricity in new residential and nonresidential buildings by 2020.

The EAP strategy to meet these electricity reduction targets involves setting goals, policies, and implementation actions focused around seven topic areas. The seven topic areas are 1) Existing Residential Buildings, 2) Existing Nonresidential Buildings, 3) New Development, 4) Planning Framework, 5) Urban Cooling, 6) Water & Electricity Efficiency, and 7) Municipal Operations. The goals corresponding to these seven topic areas include:

- **Goal 1:** Achieve maximum energy efficiency of the City's aging housing stock while reducing energy costs and enhancing the quality of historic and unique residences.
- **Goal 2:** Energy efficiency will strengthen the operational efficiency, quality, and viability of local businesses and the City's village core.
- **Goal 3:** All new development and significant remodels will have a net zero community-wide energy demand by 2020.
- **Goal 4:** Integrate energy efficiency in the City's regulatory and policy framework.
- **Goal 5:** Enhance the quaint, tree-lined, and pedestrian-scale nature of existing neighborhoods.
- **Goal 6:** Integrate water-related energy conservation and efficiency practices in new and existing development.
- **Goal 7:** Reduce municipal electricity use at City facilities 10 percent below baseline 2010 levels by 2020.

Therefore, to determine whether the GHG emissions associated with the future development of the General Plan Housing Element are significant, this analysis uses the SCAQMD Tier 4 2035 4.1 MTCO₂e per service population per year for plans threshold.

The future development accommodated under the General Plan Housing Element will be subject to the latest requirements of the California Green Building and Title 24 Energy Efficiency Standards (currently 2019) which would reduce project-related greenhouse gas emissions.

3.0 Setting

3.1 Existing Physical Setting

The City of Sierra Madre is part of the South Coast Air Basin (SCAB) that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the South Coast Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

3.1.1 Local Climate and Meteorology

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal areas and around the Los Angeles area is transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas. Air stagnation may occur during the early evening and early morning periods of transition between day and nighttime flows. The region also experiences periods of hot, dry winds from the desert, known as Santa Ana winds. If the Santa Ana winds are strong, they can surpass the sea breeze, which blows from the ocean to the land, and carry the suspended dust and pollutants out to the ocean. If the winds are weak, they are opposed by the sea breeze and cause stagnation, resulting in high pollution events.

The annual average temperature varies little throughout much of the basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas where the City is located. The majority of the annual rainfall in the basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunderstorms in the coastal regions and slightly heavier showers in the eastern portion of the basin along the coastal side of the mountains. Year-to-year patterns in rainfall are unpredictable because of fluctuations in the weather.

Temperature inversions limit the vertical depth through which pollution can be mixed. Among the most common temperature inversions in the basin are radiation inversions, which form on clear winter nights when cold air off mountains sink to the valley floor while the air aloft over the valley remains warm. These inversions, in conjunction with calm winds, trap pollutants near the source. Other types of temperature inversions that affect the basin include marine, subsidence, and high-pressure inversions.

Summers are often periods of hazy visibility and occasionally unhealthful air. Strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air

pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloudtrap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution “hot spots” in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the City’s vicinity.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution “hot spots” in heavily developed coastal areas of the basin, there is not enough traffic to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the City’s vicinity.

The temperature and precipitation levels for the City of San Jacinto, closest station with data, are in Table 3. Table 3 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the vicinity of the City varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 3: Meteorological Summary

Month	Temperature (°F)		Average Precipitation (inches)
	Average High	Average Low	
January	70.4	43.3	3.44
February	70.9	45.4	4.42
March	73.5	48.0	3.21
April	76.8	50.8	1.10
May	79.2	55.5	0.41
June	83.7	59.3	0.15
July	88.8	62.9	0.03
August	90.4	63.3	0.09
September	88.4	61.0	0.31
October	83.0	55.3	0.76
November	73.4	46.5	1.24
December	70.3	43.0	2.21
Annual Average	79.3	53.0	17.4
Notes:			
¹ Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7785			

3.1.2 Local Air Quality

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project is the future development associated with the City of Sierra Madre’s General Plan Housing Element and is, therefore, located in

the City of Sierra Madre in the East San Gabriel Valley (Area 9). The nearest air monitoring station to the project site is the Pasadena – S Wilson Avenue Station (Pasadena Station). The Pasadena Station is located at 752 S Wilson Avenue; however, this location does not provide all ambient weather data. Therefore, additional data was pulled from the Azusa Station located at 803 N. Loren Avenue for Particulate Matter (PM₁₀) and from the SCAQMD historical data for the East San Gabriel Valley (Area 9) for both sulfur dioxide and carbon monoxide to provide the existing levels. Table 4 presents the monitored pollutant levels within the vicinity. However, it should be noted that due to the air monitoring station distance from the project sites, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project sites.

Table 4: Local Area Air Quality Levels

Pollutant (Standard) ²	Year		
	2017	2018	2019
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.139	0.112	0.120
Days > CAAQS (0.09 ppm)	18	8	11
Maximum 8-Hour Concentration (ppm)	0.100	0.091	0.098
Days > NAAQS (0.07 ppm)	36	19	24
Days > CAAQS (0.070 ppm)	38	20	29
Carbon Monoxide:			
Maximum 1-Hour Concentration (ppm)	1.8	1.4	1.6
Days > NAAQS (20 ppm)	0	0	0
Maximum 8-Hour Concentration (ppm)	0.9	1.0	1.1
Days > NAAQS (9 ppm)	0	0	0
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.072	0.068	0.059
Days > NAAQS (0.25 ppm)	0	0	0
Sulfur Dioxide:			
Maximum 1-Hour Concentration (ppm)	*	*	*
Days > CAAQS (0.25 ppm)	0	0	0
Inhalable Particulates (PM₁₀):			
Maximum 24-Hour Concentration (ug/m ³)	83.9	78.3	82.0
Days > NAAQS (150 ug/m ³)	0	0	0
Days > CAAQS (50 ug/m ³)	7	10	4
Annual Average (ug/m ³)	31.7	32.7	28.6
Annual > NAAQS (50 ug/m ³)	No	No	No
Annual > CAAQS (20 ug/m ³)	Yes	Yes	Yes
Ultra-Fine Particulates (PM_{2.5}):			
Maximum 24-Hour Concentration (ug/m ³)	22.8	32.5	41.8
Days > NAAQS (35 ug/m ³)	0	0	1
Annual Average (ug/m ³)	9.7	10.3	9.1
Annual > NAAQS (15 ug/m ³)	*	*	No
Annual > CAAQS (12 ug/m ³)	*	*	No
¹ Source: obtained from https://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year and /or https://www.arb.ca.gov/adam/topfour/topfour1.php ² CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million ³ No data available.			

The monitoring data presented in Table 4 shows that ozone and particulate matter (PM10) are the air pollutants of primary concern in the project area, which are detailed below.

Ozone

During the 2017 to 2019 monitoring period, the State 1-hour concentration standard for ozone has been exceeded between 20 and 38 days each year at the Pasadena Station. The State 8-hour ozone standard has been exceeded between 19 and 36 days each year over the past three years at the Pasadena Station. The Federal 8-hour ozone standard has been exceeded between eight and 18 days each year over the past three years at the Pasadena Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO₂, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The East San Gabriel Valley Area did not record an exceedance of the state or federal 1-hour or 8-hour CO standards for the last three years.

Nitrogen Dioxide

The Pasadena Station did not record an exceedance of the State or Federal NO₂ standards for the last three years.

Sulfur Dioxide

The East San Gabriel Valley Area did not record an exceedance of the State SO₂ standards for the last three years.

Particulate Matter

During the 2017 to 2019 monitoring period, the State 24-hour concentration standard for PM10 was exceeded between four and ten days each year at the Azusa Station. Over the same time period, the Federal 24-hour standards for PM10 have not been exceeded at the Azusa Station.

During the 2017 to 2019 monitoring period, the Federal 24-hour standard for PM2.5 were exceeded for only one day in 2019 at the Pasadena Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered

sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

3.1.3 Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or ‘form’ of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual PM_{2.5} standard is met if the three-year average of the annual average PM_{2.5} concentration is less than or equal to the standard. Table 5 lists the attainment status for the criteria pollutants in the basin.

Table 5: South Coast Air Basin Attainment Status

Pollutant	Standard ¹	Averaging Time	Designation ²	Attainment Date ³
1-Hour Ozone	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (not attained) ⁴
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone ⁵	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	7/20/2032
	NAAQS	2015 8-Hour (0.070 ppm)	Nonattainment (Extreme)	8/3/2038
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO ₂ ⁶	NAAQS	1-Hour (0.1 ppm)	Unclassifiable/Attainment	N/A (attained)
	NAAQS	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-hour (0.18 ppm) Annual (0.030 ppm)	Attainment	-
SO ₂ ⁷	NAAQS	1-Hour (75 ppb)	Designations Pending (expect Uncl./Attainment)	N/A (attained)
	NAAQS	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (attained)
PM ₁₀	NAAQS	1987 24-Hour (150 µg/m ³)	Attainment (Maintenance) ⁸	7/26/2013 (attained)
	CAAQS	24-Hour (50 µg/m ³) Annual (20 µg/m ³)	Nonattainment	N/A
PM _{2.5} ⁹	NAAQS	2006 24-Hour (35 µg/m ³)	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual	Attainment	8/24/2016

		(15.0 µg/m ³)		
	NAAQS	2021 Annual (12.0 µg/m ³)	Nonattainment (Serious)	12/31/2025
	CAAQS	Annual (12.0 µg/m ³)	Nonattainment	N/A
Lead	NAAQS	3-Months Rolling (0.15 µg/m ³)	Nonattainment (Partial) ¹⁰	12/31/2015
<p>Notes:</p> <p>Source: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf</p> <p>¹ NAAQS = National Ambient Air Quality Standards, CAAQS = California Ambient Air Quality Standards</p> <p>² U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable.</p> <p>³ A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.</p> <p>⁴ 1-hour O3 standard (0.12 ppm) was revoked, effective June 15, 2005 ; however, the Basin has not attained this standard based on 2008-2010 data and is still subject to anti-backsliding requirements.</p> <p>⁵ 1997 8-hour O3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the revoked 1997 O3 standard is still subject to anti-backsliding requirements.</p> <p>⁶ New NO2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO2 standard retained.</p> <p>⁷ The 1971 annual and 24-hour SO2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO2 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable /Attainment.</p> <p>⁸ Annual PM10 standard was revoked, effective December 18, 2006; 24-hour PM10 NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM10 maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.</p> <p>⁹ Attainment deadline for the 2006 24-Hour PM2.5 NAAQS (designation effective December 14, 2009) is December 31, 2019 (end of the 10th calendar year after effective date of designations for Serious nonattainment areas). Annual PM2.5 standard was revised on January 15, 2013, effective March 18, 2013, from 15 to 12 µg/m3. Designations effective April 15, 2015, so Serious area attainment deadline is December 31, 2025.</p> <p>¹⁰ Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect redesignation to attainment based on current monitoring data.</p>				

3.2 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO₂), methane (CH₄), ozone, water vapor, nitrous oxide (N₂O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO₂ and nitrous oxide (NO₂) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO₂, where CO₂ is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. Table 6 provides a description of each of the greenhouse gases and their global warming potential. Additional information is available: <https://www.arb.ca.gov/cc/inventory/data/data.htm>

Table 6: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N ₂ O), also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N ₂ O.
Methane	Methane (CH ₄) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	A natural source of CH ₄ is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO ₂) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone, therefore their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF ₆) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
Notes: 1. Sources: Intergovernmental Panel on Climate Change 2014a and Intergovernmental Panel on Climate Change 2014b. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html		

3.2 Existing Emissions

The existing regional operational pollutant emissions associated with the opportunity sites that are to be re-zoned under the Housing Element have been provided below in Table 7. These are the exiting year 2021 emissions associated with the development currently existing at the opportunity sites (existing land uses were modeled as identified in Appendix C of the Draft City of Sierra Madre Housing Element 2021-2029). As shown in Table 7, the existing uses do not exceed SCAQMD regional operational thresholds.

Table 7: Existing Regional Criteria Air Pollutant Emissions Inventory (lbs/day)

Activity	Pollutant Emissions (pounds/day) ¹					
	VOC	NOx	CO	SO2	PM10	PM2.5
Year 2021						
Area Sources ²	1.90	0.89	5.00	0.01	0.09	0.09
Energy Usage ³	0.03	0.23	0.10	0.00	0.02	0.02
Mobile Sources ⁴	3.18	4.01	31.88	0.06	6.23	1.70
Total Emissions	5.11	5.13	36.98	0.07	6.34	1.81
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No
Notes:						
¹ Source: CalEEMod Version 2020.4.0						
² Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.						
³ Energy usage consists of emissions from on-site natural gas usage.						
⁴ Mobile sources consist of emissions from vehicles and road dust.						

The existing, year 2021, greenhouse gas emissions associated with the opportunity sites have been provided below in Table 8. As shown in Table 8, the existing uses do not exceed the SCAQMD draft GHG threshold of 4.1 MTCO₂e per service population per year for plans.

Table 8: Existing Year 2021 Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year) ¹					
	Bio-CO2	NonBio-CO ₂	CO ₂	CH ₄	N ₂ O	CO ₂ e
Area Sources ²	0.00	13.05	13.05	0.00	0.00	13.14
Energy Usage ³	0.00	96.13	96.13	0.00	0.00	96.66
Mobile Sources ⁴	0.00	486.24	486.24	0.04	0.02	494.03
Solid Waste ⁵	6.27	0.00	6.27	0.37	0.00	15.53
Water ⁶	1.17	13.11	14.28	0.12	0.00	18.18
Total Emissions	7.44	608.53	615.97	0.53	0.03	637.56
MTCO2e/SP ⁷						
						3.98
SCAQMD Draft Service Population Threshold						4
Exceeds Threshold?						No
Notes:						
¹ Source: CalEEMod Version 2020.4.0						
² Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.						
³ Energy usage consist of GHG emissions from electricity and natural gas usage.						
⁴ Mobile sources consist of GHG emissions from vehicles.						
⁵ Solid waste includes the CO ₂ and CH ₄ emissions created from the solid waste placed in landfills.						
⁶ Water includes GHG emissions from electricity used for transport of water and processing of wastewater.						
⁷ Service population based on the population provided in the CalEEmod output of 160 residents.						

4.0 Modeling Parameters and Assumptions

4.1 Operations

Operational or long-term emissions occur over the life of the land uses identified as part of the future development to be accommodated under the City's General Plan Housing Element. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume natural gas, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project. Small amounts of emissions would also occur from area sources such as the consumption of natural gas for heating, hearths, from landscaping emissions, and consumer product usage. The operational emissions analysis includes three scenarios: the Existing scenario which is that of the existing development associated with the opportunity sites, the 2015 General Plan Update scenario which includes the future development associated with the buildout of the opportunity sites under the designations identified in the General Plan, and the Housing Element scenario which includes the future development associated with the new designations identified in the Housing Element. All scenarios were estimated using the latest version of CalEEMod (Version 2020.4.0) for the following sectors:

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the future development of the General Plan Housing Element. The CalEEMod default project trips and vehicle miles traveled (VMTs) were adjusted based on the trip generation and VMT Analysis data provided by Gilbert Transportation Consulting, Inc (see Appendix C).³⁴

³ The VMT calculations provided in the VMT Report (provided by Gilbert Transportation Consulting, Inc.) is based on City and community specific traffic model data and provides for a more accurate analysis of VMT than the default data provided in CalEEMod. However, because the LADOT's VMT Calculator is not entirely aligned with the input data and program methodology applied in CalEEMod, and does not account for weekend or pass-by trips, several adjustments to the model were required. These include: (1) The VMT Calculator is based on different trip generation rates and travel patterns than the CalEEMod program. Therefore, the average daily trips is consolidated for the entire project, as opposed to each land use type. (2) A user defined land use ("User Defined Commercial") was created to calculate Project Trips and VMTs. This land use category aggregates the trips and trip lengths for the project as a whole. (3) All trip data and trip type data was deleted from the individual land uses as the "User Defined Commercial" land use category aggregates all of the trip data for the project as a whole. (4) The average trip length was derived by dividing the total VMTs estimated in the LADOT VMT Calculator tool by the average daily trips. (5) The LADOT VMT Calculator tool factors in weekday trips only. Therefore, estimates for Saturday and Sunday trips were provided based on the ratio of Weekday to Weekend trips using CalEEMod default ITE trip rate data.

⁴ As the VMT provided by Gilbert Transportation Consulting, Inc. was based on service populations that included a larger area than each of the proposed development site's themselves; per discussion with Gilbert Transportation Consulting, Inc., the VMT for each site was calculated by multiplying the multi- and single-family population per dwelling unit number (i.e., 3.16) by the home-based VMT per capita number (varies per site) and the number of either proposed or existing dwelling units. The multi- and single-family population per dwelling unit number and the home-based VMT per capita numbers for each site were provided in the VMT modeling prepared by Gilbert Transportation Consulting, Inc for the Housing Element Update. Then, for the uses under the Housing Element scenario, in order to get the VMT reductions identified in the traffic analysis, the existing VMT and VMT with reduction rates were compared to one another to identify the percent reduction provided.

Furthermore, as the trip generation and VMT for the uses under the 2015 General Plan Update scenario were not in the information provided by Gilbert Transportation Consulting, Inc., it was assumed that all multi-family uses under this scenario would also have a trip generation rate of 7.32 trips per dwelling unit per day and all single-family uses would have a rate of 9.44 trips per dwelling unit

The program then applies the emission factors for each trip which is provided by the EMFAC2017 model to determine the vehicular traffic pollutant emissions. Please see CalEEMod output comments sections in Appendix A and B for details.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment.

Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings that would be applied after January 1, 2014 will be limited to an average of 50 grams per liter or less for buildings and 100 grams per liter or less for parking lot striping. To be conservative, the CalEEMod architectural coating default values were used in the analysis.

Energy Usage

2020.4.0 CalEEMod defaults were utilized.

4.2 Localized Analysis

Localized Significance Thresholds (LSTs) are the amount of project-related emissions at which localized concentrations could exceed the AAQS for criteria pollutants for which the South Coast Air Basin is designated nonattainment. SCAQMD LSTs to determine if emissions of NO₂, CO, PM₁₀, and PM_{2.5} generated at a project site (offsite mobile-source emissions are not included in the LST analysis) would expose sensitive receptors to substantial concentrations of criteria air pollutants. The SCAQMD has published a “Fact Sheet for Applying CalEEMod to Localized Significance Thresholds” (South Coast Air Quality Management District 2011b).

Per the LST methodology, information regarding specific development projects and the location of receptors would be needed in order to quantify the levels of impact associated with future development projects. Thus, as the Housing Element is a plan level analysis, it is not possible to calculate individual project-related localized emissions at this time. Air quality emissions would be addressed on a project-by-project basis as individual development projects are considered.

Furthermore, in accordance with SCAQMD’s LST methodology, construction LSTs are based on the acreage disturbed per day based on equipment use. However, as discussed above, an LST analysis for

per day to be consistent with the trip generation rates provided for the Existing and Housing Element Update scenarios. In addition, to be consistent, the VMT for each site under the 2015 General Plan Update scenario was also calculated based on multiplying the multi- and single-family population per dwelling unit number (i.e., 3.16) by the home-based VMT per capita number (varies per site) and the number of proposed dwelling units.

construction-related localized impacts can only be conducted at a project level, and quantification of LSTs is not applicable for this program-level analysis.

LST analysis is applicable to projects to five acres and less and can be used as a screening criterion for larger projects to determine whether or not dispersion modeling may be required. However, according to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources (such as heavy-duty trucks) that may spend long periods queuing and idling at the site; such as industrial warehouse/transfer facilities. The future development accommodated by the Housing Element includes only an increased number of residential uses and does not include such uses. Therefore, due to the lack of stationary source emissions, no long-term localized significance threshold analysis is to be warranted for the future individual project.

Therefore, as future development associated with the Housing Element could exceed SCAQMD regional significance thresholds for construction, in accordance with SCAQMD methodology, it may also result in significant construction-related localized impacts. However, due to the nature of the planned development, operational localized significance thresholds are considered less than significant.

5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

- a) Conflict with or obstruct implementation of the applicable air quality plan;
- b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;
- c) Expose sensitive receptors to substantial pollutant concentrations; or
- d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, SCAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. There are daily emission thresholds for construction and operation of a proposed project in the basin.

5.1.2 Regional Significance Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions are established for the Basin:

- 75 pounds per day (lbs/day) of VOC
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO₂

Projects in the basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under SCAQMD guidelines.

5.1.3 Regional Significance Thresholds for Operational Emissions

The daily operational emissions significance thresholds for the basin are as follows:

- 55 pounds per day (lbs/day) of VOC
- 55 lbs/day of NO_x

- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO₂

Local Microscale Concentration Standards The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

5.1.4 Thresholds for Localized Significance

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are NO₂, CO, PM₁₀, and PM_{2.5}.

As stated previously, an LST analysis for construction-related localized impacts can only be conducted at a project level, and quantification of construction LSTs is not applicable for this program-level analysis.

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

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

- (b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As previously discussed (Section 2.2.4 of this report), SCAQMD has drafted an interim GHG threshold of 4.1 MTCO₂e per service population per year for plans. This threshold was used in this analysis.

6.0 Air Quality Emissions Impact

6.1 Construction Air Quality Emissions Impact

Construction activities associated with the future development of the Housing Element would occur over buildout of the Housing Plan Update, which includes the year 2021 through 2029, and would cause short-term emission of criteria air pollutants. The primary source of NO_x, CO, and Sox emissions is the operation of construction equipment. The primary sources of particulate matter (PM₁₀ and PM_{2.5}) emissions are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary source of VOC emissions is the application of architectural coatings and off-gas emissions associated with asphalt paving.

Information regarding each specific development project accommodated under the Housing Element (such as construction timeline, earthworks information, amount and type of construction equipment etc.) would be needed in order to quantify the level of impact associated with construction activity. Due to the scale of development activity associated with the future development accommodated under the Housing Element, emissions could exceed the SCAQMD regional significance thresholds.

The air quality emission related to construction must be addressed on a project-by-project level basis. For this broad-based policy level analysis developed for the Housing Element, it is not possible to determine whether the scale and phasing of individual development projects would exceed the SCAQMD's short-term regional or localized construction emissions thresholds. Construction activities associated with the buildout of the future development of the Housing Element are anticipated to occur sporadically over an approximately 9-year period (i.e., 2021-2029) or longer. Future development would be comprised of multiple smaller development projects, each having its own construction timeline and activities. Development of multiple properties could occur at the same time. Construction activities would temporarily increase PM₁₀, PM_{2.5}, VOC, NO_x, Sox, and CO regional emission with the South Coast Air Basin.

The individual construction projects would be subject to regulatory measures including Rule 403 for fugitive dust control, Rule 1113 for architectural coatings, and other applicable SCAQMD regulatory measures as well as applicable policies and implementation measures of the General Plan Update. In addition, potential mitigation could be imposed at the project level including extension of construction schedules and/or use of special equipment etc. In addition to compliance with SCAQMD rules, the construction activity associated with each individual project would also be subject to all applicable policies and implementation measures contained in the General Plan Update. Although adherence to applicable regulations and policies would contribute to minimizing construction-related criteria air pollutant emission, it is still possible that some of the new development projects that would be accommodated under the Housing Element could exceed relevant SCAQMD significance thresholds. Therefore, construction-related air quality impacts associate with the future development of the Housing Element would be significant.

6.1.2 Construction-Related Human Health Impacts

Regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air quality standards, which are intended to protect public health from both acute and long-term health impacts, depending on the potential effects of the pollutant. Because it is still possible that some of the new development projects that would be accommodated under the Housing Element could exceed relevant SCAQMD significance thresholds; the future development accommodated in the Housing Element could contribute to an increase in health effects in the basin related to short-term health impacts related to nonattainment of the ambient air quality standards. Therefore, significant adverse acute health impacts as a result of project construction could result and Mitigation Measure 1 is required to reduce potential impacts.

6.1.4 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. The Office of Environmental Health Hazard Assessment (OEHHA) has issued the Air Toxic Hot Spots Program Risk Assessment Guidelines and Guidance Manual for the Preparation of Health Risk Assessments, February 2015 to provide a description of the algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987. Hazard identification includes identifying all substances that are evaluated for cancer risk and/or non-cancer acute, 8-hour, and chronic health impacts. In addition, identifying any multi-pathway substances that present a cancer risk or chronic non-cancer hazard via non-inhalation routes of exposure.

As construction activities associated with the future development of the Housing Element would occur over buildout of the Housing Plan Update, which includes the year 2021 through 2029, information regarding each specific development project accommodated under the Housing Element (such as construction timeline, earthworks information, amount and type of construction equipment etc.) is not available at this time. It was not possible to determine whether the scale and phasing of individual development projects would exceed the SCAQMD's short-term regional or localized construction emissions thresholds. Future development associated with the Housing Element was found to have the ability to exceed applicable regional and localized thresholds of significance established by the SCAQMD. Therefore, impacts related to short-term toxic air contaminant impacts that would occur during construction are considered potentially significant and Mitigation Measure 1 is required to reduce potential impacts.

6.2 Operational Air Quality Emissions Impact

6.2.1 Regional Operational Emissions

The operations-related criteria air quality impacts created by the future development accommodated under the Housing Element have been analyzed through the use of CalEEMod model. The operating

emissions were based on the buildout year of the Housing Element, year 2029. The summer and winter emissions created by the General Plan Housing Element Update's long-term operations were calculated and the highest emissions from either summer or winter are summarized in Table 9.

Table 9: Regional Significance - Unmitigated Operational Emissions (lbs/day)

Activity	Pollutant Emissions (pounds/day) ¹					
	VOC	NOx	CO	SO2	PM10	PM2.5
Existing						
Area Sources ²	1.90	0.89	4.98	0.01	0.09	0.09
Energy Usage ³	0.03	0.23	0.10	0.00	0.02	0.02
Mobile Sources ⁴	2.46	2.38	23.29	0.05	6.20	1.67
Total Emissions	4.39	3.50	28.37	0.06	6.31	1.79
2015 General Plan Update						
Area Sources ²	5.44	2.52	14.13	0.02	0.26	0.26
Energy Usage ³	0.09	0.81	0.35	0.01	0.07	0.07
Mobile Sources ⁴	6.52	5.92	62.76	0.14	16.88	4.56
Total Emissions	12.05	9.26	77.24	0.16	17.21	4.89
Proposed Housing Element						
Area Sources ²	9.81	5.32	29.74	0.03	0.56	0.56
Energy Usage ³	0.18	1.51	0.64	0.01	0.12	0.12
Mobile Sources ⁴	13.67	12.95	126.12	0.28	33.10	8.94
Total Emissions	23.66	19.78	156.50	0.32	33.78	9.62
Net Increase of Proposed Housing Element compared to Existing Uses	19.27	16.28	128.13	0.26	27.47	7.83
Net Increase of Proposed Housing Element compared to 2015 General Plan Update Uses	11.61	10.52	79.26	0.16	16.57	4.73
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No
Notes: ¹ Source: CalEEMod Version 2020.4.0. Based on highest winter or summer emissions using Year 2029 emission rates. ² Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment. ³ Energy usage consists of emissions from on-site natural gas usage. ⁴ Mobile sources consist of emissions from vehicles and road dust.						

Table 9 provides the unmitigated operational emissions associated with the future development accommodated under the Housing Element, the unmitigated operational emissions of the existing uses, and the operational emissions associated with the buildout of the sites under the 2015 General Plan Update. Table 9 also includes a comparison of the operational emissions under the Housing Element to both the existing emissions and the 2015 General Plan Update emissions. Table 9 shows that the emissions associated with the future development accommodated under the Housing Element do not exceed the SCAQMD daily emission threshold. Respectively, the net increase associated with the Housing Plan Update from both the Existing scenario and the 2015 General Plan Update scenario is also under SCAQMD thresholds. Therefore, regional operational emissions are considered to be less than significant.

6.2.2 Localized Operational Emissions

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, on-site usage of natural gas appliances as well as the operation of vehicles on-site may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

As stated previously, according to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources (such as heavy-duty trucks) that may spend long periods queuing and idling at the site; such as industrial warehouse/transfer facilities. The proposed project includes the updating of the general plan zoning under the Housing Element to include an increased number of residential uses and does not include such uses. Therefore, due to the lack of stationary source emissions, no long-term localized significance threshold analysis is warranted.

6.2.3 Operations-Related Human Health Impacts

As stated previously, regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air quality standards, which are intended to protect public health from both acute and long-term health impacts, depending on the potential effects of the pollutant. Because regional and local emissions of criteria pollutants during operation of the future development accommodated under the Housing Element would be below the applicable thresholds, it would not contribute to long-term health impacts related to nonattainment of the ambient air quality standards. Therefore, significant adverse acute health impacts as a result of operation of the future development accommodated under the Housing Element are not anticipated.

6.3 Odors

The SCAQMD recommends that operational odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Growth within the City of Sierra Madre could generate new sources of odors and place sensitive receptors near existing sources of odors. The SCAQMD CEQA Handbook states that an odor impact would occur if a project causes an odor nuisance pursuant to SCAQMD Rule 402, which states:

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating

from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Potential sources that may emit odors during construction activities of future development accommodated under the Housing Element include the application of materials such as asphalt pavement and architectural coatings and construction equipment exhaust. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Therefore, due to the short-term nature and limited amounts of odor producing materials, impacts associated with construction-generated odors are considered to be less than significant.

Land uses typically considered to be associated with odors include, but are not limited to, agricultural operations, chemical plants, composting operations, dairies, fiberglass molding, landfills, refineries, rendering plants, rail yards, and wastewater treatment plants.⁵ The future development associated with the Housing Element does not contain land uses typically associated with emitting objectionable odors. The Housing Element includes residential land uses which have the potential to generate odors from such activities such as exhaust from landscaping equipment; however, residential uses are not considered potential generators of odors that could affect a substantial number of people. Therefore, impacts from potential odors from residential land uses are considered to be less than significant.

6.4 CO Hot Spot Emissions

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented in above in Section 5.0.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section 5.0, a sensitivity analysis is typically conducted to determine the potential for CO “hot spots” at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, “hot spots” potentially can occur at high traffic volume intersections with a Level of Service E or worse.

Micro-scale air quality emissions have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for CO. However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no “hot spots” anywhere in the air basin, even

⁵ <http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf?sfvrsn=4>

at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in Los Angeles County. If the worst-case intersections in the air basin have no “hot spot” potential, any local impacts will be below thresholds.

The trip generation provided by Gibson Transportation Consulting, Inc. showed that the existing uses of the site’s to be re-zoned under the Housing Element currently generate 528 average daily trips with 186 trips during the AM peak hour and 249 trips during the PM Peak hour. In addition, the future development associated with the Housing Element would generate 3,026 average daily trips with 229 trips during the AM peak hour and 305 trips during the PM peak hour. Utilizing the multi-family and single-family trip generation rates provided by Gibson Transportation Consulting, Inc. it can be assumed that buildout of the sites under the designations of the 2015 General Plan Update would have approximately 1,164 daily vehicle trips. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. The volume of traffic associated with the future development of the Housing Element would be well below 100,000 vehicles and below the necessary volume to even get close to causing a violation of the CO standard. Therefore no CO “hot spot” modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the future development of the Housing Element .

6.5 Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area.

The project area is out of attainment for both ozone and PM10 particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact.

As discussed in the construction analysis above, Section 6.1, it is possible that some of the future development projects accommodated under the Housing Element could exceed relevant SCAQMD construction-related significance thresholds. Therefore, during short-term construction related activities, the Housing Element has the potential to cumulatively contribute to the nonattainment designations of the South Coast Air Basin for Ozone and particulate matter. Therefore, construction-related air quality impacts of the future development associated with the Housing Element would be significant. However, as the long-term emissions of the future development associated with the

Housing Element would not exceed SCAQMD operational thresholds of significance the project is considered to not substantially cumulatively contribute to the nonattainment designations of the South Coast Air Basin.

6.6 Air Quality Compliance

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- (2) Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

A. Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in this Air Analysis, short-term construction impacts from the future development associated with the Housing Element could result in significant impacts based on the SCAQMD regional and local thresholds of significance; however, the 2015 General Plan Update DEIR also identified potentially significant impacts associated with construction. Therefore, the future development associated with the Housing Element would not cause an increase in the frequency or severity of previously identified violations. Furthermore, long-term operations impacts from the future development associated with the Housing Element will not result in significant impacts based on the SCAQMD local and regional thresholds of significance.

Therefore, the future development associated with the Housing Element is not projected to contribute to an increased exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

B. Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP strategy is based on projections from local general plans. Therefore, for this project, the City of Sierra Madre Land Use Plans define the assumptions that are represented in the AQMP.

The proposed project is that of the City of Sierra Madre Housing Element and requires amending the City's General Plan designations on proposed Housing Element opportunity sites, which requires revisions to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan. As the Housing Element necessitates rezoning of some proposed opportunity sites it also includes changes to the City's Zoning Code and Zoning Map. The increased density of residential units accommodated under the Housing Element is in response to SCAG developing a Regional Housing Needs Allocation (RHNA) for the City of Sierra Madre for the City's 2021-2029 Housing Element planning period. The City's total RHNA for the 2021-2029 planning period is 204 units. As the City of Sierra Madre does not currently have an adequate number of sites with zoning in place to meet the RHNA requirements, the City identified possible housing sites to address Sierra Madre's RHNA obligation. These identified sites constitute the future development identified in the Housing Element.

As the Housing Element includes increased residential density at the identified opportunity sites, the estimated population for these sites would be higher than the population forecasted for these sites in the General Plan Update. Although the Housing Element would result in slightly higher population than those estimated in the General Plan Update, the increased residential density of the future development of the Housing Element is in response to SCAG forecasts in relation to the City's RHNA. Furthermore, SCAG's Regional Council recently approved and fully adopted the Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)) and the addendum to the Connect SoCal Program Environmental Impact Report in September 2020. Although the 2016 AQMP does not include the emissions of the additional population growth associated with the Housing Element, as the AQMP is based on population, employment, and VMT in the South Coast Air Basin region as projected by SCAG and operation of the new land uses associated with the Housing Element would not cumulatively contribute to the nonattainment designations of the South Coast Air Basin, the Housing Element is considered to be consistent with the AQMP.

Based on the above, the future development associated with the Housing Element will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur.

7.0 Greenhouse Gas Impact Analysis

7.1 Operational Greenhouse Gas Emissions Impact

Operational emissions will occur over the life of the future development associated with the General Plan Housing Element. The operational emissions associated with the future development of the housing element (without credit for any reductions from sustainable design and/or regulatory requirements) are 2,986.59 metric tons of CO₂e per year or 3.12 metric tons of CO₂e per service population per year (as shown in Table 10). Furthermore, the operational emissions associated with the existing uses (without credit for any reductions from sustainable design and/or regulatory requirements) are 557.29 metric tons of CO₂e per year or 3.48 metric tons of CO₂e per service population per year and for the 2015 General Plan Update are 1,573 metric tons of CO₂e per year or 3.46 metric tons of CO₂e per service population per year (as shown in Table 10). Therefore, as shown in Table 10, the net change in emissions is a reduction of approximately 0.37 metric tons of CO₂e per service population per year from the Existing uses and a reduction of approximately 0.35 metric tons of CO₂e per service population per year from the 2015 General Plan Update uses.

According to the thresholds of significance established above, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations of the future development accommodated under the Housing Element would exceed the SCAQMD draft 2035 threshold 4.1 MTCO₂e per service population per year for plans. Therefore, the future development associated with the City's Housing Element would not create a significant cumulative impact to global climate change as it would result in a reduction in emissions per service population from both the Existing and 2015 General Plan Update scenarios.

<Table 10, next page>

Table 10: Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year) ¹					
	Bio-CO2	NonBio-CO ₂	CO ₂	CH ₄	N ₂ O	CO ₂ e
Existing						
Area Sources ²	0.00	13.05	13.05	0.00	0.00	13.14
Energy Usage ³	0.00	96.13	96.13	0.00	0.00	96.66
Mobile Sources ⁴	0.00	407.84	407.84	0.03	0.02	413.76
Solid Waste ⁵	6.27	0.00	6.27	0.37	0.00	15.53
Water ⁶	1.17	13.11	14.28	0.12	0.00	18.18
Total Emissions	7.44	530.13	537.57	0.53	0.02	557.29
MTCO ₂ e/SP ⁷						3.48
SCAQMD Draft Service Population Threshold						4.1
Exceeds Threshold?						No
2015 General Plan Update						
Area Sources ²	0.00	37.04	37.04	0.00	0.00	37.31
Energy Usage ³	0.00	339.30	339.30	0.02	0.00	341.18
Mobile Sources ⁴	0.00	1,064.01	1,064.01	0.07	0.04	1,079.22
Solid Waste ⁵	25.84	0.00	25.84	1.53	0.00	64.02
Water ⁶	3.30	36.94	40.24	0.34	0.01	51.27
Total Emissions	29.14	1,477.29	1,506.43	1.96	0.06	1,573.00
MTCO ₂ e/SP ⁷						3.46
SCAQMD Draft Service Population Threshold						4.1
Exceeds Threshold?						No
Proposed Housing Element						
Area Sources ²	0.00	78.04	78.04	0.01	0.00	78.61
Energy Usage ³	0.00	605.80	605.80	0.03	0.01	609.18
Mobile Sources ⁴	0.00	2,058.23	2,058.23	0.15	0.09	2,089.03
Solid Waste ⁵	41.23	0.00	41.23	2.44	0.00	102.15
Water ⁶	6.92	77.51	84.44	0.72	0.02	107.62
Total Emissions	48.16	2,819.59	2,867.75	3.34	0.12	2,986.59
MTCO ₂ e/SP ⁷						3.12
SCAQMD Draft Service Population Threshold						4.1
Exceeds Threshold?						No
Net Increase of Proposed Housing Element compared to Existing uses						-0.37
SCAQMD Draft Service Population Threshold						4.1
Exceeds Threshold?						No
Net Increase of Proposed Housing Element compared to 2015 General Plan Update uses						-0.35
SCAQMD Draft Service Population Threshold						4.1
Exceeds Threshold?						No
Notes:						
¹ Source: CalEEMod Version 2020.4.0. Based on Year 2029 emission rates.						
² Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.						
³ Energy usage consist of GHG emissions from electricity and natural gas usage.						
⁴ Mobile sources consist of GHG emissions from vehicles.						
⁵ Solid waste includes the CO ₂ and CH ₄ emissions created from the solid waste placed in landfills.						
⁶ Water includes GHG emissions from electricity used for transport of water and processing of wastewater.						
⁷ Service population based on the population provided in the CalEEMod output of 160 residents for the existing uses, 454 for the GP Update 2015 uses, and 958 residents for the uses associated with the Housing Element.						

7.2 Greenhouse Gas Plan Consistency

The Housing Element would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. The Housing Element's consistency with applicable plans is discussed below.

CARB Scoping Plan Consistency

The ARB Board approved a Climate Change Scoping Plan in December 2008. The Scoping Plan outlines the State's strategy to achieve the 2020 greenhouse gas emissions limit. The Scoping Plan "proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (California Air Resources Board 2008). The measures in the Scoping Plan have been in place since 2012.

This Scoping Plan calls for an "ambitious but achievable" reduction in California's greenhouse gas emissions, cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 10 percent from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman and child in California down to about 10 tons per person by 2020.

In May 2014, CARB released its *First Update to the Climate Change Scoping Plan* (CARB 2014). This *Update* identifies the next steps for California's leadership on climate change. While California continues on its path to meet the near-term 2020 greenhouse gas limit, it must also set a clear path toward long-term, deep GHG emission reductions. This report highlights California's success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050.

In November 2017, CARB release the 2017 Scoping Plan. This Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals, and includes a description of a suite of specific actions to meet the State's 2030 GHG limit. In addition, Chapter 4 provides a broader description of the many actions and proposals being explored across the sectors, including the natural resources sector, to achieve the State's mid and long-term climate goals.

Guided by legislative direction, the actions identified in the 2017 Scoping Plan reduce overall GHG emissions in California and deliver policy signals that will continue to drive investment and certainty in a low carbon economy. The 2017 Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Plan includes policies to require direct GHG reductions at some of the State's largest stationary sources and mobile sources.

These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and Trade Program, which constrains and reduces emissions at covered sources.

As the latest, 2017 Scoping Plan builds upon previous versions, project consistency with applicable strategies of both the 2008 and 2017 Plan are assessed in Table 11. As shown in Table 11, the future development accommodated in the Housing Element is consistent with the applicable strategies of the CARB Scoping Plan and would result in a less than significant impact.

Table 11: Consistency with CARB Scoping Plan Policies and Measures¹

2008 Scoping Plan Measures to Reduce Greenhouse Gas Emissions	Project Compliance with Measure
California Light-Duty Vehicle Greenhouse Gas Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	Consistent. These are CARB enforced standards; vehicles that access the future development sites of the Housing Element that are required to comply with the standards will comply with the strategy.
Energy Efficiency – Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	Consistent. The future development projects accommodated under the Housing Element will be required to comply with the current Title 24 standards.
Low Carbon Fuel Standard – Develop and adopt the Low Carbon Fuel Standard.	Consistent. These are CARB enforced standards; vehicles that access the future development sites of the Housing Element that are required to comply with the standards will comply with the strategy.
Vehicle Efficiency Measures – Implement light-duty vehicle efficiency measures.	Consistent. These are CARB enforced standards; vehicles that access the future development sites of the Housing Element that are required to comply with the standards will comply with the strategy.
Medium/Heavy-Duty Vehicles – Adopt medium and heavy-duty vehicle efficiency measures.	Consistent. These are CARB enforced standards; vehicles that access the future development sites of the Housing Element that are required to comply with the standards will comply with the strategy.
Green Building Strategy – Expand the use of green building practices to reduce the carbon footprint of California’s new and existing inventory of buildings.	Consistent. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code in the CCR. Part 11 establishes voluntary standards, that are mandatory in the 2019 edition of the Code, on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The future development accommodated in the Housing Element will be subject to these mandatory standards.
High Global Warming Potential Gases – Adopt measures to reduce high global warming potential gases.	Consistent. CARB identified five measures that reduce HFC emissions from vehicular and commercial refrigeration systems; vehicles that access the future development sites

	of the Housing Element that are required to comply with the measures will comply with the strategy.
Recycling and Waste – Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	Consistent. The state is currently developing a regulation to reduce methane emissions from municipal solid waste landfills. The future development of the Housing Element will be required to comply with City programs and regulations related to solid waste, which comply, with the 75 percent reduction required by 2020 per AB 341.
Water – Continue efficiency programs and use cleaner energy sources to move and treat water.	Consistent. The future development projects accommodated under the Housing Element will be required to comply with all applicable City ordinances and CAL Green requirements.
2017 Scoping Plan Recommended Actions to Reduce Greenhouse Gas Emissions	Project Compliance with Recommended Action
Implement Mobile Source Strategy: Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean Car regulations.	Consistent. These are CARB enforced standards; vehicles that access the future development sites of the Housing Element that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: At least 1.5 million zero emission and plug-in hybrid light-duty electric vehicles by 2025 and at least 4.2 million zero emission and plug-in hybrid light-duty electric vehicles by 2030.	Consistent. These are CARB enforced standards; vehicles that access the future development sites of the Housing Element that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20 percent of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100 percent of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NOX standard.	Consistent. These are CARB enforced standards; vehicles that access the future development sites of the Housing Element that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: Last Mile Delivery: New regulation that would result in the use of low NOX or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5 percent of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10 percent in 2025 and remaining flat through 2030.	Consistent. These are CARB enforced standards; vehicles that access the future development sites of the Housing Element that are required to comply with the standards will comply with the strategy.
Implement SB 350 by 2030: Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.	Consistent. The future development projects accommodated under the Housing Element will be required to comply with the current Title 24 standards.
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	Consistent. The future development of the Housing Element will be required to comply with City programs and regulations related to solid waste, which comply, with the 75 percent reduction required by 2020 per AB 341.
Notes: 1 Source: CARB Scoping Plan (2008 and 2017)	

Executive Orders S-03-05 and B-30-15

The future development accommodated under the Housing Element is consistent with the State's Executive Orders S-3-05 and B-30-15, which are orders from the State's Executive Branch for the purpose of reducing GHG emissions. These strategies call for developing more efficient land-use patterns to match population increases, workforce, and socioeconomic needs for the full spectrum of the population. The project includes elements of smart land use as it is the re-zoning and re-designation of sites within the City of Sierra Madre in order to match forecasted population growth within the City. Furthermore, the sites identified for future development within the Housing Element are well-served by transportation infrastructure.

Although the emissions levels of the future development accommodated under the Housing Element in 2050 cannot be reliably quantified, statewide efforts are underway to facilitate the State's achievement of that goal and it is reasonable to expect the emissions profile of the proposed uses would only decline as the regulatory initiatives identified by ARB in the First Update are implemented, and other technological innovations occur. Stated differently, the total emissions associated with the future development accommodated under the Housing Element presented in this analysis represents the maximum emissions inventory for these site's as the California's emissions sources are being regulated (and foreseeably expected to continue to be regulated in the future) in furtherance of the State's environmental policy objectives. As such, given the reasonably anticipated decline in emissions once fully constructed and operational, the future development accommodated under the Housing Element is consistent with the Executive Order's horizon-year goal.

Many of the emission reduction strategies recommended by ARB would serve to reduce the project's emissions level to the extent applicable by law and help lay the foundation "...for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050," as called for in ARB's First Update to the AB 32 Scoping Plan. As such, the project's emissions trajectory is expected to follow a declining trend, consistent with the 2030 and 2050 targets and Executive Order S-3-05 and B-30-15.

SCAG's RTP/SCS

SCAG's Regional Council approved and fully adopted the Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy) and the addendum to the Connect SoCal Program Environmental Impact Report in September 2020. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal is supported by a combination of transportation and land use strategies that help the region achieve state greenhouse gas emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry and utilize resources more efficiently. By integrating the Forecasted Development Pattern with a suite of financially constrained transportation investments, Connect SoCal can reach the regional target of reducing greenhouse gases, or GHGs, from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels).

The proposed project is that of the City of Sierra Madre Housing Element and requires amending the City's General Plan designations on proposed Housing Element opportunity sites, which requires revisions to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan and changes to the City's Zoning Code and Zoning Map. The increased density of residential units accommodated under the Housing Element is in response to SCAG developing a Regional Housing Needs Allocation (RHNA) for the City of Sierra Madre for the City's 2021-2029 Housing Element planning period. As the City of Sierra Madre does not currently have an adequate number of sites with zoning in place to meet the RHNA requirements, the City identified possible housing sites to address Sierra Madre's RHNA obligation. These identified sites are the future development analyzed in this report and identified in the Housing Element.

The future sites for rezoning identified in the Housing Element are all located in developed areas with existing roadway networks and near existing transit stops. Furthermore, the sites are located in close proximity to other surrounding existing residential, commercial, and institutional uses. Therefore, as the increased residential density of the future development of the Housing Element is in response to SCAG forecasts and the future development is located in developed areas in close proximity to existing transportation networks, the Housing Element is considered to be consistent with the measures identified in the SCAG RTP/SCS.

City of Sierra Madre Energy Action Plan

The City's Energy Action Plan focuses on reducing GHG emissions through reducing citywide and municipal electricity demand. The Housing Element's consistency with the goals and policies of the City's Energy Action Plan is provided in Table 12. As shown in Table 12, the Housing Element would be consistent with the Energy Action Plan. Therefore, the future development of the Housing Element Update would not be inconsistent with the City's Energy Action Plan.

<Table 12, next page>

Table 12: Consistency with the City of Sierra Madre Energy Action Plan¹

EAP Goal	EAP Policies	Compliance with Goals
Goal 1: Achieve maximum efficiency of the City's aging housing stock while reducing energy costs and enhancing the quality of historic and unique residences.	Policy 1.1: Promote household energy conservation by residents in existing structures through education and outreach.	Not Applicable: The Housing Element is the re-zoning and designation of sites to higher density residential; therefore, if development per the Housing Element occurs at these site, would not fall under the policies in under Goal 1 of the Energy Action Plan as there would be no existing structures to upgrade/retrofit.
	Policy 1.2: Encourage residential upgrades to more energy-efficient, cost-saving appliances and equipment.	
	Policy 1.3: Protect and preserve the City's mature housing stock by encouraging voluntary residential retrofits.	
Goal 2: Energy efficiency will strengthen the operational efficiency, quality, and viability of local businesses and the City's village core.	Policy 2.1: Promote commercial energy conservation by businesses in existing structures through education and outreach.	Not Applicable: The Housing Element is the re-zoning and designation of sites to higher density residential. It does not include commercial or business related uses.
	Policy 2.2: Support the use of energy-efficient appliances and equipment in leased and owner-occupied businesses.	
	Policy 2.3: Preserve and enhance the downtown business core by facilitating retrofits and energy efficiency improvements within the non-residential building stock.	
	Policy 2.4: Encourage energy efficiency benchmarking as a tool to help businesses and assess and identify opportunities to improve business energy performance.	
Goal 3: All new development and significant remodels will have a net zero community-wide energy demand by 2020.	Policy 3.1: Maximize the energy efficiency of new buildings through a community-wide green building framework.	Consistent: The future development associated with the Housing Element would be required to comply with all City regulations from the City's General Plan and Municipal Code including those applicable to energy efficiency. Furthermore, all future development would be subject to the California Green Building Standards Code (proposed Part 11, Title 24) which was adopted as part of the California Building Standards Code in the CCR. Part 11 establishes voluntary standards, that are mandatory in the 2019 edition of the Code, on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The future development associated with the Housing Element will be subject to these mandatory standards.
	Policy 3.2: Encourage the use of smart-grid-integrated and energy star appliances in new development.	

Goal 4: Integrate energy efficiency in the City's regulatory and policy framework.	Policy 4.1: Encourage energy efficiency through the development standards, permitting, and plan review processes.	Not Applicable: This goal requires the City to add additional regulations and policies regarding energy efficiency. The proposed project is an update to the Housing Element that includes re-zoning and designation of land use sites to higher density residential and would not include additional energy efficiency policies. However, the future development associated with the Housing Element would be required to comply with any applicable City energy efficient policies as identified in the City's General Plan and/or Municipal Code.
	Policy 4.2: Enhance the City's historic preservation process to facilitate energy efficiency in significant historic properties while maintaining building quality and the unique nature of historic districts.	
Goal 5: Enhance the quaint, tree-lined, and pedestrian-scale nature of existing neighborhoods.	Policy 5.1: Reduce residential electricity demand by promoting voluntary plantings of on-site trees that shade air-conditioned structures.	Consistent: The future development associated with the Housing Element would be required to comply with all City regulations from the City's General Plan and Municipal Code including those applicable to the number of trees to be planted for residential uses and the installation of cool roofs.
	Policy 5.2: Reduce citywide electricity demands with nonresidential and municipal shade trees.	
	Policy 5.3: Reduce electricity demand by encouraging the installation of cool roofs on residential and nonresidential buildings.	
Goal 6: Integrate water-related energy conservation and efficiency practices in new and existing development.	Policy 6.1: Reduce per capita water demand by 30% by 2020 from 262 gallons per day to 183 gallons per day to conserve energy used to pump, treat, and convey water.	Not Applicable: The Housing Element is the re-zoning and designation of sites to higher density residential. It does not include City facilities.
Goal 7: Reduce municipal electricity use at City facilities 10% below baseline 2010 levels by 2020.	Policy 7.1: Model the benefits of cost-effective energy management practices.	
	Policy 7.2: Maximize the energy efficiency of existing building envelopes.	
	Policy 7.3: Identify long-term options to replace the City's heating, ventilation, and air conditioning (HVAC) equipment with models that yield lower operational costs.	
	Policy 7.4: Maximize the efficiency of equipment in City facilities to reduce maintenance and energy costs and support operational efficiencies.	
	Policy 7.5: Continue to monitor opportunities to reduce energy use for motors and pumps, including the water	

	<div>service facility.</div> <div>Policy 7.6: Create a municipal financial system that supports energy efficiency.</div> <div>Policy 7.7: Enhance outdoor lighting to maintain Sierra Madre's traditional village feel while reducing municipal maintenance and utility costs.</div> <div>Policy 7.8: Work with the SGVCOG and regional partners for creation of a regional energy management position to track energy use at City facilities, identify opportunities for efficiencies and cost savings, and implement energy efficiency projects.</div>	
<p>Notes:</p> <p>1. Source: City of Sierra Madre Energy Action Plan, 2012.</p>		

Therefore, the Housing Element would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Furthermore, the future development accommodated in the Housing Element will be required to comply with applicable Green Building Standards and City of Sierra Madre’s policies regarding sustainability (as dictated by the City's General Plan). Impacts are considered to be less than significant.

8.0 Comparison of Impacts

The following provides a discussion of the impacts of the proposed future development associated with the Housing Element in comparison to the impacts previously identified under the City's General Plan Update.

8.1 AQMP Consistency

The General Plan EIR determined that implementation of the 2015 General Plan Update would be consistent with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan, as buildout of the 2015 General Plan Update would not exceed the current overall Southern California Association of Governments (SCAG) service population estimates and would not cumulatively contribute to the nonattainment designations of the South Coast Air Basin (Basin). Although the 2015 General Plan Update resulted in slightly higher population than SCAG projections, SCAG projections for the City were based on the 1996 Sierra Madre General Plan and as a result, SCAG growth projections and the associated emissions inventory in SCAQMD's Air Quality Management Plan (AQMD) did not include the additional population growth forecasted in the 2015 General Plan Update. In addition, the General Plan EIR found that operation of the new land uses associated with the 2015 General Plan Update would not cumulatively contribute to the nonattainment designations of Basin and the 2015 General Plan Update would be consistent with the AQMP and impacts would not be significant.

The City of Sierra Madre Housing Element requires amending the City's General Plan designations on proposed Housing Element opportunity sites, which requires revisions to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan. The increased density of residential units accommodated under the Housing Element is in response to SCAG developing a Regional Housing Needs Allocation (RHNA) for the City of Sierra Madre for the City's 2021-2029 Housing Element planning period. As the Housing Element includes increased residential density at the identified opportunity sites, the estimated population for these sites would be higher than the population forecasted for these sites in the General Plan Update. However, as the AQMP is based on population, employment, and VMT in the South Coast Air Basin region, as projected by SCAG, and the increased residential density of the future development of the Housing Element is in response to SCAG forecasts, the Housing Element is considered to be consistent with SCAG and, therefore, consistent with the AQMP. In addition, this analysis found that operation of the future development associated with the Housing Element would not cumulatively contribute to the nonattainment designations of Basin and impacts would not be significant.

Therefore, the Housing Element resulted in less than significant impacts and would, therefore, not result in increased impacts as was determined under the 2015 General Plan Update.

8.2 Construction-Related Impacts

The General Plan EIR determined that construction activities associated with future development that would be accommodated under the 2015 General Plan Update would generate short-term emissions in exceedance of SCAQMD's threshold criteria and cumulatively contribute to the nonattainment designations of the Basin. Air quality emissions related to future development under the 2015 General

Plan Update must be addressed on a project-by-project basis and would be subject to regulatory measures, rules, and policies, as well as project-specific mitigation measures and implementation measures; however, it is possible that some of the new development projects that would be accommodated by the 2015 General Plan Update could exceed relevant SCAQMD significance thresholds and cumulatively contribute to the nonattainment designations of the Basin for O₃ and particulate matter (PM₁₀ and PM_{2.5}). Therefore, construction-related air quality impacts would be significant. Furthermore, because cumulative development within the City would exceed the regional significance thresholds, the General Plan EIR found that the 2015 General Plan Update could contribute to an increase in health effects in the basin until such time the attainment standards are met in the Basin.

As shown in the analyses above, construction activities associated with the future development of the Housing Element would also generate short-term emissions in exceedance of SCAQMD's threshold criteria and cumulatively contribute to the nonattainment designations of the Basin. Air quality emissions related to future development under the Housing Element must be addressed on a project-by-project basis and would be subject to regulatory measures, rules, and policies, as well as project-specific mitigation measures and implementation measures; however, it is possible that some of the new development projects that would be accommodated by the Housing Element could exceed relevant SCAQMD significance thresholds and cumulatively contribute to the nonattainment designations of the Basin. Therefore, construction-related air quality impacts would be significant.

Therefore, the Housing Element would not result in an increase significance level than that which was previously identified by the 2015 General Plan Update.

8.3 Operational-Related Impacts

Criteria Pollutants

The General Plan EIR determined that implementation of the 2015 General Plan Update would not result in operational-phase criteria air pollutant emissions that would exceed SCAQMD's regional significance thresholds. In addition, implementation of the policies and implementation measures of the 2015 General Plan Update and Implementation Programs, respectively, would contribute to reducing air quality emissions. Therefore, operational air quality impacts associated with future development of the 2015 General Plan Update would not be significant. Furthermore, the General Plan EIR found that as cumulative development within the City would not exceed the regional significance thresholds, the 2015 General Plan Update would not substantially cumulatively contribute to the nonattainment designations of Basin or contribute to an increase in health effects in the basin.

As shown in the analyses above, the emissions associated with the General Plan Housing Element would also not result in operational-phase criteria pollutant emissions that would exceed the SCAQMD's regional significance thresholds. Furthermore, the future development accommodated under the Housing Element would also be subject to the policies and implementation measures identified in the General Plan that are aimed at reducing air quality emissions. Therefore, the General Plan Housing Element would result in a less than significant impact and would not result in higher impacts than that which was determined under the 2015 General Plan Update.

Toxic Air Contaminants

The General Plan EIR determined that implementation of the 2015 General Plan Update could result in new sources of criteria air pollutant emissions and toxic air contaminants that could expose sensitive receptors to substantial pollutant concentrations including Toxic Air Contaminants from light industrial and commercial processes as well as trucks and off-road equipment. Emissions from industrial and commercial uses would be controlled by SCAQMD through permitting and would be subject to further study and health risk assessment prior to issuance of air quality permits and implementation of 2015 General Plan Update policies and implementation measures would contribute to minimizing air quality impacts to both stationary and mobile uses, however until specific development projects are proposed and air quality modeling can be performed, impacts are considered to be significant. However, the General Plan EIR found that CO hotspots would not be an environmental impact of concern for the 2015 General Plan Update. The General Plan EIR determined that buildout of the 2015 General Plan Update could site sensitive land uses in proximity to air pollution sources and expose sensitive receptors to substantial pollutant concentrations. Therefore, air quality impacts from placement of sensitive uses near new major pollutant sources would be significant.

The land uses analyzed as part of the General Plan Housing Element are all sites within the City that are to be re-zoned for higher residential densities. Therefore, the land use and zoning changes associated with the General Plan Housing Element would not be anticipated to expose sensitive receptors to substantial pollutant concentrations of Toxic Air Contaminants. In addition, in regards to CO hotspots, no significant long-term air quality impact is anticipated to local air quality with the on-going use of the General Plan Housing Element. Therefore, the General Plan Housing Element would result in a less than significant impact in regards to toxic air contaminants and would result in lower impacts than that which was determined under the 2015 General Plan Update.

Greenhouse Gases

The General Plan EIR determined that growth of the City under the 2015 General Plan Update would be consistent with SCAG's 2012 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) and the City's Energy Action Plan. However, the General Plan EIR determined that growth would not meet the GHG emissions reduction targets of Executive Orders B-30-15 and S-03-05 without additional federal, state, and local GHG reduction measures and plans. Therefore, the 2015 General Plan Update was found to conflict with Executive Orders B-30-15 and S-03-05 and impacts would be significant.

As discussed above, the future development associated with the Housing Element would be consistent with applicable measures of the CARB Scoping Plan, SCAG's SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), and the City's Energy Action Plan. Furthermore, as the emissions levels of the future development accommodated under the Housing Element in 2050 cannot be reliably quantified and statewide efforts are underway to facilitate the State's achievement of that goal and it is reasonable to expect that the emissions profile of the proposed uses would only decline as the regulatory initiatives identified by ARB in the First Update are implemented, and other technological innovations occur. Therefore, the project was found to be consistent with Executive Orders B-30-15 and S-03-05. As the GHG emissions associated with the future development of the Housing Element would not conflict with any applicable plan, policy or regulation of an agency adopted

for the purpose of reducing the emissions of greenhouse gases, impacts are considered less than significant and would not result in increased significance levels.

Odors

The General Plan EIR determined that light-manufacturing land uses that would be accommodated under the 2015 General Plan Update could create objectionable odors and impacts could be significant. However, the General Plan EIR found that residential and commercial land uses and construction activities associated with the 2015 General Plan Update would not generate substantial odors and impacts would not be significant.

As stated previously, the future development analyzed for the General Plan Housing Element includes only that of residential uses. Residential uses are not considered potential generators of odors that could affect a substantial number of people. Therefore, impacts from potential odors from the operational of the future development associated with the General Plan Housing Element are considered to be less than significant. Furthermore, due to the short-term nature and limited amounts of odor producing materials, impacts associated with construction-generated odors are also considered to be less than significant.

Therefore, the General Plan Housing Element would result in a less than significant impact in regards to odors and would not result in increased significance levels from those identified under the General Plan EIR.

9.0 References

The following references were used in the preparing this analysis.

California Air Pollution Control Officers Association

2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board

2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2018 Historical Air Quality, Top 4 Summary

City of Sierra Madre

2015 City of Sierra Madre General Plan Update.

2012 City of Sierra Madre Energy Action Plan.

Governor's Office of Planning and Research

2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

Gibson Transportation Consulting, Inc.

2021 Trip Generation and VMT Analyses provided for City of Sierra Madre Housing Element 2021-2029, City of Sierra Madre, CA.

Office of Environmental Health Hazard Assessment

2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

South Coast Air Quality Management District

1993 CEQA Air Quality Handbook

2005 Rule 403 Fugitive Dust

2007 2007 Air Quality Management Plan

2008 Final Localized Significance Threshold Methodology, Revised

2011 Appendix A Calculation Details for CalEEMod

2012 Final 2012 Air Quality Management Plan

2016 Final 2016 Air Quality Management Plan

Appendix A:

CalEEMod Daily Emission Output

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322105 - Sierra Madre GP - EXISTING USES**

Los Angeles-South Coast County, Summer

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Apartments Low Rise	56.00	Dwelling Unit	6.18	74,172.00	160
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EXISTING USES - operational analysis only

Land Use - S1 25DU(2.44AC), S2 13DU(2.11AC), S3 17DU(0.92AC), S4 1DU(0.71AC), SA 30.9TSF prkng, SB 28.5TSF prkng, SC 10.8TSF prkng & 12.281TSF church lot w/ 0.9TSF bldg, & SD 26.486TSF prkng & 14.143TSF Indscp. 74.172 TSF (Apx C HE). User Def LADOT.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 528 trips existing uses. Trip length ~3,619 daily VMT/528 daily trips = ~6.85 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	47.60	50.40
tblFireplaces	NumberWood	2.80	0.00
tblLandUse	LandUseSquareFeet	14,140.00	14,143.00
tblLandUse	LandUseSquareFeet	96,690.00	96,686.00
tblLandUse	LandUseSquareFeet	56,000.00	74,172.00
tblLandUse	LotAcreage	0.02	0.28
tblLandUse	LotAcreage	3.50	6.18
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	6.85
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	0.00	528.00
tblWoodstoves	NumberCatalytic	2.80	0.00
tblWoodstoves	NumberNoncatalytic	2.80	0.00

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

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

2.0 Emissions Summary

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	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833
Energy	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
Mobile	3.1834	3.7238	31.8826	0.0649	6.1627	0.0641	6.2269	1.6416	0.0600	1.7015		6,619.5652	6,619.5652	0.4562	0.2847	6,715.8125
Total	5.1129	4.8422	36.9792	0.0719	6.1627	0.1758	6.3385	1.6416	0.1716	1.8132	0.0000	7,986.8991	7,986.8991	0.4904	0.3096	8,091.4255

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	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833
Energy	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
Mobile	3.1834	3.7238	31.8826	0.0649	6.1627	0.0641	6.2269	1.6416	0.0600	1.7015		6,619.5652	6,619.5652	0.4562	0.2847	6,715.8125
Total	5.1129	4.8422	36.9792	0.0719	6.1627	0.1758	6.3385	1.6416	0.1716	1.8132	0.0000	7,986.8991	7,986.8991	0.4904	0.3096	8,091.4255

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03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, 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	3.1834	3.7238	31.8826	0.0649	6.1627	0.0641	6.2269	1.6416	0.0600	1.7015		6,619.5652	6,619.5652	0.4562	0.2847	6,715.8125
Unmitigated	3.1834	3.7238	31.8826	0.0649	6.1627	0.0641	6.2269	1.6416	0.0600	1.7015		6,619.5652	6,619.5652	0.4562	0.2847	6,715.8125

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	455.84	351.68	394,203	394,203
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Place of Worship	0.00	5.39	24.87	9,219	9,219
User Defined Commercial	528.00	0.00	0.00	940,368	940,368
Total	528.00	461.23	376.55	1,343,790	1,343,790

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
User Defined Commercial	6.85	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Other Non-Asphalt Surfaces	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Parking Lot	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Place of Worship	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
User Defined Commercial	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**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	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
NaturalGas Unmitigated	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	2435.13	0.0263	0.2244	0.0955	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.4863	286.4863	5.4900e-003	5.2500e-003	288.1887
Other Non-Asphalt	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
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
Place of Worship	44.2849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
User Defined Commercial	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
Total		0.0267	0.2288	0.0992	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

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

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	2.43513	0.0263	0.2244	0.0955	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.4863	286.4863	5.4900e-003	5.2500e-003	288.1887
Other Non-Asphalt	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
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
Place of Worship	0.0442849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
User Defined Commercial	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
Total		0.0267	0.2288	0.0992	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833
Unmitigated	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, 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	0.1379					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0978	0.8361	0.3558	5.3400e-003		0.0676	0.0676		0.0676	0.0676	0.0000	1,067.2941	1,067.2941	0.0205	0.0196	1,073.6365
Landscaping	0.1414	0.0536	4.6417	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3436	8.3436	8.1300e-003		8.5468
Total	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833

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	0.1379					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0978	0.8361	0.3558	5.3400e-003		0.0676	0.0676		0.0676	0.0676	0.0000	1,067.2941	1,067.2941	0.0205	0.0196	1,073.6365
Landscaping	0.1414	0.0536	4.6417	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3436	8.3436	8.1300e-003		8.5468
Total	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail**

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

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

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

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322105 - Sierra Madre GP - EXISTING USES**

Los Angeles-South Coast County, Summer

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Apartments Low Rise	56.00	Dwelling Unit	6.18	74,172.00	160

1.2 Other Project Characteristics

Urbanization Climate Zone	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Utility Company	Southern California Edison	Operational Year	2029		
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EXISTING USES - operational analysis only

Land Use - S1 25DU(2.44AC), S2 13DU(2.11AC), S3 17DU(0.92AC), S4 1DU(0.71AC), SA 30.9TSF prkng, SB 28.5TSF prkng, SC 10.8TSF prkng & 12.281TSF church lot w/ 0.9TSF bldg, & SD 26.486TSF prkng & 14.143TSF Indscp. 74.172 TSF (Apx C HE). User Def LADOT.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 528 trips existing uses. Trip length ~3,619 daily VMT/528 daily trips = ~6.85 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	47.60	50.40
tblFireplaces	NumberWood	2.80	0.00
tblLandUse	LandUseSquareFeet	56,000.00	74,172.00
tblLandUse	LotAcreage	0.02	0.28
tblLandUse	LotAcreage	3.50	6.18
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	6.85
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	0.00	528.00
tblWoodstoves	NumberCatalytic	2.80	0.00
tblWoodstoves	NumberNoncatalytic	2.80	0.00

2.0 Emissions Summary**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	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809
Energy	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
Mobile	2.4629	2.2059	23.2860	0.0517	6.1649	0.0341	6.1990	1.6425	0.0317	1.6742		5,546.0432	5,546.0432	0.3595	0.2171	5,619.7218
Total	4.3907	3.3240	28.3681	0.0587	6.1649	0.1458	6.3107	1.6425	0.1434	1.7859	0.0000	6,913.3771	6,913.3771	0.3936	0.2420	6,995.3323

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**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	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809
Energy	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
Mobile	2.4629	2.2059	23.2860	0.0517	6.1649	0.0341	6.1990	1.6425	0.0317	1.6742		5,546.0432	5,546.0432	0.3595	0.2171	5,619.7218
Total	4.3907	3.3240	28.3681	0.0587	6.1649	0.1458	6.3107	1.6425	0.1434	1.7859	0.0000	6,913.3771	6,913.3771	0.3936	0.2420	6,995.3323

	ROG	NOx	CO	SO2	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

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	2.4629	2.2059	23.2860	0.0517	6.1649	0.0341	6.1990	1.6425	0.0317	1.6742		5,546.0432	5,546.0432	0.3595	0.2171	5,619.7218
Unmitigated	2.4629	2.2059	23.2860	0.0517	6.1649	0.0341	6.1990	1.6425	0.0317	1.6742		5,546.0432	5,546.0432	0.3595	0.2171	5,619.7218

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	455.84	351.68	394,203	394,203
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Place of Worship	0.00	5.39	24.87	9,219	9,219
User Defined Commercial	528.00	0.00	0.00	940,368	940,368
Total	528.00	461.23	376.55	1,343,790	1,343,790

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
User Defined Commercial	6.85	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Other Non-Asphalt Surfaces	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Parking Lot	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Place of Worship	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

5.0 Energy Detail

Historical Energy Use: N

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

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

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	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
NaturalGas Unmitigated	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	2435.13	0.0263	0.2244	0.0955	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.4863	286.4863	5.4900e-003	5.2500e-003	288.1887
Other Non-Asphalt	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
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
Place of Worship	44.2849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
User Defined	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
Total		0.0267	0.2288	0.0992	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	2.43513	0.0263	0.2244	0.0955	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.4863	286.4863	5.4900e-003	5.2500e-003	288.1887
Other Non-Asphalt	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
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
Place of Worship	0.0442849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
User Defined	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
Total		0.0267	0.2288	0.0992	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809
Unmitigated	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809

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	0.1379					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0978	0.8361	0.3558	5.3400e-003		0.0676	0.0676		0.0676	0.0676	0.0000	1,067.2941	1,067.2941	0.0205	0.0196	1,073.6365
Landscaping	0.1396	0.0533	4.6272	2.4000e-004		0.0257	0.0257		0.0257	0.0257		8.3436	8.3436	8.0300e-003		8.5444
Total	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809

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	0.1379					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0978	0.8361	0.3558	5.3400e-003		0.0676	0.0676		0.0676	0.0676	0.0000	1,067.2941	1,067.2941	0.0205	0.0196	1,073.6365
Landscaping	0.1396	0.0533	4.6272	2.4000e-004		0.0257	0.0257		0.0257	0.0257		8.3436	8.3436	8.0300e-003		8.5444
Total	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail**

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational**

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

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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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322015 - Sierra Madre GP HE - GP UPDATE 2015 Uses OPERATIONAL ANALYSIS ONLY**

Los Angeles-South Coast County, Summer

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0
Apartments Low Rise	90.00	Dwelling Unit	5.81	90,000.00	257
Single Family Housing	69.00	Dwelling Unit	40.00	124,200.00	197
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0

1.2 Other Project Characteristics

Urbanization Climate Zone	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Utility Company	Southern California Edison			Operational Year	2029
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2015 GP Update Uses - operational analysis only

Land Use - 90 MF DUs over ~5.81 ac (Sites 1-4), 69 SF over ~40 ac (Meadows & Stonegate), & for Sites A-D parking lots totaling ~96.686 TSF, 2.281TSF church lot w/ 0.9TSF bldg, & 14.143TSF Indscp. I User Def Com surrogate ~mobile LADOT's VMT calc.

Vehicle Trips - Per methodology/data from Gibson Transportation Consulting, Inc., 1,164 trips GP Update uses. Trip length ~8,660 daily VMT/1,160 daily trips = ~7.47 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	76.50	81.00
tblFireplaces	NumberGas	58.65	62.10
tblFireplaces	NumberWood	4.50	0.00
tblFireplaces	NumberWood	3.45	0.00
tblLandUse	LotAcreage	5.63	5.81
tblLandUse	LotAcreage	22.40	40.00
tblLandUse	LotAcreage	0.02	0.28
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	7.47
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	0.00	1,164.00
tblWoodstoves	NumberCatalytic	4.50	0.00
tblWoodstoves	NumberCatalytic	3.45	0.00
tblWoodstoves	NumberNoncatalytic	4.50	0.00
tblWoodstoves	NumberNoncatalytic	3.45	0.00

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

2.0 Emissions Summary

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	5.3485	2.5248	14.1269	0.0159		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724
Energy	0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176
Mobile	6.5188	5.9241	62.7644	0.1406	16.7869	0.0924	16.8792	4.4724	0.0858	4.5582		15,080.2905	15,080.2905	0.9660	0.5836	15,278.3447
Total	11.9620	9.2581	77.2373	0.1616	16.7869	0.4224	17.2093	4.4724	0.4159	4.8883	0.0000	19,166.8694	19,166.8694	1.0666	0.6581	19,389.6347

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3485	2.5248	14.1269	0.0159		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724
Energy	0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176
Mobile	6.5188	5.9241	62.7644	0.1406	16.7869	0.0924	16.8792	4.4724	0.0858	4.5582		15,080.2905	15,080.2905	0.9660	0.5836	15,278.3447
Total	11.9620	9.2581	77.2373	0.1616	16.7869	0.4224	17.2093	4.4724	0.4159	4.8883	0.0000	19,166.8694	19,166.8694	1.0666	0.6581	19,389.6347

[illegible]

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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	6.5188	5.9241	62.7644	0.1406	16.7869	0.0924	16.8792	4.4724	0.0858	4.5582		15,080.2905	15,080.290	0.9660	0.5836	15,278.344
Unmitigated	6.5188	5.9241	62.7644	0.1406	16.7869	0.0924	16.8792	4.4724	0.0858	4.5582		15,080.2905	15,080.290	0.9660	0.5836	15,278.344

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
Apartments Low Rise	0.00	732.60	565.20	633,540	633,540		
Other Non-Asphalt Surfaces	0.00	0.00	0.00				
Parking Lot	0.00	0.00	0.00				
Place of Worship	0.00	5.39	24.87	9,219	9,219		
Single Family Housing	0.00	658.26	589.95	609,332	609,332		
User Defined Commercial	1,164.00	0.00	0.00	2,260,721	2,260,721		
Total	1,164.00	1,396.25	1,180.02	3,512,812	3,512,812		

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
User Defined Commercial	7.47	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Other Non-Asphalt Surfaces	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Parking Lot	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Place of Worship	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Single Family Housing	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**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	0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176
NaturalGas Unmitigated	0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3913.61	0.0422	0.3607	0.1535	2.3000e-003		0.0292	0.0292		0.0292	0.0292		460.4243	460.4243	8.8200e-003	8.4400e-003	463.1604
Other Non-Asphalt	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
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
Place of Worship	44.2849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
Single Family	4819.05	0.0520	0.4441	0.1890	2.8300e-003		0.0359	0.0359		0.0359	0.0359		566.9472	566.9472	0.0109	0.0104	570.3162
User Defined	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
Total		0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176

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

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3.91361	0.0422	0.3607	0.1535	2.3000e-003		0.0292	0.0292		0.0292	0.0292		460.4243	460.4243	8.8200e-003	8.4400e-003	463.1604
Other Non-Asphalt	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
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
Place of Worship	0.0442849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
Single Family	4.81905	0.0520	0.4441	0.1890	2.8300e-003		0.0359	0.0359		0.0359	0.0359		566.9472	566.9472	0.0109	0.0104	570.3162
User Defined	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
Total		0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.3485	2.5248	14.1269	0.0159		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724
Unmitigated	5.3485	2.5248	14.1269	0.0159		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724

03322015 - Sierra Madre GP HE - GP UPDATE 2015 Uses OPERATIONAL ANALYSIS ONLY - Los Angeles-South Coast County, 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	0.3779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2982					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2778	2.3738	1.0101	0.0152		0.1919	0.1919		0.1919	0.1919	0.0000	3,030.3529	3,030.3529	0.0581	0.0556	3,048.3608
Landscaping	0.3945	0.1511	13.1168	6.9000e-004		0.0728	0.0728		0.0728	0.0728		23.6445	23.6445	0.0227		24.2116
Total	5.3485	2.5248	14.1269	0.0158		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724

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	0.3779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2982					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2778	2.3738	1.0101	0.0152		0.1919	0.1919		0.1919	0.1919	0.0000	3,030.3529	3,030.3529	0.0581	0.0556	3,048.3608
Landscaping	0.3945	0.1511	13.1168	6.9000e-004		0.0728	0.0728		0.0728	0.0728		23.6445	23.6445	0.0227		24.2116
Total	5.3485	2.5248	14.1269	0.0158		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail**

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational**

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

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

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis**

Los Angeles-South Coast County, Summer

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	69.00	Dwelling Unit	40.00	124,200.00	197
Apartments Low Rise	266.00	Dwelling Unit	8.63	266,000.00	761
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization Climate Zone	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Utility Company	Southern California Edison			Operational Year	2029
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PROPOSED USES - operational analysis only

Land Use - 8.63 acs w/ 266 MF DU (Site 1 73DU, Site 2 40DU, Site 3 27DU, Site 4 5DU, Site A 30DU, Site B 28DU, Site C 23DU, & Site D 40DU) & 40 ac w/ 69 SF DU (Meadows 27DU & Stonegate 42DU). User Defined Com is surrogate ~mobile LADOT's VMT calc.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 3,026 trips existing uses. Trip length ~16,429 daily VMT/3,026 daily trips = ~5.43 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - SCAQMD Rule 445 prohibits installation of wood burning devices. No wood burning devices & default wood added to default gas.

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Summer

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	226.10	239.40
tblFireplaces	NumberGas	58.65	62.10
tblFireplaces	NumberWood	13.30	0.00
tblFireplaces	NumberWood	3.45	0.00
tblLandUse	LotAcreage	22.40	40.00
tblLandUse	LotAcreage	16.63	8.63
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	5.43
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	0.00	3,026.00
tblWoodstoves	NumberCatalytic	13.30	0.00
tblWoodstoves	NumberCatalytic	3.45	0.00
tblWoodstoves	NumberNoncatalytic	13.30	0.00
tblWoodstoves	NumberNoncatalytic	3.45	0.00

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Summer

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

2.0 Emissions Summary

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	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037
Energy	0.1767	1.5101	0.6426	9.6400e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125
Mobile	13.6712	12.0072	126.1177	0.2766	32.9159	0.1836	33.0994	8.7695	0.1706	8.9401		29,671.7660	29,671.7660	1.9553	1.1800	30,072.3009
Total	23.6571	18.8367	156.5003	0.3196	32.9159	0.8632	33.7791	8.7695	0.8503	9.6198	0.0000	38,033.9940	38,033.9940	2.1623	1.3324	38,485.1171

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	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037
Energy	0.1767	1.5101	0.6426	9.6400e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125
Mobile	13.6712	12.0072	126.1177	0.2766	32.9159	0.1836	33.0994	8.7695	0.1706	8.9401		29,671.7660	29,671.7660	1.9553	1.1800	30,072.3069
Total	23.6571	18.8367	156.5003	0.3196	32.9159	0.8632	33.7791	8.7695	0.8503	9.6198	0.0000	38,033.9940	38,033.9940	2.1623	1.3324	38,485.1171

[illegible]

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, 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	13.6712	12.0072	126.1177	0.2766	32.9159	0.1836	33.0994	8.7695	0.1706	8.9401		29,671.7660	29,671.766	1.9553	1.1800	30,072.300
Unmitigated	13.6712	12.0072	126.1177	0.2766	32.9159	0.1836	33.0994	8.7695	0.1706	8.9401		29,671.7660	29,671.766	1.9553	1.1800	30,072.300

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	2,165.24	1670.48	1,872,463	1,872,463
Single Family Housing	0.00	658.26	589.95	609,332	609,332
User Defined Commercial	3,026.00	0.00	0.00	4,272,107	4,272,107
Total	3,026.00	2,823.50	2,260.43	6,753,901	6,753,901

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
User Defined Commercial	5.43	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Single Family Housing	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**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					
Natural Gas Mitigated	0.1767	1.5101	0.6426	9.6400e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125
Natural Gas Unmitigated	0.1767	1.5101	0.6426	9.6400e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125

5.2 Energy by Land Use - Natural Gas**Unmitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	11566.9	0.1247	1.0660	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.8097	1,360.8097	0.0261	0.0250	1,368.8963
Single Family	4819.05	0.0520	0.4441	0.1890	2.8300e-003		0.0359	0.0359		0.0359	0.0359		566.9472	566.9472	0.0109	0.0104	570.3162
User Defined	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
Total		0.1767	1.5101	0.6426	9.6300e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	11.5669	0.1247	1.0660	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.8097	1,360.8097	0.0261	0.0250	1,368.8963
Single Family	4.81905	0.0520	0.4441	0.1890	2.8300e-003		0.0359	0.0359		0.0359	0.0359		566.9472	566.9472	0.0109	0.0104	570.3162
User Defined	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
Total		0.1767	1.5101	0.6426	9.6300e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**6.0 Area Detail****6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037
Unmitigated	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037

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	0.6689					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.7260					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5853	5.0014	2.1282	0.0319		0.4044	0.4044		0.4044	0.4044	0.0000	6,384.7059	6,384.7059	0.1224	0.1171	6,422.6470
Landscaping	0.8290	0.3181	27.6118	1.4600e-003		0.1532	0.1532		0.1532	0.1532		49.7652	49.7652	0.0477		50.9567
Total	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037

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	0.6689					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.7260					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5853	5.0014	2.1282	0.0319		0.4044	0.4044		0.4044	0.4044	0.0000	6,384.7059	6,384.7059	0.1224	0.1171	6,422.6470
Landscaping	0.8290	0.3181	27.6118	1.4600e-003		0.1532	0.1532		0.1532	0.1532		49.7652	49.7652	0.0477		50.9567
Total	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail**

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational**

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

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

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322105 - Sierra Madre GP - EXISTING USES**

Los Angeles-South Coast County, Winter

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Apartments Low Rise	56.00	Dwelling Unit	6.18	74,172.00	160
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization Climate Zone	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Utility Company	Southern California Edison	Operational Year	2021		
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EXISTING USES - operational analysis only

Land Use - S1 25DU(2.44AC), S2 13DU(2.11AC), S3 17DU(0.92AC), S4 1DU(0.71AC), SA 30.9TSF prkng, SB 28.5TSF prkng, SC 10.8TSF prkng & 12.281TSF church lot w/ 0.9TSF bldg, & SD 26.486TSF prkng & 14.143TSF Indscp. 74.172 TSF (Apx C HE). User Def LADOT.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 528 trips existing uses. Trip length ~3,619 daily VMT/528 daily trips = ~6.85 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Winter

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	47.60	50.40
tblFireplaces	NumberWood	2.80	0.00
tblLandUse	LandUseSquareFeet	14,140.00	14,143.00
tblLandUse	LandUseSquareFeet	96,690.00	96,686.00
tblLandUse	LandUseSquareFeet	56,000.00	74,172.00
tblLandUse	LotAcreage	0.02	0.28
tblLandUse	LotAcreage	3.50	6.18
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	6.85
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	0.00	528.00
tblWoodstoves	NumberCatalytic	2.80	0.00
tblWoodstoves	NumberNoncatalytic	2.80	0.00

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Winter

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

2.0 Emissions Summary

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	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833
Energy	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
Mobile	3.1250	4.0068	31.1033	0.0620	6.1627	0.0642	6.2269	1.6416	0.0600	1.7016		6,334.7571	6,334.7571	0.4712	0.2980	6,435.3499
Total	5.0546	5.1252	36.1999	0.0691	6.1627	0.1758	6.3385	1.6416	0.1717	1.8132	0.0000	7,702.0911	7,702.0911	0.5053	0.3230	7,810.9628

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	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833
Energy	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
Mobile	3.1250	4.0068	31.1033	0.0620	6.1627	0.0642	6.2269	1.6416	0.0600	1.7016		6,334.7571	6,334.7571	0.4712	0.2980	6,435.3499
Total	5.0546	5.1252	36.1999	0.0691	6.1627	0.1758	6.3385	1.6416	0.1717	1.8132	0.0000	7,702.0911	7,702.0911	0.5053	0.3230	7,810.9628

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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	3.1250	4.0068	31.1033	0.0620	6.1627	0.0642	6.2269	1.6416	0.0600	1.7016		6,334.7571	6,334.7571	0.4712	0.2980	6,435.3499
Unmitigated	3.1250	4.0068	31.1033	0.0620	6.1627	0.0642	6.2269	1.6416	0.0600	1.7016		6,334.7571	6,334.7571	0.4712	0.2980	6,435.3499

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
Apartments Low Rise	0.00	455.84	351.68	394,203		394,203	
Other Non-Asphalt Surfaces	0.00	0.00	0.00				
Parking Lot	0.00	0.00	0.00				
Place of Worship	0.00	5.39	24.87	9,219		9,219	
User Defined Commercial	528.00	0.00	0.00	940,368		940,368	
Total	528.00	461.23	376.55	1,343,790		1,343,790	

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
User Defined Commercial	6.85	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Other Non-Asphalt Surfaces	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Parking Lot	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Place of Worship	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
User Defined Commercial	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**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	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
NaturalGas Unmitigated	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	2435.13	0.0263	0.2244	0.0955	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.4863	286.4863	5.4900e-003	5.2500e-003	288.1887
Other Non-Asphalt	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
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
Place of Worship	44.2849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
User Defined	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
Total		0.0267	0.2288	0.0992	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

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

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	2.43513	0.0263	0.2244	0.0955	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.4863	286.4863	5.4900e-003	5.2500e-003	288.1887
Other Non-Asphalt Surface 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
Place of Worship	0.0442849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
User Defined	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
Total		0.0267	0.2288	0.0992	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833
Unmitigated	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833

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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	lb/day										lb/day					
Architectural Coating	0.1379					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0978	0.8361	0.3558	5.3400e-003		0.0676	0.0676		0.0676	0.0676	0.0000	1,067.2941	1,067.2941	0.0205	0.0196	1,073.6365
Landscaping	0.1414	0.0536	4.6417	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3436	8.3436	8.1300e-003		8.5468
Total	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833

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	0.1379					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0978	0.8361	0.3558	5.3400e-003		0.0676	0.0676		0.0676	0.0676	0.0000	1,067.2941	1,067.2941	0.0205	0.0196	1,073.6365
Landscaping	0.1414	0.0536	4.6417	2.4000e-004		0.0256	0.0256		0.0256	0.0256		8.3436	8.3436	8.1300e-003		8.5468
Total	1.9028	0.8896	4.9974	5.5800e-003		0.0932	0.0932		0.0932	0.0932	0.0000	1,075.6377	1,075.6377	0.0286	0.0196	1,082.1833

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail**

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational**

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

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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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322105 - Sierra Madre GP - EXISTING USES**

Los Angeles-South Coast County, Winter

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Apartments Low Rise	56.00	Dwelling Unit	6.18	74,172.00	160

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2029
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EXISTING USES - operational analysis only

Land Use - S1 25DU(2.44AC), S2 13DU(2.11AC), S3 17DU(0.92AC), S4 1DU(0.71AC), SA 30.9TSF prkng, SB 28.5TSF prkng, SC 10.8TSF prkng & 12.281TSF church lot w/ 0.9TSF bldg, & SD 26.486TSF prkng & 14.143TSF Indscp. 74.172 TSF (Apx C HE). User Def LADOT.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 528 trips existing uses. Trip length ~3,619 daily VMT/528 daily trips = ~6.85 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	47.60	50.40
tblFireplaces	NumberWood	2.80	0.00
tblLandUse	LandUseSquareFeet	56,000.00	74,172.00
tblLandUse	LotAcreage	0.02	0.28
tblLandUse	LotAcreage	3.50	6.18
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	6.85
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	0.00	528.00
tblWoodstoves	NumberCatalytic	2.80	0.00
tblWoodstoves	NumberNoncatalytic	2.80	0.00

2.0 Emissions Summary**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	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809
Energy	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
Mobile	2.4105	2.3788	23.0617	0.0496	6.1649	0.0341	6.1990	1.6425	0.0317	1.6742		5,316.0392	5,316.0392	0.3699	0.2262	5,392.6806
Total	4.3383	3.4969	28.1437	0.0566	6.1649	0.1459	6.3107	1.6425	0.1434	1.7859	0.0000	6,683.3732	6,683.3732	0.4040	0.2511	6,768.2912

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

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	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809
Energy	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
Mobile	2.4105	2.3788	23.0617	0.0496	6.1649	0.0341	6.1990	1.6425	0.0317	1.6742		5,316.0392	5,316.0392	0.3699	0.2262	5,392.6806
Total	4.3383	3.4969	28.1437	0.0566	6.1649	0.1459	6.3107	1.6425	0.1434	1.7859	0.0000	6,683.3732	6,683.3732	0.4040	0.2511	6,768.2912

	ROG	NOx	CO	SO2	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

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	2.4105	2.3788	23.0617	0.0496	6.1649	0.0341	6.1990	1.6425	0.0317	1.6742		5,316.0392	5,316.0392	0.3699	0.2262	5,392.6806
Unmitigated	2.4105	2.3788	23.0617	0.0496	6.1649	0.0341	6.1990	1.6425	0.0317	1.6742		5,316.0392	5,316.0392	0.3699	0.2262	5,392.6806

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	455.84	351.68	394,203	394,203
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Place of Worship	0.00	5.39	24.87	9,219	9,219
User Defined Commercial	528.00	0.00	0.00	940,368	940,368
Total	528.00	461.23	376.55	1,343,790	1,343,790

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
User Defined Commercial	6.85	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Other Non-Asphalt Surfaces	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Parking Lot	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Place of Worship	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

5.0 Energy Detail

Historical Energy Use: N

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Winter

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

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	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297
NaturalGas Unmitigated	0.0267	0.2288	0.0991	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	2435.13	0.0263	0.2244	0.0955	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.4863	286.4863	5.4900e-003	5.2500e-003	288.1887
Other Non-Asphalt	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
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
Place of Worship User Defined	44.2849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
	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
Total		0.0267	0.2288	0.0992	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	2.43513	0.0263	0.2244	0.0955	1.4300e-003		0.0181	0.0181		0.0181	0.0181		286.4863	286.4863	5.4900e-003	5.2500e-003	288.1887
Other Non-Asphalt	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
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
Place of Worship User Defined	0.0442849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
	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
Total		0.0267	0.2288	0.0992	1.4600e-003		0.0185	0.0185		0.0185	0.0185		291.6962	291.6962	5.5900e-003	5.3500e-003	293.4297

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**6.0 Area Detail****6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809
Unmitigated	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809

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	0.1379					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0978	0.8361	0.3558	5.3400e-003		0.0676	0.0676		0.0676	0.0676	0.0000	1,067.2941	1,067.2941	0.0205	0.0196	1,073.6365
Landscaping	0.1396	0.0533	4.6272	2.4000e-004		0.0257	0.0257		0.0257	0.0257		8.3436	8.3436	8.0300e-003		8.5444
Total	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809

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	0.1379					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5257					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0978	0.8361	0.3558	5.3400e-003		0.0676	0.0676		0.0676	0.0676	0.0000	1,067.2941	1,067.2941	0.0205	0.0196	1,073.6365
Landscaping	0.1396	0.0533	4.6272	2.4000e-004		0.0257	0.0257		0.0257	0.0257		8.3436	8.3436	8.0300e-003		8.5444

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

Total	1.9010	0.8893	4.9829	5.5800e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,075.6377	1,075.6377	0.0285	0.0196	1,082.1809
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7.0 Water Detail

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational**

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

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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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322015 - Sierra Madre GP HE - GP UPDATE 2015 Uses OPERATIONAL ANALYSIS ONLY**

Los Angeles-South Coast County, Winter

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0
Apartments Low Rise	90.00	Dwelling Unit	5.81	90,000.00	257
Single Family Housing	69.00	Dwelling Unit	40.00	124,200.00	197
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0

1.2 Other Project Characteristics

Urbanization Climate Zone	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Utility Company	Southern California Edison			Operational Year	2029
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2015 GP Update Uses - operational analysis only

Land Use - 90 MF DUs over ~5.81 ac (Sites 1-4), 69 SF over ~40 ac (Meadows & Stonegate), & for Sites A-D parking lots totaling ~96.686 TSF, 2.281TSF church lot w/ 0.9TSF bldg, & 14.143TSF Indscp. I User Def Com surrogate ~mobile LADOT's VMT calc.

Vehicle Trips - Per methodology/data from Gibson Transportation Consulting, Inc., 1,164 trips GP Update uses. Trip length ~8,660 daily VMT/1,160 daily trips = ~7.47 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	76.50	81.00
tblFireplaces	NumberGas	58.65	62.10
tblFireplaces	NumberWood	4.50	0.00
tblFireplaces	NumberWood	3.45	0.00
tblLandUse	LotAcreage	5.63	5.81
tblLandUse	LotAcreage	22.40	40.00
tblLandUse	LotAcreage	0.02	0.28
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	7.47
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	0.00	1,164.00
tblWoodstoves	NumberCatalytic	4.50	0.00
tblWoodstoves	NumberCatalytic	3.45	0.00
tblWoodstoves	NumberNoncatalytic	4.50	0.00
tblWoodstoves	NumberNoncatalytic	3.45	0.00

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

2.0 Emissions Summary

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	5.3485	2.5248	14.1269	0.0159		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724
Energy	0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176
Mobile	6.3879	6.3884	62.0319	0.1348	16.7869	0.0924	16.8793	4.4724	0.0859	4.5583		14,453.6729	14,453.6729	0.9926	0.6078	14,659.6139
Total	11.8310	9.7223	76.5049	0.1558	16.7869	0.4225	17.2093	4.4724	0.4160	4.8884	0.0000	18,540.2518	18,540.2518	1.0932	0.6823	18,770.9038

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3485	2.5248	14.1269	0.0159		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724
Energy	0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176
Mobile	6.3879	6.3884	62.0319	0.1348	16.7869	0.0924	16.8793	4.4724	0.0859	4.5583		14,453.6729	14,453.6729	0.9926	0.6078	14,659.6139
Total	11.8310	9.7223	76.5049	0.1558	16.7869	0.4225	17.2093	4.4724	0.4160	4.8884	0.0000	18,540.2518	18,540.2518	1.0932	0.6823	18,770.9038

[illegible]

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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	6.3879	6.3884	62.0319	0.1348	16.7869	0.0924	16.8793	4.4724	0.0859	4.5583		14,453.6729	14,453.672	0.9926	0.6078	14,659.613
Unmitigated	6.3879	6.3884	62.0319	0.1348	16.7869	0.0924	16.8793	4.4724	0.0859	4.5583		14,453.6729	14,453.672	0.9926	0.6078	14,659.613

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	732.60	565.20	633,540	633,540
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Place of Worship	0.00	5.39	24.87	9,219	9,219
Single Family Housing	0.00	658.26	589.95	609,332	609,332
User Defined Commercial	1,164.00	0.00	0.00	2,260,721	2,260,721
Total	1,164.00	1,396.25	1,180.02	3,512,812	3,512,812

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
User Defined Commercial	7.47	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Other Non-Asphalt Surfaces	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Parking Lot	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Place of Worship	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Single Family Housing	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**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	0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176
NaturalGas Unmitigated	0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3913.61	0.0422	0.3607	0.1535	2.3000e-003		0.0292	0.0292		0.0292	0.0292		460.4243	460.4243	8.8200e-003	8.4400e-003	463.1604
Other Non-Asphalt	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
Concrete 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
Place of Worship	44.2849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
Single Family	4819.05	0.0520	0.4441	0.1890	2.8300e-003		0.0359	0.0359		0.0359	0.0359		566.9472	566.9472	0.0109	0.0104	570.3162
User Defined	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
Total		0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176

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

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3.91361	0.0422	0.3607	0.1535	2.3000e-003		0.0292	0.0292		0.0292	0.0292		460.4243	460.4243	8.8200e-003	8.4400e-003	463.1604
Other Non-Asphalt	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
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
Place of Worship	0.0442849	4.8000e-004	4.3400e-003	3.6500e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2100	5.2100	1.0000e-004	1.0000e-004	5.2410
Single Family	4.81905	0.0520	0.4441	0.1890	2.8300e-003		0.0359	0.0359		0.0359	0.0359		566.9472	566.9472	0.0109	0.0104	570.3162
User Defined	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
Total		0.0947	0.8091	0.3461	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5815	1,032.5815	0.0198	0.0189	1,038.7176

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.3485	2.5248	14.1269	0.0159		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724
Unmitigated	5.3485	2.5248	14.1269	0.0159		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724

03322015 - Sierra Madre GP HE - GP UPDATE 2015 Uses OPERATIONAL ANALYSIS ONLY - Los Angeles-South Coast County, 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	0.3779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2982					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2778	2.3738	1.0101	0.0152		0.1919	0.1919		0.1919	0.1919	0.0000	3,030.3529	3,030.3529	0.0581	0.0556	3,048.3608
Landscaping	0.3945	0.1511	13.1168	6.9000e-004		0.0728	0.0728		0.0728	0.0728		23.6445	23.6445	0.0227		24.2116
Total	5.3485	2.5248	14.1269	0.0158		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724

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	0.3779					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2982					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2778	2.3738	1.0101	0.0152		0.1919	0.1919		0.1919	0.1919	0.0000	3,030.3529	3,030.3529	0.0581	0.0556	3,048.3608
Landscaping	0.3945	0.1511	13.1168	6.9000e-004		0.0728	0.0728		0.0728	0.0728		23.6445	23.6445	0.0227		24.2116
Total	5.3485	2.5248	14.1269	0.0158		0.2647	0.2647		0.2647	0.2647	0.0000	3,053.9974	3,053.9974	0.0808	0.0556	3,072.5724

03322015 - Sierra Madre GP HE - GP UPDATE 2015 Uses OPERATIONAL ANALYSIS ONLY - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail**

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational**

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

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

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis****Los Angeles-South Coast County, Winter****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	69.00	Dwelling Unit	40.00	124,200.00	197
Apartments Low Rise	266.00	Dwelling Unit	8.63	266,000.00	761
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization Climate Zone	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Utility Company	Southern California Edison	Operational Year	2029		
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PROPOSED USES - operational analysis only

Land Use - 8.63 acs w/ 266 MF DU (Site 1 73DU, Site 2 40DU, Site 3 27DU, Site 4 5DU, Site A 30DU, Site B 28DU, Site C 23DU, & Site D 40DU) & 40 ac w/ 69 SF DU (Meadows 27DU & Stonegate 42DU). User Defined Com is surrogate ~mobile LADOT's VMT calc.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 3,026 trips existing uses. Trip length ~16,429 daily VMT/3,026 daily trips = ~5.43 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - SCAQMD Rule 445 prohibits installation of wood burning devices. No wood burning devices & default wood added to default gas.

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Winter

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	226.10	239.40
tblFireplaces	NumberGas	58.65	62.10
tblFireplaces	NumberWood	13.30	0.00
tblFireplaces	NumberWood	3.45	0.00
tblLandUse	LotAcreage	22.40	40.00
tblLandUse	LotAcreage	16.63	8.63
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	5.43
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	0.00	3,026.00
tblWoodstoves	NumberCatalytic	13.30	0.00
tblWoodstoves	NumberCatalytic	3.45	0.00
tblWoodstoves	NumberNoncatalytic	13.30	0.00
tblWoodstoves	NumberNoncatalytic	3.45	0.00

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Winter

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

2.0 Emissions Summary

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	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037
Energy	0.1767	1.5101	0.6426	9.6400e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125
Mobile	13.3593	12.9490	125.2570	0.2652	32.9159	0.1837	33.0995	8.7695	0.1707	8.9402		28,444.5927	28,444.5927	2.0155	1.2298	28,861.4494
Total	23.3452	19.7785	155.6397	0.3082	32.9159	0.8633	33.7792	8.7695	0.8503	9.6199	0.0000	36,806.8206	36,806.8206	2.2225	1.3822	37,274.2656

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	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037
Energy	0.1767	1.5101	0.6426	9.6400e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125
Mobile	13.3593	12.9490	125.2570	0.2652	32.9159	0.1837	33.0995	8.7695	0.1707	8.9402		28,444.5927	28,444.5927	2.0155	1.2298	28,861.4494
Total	23.3452	19.7785	155.6397	0.3082	32.9159	0.8633	33.7792	8.7695	0.8503	9.6199	0.0000	36,806.8206	36,806.8206	2.2225	1.3822	37,274.2656

[illegible]

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, 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	13.3593	12.9490	125.2570	0.2652	32.9159	0.1837	33.0995	8.7695	0.1707	8.9402		28,444.5927	28,444.592	2.0155	1.2298	28,861.449
Unmitigate	13.3593	12.9490	125.2570	0.2652	32.9159	0.1837	33.0995	8.7695	0.1707	8.9402		28,444.5927	28,444.592	2.0155	1.2298	28,861.449

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	2,165.24	1670.48	1,872,463	1,872,463
Single Family Housing	0.00	658.26	589.95	609,332	609,332
User Defined Commercial	3,026.00	0.00	0.00	4,272,107	4,272,107
Total	3,026.00	2,823.50	2,260.43	6,753,901	6,753,901

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
User Defined Commercial	5.43	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Single Family Housing	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**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	0.1767	1.5101	0.6426	9.6400e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125
NaturalGas Unmitigated	0.1767	1.5101	0.6426	9.6400e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	11566.9	0.1247	1.0660	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.8097	1,360.8097	0.0261	0.0250	1,368.8963
Single Family	4819.05	0.0520	0.4441	0.1890	2.8300e-003		0.0359	0.0359		0.0359	0.0359		566.9472	566.9472	0.0109	0.0104	570.3162
User Defined	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
Total		0.1767	1.5101	0.6426	9.6300e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	11.5669	0.1247	1.0660	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.8097	1,360.8097	0.0261	0.0250	1,368.8963
Single Family	4.81905	0.0520	0.4441	0.1890	2.8300e-003		0.0359	0.0359		0.0359	0.0359		566.9472	566.9472	0.0109	0.0104	570.3162
User Defined	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
Total		0.1767	1.5101	0.6426	9.6300e-003		0.1221	0.1221		0.1221	0.1221		1,927.7569	1,927.7569	0.0370	0.0353	1,939.2125

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**6.0 Area Detail****6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037
Unmitigated	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037

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	0.6689					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.7260					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5853	5.0014	2.1282	0.0319		0.4044	0.4044		0.4044	0.4044	0.0000	6,384.7059	6,384.7059	0.1224	0.1171	6,422.6470
Landscaping	0.8290	0.3181	27.6118	1.4600e-003		0.1532	0.1532		0.1532	0.1532		49.7652	49.7652	0.0477		50.9567
Total	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037

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	0.6689					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.7260					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5853	5.0014	2.1282	0.0319		0.4044	0.4044		0.4044	0.4044	0.0000	6,384.7059	6,384.7059	0.1224	0.1171	6,422.6470
Landscaping	0.8290	0.3181	27.6118	1.4600e-003		0.1532	0.1532		0.1532	0.1532		49.7652	49.7652	0.0477		50.9567
Total	9.8092	5.3194	29.7401	0.0334		0.5576	0.5576		0.5576	0.5576	0.0000	6,434.4711	6,434.4711	0.1700	0.1171	6,473.6037

03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail**

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational**

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

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

Appendix B:

CalEEMod Annual Emission Output

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322105 - Sierra Madre GP - EXISTING USES**

Los Angeles-South Coast County, Annual

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Apartments Low Rise	56.00	Dwelling Unit	6.18	74,172.00	160
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EXISTING USES - operational analysis only

Land Use - S1 25DU(2.44AC), S2 13DU(2.11AC), S3 17DU(0.92AC), S4 1DU(0.71AC), SA 30.9TSF prkng, SB 28.5TSF prkng, SC 10.8TSF prkng & 12.281TSF church lot w/ 0.9TSF bldg, & SD 26.486TSF prkng & 14.143TSF Indscp. 74.172 TSF (Apx C HE). User Def LADOT.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 528 trips existing uses. Trip length ~3,619 daily VMT/528 daily trips = ~6.85 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

03322105 - Sierra Madre GP - EXISTING USES - Los Angeles-South Coast County, Annual

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Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	47.60	50.40
tblFireplaces	NumberWood	2.80	0.00
tblLandUse	LandUseSquareFeet	14,140.00	14,143.00
tblLandUse	LandUseSquareFeet	96,690.00	96,686.00
tblLandUse	LandUseSquareFeet	56,000.00	74,172.00
tblLandUse	LotAcreage	0.02	0.28
tblLandUse	LotAcreage	3.50	6.18
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	6.85
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	0.00	528.00
tblWoodstoves	NumberCatalytic	2.80	0.00
tblWoodstoves	NumberNoncatalytic	2.80	0.00

[illegible]

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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	tons/yr										MT/yr					
Mitigated	0.2657	0.3444	2.6592	5.2500e-003	0.5049	5.3800e-003	0.5102	0.1347	5.0300e-003	0.1397	0.0000	486.2403	486.2403	0.0363	0.0231	494.0318
Unmitigated	0.2657	0.3444	2.6592	5.2500e-003	0.5049	5.3800e-003	0.5102	0.1347	5.0300e-003	0.1397	0.0000	486.2403	486.2403	0.0363	0.0231	494.0318

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	455.84	351.68	394,203	394,203
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Place of Worship	0.00	5.39	24.87	9,219	9,219
User Defined Commercial	528.00	0.00	0.00	940,368	940,368
Total	528.00	461.23	376.55	1,343,790	1,343,790

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
User Defined Commercial	6.85	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Other Non-Asphalt Surfaces	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Parking Lot	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Place of Worship	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
User Defined Commercial	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**5.0 Energy Detail**

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	47.8368	47.8368	4.0400e-003	4.9000e-004	48.0836
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	47.8368	47.8368	4.0400e-003	4.9000e-004	48.0836
NaturalGas Mitigated	4.8800e-003	0.0418	0.0181	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003	0.0000	48.2936	48.2936	9.3000e-004	8.9000e-004	48.5806
NaturalGas Unmitigated	4.8800e-003	0.0418	0.0181	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003	0.0000	48.2936	48.2936	9.3000e-004	8.9000e-004	48.5806

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	888824	4.7900e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4310	47.4310	9.1000e-004	8.7000e-004	47.7129
Other Non-Asphalt Surfaces	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
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
Place of Worship	16164	9.0000e-005	7.9000e-004	6.7000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8626	0.8626	2.0000e-005	2.0000e-005	0.8677
User Defined Commercial	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
Total		4.8800e-003	0.0418	0.0181	2.6000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003	0.0000	48.2936	48.2936	9.3000e-004	8.9000e-004	48.5806

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	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	888824	4.7900e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4310	47.4310	9.1000e-004	8.7000e-004	47.7129
Other Non-Asphalt Surfaces	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
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
Place of Worship	16164	9.0000e-005	7.9000e-004	6.7000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8626	0.8626	2.0000e-005	2.0000e-005	0.8677
User Defined Commercial	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
Total		4.8800e-003	0.0418	0.0181	2.6000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003	0.0000	48.2936	48.2936	9.3000e-004	8.9000e-004	48.5806

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	226124	40.1020	3.3800e-003	4.1000e-004	40.3089
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	33840.1	6.0014	5.1000e-004	6.0000e-005	6.0324
Place of Worship	9774	1.7334	1.5000e-004	2.0000e-005	1.7423
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		47.8368	4.0400e-003	4.9000e-004	48.0836

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

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	226124	40.1020	3.3800e-003	4.1000e-004	40.3089
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	33840.1	6.0014	5.1000e-004	6.0000e-005	6.0324
Place of Worship	9774	1.7334	1.5000e-004	2.0000e-005	1.7423
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		47.8368	4.0400e-003	4.9000e-004	48.0836

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3225	0.0171	0.5847	1.0000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	13.0491	13.0491	1.1500e-003	2.2000e-004	13.1440
Unmitigated	0.3225	0.0171	0.5847	1.0000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	13.0491	13.0491	1.1500e-003	2.2000e-004	13.1440

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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	0.0252					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2784					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.2200e-003	0.0105	4.4500e-003	7.0000e-005		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	12.1029	12.1029	2.3000e-004	2.2000e-004	12.1748
Landscaping	0.0177	6.6900e-003	0.5802	3.0000e-005		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003	0.0000	0.9462	0.9462	9.2000e-004	0.0000	0.9692
Total	0.3225	0.0171	0.5847	1.0000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	13.0491	13.0491	1.1500e-003	2.2000e-004	13.1440

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	0.0252					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2784					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.2200e-003	0.0105	4.4500e-003	7.0000e-005		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	12.1029	12.1029	2.3000e-004	2.2000e-004	12.1748
Landscaping	0.0177	6.6900e-003	0.5802	3.0000e-005		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003	0.0000	0.9462	0.9462	9.2000e-004	0.0000	0.9692
Total	0.3225	0.0171	0.5847	1.0000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	13.0491	13.0491	1.1500e-003	2.2000e-004	13.1440

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail****7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.2759	0.1209	2.9600e-003	18.1818
Unmitigated	14.2759	0.1209	2.9600e-003	18.1818

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.64863 / 2.30022	14.1152	0.1200	2.9400e-003	17.9908
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Place of Worship	0.02816 / 0.0440452	0.1607	9.3000e-004	2.0000e-005	0.1909
User Defined Commercial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		14.2759	0.1209	2.9600e-003	18.1817

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.64863 / 2.30022	14.1152	0.1200	2.9400e-003	17.9908
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Place of Worship	0.02816 / 0.0440452	0.1607	9.3000e-004	2.0000e-005	0.1909
User Defined Commercial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		14.2759	0.1209	2.9600e-003	18.1817

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.2704	0.3706	0.0000	15.5346
Unmitigated	6.2704	0.3706	0.0000	15.5346

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	25.76	5.2291	0.3090	0.0000	12.9547
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	5.13	1.0413	0.0615	0.0000	2.5799
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		6.2704	0.3706	0.0000	15.5346

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	25.76	5.2291	0.3090	0.0000	12.9547
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	5.13	1.0413	0.0615	0.0000	2.5799
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		6.2704	0.3706	0.0000	15.5346

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**9.0 Operational Offroad**

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

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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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322105 - Sierra Madre GP - EXISTING USES**

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1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Apartments Low Rise	56.00	Dwelling Unit	6.18	74,172.00	160

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2029
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EXISTING USES - operational analysis only

Land Use - S1 25DU(2.44AC), S2 13DU(2.11AC), S3 17DU(0.92AC), S4 1DU(0.71AC), SA 30.9TSF prkng, SB 28.5TSF prkng, SC 10.8TSF prkng & 12.281TSF church lot w/ 0.9TSF bldg, & SD 26.486TSF prkng & 14.143TSF Indscp. 74.172 TSF (Apx C HE). User Def LADOT.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 528 trips existing uses. Trip length ~3,619 daily VMT/528 daily trips = ~6.85 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	47.60	50.40
tblFireplaces	NumberWood	2.80	0.00
tblLandUse	LandUseSquareFeet	56,000.00	74,172.00
tblLandUse	LotAcreage	0.02	0.28
tblLandUse	LotAcreage	3.50	6.18
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	6.85
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	0.00	528.00
tblWoodstoves	NumberCatalytic	2.80	0.00
tblWoodstoves	NumberNoncatalytic	2.80	0.00

[illegible]

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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	tons/yr										MT/yr					
Mitigated	0.2043	0.2044	1.9656	4.1900e-003	0.5050	2.8700e-003	0.5079	0.1348	2.6600e-003	0.1374	0.0000	407.8422	407.8422	0.0284	0.0175	413.7626
Unmitigated	0.2043	0.2044	1.9656	4.1900e-003	0.5050	2.8700e-003	0.5079	0.1348	2.6600e-003	0.1374	0.0000	407.8422	407.8422	0.0284	0.0175	413.7626

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Apartments Low Rise	0.00	455.84	351.68	394,203	394,203
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Place of Worship	0.00	5.39	24.87	9,219	9,219
User Defined Commercial	528.00	0.00	0.00	940,368	940,368
Total	528.00	461.23	376.55	1,343,790	1,343,790

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
User Defined Commercial	6.85	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Other Non-Asphalt Surfaces	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Parking Lot	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Place of Worship	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**5.0 Energy Detail**

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	47.8368	47.8368	4.0400e-003	4.9000e-004	48.0836
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	47.8368	47.8368	4.0400e-003	4.9000e-004	48.0836
NaturalGas Mitigated	4.8800e-003	0.0418	0.0181	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003	0.0000	48.2936	48.2936	9.3000e-004	8.9000e-004	48.5806
NaturalGas Unmitigated	4.8800e-003	0.0418	0.0181	2.7000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003	0.0000	48.2936	48.2936	9.3000e-004	8.9000e-004	48.5806

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	888824	4.7900e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4310	47.4310	9.1000e-004	8.7000e-004	47.7129
Other Non-Asphalt Surfaces	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
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
Place of Worship	16164	9.0000e-005	7.9000e-004	6.7000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8626	0.8626	2.0000e-005	2.0000e-005	0.8677
User Defined Commercial	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
Total		4.8800e-003	0.0418	0.0181	2.6000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003	0.0000	48.2936	48.2936	9.3000e-004	8.9000e-004	48.5806

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	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	888824	4.7900e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4310	47.4310	9.1000e-004	8.7000e-004	47.7129
Other Non-Asphalt Surfaces	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
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
Place of Worship	16164	9.0000e-005	7.9000e-004	6.7000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8626	0.8626	2.0000e-005	2.0000e-005	0.8677
User Defined Commercial	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
Total		4.8800e-003	0.0418	0.0181	2.6000e-004		3.3700e-003	3.3700e-003		3.3700e-003	3.3700e-003	0.0000	48.2936	48.2936	9.3000e-004	8.9000e-004	48.5806

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	226124	40.1020	3.3800e-003	4.1000e-004	40.3089
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	33840.1	6.0014	5.1000e-004	6.0000e-005	6.0324
Place of Worship	9774	1.7334	1.5000e-004	2.0000e-005	1.7423
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		47.8368	4.0400e-003	4.9000e-004	48.0836

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

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	226124	40.1020	3.3800e-003	4.1000e-004	40.3089
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	33840.1	6.0014	5.1000e-004	6.0000e-005	6.0324
Place of Worship	9774	1.7334	1.5000e-004	2.0000e-005	1.7423
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		47.8368	4.0400e-003	4.9000e-004	48.0836

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3223	0.0171	0.5828	1.0000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	13.0491	13.0491	1.1400e-003	2.2000e-004	13.1438
Unmitigated	0.3223	0.0171	0.5828	1.0000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	13.0491	13.0491	1.1400e-003	2.2000e-004	13.1438

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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	0.0252					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2784					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.2200e-003	0.0105	4.4500e-003	7.0000e-005		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	12.1029	12.1029	2.3000e-004	2.2000e-004	12.1748
Landscaping	0.0175	6.6600e-003	0.5784	3.0000e-005		3.2100e-003	3.2100e-003		3.2100e-003	3.2100e-003	0.0000	0.9462	0.9462	9.1000e-004	0.0000	0.9689
Total	0.3223	0.0171	0.5829	1.0000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	13.0491	13.0491	1.1400e-003	2.2000e-004	13.1437

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	0.0252					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2784					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.2200e-003	0.0105	4.4500e-003	7.0000e-005		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	12.1029	12.1029	2.3000e-004	2.2000e-004	12.1748
Landscaping	0.0175	6.6600e-003	0.5784	3.0000e-005		3.2100e-003	3.2100e-003		3.2100e-003	3.2100e-003	0.0000	0.9462	0.9462	9.1000e-004	0.0000	0.9689
Total	0.3223	0.0171	0.5829	1.0000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	13.0491	13.0491	1.1400e-003	2.2000e-004	13.1437

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail****7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.2759	0.1209	2.9600e-003	18.1818
Unmitigated	14.2759	0.1209	2.9600e-003	18.1818

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.64863 / 2.30022	14.1152	0.1200	2.9400e-003	17.9908
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Place of Worship	0.02816 / 0.0440452	0.1607	9.3000e-004	2.0000e-005	0.1909
User Defined Commercial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		14.2759	0.1209	2.9600e-003	18.1817

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.64863 / 2.30022	14.1152	0.1200	2.9400e-003	17.9908
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Place of Worship	0.02816 / 0.0440452	0.1607	9.3000e-004	2.0000e-005	0.1909
User Defined Commercial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		14.2759	0.1209	2.9600e-003	18.1817

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.2704	0.3706	0.0000	15.5346
Unmitigated	6.2704	0.3706	0.0000	15.5346

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	25.76	5.2291	0.3090	0.0000	12.9547
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	5.13	1.0413	0.0615	0.0000	2.5799
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		6.2704	0.3706	0.0000	15.5346

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	25.76	5.2291	0.3090	0.0000	12.9547
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	5.13	1.0413	0.0615	0.0000	2.5799
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		6.2704	0.3706	0.0000	15.5346

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**9.0 Operational Offroad**

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

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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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322015 - Sierra Madre GP HE - GP UPDATE 2015 Uses OPERATIONAL ANALYSIS ONLY**

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1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0
Apartments Low Rise	90.00	Dwelling Unit	5.81	90,000.00	257
Single Family Housing	69.00	Dwelling Unit	40.00	124,200.00	197
Parking Lot	96.69	1000sqft	2.22	96,686.00	0
Place of Worship	0.90	1000sqft	0.28	900.00	0
Other Non-Asphalt Surfaces	14.14	1000sqft	0.32	14,143.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2029
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2015 GP Update Uses - operational analysis only

Land Use - 90 MF DUs over ~5.81 ac (Sites 1-4), 69 SF over ~40 ac (Meadows & Stonegate), & for Sites A-D parking lots totaling ~96.686 TSF, 2.281TSF church lot w/ 0.9TSF bldg, & 14.143TSF Indscp. I User Def Com surrogate ~mobile LADOT's VMT calc.

Vehicle Trips - Per methodology/data from Gibson Transporation Consutling, Inc., 1,164 trips GP Update uses. Trip length ~8,660 daily VMT/1,160 daily trips = ~7.47 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - Assumes no wood-burning fireplaces for multi-family units (per SCAQMD Rule 445). Default value for the number of wood-burning fireplaces added to natural gas fire places.

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	76.50	81.00
tblFireplaces	NumberGas	58.65	62.10
tblFireplaces	NumberWood	4.50	0.00
tblFireplaces	NumberWood	3.45	0.00
tblLandUse	LotAcreage	5.63	5.81
tblLandUse	LotAcreage	22.40	40.00
tblLandUse	LotAcreage	0.02	0.28
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	7.47
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	6.95	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	0.00	1,164.00
tblWoodstoves	NumberCatalytic	4.50	0.00
tblWoodstoves	NumberCatalytic	3.45	0.00
tblWoodstoves	NumberNoncatalytic	4.50	0.00
tblWoodstoves	NumberNoncatalytic	3.45	0.00

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

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9062	0.0486	1.6522	2.8000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	37.0449	37.0449	3.2300e-003	6.3000e-004	37.3134
Energy	0.0173	0.1477	0.0632	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	339.2962	339.2962	0.0175	4.8600e-003	341.1806
Mobile	0.5156	0.5248	5.0581	0.0109	1.3202	7.4400e-003	1.3277	0.3523	6.9100e-003	0.3592	0.0000	1,064.0068	1,064.0068	0.0727	0.0449	1,079.2182
Waste						0.0000	0.0000		0.0000	0.0000	25.8408	0.0000	25.8408	1.5271	0.0000	64.0194
Water						0.0000	0.0000		0.0000	0.0000	3.2955	36.9422	40.2377	0.3416	8.3700e-003	51.2720
Total	1.4391	0.7210	6.7735	0.0122	1.3202	0.0309	1.3511	0.3523	0.0303	0.3826	29.1363	1,477.2901	1,506.4263	1.9622	0.0588	1,573.0035

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9062	0.0486	1.6522	2.8000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	37.0449	37.0449	3.2300e-003	6.3000e-004	37.3134
Energy	0.0173	0.1477	0.0632	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	339.2962	339.2962	0.0175	4.8600e-003	341.1806
Mobile	0.5156	0.5248	5.0581	0.0109	1.3202	7.4400e-003	1.3277	0.3523	6.9100e-003	0.3592	0.0000	1,064.0068	1,064.0068	0.0727	0.0449	1,079.2182
Waste						0.0000	0.0000		0.0000	0.0000	25.8408	0.0000	25.8408	1.5271	0.0000	64.0194
Water						0.0000	0.0000		0.0000	0.0000	3.2955	36.9422	40.2377	0.3416	8.3700e-003	51.2720
Total	1.4391	0.7210	6.7735	0.0122	1.3202	0.0309	1.3511	0.3523	0.0303	0.3826	29.1363	1,477.2901	1,506.4263	1.9622	0.0588	1,573.0035

[illegible]

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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	tons/yr										MT/yr					
Mitigated	0.5156	0.5248	5.0581	0.0109	1.3202	7.4400e-003	1.3277	0.3523	6.9100e-003	0.3592	0.0000	1,064.0068	1,064.0068	0.0727	0.0449	1,079.2182
Unmitigated	0.5156	0.5248	5.0581	0.0109	1.3202	7.4400e-003	1.3277	0.3523	6.9100e-003	0.3592	0.0000	1,064.0068	1,064.0068	0.0727	0.0449	1,079.2182

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Apartments Low Rise	0.00	732.60	565.20	633,540	633,540
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Place of Worship	0.00	5.39	24.87	9,219	9,219
Single Family Housing	0.00	658.26	589.95	609,332	609,332
User Defined Commercial	1,164.00	0.00	0.00	2,260,721	2,260,721
Total	1,164.00	1,396.25	1,180.02	3,512,812	3,512,812

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Place of Worship	16.60	8.40	6.90	0.00	95.00	5.00	64	25	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
User Defined Commercial	7.47	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Other Non-Asphalt Surfaces	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Parking Lot	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Place of Worship	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Single Family Housing	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**5.0 Energy Detail**

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	168.3408	168.3408	0.0142	1.7200e-003	169.2092
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	168.3408	168.3408	0.0142	1.7200e-003	169.2092
NaturalGas Mitigated	0.0173	0.1477	0.0632	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.9554	170.9554	3.2800e-003	3.1300e-003	171.9714
NaturalGas Unmitigated	0.0173	0.1477	0.0632	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.9554	170.9554	3.2800e-003	3.1300e-003	171.9714

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.42847e+006	7.7000e-003	0.0658	0.0280	4.2000e-004		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	76.2284	76.2284	1.4600e-003	1.4000e-003	76.6814
Other Non-Asphalt Surfaces	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
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
Place of Worship	16164	9.0000e-005	7.9000e-004	6.7000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8626	0.8626	2.0000e-005	2.0000e-005	0.8677
Single Family Housing	1.75895e+006	9.4800e-003	0.0811	0.0345	5.2000e-004		6.5500e-003	6.5500e-003		6.5500e-003	6.5500e-003	0.0000	93.8645	93.8645	1.8000e-003	1.7200e-003	94.4223
User Defined Commercial	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
Total		0.0173	0.1477	0.0632	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.9554	170.9554	3.2800e-003	3.1400e-003	171.9714

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

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.42847e+006	7.7000e-003	0.0658	0.0280	4.2000e-004		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	76.2284	76.2284	1.4600e-003	1.4000e-003	76.6814
Other Non-Asphalt Surfaces	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
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
Place of Worship	16164	9.0000e-005	7.9000e-004	6.7000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8626	0.8626	2.0000e-005	2.0000e-005	0.8677
Single Family Housing	1.75895e+006	9.4800e-003	0.0811	0.0345	5.2000e-004		6.5500e-003	6.5500e-003		6.5500e-003	6.5500e-003	0.0000	93.8645	93.8645	1.8000e-003	1.7200e-003	94.4223
User Defined Commercial	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
Total		0.0173	0.1477	0.0632	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.9554	170.9554	3.2800e-003	3.1400e-003	171.9714

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	363413	64.4496	5.4400e-003	6.6000e-004	64.7821
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	33840.1	6.0014	5.1000e-004	6.0000e-005	6.0324
Place of Worship	9774	1.7334	1.5000e-004	2.0000e-005	1.7423
Single Family Housing	542198	96.1564	8.1200e-003	9.8000e-004	96.6524
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		168.3408	0.0142	1.7200e-003	169.2092

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

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	363413	64.4496	5.4400e-003	6.6000e-004	64.7821
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	33840.1	6.0014	5.1000e-004	6.0000e-005	6.0324
Place of Worship	9774	1.7334	1.5000e-004	2.0000e-005	1.7423
Single Family Housing	542198	96.1564	8.1200e-003	9.8000e-004	96.6524
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		168.3408	0.0142	1.7200e-003	169.2092

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9062	0.0486	1.6522	2.8000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	37.0449	37.0449	3.2300e-003	6.3000e-004	37.3134
Unmitigated	0.9062	0.0486	1.6522	2.8000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	37.0449	37.0449	3.2300e-003	6.3000e-004	37.3134

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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	0.0690					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7844					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.4700e-003	0.0297	0.0126	1.9000e-004		2.4000e-003	2.4000e-003		2.4000e-003	2.4000e-003	0.0000	34.3636	34.3636	6.6000e-004	6.3000e-004	34.5678
Landscaping	0.0493	0.0189	1.6396	9.0000e-005		9.0900e-003	9.0900e-003		9.0900e-003	9.0900e-003	0.0000	2.6812	2.6812	2.5700e-003	0.0000	2.7455
Total	0.9062	0.0486	1.6522	2.8000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	37.0449	37.0449	3.2300e-003	6.3000e-004	37.3134

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	0.0690					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7844					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.4700e-003	0.0297	0.0126	1.9000e-004		2.4000e-003	2.4000e-003		2.4000e-003	2.4000e-003	0.0000	34.3636	34.3636	6.6000e-004	6.3000e-004	34.5678
Landscaping	0.0493	0.0189	1.6396	9.0000e-005		9.0900e-003	9.0900e-003		9.0900e-003	9.0900e-003	0.0000	2.6812	2.6812	2.5700e-003	0.0000	2.7455
Total	0.9062	0.0486	1.6522	2.8000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	37.0449	37.0449	3.2300e-003	6.3000e-004	37.3134

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail****7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	40.2377	0.3416	8.3700e-003	51.2720
Unmitigated	40.2377	0.3416	8.3700e-003	51.2720

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	5.86386 / 3.69678	22.6851	0.1928	4.7200e-003	28.9138
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Place of Worship	0.02816 / 0.0440452	0.1607	9.3000e-004	2.0000e-005	0.1909
Single Family Housing	4.49563 / 2.8342	17.3919	0.1478	3.6200e-003	22.1673
User Defined Commercial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		40.2377	0.3416	8.3600e-003	51.2720

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

Indoor/Outdoor Use		Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	5.86386 / 3.69678	22.6851	0.1928	4.7200e-003	28.9138
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Place of Worship	0.02816 / 0.0440452	0.1607	9.3000e-004	2.0000e-005	0.1909
Single Family Housing	4.49563 / 2.8342	17.3919	0.1478	3.6200e-003	22.1673
User Defined Commercial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		40.2377	0.3416	8.3600e-003	51.2720

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	25.8408	1.5271	0.0000	64.0194
Unmitigated	25.8408	1.5271	0.0000	64.0194

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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 Low Rise	41.4	8.4038	0.4967	0.0000	20.8201
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	5.13	1.0413	0.0615	0.0000	2.5799
Single Family Housing	80.77	16.3956	0.9690	0.0000	40.6194
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		25.8408	1.5271	0.0000	64.0194

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	41.4	8.4038	0.4967	0.0000	20.8201
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Place of Worship	5.13	1.0413	0.0615	0.0000	2.5799
Single Family Housing	80.77	16.3956	0.9690	0.0000	40.6194
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		25.8408	1.5271	0.0000	64.0194

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**9.0 Operational Offroad**

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

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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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**03322015 - Sierra Madre GP HE - Proposed Uses - Operational Analysis**

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1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	69.00	Dwelling Unit	40.00	124,200.00	197
Apartments Low Rise	266.00	Dwelling Unit	8.63	266,000.00	761
User Defined Commercial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2029
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PROPOSED USES - operational analysis only

Land Use - 8.63 acs w/ 266 MF DU (Site 1 73DU, Site 2 40DU, Site 3 27DU, Site 4 5DU, Site A 30DU, Site B 28DU, Site C 23DU, & Site D 40DU) & 40 ac w/ 69 SF DU (Meadows 27DU & Stonegate 42DU). User Defined Com is surrogate ~mobile LADOT's VMT calc.

Vehicle Trips - Traffic Data (Gibson Transportation Consulting, Inc.), 3,026 trips existing uses. Trip length ~16,429 daily VMT/3,026 daily trips = ~5.43 miles. (See CalEEMod Input for more info on VMT calculations).

Woodstoves - SCAQMD Rule 445 prohibits installation of wood burning devices. No wood burning devices & default wood added to default gas.

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

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	226.10	239.40
tblFireplaces	NumberGas	58.65	62.10
tblFireplaces	NumberWood	13.30	0.00
tblFireplaces	NumberWood	3.45	0.00
tblLandUse	LotAcreage	22.40	40.00
tblLandUse	LotAcreage	16.63	8.63
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	5.43
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	0.00	3,026.00
tblWoodstoves	NumberCatalytic	13.30	0.00
tblWoodstoves	NumberCatalytic	3.45	0.00
tblWoodstoves	NumberNoncatalytic	13.30	0.00
tblWoodstoves	NumberNoncatalytic	3.45	0.00

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

2.0 Emissions Summary

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	1.6430	0.1023	3.4781	5.8000e-004		0.0242	0.0242		0.0242	0.0242	0.0000	78.0446	78.0446	6.7900e-003	1.3300e-003	78.6100
Energy	0.0323	0.2756	0.1173	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	605.8026	605.8026	0.0303	8.7800e-003	609.1780
Mobile	1.0987	1.0642	10.1953	0.0212	2.5383	0.0146	2.5529	0.6773	0.0136	0.6909	0.0000	2,058.2264	2,058.2264	0.1481	0.0909	2,089.0253
Waste						0.0000	0.0000		0.0000	0.0000	41.2336	0.0000	41.2336	2.4368	0.0000	102.1544
Water						0.0000	0.0000		0.0000	0.0000	6.9246	77.5143	84.4389	0.7178	0.0176	107.6237
Total	2.7739	1.4420	13.7906	0.0235	2.5383	0.0611	2.5994	0.6773	0.0601	0.7374	48.1581	2,819.5880	2,867.7461	3.3398	0.1186	2,986.5914

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	1.6430	0.1023	3.4781	5.8000e-004		0.0242	0.0242		0.0242	0.0242	0.0000	78.0446	78.0446	6.7900e-003	1.3300e-003	78.6100
Energy	0.0323	0.2756	0.1173	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	605.8026	605.8026	0.0303	8.7800e-003	609.1780
Mobile	1.0987	1.0642	10.1953	0.0212	2.5383	0.0146	2.5529	0.6773	0.0136	0.6909	0.0000	2,058.2264	2,058.2264	0.1481	0.0909	2,089.0253
Waste						0.0000	0.0000		0.0000	0.0000	41.2336	0.0000	41.2336	2.4368	0.0000	102.1544
Water						0.0000	0.0000		0.0000	0.0000	6.9246	77.5143	84.4389	0.7178	0.0176	107.6237
Total	2.7739	1.4420	13.7906	0.0235	2.5383	0.0611	2.5994	0.6773	0.0601	0.7374	48.1581	2,819.5880	2,867.7461	3.3398	0.1186	2,986.5914

[illegible]

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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	tons/yr										MT/yr					
Mitigated	1.0987	1.0642	10.1953	0.0212	2.5383	0.0146	2.5529	0.6773	0.0136	0.6909	0.0000	2,058.2264	2,058.2264	0.1481	0.0909	2,089.0253
Unmitigated	1.0987	1.0642	10.1953	0.0212	2.5383	0.0146	2.5529	0.6773	0.0136	0.6909	0.0000	2,058.2264	2,058.2264	0.1481	0.0909	2,089.0253

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	2,165.24	1670.48	1,872,463	1,872,463
Single Family Housing	0.00	658.26	589.95	609,332	609,332
User Defined Commercial	3,026.00	0.00	0.00	4,272,107	4,272,107
Total	3,026.00	2,823.50	2,260.43	6,753,901	6,753,901

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 Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
User Defined Commercial	5.43	0.00	0.00	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
Single Family Housing	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288
User Defined Commercial	0.531474	0.067154	0.192702	0.126421	0.024086	0.006875	0.011564	0.007937	0.000940	0.000574	0.026268	0.000718	0.003288

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**5.0 Energy Detail**

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	286.6409	286.6409	0.0242	2.9300e-003	288.1196
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	286.6409	286.6409	0.0242	2.9300e-003	288.1196
NaturalGas Mitigated	0.0323	0.2756	0.1173	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	319.1618	319.1618	6.1200e-003	5.8500e-003	321.0584
NaturalGas Unmitigated	0.0323	0.2756	0.1173	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	319.1618	319.1618	6.1200e-003	5.8500e-003	321.0584

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	4.22191e+006	0.0228	0.1945	0.0828	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.2973	225.2973	4.3200e-003	4.1300e-003	226.6361
Single Family Housing	1.75895e+006	9.4800e-003	0.0811	0.0345	5.2000e-004		6.5500e-003	6.5500e-003		6.5500e-003	6.5500e-003	0.0000	93.8645	93.8645	1.8000e-003	1.7200e-003	94.4223
User Defined Commercial	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
Total		0.0323	0.2756	0.1173	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	319.1618	319.1618	6.1200e-003	5.8500e-003	321.0584

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	4.22191e+006	0.0228	0.1945	0.0828	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.2973	225.2973	4.3200e-003	4.1300e-003	226.6361
Single Family Housing	1.75895e+006	9.4800e-003	0.0811	0.0345	5.2000e-004		6.5500e-003	6.5500e-003		6.5500e-003	6.5500e-003	0.0000	93.8645	93.8645	1.8000e-003	1.7200e-003	94.4223
User Defined Commercial	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
Total		0.0323	0.2756	0.1173	1.7600e-003		0.0223	0.0223		0.0223	0.0223	0.0000	319.1618	319.1618	6.1200e-003	5.8500e-003	321.0584

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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 Low Rise	1.07409e+006	190.4845	0.0161	1.9500e-003	191.4672
Single Family Housing	542198	96.1564	8.1200e-003	9.8000e-004	96.6524
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		286.6409	0.0242	2.9300e-003	288.1196

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.07409e+006	190.4845	0.0161	1.9500e-003	191.4672
Single Family Housing	542198	96.1564	8.1200e-003	9.8000e-004	96.6524
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		286.6409	0.0242	2.9300e-003	288.1196

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.6430	0.1023	3.4781	5.8000e-004		0.0242	0.0242		0.0242	0.0242	0.0000	78.0446	78.0446	6.7900e-003	1.3300e-003	78.6100
Unmitigated	1.6430	0.1023	3.4781	5.8000e-004		0.0242	0.0242		0.0242	0.0242	0.0000	78.0446	78.0446	6.7900e-003	1.3300e-003	78.6100

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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	0.1221					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4100					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.3200e-003	0.0625	0.0266	4.0000e-004		5.0500e-003	5.0500e-003		5.0500e-003	5.0500e-003	0.0000	72.4014	72.4014	1.3900e-003	1.3300e-003	72.8316
Landscaping	0.1036	0.0398	3.4515	1.8000e-004		0.0192	0.0192		0.0192	0.0192	0.0000	5.6433	5.6433	5.4000e-003	0.0000	5.7784
Total	1.6430	0.1023	3.4781	5.8000e-004		0.0242	0.0242		0.0242	0.0242	0.0000	78.0446	78.0446	6.7900e-003	1.3300e-003	78.6100

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	0.1221					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4100					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.3200e-003	0.0625	0.0266	4.0000e-004		5.0500e-003	5.0500e-003		5.0500e-003	5.0500e-003	0.0000	72.4014	72.4014	1.3900e-003	1.3300e-003	72.8316
Landscaping	0.1036	0.0398	3.4515	1.8000e-004		0.0192	0.0192		0.0192	0.0192	0.0000	5.6433	5.6433	5.4000e-003	0.0000	5.7784
Total	1.6430	0.1023	3.4781	5.8000e-004		0.0242	0.0242		0.0242	0.0242	0.0000	78.0446	78.0446	6.7900e-003	1.3300e-003	78.6100

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**7.0 Water Detail****7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	84.4389	0.7178	0.0176	107.6237
Unmitigated	84.4389	0.7178	0.0176	107.6237

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	17.331 / 10.926	67.0470	0.5699	0.0140	85.4564
Single Family Housing	4.49563 / 2.8342	17.3919	0.1478	3.6200e-003	22.1673
User Defined Commercial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		84.4389	0.7178	0.0176	107.6237

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	17.331 / 10.926	67.0470	0.5699	0.0140	85.4564
Single Family Housing	4.49563 / 2.8342	17.3919	0.1478	3.6200e-003	22.1673
User Defined Commercial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		84.4389	0.7178	0.0176	107.6237

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	41.2336	2.4368	0.0000	102.1544
Unmitigated	41.2336	2.4368	0.0000	102.1544

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	122.36	24.8380	1.4679	0.0000	61.5350
Single Family Housing	80.77	16.3956	0.9690	0.0000	40.6194
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		41.2336	2.4368	0.0000	102.1544

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	122.36	24.8380	1.4679	0.0000	61.5350
Single Family Housing	80.77	16.3956	0.9690	0.0000	40.6194
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		41.2336	2.4368	0.0000	102.1544

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**9.0 Operational Offroad**

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

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix C:

Additional CalEEMod Input Information and Traffic Data

Per conversation with Richard Gibson at Gibson Transporation Consulting, Inc., the VMT per site was calculated by utilizing the multi/single-family population per DU of 3.16 and the Home-Based VMT per capita for each site. The proposed number of dwelling units was multiplied by these two numbers to get the daily VMT per site. In addition, for the Housing Element scenario, the daily VMT reduction for mitigations and design features was applied calculating the percent reduction from the Existing and the With Project and All VMT Reduction rates.

Site 1:

Single-family Population per DU	3.16	Existing Scenario: $3.16 \times 16.56 \times 25 = 72,098.4$
Multi-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 16.56 \times 73 = 3,820.1$ VMT - 431.7 (~11.3% rdx)= 3,388.4
HB VMT per Capita	16.56	GP Update Scenario: $3.16 \times 17.36 \times 37 = 2029.7$ VMT

Site 2:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 17.26 \times 13 = 713.15$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 17.36 \times 40 = 2,194.3$ VMT - 243.6 (~11.1% rdx)= 1,950.7
HB VMT per Capita	17.36	GP Update Scenario: $3.16 \times 17.36 \times 37 = 2029.7$ VMT

Site 3:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 15.52 \times 17 = 833.7$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 15.52 \times 27 = 1,324.2$ VMT - 147 (~11.1% rdx)= 1,177.2
HB VMT per Capita	15.52	GP Update Scenario: $3.16 \times 15.52 \times 12 = 588.5$ VMT

Site 4:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 16.84 \times 1 = 53.2$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 16.84 \times 5 = 266.1$ VMT - 30.3 (~11.4% rdx)= 235.8
HB VMT per Capita	16.84	GP Update Scenario: $3.16 \times 16.84 \times 4 = 212.85$ VMT

Area A:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 18.97 \times 0 = 0$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 18.97 \times 30 = 1,798.4$ VMT - 106.1 (~5.9% rdx)= 1,692.3
HB VMT per Capita	18.97	GP Update Scenario: $3.16 \times 18.97 \times 0 = 0$ VMT

Area B:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 15.52 \times 0 = 0$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 15.52 \times 28 = 1,373.21$ VMT - 174.7 (~12.72% rdx)= 1,198.5
HB VMT per Capita	15.52	GP Update Scenario: $3.16 \times 15.52 \times 0 = 0$ VMT

Area C:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 15.35 \times 0 = 0$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 15.35 \times 23 = 1,115.64$ VMT - 130.8 (~11.72% rdx)= 984.84
HB VMT per Capita	15.35	GP Update Scenario: $3.16 \times 15.35 \times x$

Area D:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 16.84 \times 0 = 0$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 16.84 \times 40 = 2,128.58$ VMT - 236 (~11.1% rdx)= 1,892.3
HB VMT per Capita	16.84	GP Update Scenario: $3.16 \times 16.84 \times 0 = 0$ VMT

Stonegate:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 18.97 \times 0 = 0$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 18.97 \times 27 = 1,618.5$ VMT -86 (~5.3% rdx)= 1,532.5
HB VMT per Capita	18.97	GP Update Scenario: $3.16 \times 18.97 \times 27 = 1,618.5$ VMT

Meadows:

Multi-family Population per DU	3.16	Existing Scenario: $3.16 \times 18.97 \times 0 = 0$
Single-family Population per DU	3.16	Housing Element Scenario= $3.16 \times 18.97 \times 42 = 2,517.7$ VMT - 141 (~5.6% rdx)= 5,32.5
HB VMT per Capita	18.97	GP Update Scenario: $3.16 \times 18.97 \times 27 = 1,618.5$ VMT

Additional CalEEMod Input Information

Existing Uses: Land Use – Site 1 - 25 dwelling units over 2.44 acres, Site 2 – 13 dwelling units over 2.11 acres, Site 3 - 17 dwelling units over 0.92 acres, Site 4 - 1 dwelling unit over 0.71 acres, Site A - 30.9 TSF parking lot, Site B - 28.5 TSF parking lot, Site C - 10.8 TSF parking lot & 12.281 TSF church lot w/ 0.9 TSF church building, & Site D - 26.486 TSF parking lot & 14.143 TSF landscaped lot. As provided in Appendix C of the 2021-2029 Housing Element Update the existing buildings on Sites 1 through 4 total to approximately 74.172 TSF. User Defined Commercial is surrogate for estimating mobile source emissions using LADOT's VMT calculator.

Project Details

Timestamp of Analysis: June 15, 2021, 02:35:52 PM

Project Name: Sierra Madre General Plan Update

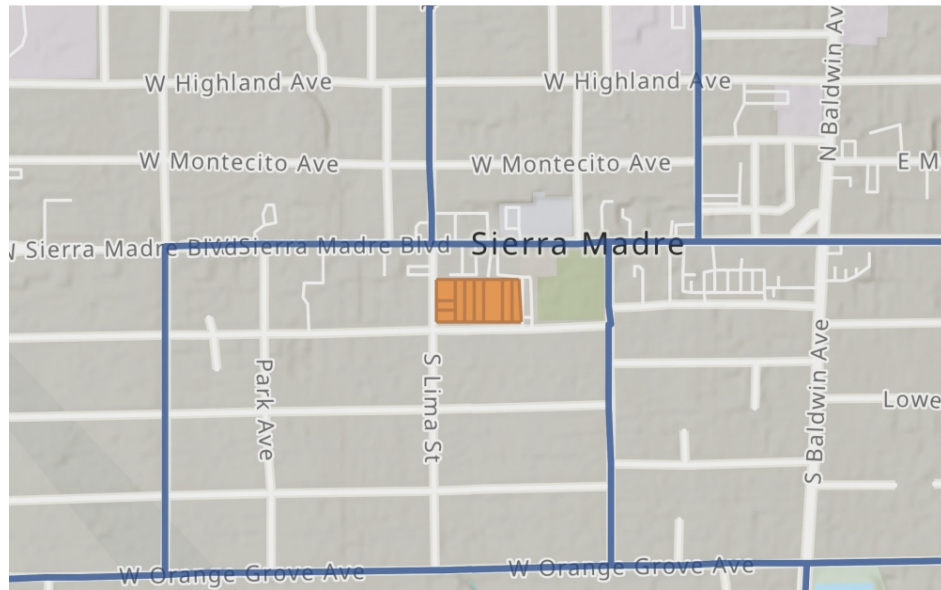
Project Description: Area 1 - 73 Total MF DUs Allowed (48 DU Increase)

Project Location

Jurisdiction:
Sierra Madre

APN	TAZ	5768-020-011	22208400	5768-020-012	22208400
5768-020-013	22208400	5768-020-014	22208400	5768-020-016	22208400
5768-020-017	22208400	5768-020-018	22208400	5768-020-019	22208400
5768-020-038	22208400				

Inside a TPA?
No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 73

Total DUs: 73

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

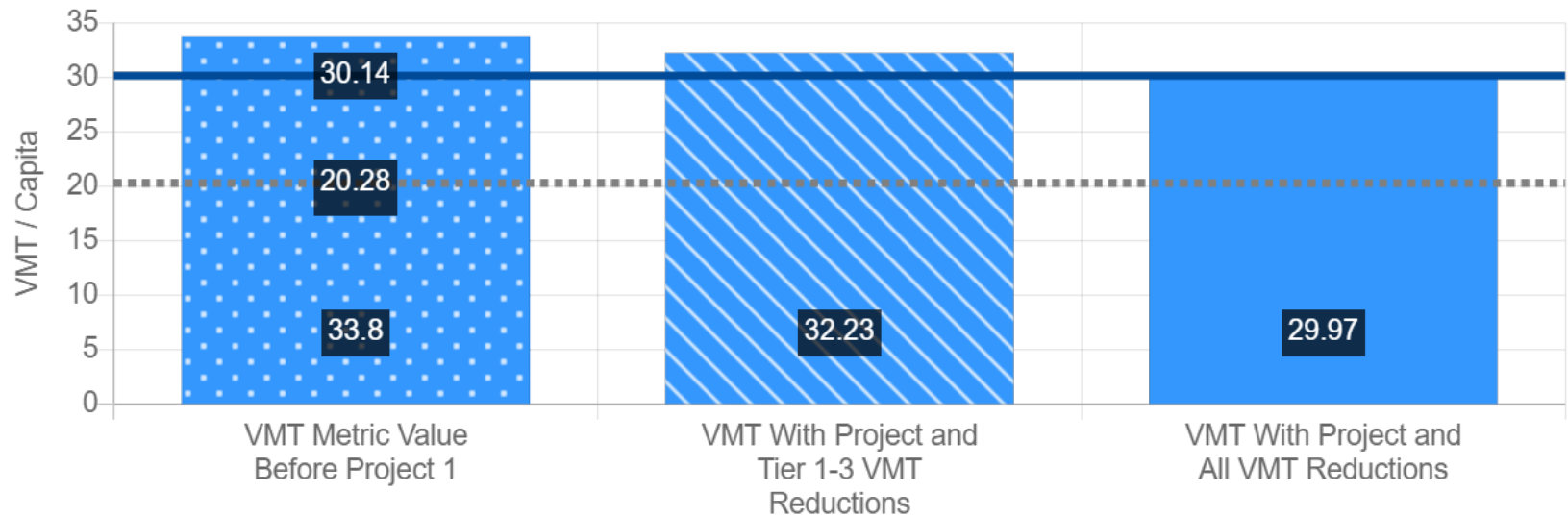
Motor Vehicle Parking: 128

Bicycle Parking: 146

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	32.23	29.97
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



— Land Use 1 Threshold VMT: 30.14 --- Land Use 1 Max Reduction Possible: 20.28 ■ VMT Values

Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	4
With Project Residential Density:	4.68

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.38
With Project Residential Diversity Index:	0.34

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	146
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
--	-------

TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	20 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	19 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	100 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 03:11:02 PM

Project Name: Sierra Madre General Plan Update

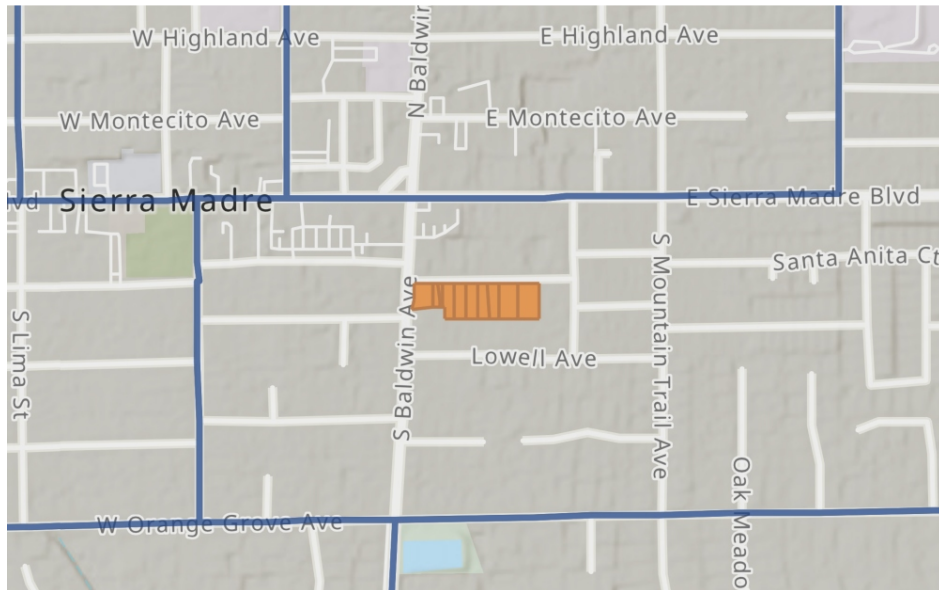
Project Description: Area 2 - 40 Total MF DUs Allowed (27 DU Increase)

Project Location

Jurisdiction:
Sierra Madre

APN	TAZ	5767-026-005	22208100	5767-026-008	22208100
5767-026-009	22208100	5767-026-010	22208100	5767-026-011	22208100
5767-026-012	22208100	5767-026-013	22208100	5767-026-033	22208100
5767-026-035	22208100	5767-026-036	22208100		

Inside a TPA?
No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 40

Total DUs: 40

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

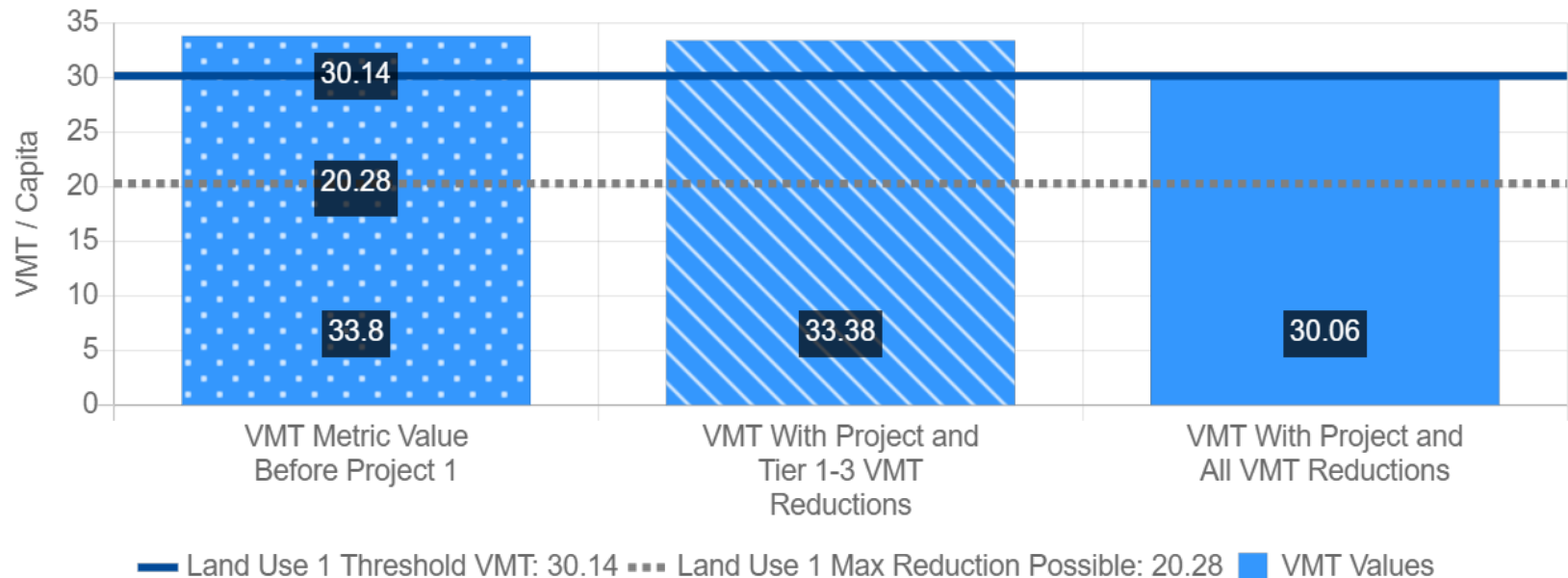
Motor Vehicle Parking: 70

Bicycle Parking: 80

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	33.38	30.06
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	4.76
With Project Residential Density:	4.94

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.35
With Project Residential Diversity Index:	0.34

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
--	--

MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	80
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
--	-------

TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	10 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	125 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:03:07 PM

Project Name: Sierra Madre General Plan Update

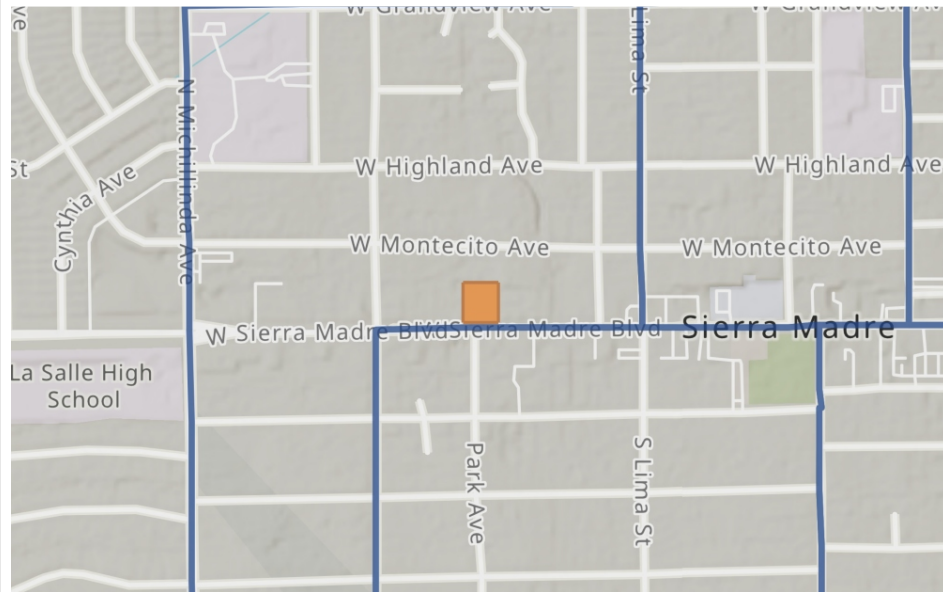
Project Description: Area 3 - 27 MFDUs

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5768-017-017	22208500

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 27

Total DUs: 27

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

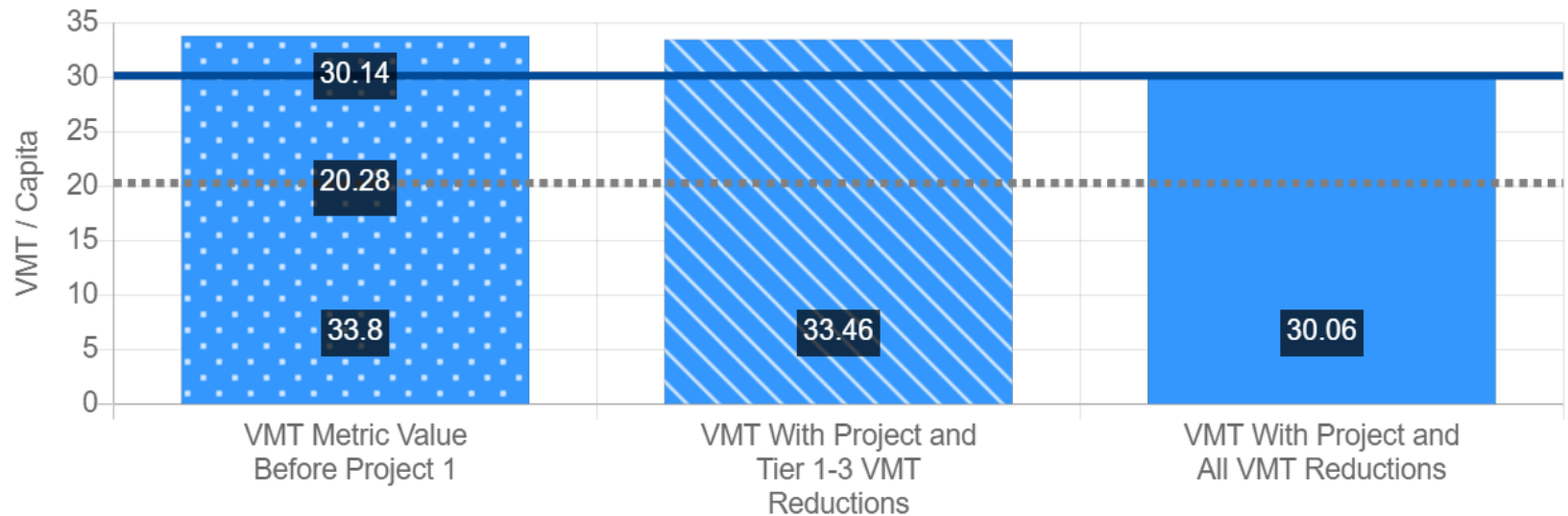
Motor Vehicle Parking: 47

Bicycle Parking: 54

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	33.46	30.06
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



— Land Use 1 Threshold VMT: 30.14 --- Land Use 1 Max Reduction Possible: 20.28 ■ VMT Values

Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	3.36
With Project Residential Density:	3.49

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.17
With Project Residential Diversity Index:	0.16

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
--	--

MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	54
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	8 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	125 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:10:36 PM

Project Name: Sierra Madre General Plan Update

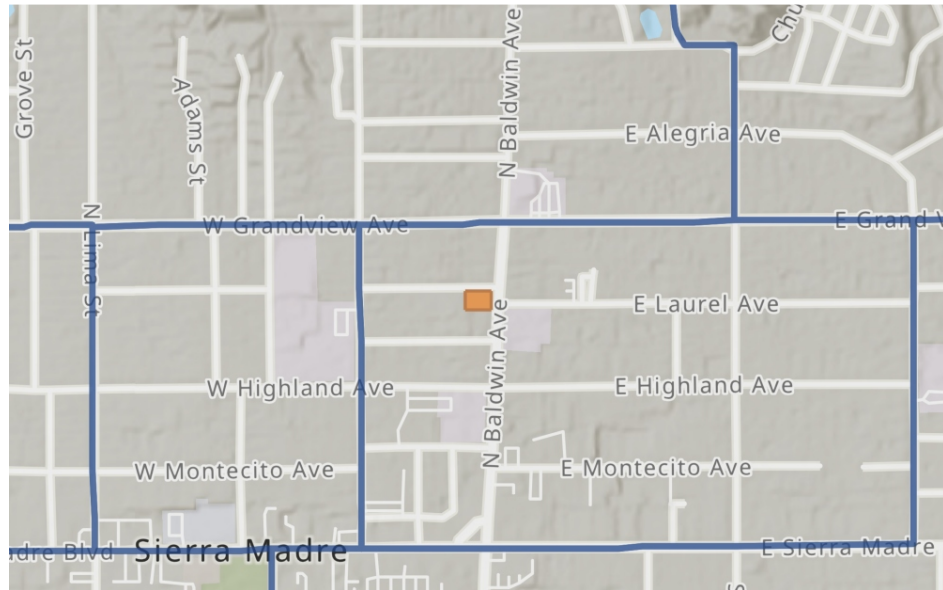
Project Description: Area 4 - 6 MFDUs

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5767-003-035	22208200

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 6

Total DUs: 6

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

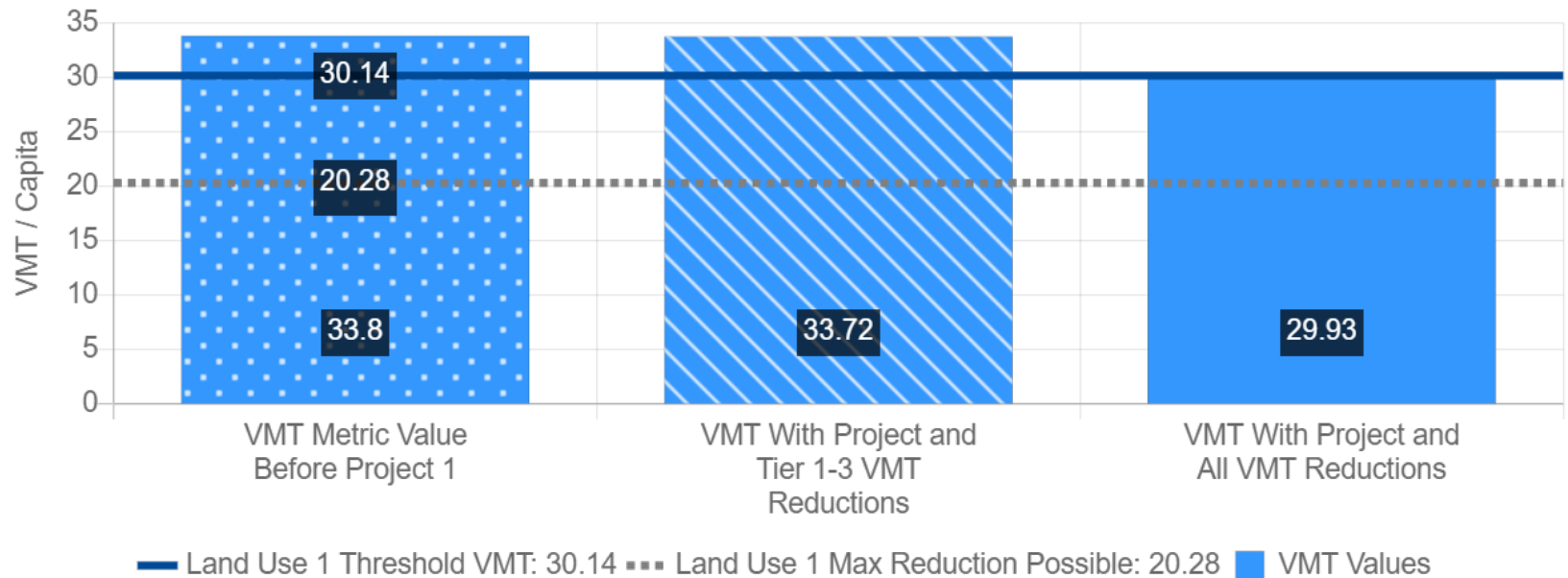
Motor Vehicle Parking: 10

Bicycle Parking: 12

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	33.72	29.93
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	3.78
With Project Residential Density:	3.81

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.57
With Project Residential Diversity Index:	0.57

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
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Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	12
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	2 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	150 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:14:41 PM

Project Name: Sierra Madre General Plan Update

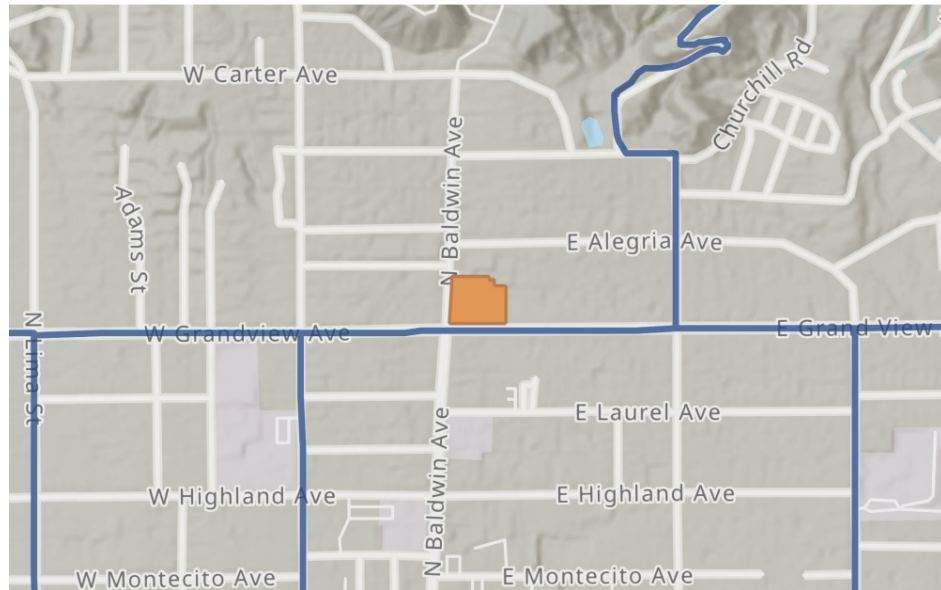
Project Description: Area A - 30 MFDUs w/ 50% Affordable

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5762-016-020	22212100

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 30

Total DUs: 30

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 50 %

Parking:

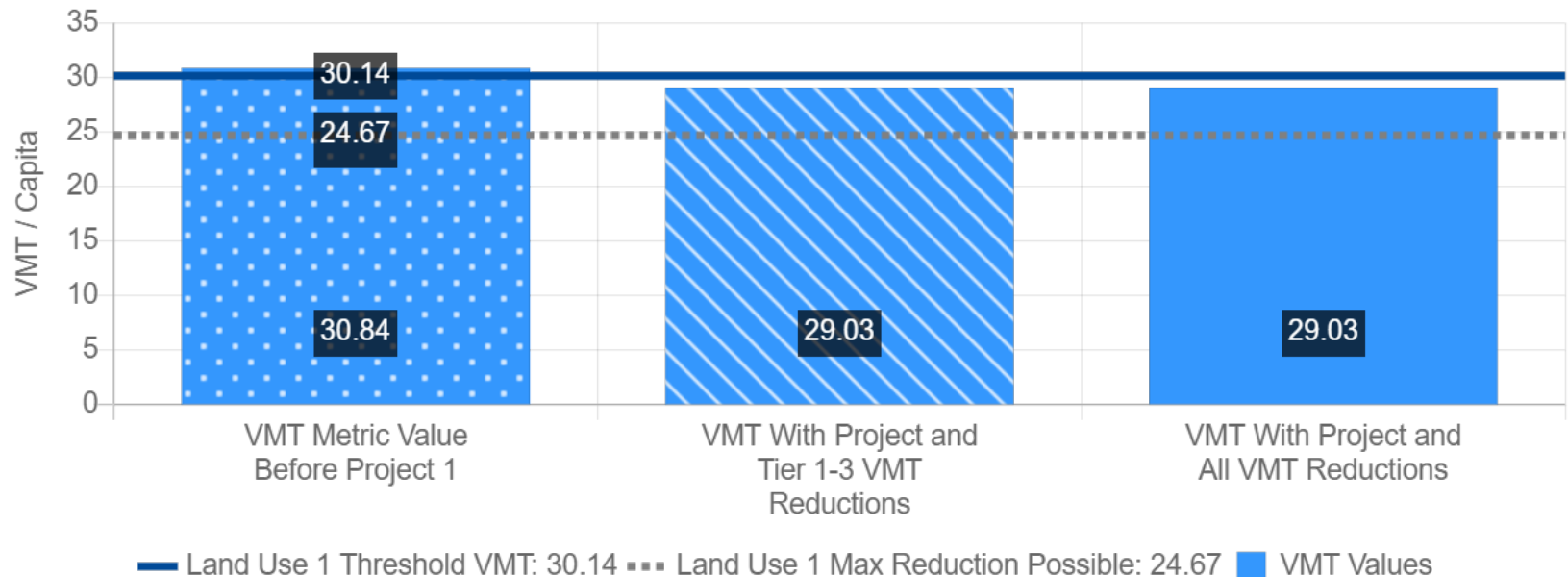
Motor Vehicle Parking: 20

Bicycle Parking: 60

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	30.84	29.03	29.03
Low VMT Screening Analysis	No (Fail)	Yes (Pass)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	2.74
With Project Residential Density:	2.83

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.11
With Project Residential Diversity Index:	0.11

PC03 Affordable Housing

Low Income:	50 %
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Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	60
Project End-of-trip Bike Facilities:	Yes

Project Details

Timestamp of Analysis: June 15, 2021, 05:21:21 PM

Project Name: Sierra Madre General Plan Update

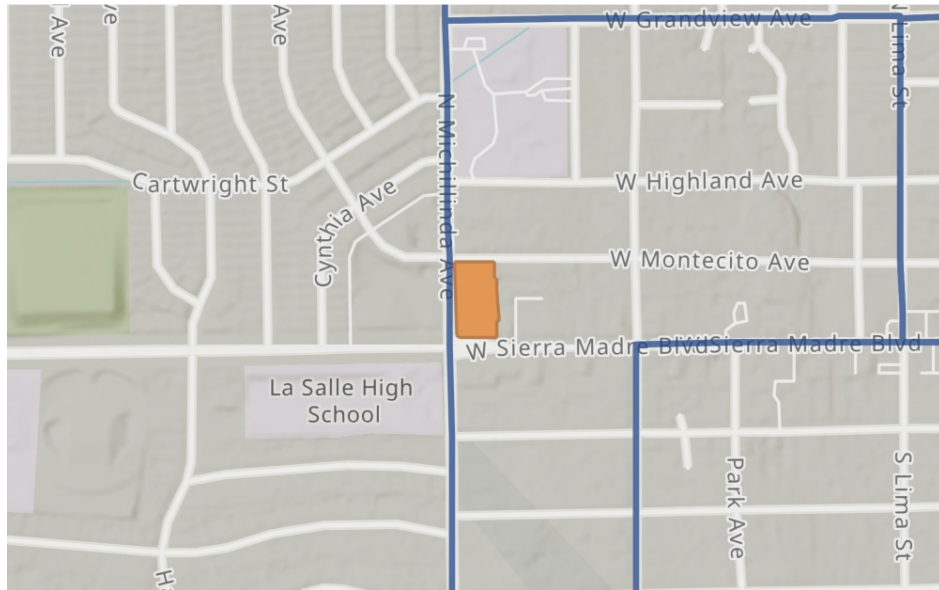
Project Description: Area B - 28 MFDUs w/ 50% Affordable

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5768-015-032	22208500

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 28

Total DUs: 28

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 50 %

Parking:

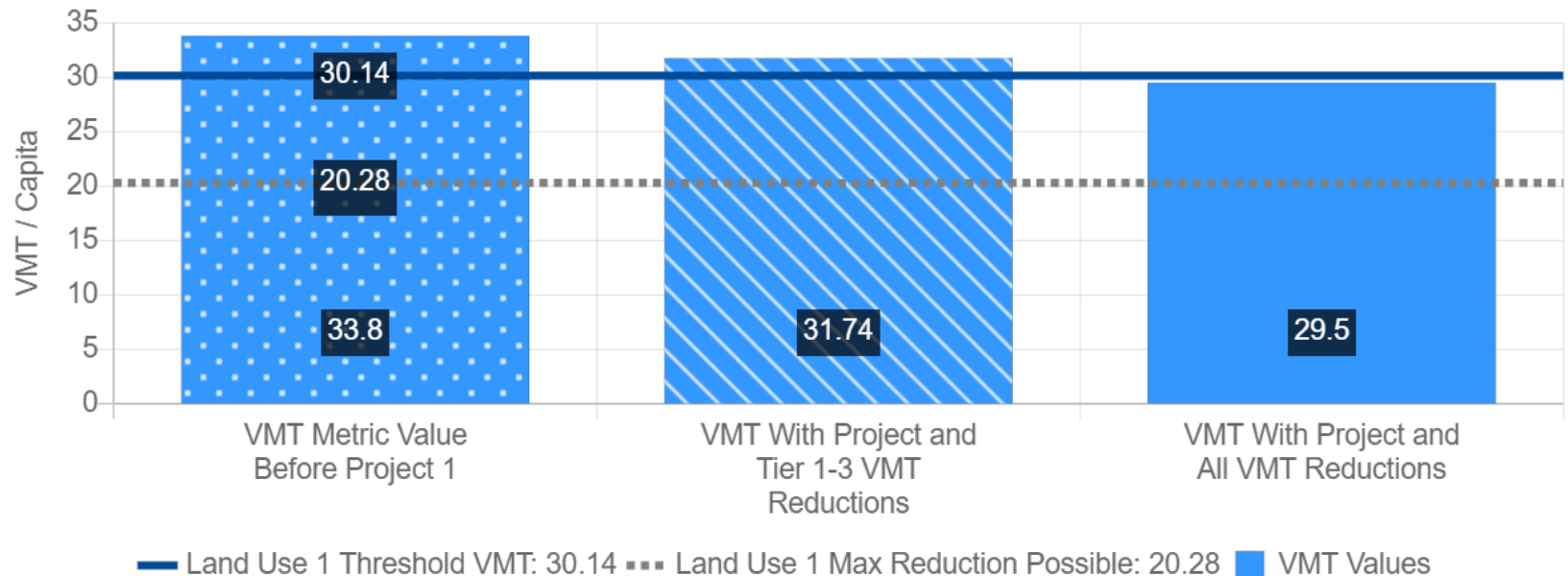
Motor Vehicle Parking: 19

Bicycle Parking: 58

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	31.74	29.5
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	3.36
With Project Residential Density:	3.5

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.17
With Project Residential Diversity Index:	0.16

PC03 Affordable Housing

Low Income:	50 %
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Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	58
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	8 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	100 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:24:00 PM

Project Name: Sierra Madre General Plan Update

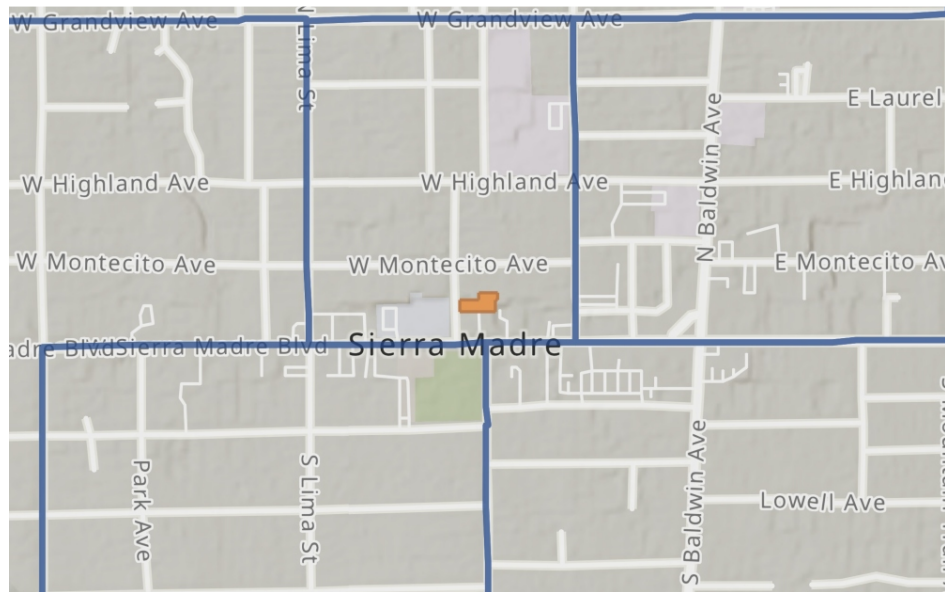
Project Description: Area C - 23 MFDUs w/ 50% Affordable

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5767-022-053	22208300

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 23

Total DUs: 23

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 50 %

Parking:

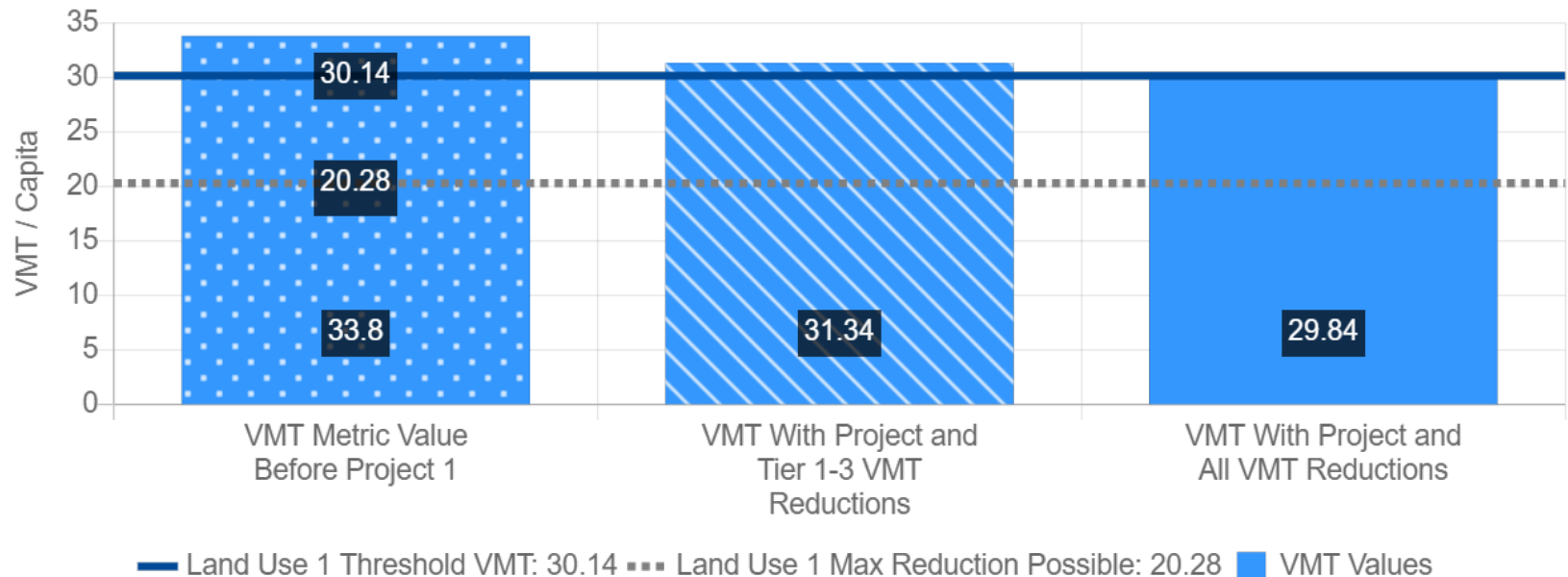
Motor Vehicle Parking: 17

Bicycle Parking: 46

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	31.34	29.84
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	4.09
With Project Residential Density:	4.42

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.39
With Project Residential Diversity Index:	0.37

PC03 Affordable Housing

Extremely Low Income:	0 %
Low Income:	50 %

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	46
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	6 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	50 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:28:32 PM

Project Name: Sierra Madre General Plan Update

Project Description: Area D - 40 MFDUs w/ 50% Affordable

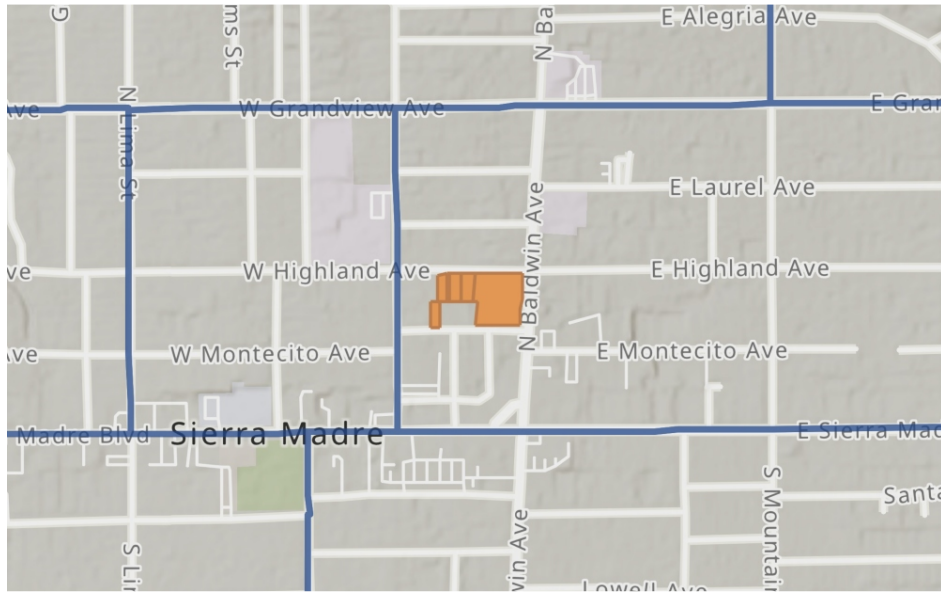
Project Location

Jurisdiction:
Sierra Madre

APN	TAZ	5767-017-006	22208200	5767-017-014	22208200
5767-017-015	22208200	5767-017-016	22208200	5767-017-017	22208200
5767-017-028	22208200				

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 40

Total DUs: 40

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 50 %

Parking:

Motor Vehicle Parking: 34

Bicycle Parking: 60

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	31.56	30.06
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)

Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	3.78
With Project Residential Density:	4

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.57
With Project Residential Diversity Index:	0.55

PC03 Affordable Housing

Extremely Low Income:	0 %
Low Income:	50 %

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
--	--

MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
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Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	60
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	10 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	50 \$USD

**TABLE 2
GENERAL PLAN UPDATE TRIP GENERATION ESTIMATES**

TRIP GENERATION RATES [a]									
Land Use	ITE Land Use	Size	Daily	Morning Peak Hour			Afternoon Peak Hour		
				In	Out	Total	In	Out	Total
Single Family Housing	210	per unit	9.44	25%	75%	0.74	63%	37%	0.99
Multifamily Housing (Low-Rise)	220	per unit	7.32	23%	77%	0.46	63%	37%	0.56
TRIP GENERATION ESTIMATES									
Land Use	ITE Land Use	Size	Daily	Morning Peak Hour [a]			Afternoon Peak Hour [a]		
				In	Out	Total	In	Out	Total
<u>Proposed Uses</u>									
Area 1	220	73 MFDU	689	14	40	54	45	27	72
Area 2	220	40 MFDU	378	8	22	30	25	15	40
Area 3	220	27 MFDU	255	5	15	20	17	10	27
Area 4	220	6 MFDU	57	1	3	4	4	2	6
Area A	220	30 MFDU	283	6	16	22	19	11	30
Area B	220	28 MFDU	264	5	16	21	18	10	28
Area C	220	23 MFDU	217	4	13	17	14	9	23
Area D	220	40 MFDU	378	8	22	30	25	15	40
Meadows	210	42 SFDU	307	4	15	19	15	9	24
Stonegate	210	27 SFDU	198	3	9	12	9	6	15
Gross Project Trips			3,026	58	171	229	191	114	305
<u>Existing to be Removed</u>									
Area 1	220	25 MFDU	(236)	(5)	(14)	(19)	(16)	(9)	(25)
Area 2	220	13 MFDU	(123)	(3)	(7)	(10)	(8)	(5)	(13)
Area 3	220	17 MFDU	(160)	(3)	(10)	(13)	(11)	(6)	(17)
Area 4	220	1 MFDU	(9)	0	(1)	(1)	(1)	0	(1)
Gross Removed Trips			(528)	(11)	(32)	(43)	(36)	(20)	(56)
TOTAL NET NEW TRIPS			2,498	47	139	186	155	94	249

Notes

MFDU - Multi-Family Dwelling Unit, SFDU - Single-Family Dwelling Unit

[a] Source: *Trip Generation, 10th Edition*, Institute of Transportation Engineers, 2017.

Project Details

Timestamp of Analysis: June 15, 2021, 04:52:53 PM

Project Name: Sierra Madre General Plan Update

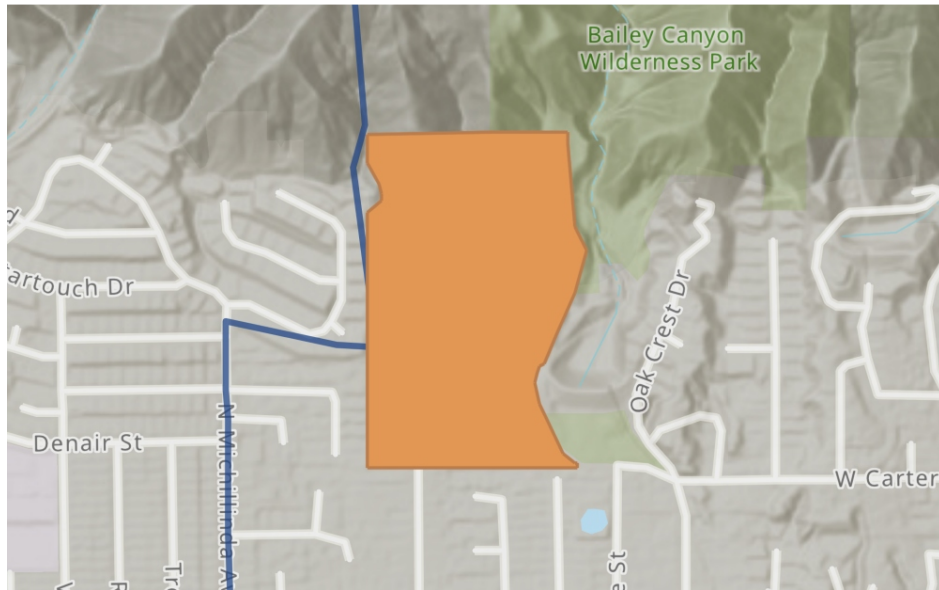
Project Description: The Meadows - 42 SFDU

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5761-002-008	22212100

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU: 42

Multifamily DU:

Total DUs: 42

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

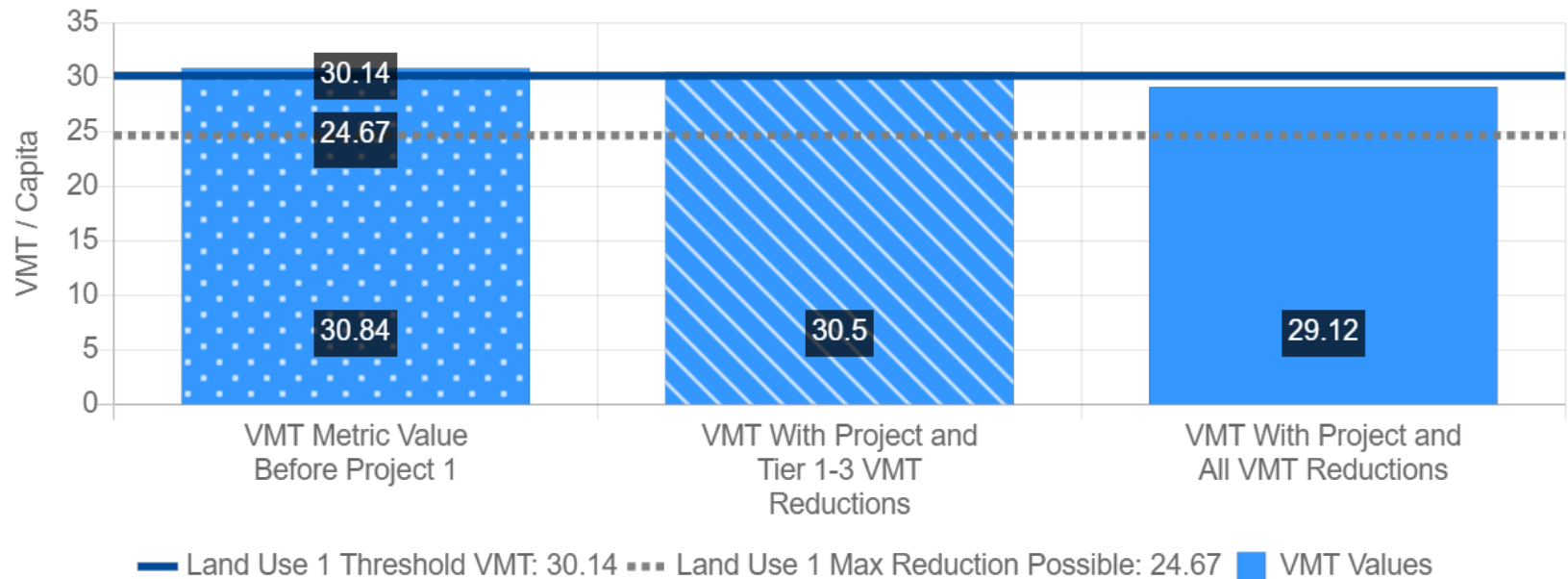
Motor Vehicle Parking: 84

Bicycle Parking: 84

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	30.84	30.5	29.12
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	2.74
With Project Residential Density:	2.87

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.11
With Project Residential Diversity Index:	0.1

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
--	--

MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	84
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
-------------------------------	----

TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	11 Families

Project Details

Timestamp of Analysis: June 15, 2021, 04:08:22 PM

Project Name: Sierra Madre General Plan Update

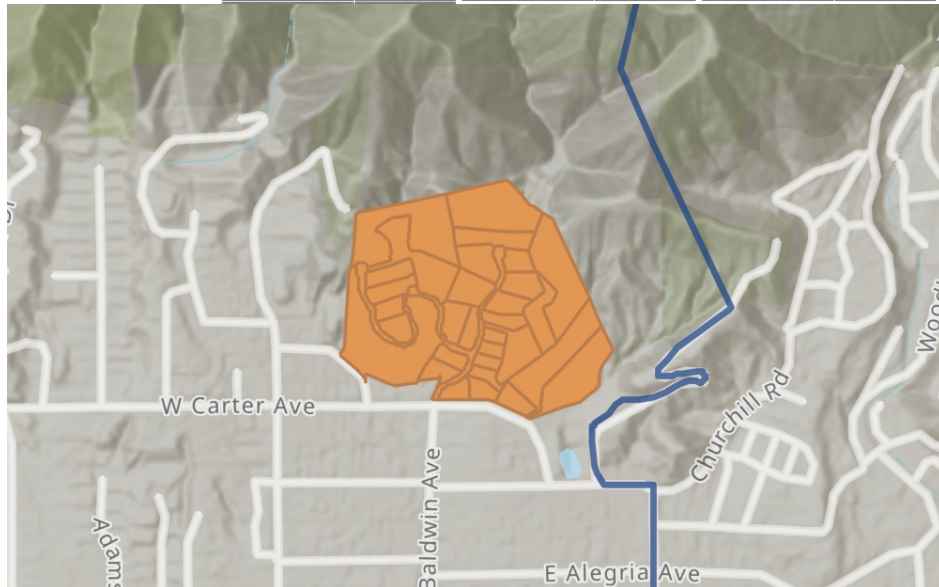
Project Description: Stonegate - 27 SFDU

Project Location

Jurisdiction:
Sierra Madre

Inside a TPA?
No (Fail)

APN	TAZ	5762-030-003	22212100	5762-030-004	22212100
5762-030-005	22212100	5762-030-006	22212100	5762-030-007	22212100
5762-030-009	22212100	5762-030-010	22212100	5762-030-011	22212100
5762-030-012	22212100	5762-030-013	22212100	5762-030-014	22212100
5762-030-015	22212100	5762-030-016	22212100	5762-030-017	22212100
5762-030-018	22212100	5762-030-019	22212100	5762-030-020	22212100
5762-030-021	22212100	5762-030-022	22212100	5762-030-023	22212100
5762-030-024	22212100	5762-030-025	22212100	5762-030-026	22212100
5762-030-027	22212100	5762-030-028	22212100	5762-030-031	22212100
5762-030-032	22212100	5762-030-033	22212100	5762-030-036	22212100
5762-030-037	22212100	5762-030-038	22212100	5762-030-039	22212100



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU: 27

Multifamily DU:

Total DUs: 27

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

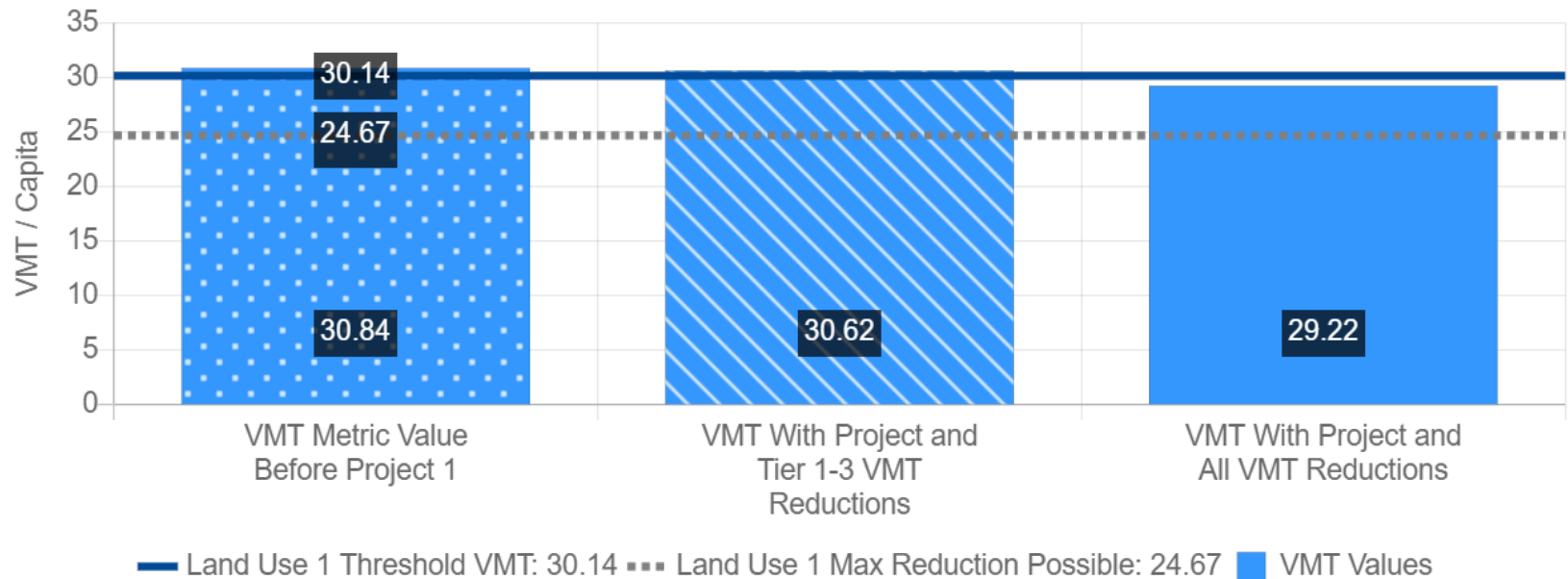
Motor Vehicle Parking: 54

Bicycle Parking: 54

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	30.84	30.62	29.22
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	2.74
With Project Residential Density:	2.83

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.11
With Project Residential Diversity Index:	0.11

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
--	--

MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	54
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
-------------------------------	----

TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
--	-------

TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	8 Families

Appendix C

Energy Report

July 15, 2021

Mr. Curtis Zacuto
EcoTierra Consulting
5776-D Lindero Canyon Rd, #414
Westlake Village, CA 91362

**Subject: Sierra Madre General Plan Housing Element Update – CEQA Energy Review,
City of Sierra Madre, CA**

Dear Mr. Zacuto:

MD Acoustics, LLC (MD) has completed a CEQA energy review for the proposed Sierra Madre General Plan Housing Element project. The project is the adoption of the City of Sierra Madre's 2021-2029 Housing Element, related updates to the Land Use, Safety, and Circulation Elements, and the inclusion of required Environmental Justice policies. Therefore, the project includes a variety of sites that have been recommended for re-designation throughout the City of Sierra Madre, California.

1.0 Project Description

The project is the adoption of the City of Sierra Madre's 2021-2029 Housing Element, related updates to the Land Use, Safety, and Circulation Elements, and the inclusion of required Environmental Justice policies. The Housing Element requires amending General Plan designations on some of the proposed Housing Element opportunity sites, which requires revisions to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan. The Housing Element also necessitates rezoning of some proposed opportunity sites; therefore, the project includes changes to the City's Zoning Code and Zoning Map.

In addition to the Housing and Land Use Element updates, the City is required to make other changes to the General Plan in response to recent State legislation. To comply with Senate Bill (SB) 379, Assembly Bill (AB) 2140, and SB 1241, the project updates the Safety Element. The City recently adopted Transportation Study Guidelines for Vehicle Miles Traveled in July 2020. These Guidelines are incorporated into the General Plan Circulation Element. Lastly, to comply with SB 100, the City is adopting Environmental Justice Element policies.

The City has conducted extensive community outreach, meetings with City decisionmakers and discussions with property owners to identify those sites most suitable for rezoning to address the City's RHNA shortfall. Sites recommended for re-designation were selected based on several factors: existing land use and feasibility for redevelopment within the planning period; neighborhood compatibility and community context; property owner interest; and an overriding goal to disperse affordable housing opportunities throughout the community. The following describes the opportunity sites proposed for the Housing Element and analyzed in this Energy Analysis.

Site 1. Rezoning of nine properties on the 200 block of West Mariposa Avenue to R-3-30 (30 to 34 du/acre). Properties are currently developed with older single-family, duplex and fourplex units, ranging in age from 1895 to 1948. Most units are modest, with a low improvement to land value ratio and numerous units exhibiting deferred maintenance. The combined site consists of 25 existing units with a potential net gain of 48 units under the new R-3-30 zoning designation. Two of the parcels were identified as R3-H (20 units/acre) in the prior Housing Element, and therefore to carry over to the 2021-2029 Element, will allow 20 du/acre by-right for inclusion of 20% low-income units.

Site 2. Rezoning of ten properties to R-3-20 (20 to 24 du/acre) on Suffolk Avenue. Two of the parcels have been combined (93 Suffolk) and have an application for development with five apartments, including one restricted to moderate income households. Another property owner at 92 Suffolk has approached the City regarding potential lot consolidation and redevelopment with seven units of multi-family housing. Existing units identified for redevelopment range in age from 1902 to 1947, have a low improvement to land value ratio, and exhibit deferred maintenance. The combined site consists of 13 existing units with a potential net gain of 27 units under the new R-3-20 zoning designation.

Site 3. Rezoning of one property just under one acre fronting on West Sierra Madre Boulevard at the terminus of Park Avenue. The property is currently developed with the Park Avenue Apartments consisting of three buildings developed in 1960 with three to six units each, and a two-unit building constructed in 1935, for a total of seventeen units. The improvement to land value ratio is just 25%, rendering the site economically suitable for redevelopment. The site includes a large surface parking area and undeveloped open space area. The property owner has expressed an interest in potential higher density development on the site, either through infill or redevelopment.

Site 4. Designation of one property on the southwest corner of North Baldwin Avenue and West Laurel Avenue. The site is currently zoned R-3 (13 units/acre) and underdeveloped with an older (1947) single-family home. The improvement to land value ratio is just 30%. The property owner's architect has shared concept plans with the City to redevelop the site with six to seven units, potentially utilizing State density bonus incentives to achieve the extra unit.

Affordable Housing on Congregational Land

Inspired by proposed State legislation to allow affordable housing to be developed on congregational land, City staff began reaching out to pastors and religious leaders in the community in the fall of 2020 to explore the concept of adding an affordable housing overlay to Sierra Madre's religious sites. Several congregations have large parking areas and other underutilized land that, with the necessary zoning in place, could be used to build affordable housing and further the congregation's mission.

Four church sites were identified as having capacity and suitable conditions to accommodate housing. Conceptual site plans illustrating feasible affordable housing development concepts were prepared for each site and provided the basis for establishing development standards for the Overlay.

All residential development within the Religious Housing Overlay will be subject to the following affordability requirements:

- Rental housing: minimum 50% of units restricted to lower income households (up to 80% area median income) for 55 years
- Ownership housing: minimum 50% of units restricted to lower income households, or 90% of units restricted to moderate income households (up to 120% area median income) for 45 years

Approved/Pending Residential Projects

Sierra Madre has two residential subdivisions in various stages of development entitlement that will contribute towards addressing its future RHNA needs, as described below. For the environmental analyses, these projects will be considered as part of the future environmental baseline and not as part of the project.

- Stonegate. The One Carter hillside property at the northern terminus of North Baldwin Avenue has been subdivided into 27 residential lots and two undevelopable lots. The custom homes being developed in Stonegate are subject to the City's Residential Hillside Management Zone, and the Stonegate Design Guidelines. As of April 2021, the City has received 24 applications for development, and has thus far approved seven homes for development.
- The Meadows at Bailey Canyon. The lower 20 acres of the 88-acre Mater Dolorosa Passionist Retreat Center is being proposed for development with 42 detached single-family dwellings and a 3 to 3.5 acre dedicated neighborhood park. An additional 45 acres of hillside open space north of the Retreat Center is to be dedicated to the City of Sierra Madre. The property is currently identified as an institutional land use in the General Plan, and will be amended to include Open Space, Civic/City Park, Institutional, and One Family Residential (7,500 sq. ft. minimum) land use designations. The project is projected to go before City Council in August 2021.

Table 1 summarizes the land uses modeled in this analysis for the Existing scenario, General Plan Update scenario, and the proposed Housing Element scenario.

<Table 1, next page>

Table 1: Land Use Summary

Site ¹	Total Site Acreage	Existing			2015 General Plan Update ⁵			Housing Element		
		Land Use	Unit Amount	Size Metric	Land Use	Unit Amount	Size Metric	Land Use	Unit Amount	Size Metric
Site 1	2.44	Multi-Family Residential Housing (Low-Rise)	25	DU	Multi-Family Housing (Low Rise)	37	DU	Multi-Family Residential Housing (Low-Rise)	73	DU
Site 2 ²	2.11	Multi-Family Residential Housing (Low-Rise)	13	DU	Multi-Family Housing (Low Rise)	37	DU	Multi-Family Residential Housing (Low-Rise)	40	DU
Site 3	0.92	Multi-Family Residential Housing (Low-Rise)	17	DU	Multi-Family Housing (Low Rise)	12	DU	Multi-Family Residential Housing (Low-Rise)	27	DU
Site 4	0.34	Multi-Family Residential Housing (Low-Rise)	1	DU	Multi-Family Housing (Low Rise)	4	DU	Multi-Family Residential Housing (Low-Rise)	5	DU
Site A	0.71	Parking Lot	30.90	TSF	Parking Lot	30.90	TSF	Multi-Family Residential	30	DU
Site B	0.65	Parking Lot	28.50	TSF	Parking Lot	28.50	TSF	Multi-Family Residential	28	DU
Site C ³	0.53	Parking Lot	10.80	TSF	Parking Lot	10.80	TSF	Multi-Family Residential Housing (Low-Rise)	23	DU
		Church Use	12.281	TSF	Church Use	12.281	TSF			
Site D ⁴	0.93	Parking Lot	26.486	TSF	Parking Lot	26.486	TSF	Multi-Family Residential Housing (Low-Rise)	40	DU
		Landscaped Areas	14.143	TSF	Landscaped Areas	14.143	TSF			
Stonegate ⁶	23	Vacant Land	23	AC	Single-Family Housing	27	DU	Single-Family Housing	27	DU
The Meadows ⁶	17	Vacant Land	17	AC	Single-Family Housing	42	DU	Single-Family Housing	42	DU

AC= Acre; DU= Dwelling Unit; TSF= Thousand Square Foot

¹ Existing residential uses at Sites 1 through 4 modeled as multi-family residential to be consistent with the Traffic Analysis.

² Site 2 has a total acreage of 2.81 acres; however, two parcels are not anticipated to be re-developed under the Housing Element Updates. These include the 12 unit apartment building located at 90 Suffolk Avenue and the two-story single-family dwelling unit located at 68 Suffolk Avenue. Therefore, the total acreage was 2.11 acres with a total of 13 existing residential dwelling units (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029).

³ Site C includes an existing 10,800 square foot parking lot and a 12,281 square foot lot containing a 900 square foot building. Both sites are currently associated with the Old North Church. (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029)

⁴ Site D includes an existing 6,977 square foot grassy area, 7,166 square feet of vacant land (landscaped), and 26,486 square feet of existing parking lots which are all currently associated with the Bethany Church and School. (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029)

⁵ For the 2015 General Plan Update Scenario, as Sites A through D are zoned for institutional uses and the existing development on the site is associated with existing institutional (i.e., church) uses it was assumed that these sites would have the same uses under this scenario as they do in the existing scenario. Furthermore, as Stonegate and The Meadows are approved projects and in the Project Description of the SEIR are to be "considered as part of the future environmental baseline" they were assumed to be developed as part of the 2015 General Plan Update scenario as well as the Housing Element scenario.

⁶ Stonegate and The Meadows under existing conditions are vacant land. Therefore, they are not incorporated into the uses modeled in CalEEMod for the Existing scenario.

2.0 Existing Energy Conditions

Overview

California's estimated annual energy use as of 2019 included:

- Approximately 277,704 gigawatt hours of electricity;¹
- Approximately 2,154,030 million cubic feet of natural gas per year²;and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015)³.

As of 2019, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

¹California Energy Commission. Energy Almanac. Total Electric Generation. [Online] 2020.

<https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>.

²Natural Gas Consumption by End Use. U.S. Energy Information Administration. [Online] August 31, 2020.

https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

³California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] April 19, 2018. <https://www.energy.ca.gov/assessments/>

- Approximately 39.4 percent transportation;
- Approximately 23.1 percent industrial;
- Approximately 18.7 percent residential; and
- Approximately 18.8 percent commercial.⁴

California's electricity in-state generation system generates approximately 200,475 gigawatt-hours each year. In 2019, California produced approximately 72 percent of the electricity it uses; the rest was imported from the Pacific Northwest (approximately 9 percent) and the U.S. Southwest (approximately 19 percent). Natural gas is the main source for electricity generation at approximately 42.97 percent of the total in-state electric generation system power as shown in Table 2.

Table 2: Total Electricity System Power (California 2019)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Percent of Imports	California Power Mix (GWh)	Percent California Power Mix
Coal	248	0.12%	219	7,765	7,985	10.34%	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	8,921	11.55%	95,057	34.23%
Nuclear	16,163	8.06%	39	8,743	8,782	11.37%	24,945	8.98%
Oil	36	0.02%	0	0	0	0.00%	36	0.01%
Other (Petroleum Coke/Waste Heat)	411	0.20%	0	11	11	0.01%	422	0.15%
Large Hydro	33,145	16.53%	6,387	1,071	7,458	9.66%	40,603	14.62%
Unspecified Sources of Power	0	0.00%	6,609	13,767	20,376	26.38%	20,376	7.34%
Renewables	64,336	32.09%	10,615	13,081	23,696	30.68%	88,032	31.70%
Biomass	5,851	2.92%	903	33	936	1.21%	6,787	2.44%
Geothermal	10,943	5.46%	99	2,218	2,318	3.00%	13,260	4.77%
Somall Hydro	5,349	2.67%	292	4	296	0.38%	5,646	2.03%
Solar	28,513	14.22%	282	5,295	5,577	7.22%	34,090	12.28%
Wind	13,680	6.82%	9,038	5,531	14,569	18.87%	28,249	10.17%
Total	200,475	100.00%	23,930	53,299	77,229	100.00%	277,704	100.00%

Notes:

¹ Source: California Energy Commission. 2019 Total System electric Generation. <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2019, and, as of January 2020, it ranked third in oil refining capacity. Foreign suppliers, led by Saudi Arabia, Iraq, Ecuador, and Colombia, provided more than half of the crude oil refined in California in 2019.
- California is the largest consumer of both jet fuel and motor gasoline among the 50 states and accounted for 17% of the nation's jet fuel consumption and 11% of motor gasoline consumption in

⁴U.S. Energy Information Administration. California Energy Consumption by End-Use Sector. California State Profile and Energy Estimates.[Online] June 25, 2021 <https://www.eia.gov/state/?sid=CA#tabs-2>

2019. The state is the second-largest consumer of all petroleum products combined, accounting for 10% of the U.S. total.

- In 2018, California's energy consumption was second-highest among the states, but its per capita energy consumption was the fourth-lowest due in part to its mild climate and its energy efficiency programs.
- In 2019, California was the nation's top producer of electricity from solar, geothermal, and biomass energy, and the state was second in the nation in conventional hydroelectric power generation.
- In 2019, California was the fourth-largest electricity producer in the nation, but the state was also the nation's largest importer of electricity and received about 28% of its electricity supply from generating facilities outside of California, including imports from Mexico.⁵

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed project.

Electricity

Electricity would be provided to the future development accommodate under the Housing Element by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons, within a service area encompassing approximately 50,000 square miles.⁶ SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers.⁷ Table 3 identifies SCE's specific proportional shares of electricity sources in 2019.

Table 3: SCE 2019 Power Content Mix

Energy Resources	2019 SCE Power Mix
Eligible Renewable	35%
Biomass & Waste	1%
Geothermal	6%
Eligible Hydroelectric	1%
Solar	16%
Wind	12%
Coal	0%
Large Hydroelectric	8%
Natural Gas	16%
Nuclear	8%
Other	0%
Unspecified Sources of power*	33%
Total	100%
Notes:	
¹ https://www.sce.com/sites/default/files/inline-files/SCE_2019PowerContentLabel.pdf	
*Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.	

⁵ State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited: January 16, 2020.] <http://www.eia.gov/state/?sid=CA#tabs2>.

⁶ <https://www.sce.com/about-us/who-we-are/leadership/our-service-territory>

⁷ California Energy Commission. Utility Energy Supply plans from 2015. https://www.energy.ca.gov/almanac/electricity_data/supply_forms.html

Natural Gas

Natural gas would be provided to the future development accommodate under the Housing Element Update by Southern California Gas (SoCalGas). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 11 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, for example, California utility customers received 38% of their natural gas supply from basins located in the U.S. Southwest, 27% from Canada, 27% from the U.S. Rocky Mountain area, and 8% from production located in California.”⁸

Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available shows the transportation sector emits 40 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).^{9,10} About 28 percent of total United States energy consumption in 2019 was for transporting people and goods from one place to another. In 2019, petroleum comprised about 91 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.¹¹ In 2020, about 123.49 billion gallons (or about

⁸California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/

⁹CARB. California Greenhouse Gas Emissions Inventory 2000-2018 -2020 Edition. <https://www.arb.ca.gov/cc/inventory/data/data.htm>

¹⁰CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA

¹¹ US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation

2.94 billion barrels) of finished motor gasoline were consumed in the United States, an average of about 337 million gallons (or about 8.03 million barrels) per day.¹²

3.0 Regulatory Background

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum feasible level” with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.¹³

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO₂ standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO₂ standards for model year 2020 are 43.7 mpg and 204 grams of CO₂ per mile for passenger cars and 31.3 mpg and 284 grams of CO₂ per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012.¹⁴

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

¹² <https://www.eia.gov/tools/faqs/faq.php?id=23&t=10>

¹³ <https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy>.

¹⁴ National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule>.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2019 Integrated Energy Policy Report (2019 IEPR) was adopted February 20, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.¹⁵

The 2020 IEPR was adopted March 23, 2021 and identifies actions the state and others can take to ensure a clean, affordable, and reliable energy system. In 2020, the IEPR focuses on California's transportation future and the transition to zero-emission vehicles, examines microgrids, lessons learned from a decade of state-supported research, and stakeholder feedback on the potential of microgrids to contribute to a lean and resilient energy system; and reports on California's energy demand outlook, updated to reflect the global pandemic and help plan for a growth in zero-emission plug in electric vehicles.¹⁶

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy.

¹⁵ California Energy Commission. Final 2019 Integrated Energy Policy Report. February 20, 2020. <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report>

¹⁶ California Energy Commission. Final 2020 Integrated Energy Policy Report. March 23, 2020. <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2020-integrated-energy-policy-report-update>

The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2019 Title 24 standards, which became effective on January 1, 2020. The 2019 Title 24 standards include efficiency improvements to the lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers.

All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated to be approximately 7 percent more efficient than the 2016 standards. Furthermore, once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2019 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2020. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

The Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2; added sections 5.106.4.1.3 and 5.106.4.1.5 in regard to bicycle parking; amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles; updated section 5.303.3.3 in regard to showerhead flow rates; amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3; and updated Section 5.504.5.3 in regard to the use of MERV filters in mechanically ventilated buildings.

Senate Bill 350

Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Assembly Bill 32

In 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

Assembly Bill 1493/Pavley Regulations

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO₂ and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with

California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are “back-loaded”, with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today’s fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

Executive Order N-79-20.

Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

California Air Resources Board

CARB’s Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.¹⁷

¹⁷ California Air Resources Board, California’s Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_x) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

4.0 Evaluation Criteria and Methodology

Evaluation Criteria

CEQA Energy Questions

In compliance with Appendix G of the State CEQA Guidelines, this report analyzes the project's anticipated energy use to determine if the project would:

- a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
- b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

In addition, Appendix F of the State CEQA Guidelines states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Appendix F of the State CEQA guidelines also states that the environmental impacts from a project can include:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Methodology

Information from the CalEEMod 2020.4.0 Daily and Annual Outputs contained in the Sierra Madre General Plan Housing Element Air Quality and Greenhouse Gas Impact Study (air quality and greenhouse gas analysis) prepared for the proposed project by MD (July 14, 2021), was utilized for the operational analysis.

5.0 Energy Review

Construction Energy Demand

Construction activities associated with the future development of the Housing Element would occur over buildout of the Housing Plan, which includes years 2021 through 2029. Information regarding each specific development project accommodated under the Housing Element (such as construction timeline, earthworks information, amount and type of construction equipment etc.) would be needed in order to quantitatively analyze the energy impacts associated with construction activity. Therefore, the

construction related energy demands of the future development accommodated under the Housing Element have been discussed below in a qualitative manner.

Construction equipment used during the construction phase of each individual project site would be required to conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. The sites are that of residential development and would be anticipated to require the typical use of energy resources. Due to the residential nature of the future development to be accommodated under the Housing Element, there are no unusual project characteristics or construction processes anticipated that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed during construction of the individual construction projects would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints. Compliance with these measures is mandatory and would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Furthermore, the future development accommodated under the Housing Element will be required to be designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, installation of bicycle racks, the use of LED lighting, and water-efficient irrigation systems. Therefore, construction activities associated with the future development of the Housing Element would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources.

Operation Energy Demand

Energy consumption in support of or related to the operations of the future development of the Housing Element would include transportation energy demands (energy consumed by employee, resident, and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of residents. The sites anticipated for redesignation in the Housing Element, and analyzed in this report, are all located in urbanized areas with existing transportation networks.

Using the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2021), an average trip for the Existing scenario was assumed to be 6.85 miles, for the General Plan Update scenario

was assumed to be 7.47 miles, and for the Hosing Element scenario was assumed to be 5.43 miles¹⁸. As the future development associated with the Housing Element includes residential projects, it was assumed that vehicles would operate 365 days per year. Table 4 shows the worst-case estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.¹⁹

The Existing scenario would generate approximately 528 trips per day, the General Plan Update scenario would generate approximately 1,164 trips per day and the Housing Element scenario would generate approximately 3,026 trips per day. The vehicle fleet mix was used from the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2021). Table 4 shows that, in the year 2029 (the buildout year of the Housing Element), an estimated 42,309 gallons of fuel would be consumed per year for the operation of the Existing scenario, 102,095 gallons of fuel would be consumed per year for the operation of the General Plan Update scenario, and 191,640 gallons of fuel would be consumed per year for the operation of the Housing Element scenario. Therefore, the future development of the Housing Element would result in net increases in fuel consumed per year of approximately 149,332 gallons in comparison to the Existing scenario and 89,549 gallons in comparison to the General Plan Update Scenario.

Table 4: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles) ¹	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Existing							
Light Auto	Automobile	281	6.85	1,925	36.92	52.14	19,030
Light Truck	Automobile	36	6.85	247	31.16	7.91	2,889
Light Truck	Automobile	102	6.85	699	30.69	22.77	8,310
Medium Truck	Automobile	67	6.85	459	24.97	18.38	6,709
Light Heavy Truck	2-Axle Truck	13	6.85	89	15.58	5.72	2,086
Light Heavy Truck 10,000 lbs +	2-Axle Truck	4	6.85	27	15.97	1.72	626
Medium Heavy Truck	3-Axle Truck	6	6.85	41	10.69	3.84	1,403
Heavy Heavy Truck	4-Axle Truck	4	6.85	27	7.96	3.44	1,256
Total		528	--	3,514	21.74	115.91	--
Total Annual Fuel Consumption							42,309
General Plan Update							
Light Auto	Automobile	619	7.47	4,624	36.92	125.24	45,713
Light Truck	Automobile	78	7.47	583	31.16	18.70	6,825
Light Truck	Automobile	224	7.47	1,673	30.69	54.52	19,901
Medium Truck	Automobile	147	7.47	1,098	24.97	43.98	16,051
Light Heavy Truck	2-Axle Truck	28	7.47	209	15.58	13.42	4,900
Light Heavy Truck 10,000 lbs +	2-Axle Truck	8	7.47	60	15.97	3.74	1,366
Medium Heavy Truck	3-Axle Truck	14	7.47	105	10.69	9.78	3,571
Heavy Heavy Truck	4-Axle Truck	11	7.47	82	7.96	10.32	3,768
Total		1,164	--	8,434	21.74	279.71	--
Total Annual Fuel Consumption							102,095

¹⁸ Distances are based on the VMT calculations provided in the Air Quality and Greenhouse Impact Study (Md Acoustics 2021).

¹⁹ Average fuel economy based on aggregate mileage calculated in EMFAC 2017 for Housing Element Buildout year (2029). See Appendix A for EMFAC output.

Housing Element							
Light Auto	Automobile	1,608	5.43	8,731	36.92	236.50	86,321
Light Truck	Automobile	203	5.43	1,102	31.16	35.38	12,912
Light Truck	Automobile	583	5.43	3,166	30.69	103.15	37,650
Medium Truck	Automobile	383	5.43	2,080	24.97	83.29	30,400
Light Heavy Truck	2-Axle Truck	73	5.43	396	15.58	25.44	9,286
Light Heavy Truck 10,000 lbs +	2-Axle Truck	21	5.43	114	15.97	7.14	2,606
Medium Heavy Truck	3-Axle Truck	35	5.43	190	10.69	17.78	6,489
Heavy Heavy Truck	4-Axle Truck	24	5.43	130	7.96	16.37	5,976
Total		3,026	--	15,910	21.74	525.04	--
Total Annual Fuel Consumption							191,640

Net Increase of Proposed Housing Element compared to Existing uses	149,332
Net Increase of Proposed Housing Element compared to General Plan Update uses	89,545

Notes:

¹The average trip mileage was based on the trip length calculations provided in the CalEEMod output in the Sierra Madre General Plan Housing Element Air Quality and Greenhouse Gas Impact Study prepared by MD Acoustics (July 14, 2021). As stated in the Air Quality and Greenhouse Gas Impact study, the total trips generated under the General Plan Update scenario were assumed based on the trip generation rate data provided for the Existing and Housing Element scenarios.

Although the fuel consumed by the future development accommodated under the Housing Element is greater than that consumed in the Existing and General Plan Update scenarios, the trip generation and VMT generated by the uses are consistent with other similar residential uses of similar scale and configuration as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (20th Edition, 2017). That is, the future development associated with the Housing Element does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips and VMT, nor associated excess and wasteful vehicle energy consumption. Furthermore, the state of California consumed approximately 4.2 billion gallons of diesel and 15.1 billion gallons of gasoline in 2015.^{20,21} Therefore, the increase in fuel consumption from the future development associated with the Housing Element is insignificant in comparison to the State's demand. Therefore, transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Facility Energy Demands (Electricity and Natural Gas)

Building operation and site maintenance (including landscape maintenance) would result in the consumption of electricity (provided by SCE) and natural gas (provided by Southern California Gas Company). Operation of the future development associated with the Housing Element would involve the use of energy for heating, cooling and equipment operation. These facilities would be required to comply with all applicable California Energy Efficiency Standards and 2019 CALGreen Standards.

The annual natural gas and electricity demands were provided per the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2021) and are provided in Table 5.

²⁰ <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics>

²¹ <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics>

Table 5: Annual Operational Energy Demand Summary¹

Natural Gas Demand	kBTU/year
Existing	
Apartments Low Rise	888,824
Place of Worship	16,164
Total	904,988
General Plan Update	
Apartments Low Rise	1,428,470
Place of Worship	1,614
Single-Family Housing	1,758,950
Total	3,189,034
Housing Element	
Apartments Low Rise	4,221,910
Single Family Housing	1,758,950
Total	5,980,860
Net Increase of Proposed Housing Element compared to Existing uses	5,075,872
Net Increase of Proposed Housing Element compared to General Plan Update uses	2,791,826

Electricity Demand	kWh/year
Existing	
Apartments Low Rise	226,124
Place of Worship	9,774
Parking Lot	9,774
Total	245,672
General Plan Update	
Apartments Low Rise	363,413
Place of Worship	9,774
Single Family Housing	542,198
Parking Lot	33,840
Total	949,225
Housing Element	
Apartments Low Rise	1,074,090
Single Family Housing	542,198
Total	1,616,288
Net Increase of Proposed Housing Element compared to Existing uses	1,370,616
Net Increase of Proposed Housing Element compared to General Plan Update uses	667,063

Notes:

¹Taken from the CalEEMod 2020.4.0 annual output for years 2029 (existing, General Plan Update, and Housing Element) in the Sierra Madre General Plan Housing Element Update Air Quality and Greenhouse Gas Impact Study prepared by MD Acoustics (July 15, 2021).

As shown in Table 5, the estimated electricity demand for the future development associated with the Housing Element is approximately 1,616,388 kWh per year. In 2019, the residential sector of the County of Los Angeles consumed approximately 19,563 million kWh of electricity.²² In addition, the estimated natural gas consumption for the future development associated with the Housing Element is

²² California Energy Commission, Electricity Consumption by County. <https://ecdms.energy.ca.gov/elecbycounty.aspx>

approximately 5,980,860 kBTU per year. In 2019, the residential sector of the County of Los Angeles consumed approximately 1,236 million therms of gas.²³ Therefore, the increase in both electricity and natural gas demand from the future development associated with the Housing Element is insignificant compared to the County's 2019 residential sector demand. Furthermore, the net increase from the Existing scenario as well as the net increase from the General Plan Update scenario would also be considered insignificant in comparison to the overall County's residential demand.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting. Non-building energy use, or "plug-in" energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

Furthermore, the energy demands associated with the future development of the Housing Element would be comparable to other residential projects of similar scale and configuration and the increased density of residential uses is as a result of increased population forecasts developed by SCAG. Therefore, the project facilities' energy demands and energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, all of the sites identified for redesignation in the Housing Element are located in already developed areas. Access to/from each site is from existing roads. These roads are already in place, therefore, the potential future redevelopment of the sites would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, all future development is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the SCE and Southern California Gas Company.

Regarding the State's Renewable Energy Portfolio Standards, all future development would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CalGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

Furthermore, as shown in the Air Quality and Greenhouse Gas Impact Analysis prepared for the Housing Element (MD Acoustics 2021), the project is consistent with the goals of the City's Energy Action Plan.

6.0 Conclusions

As supported by the preceding analyses, neither construction nor operation of the future development accommodated under the Housing Element e would result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. Based on the residential nature of the

²³ California Energy Commission, Gas Consumption by County. <http://ecdms.energy.ca.gov/gasbycounty.aspx>

future development accommodated under the Housing Element, it would be assumed that it would not include any unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities and includes residential developments that would not be anticipated to propose any additional features that would require a larger energy demand than other residential projects of similar scale and configuration. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

The future development accommodated under the Housing Element would be required to be designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, the use of LED lighting, and water-efficient irrigation systems. The future development accommodated under the Housing Element would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts would be less than significant.

MD is pleased to provide this CEQA Energy review. If you have any questions regarding this analysis, please don't hesitate to call us at (805) 426-4477.

Sincerely,
MD Acoustics, LLC

A handwritten signature in black ink that reads "Mike Dickerson". The signature is written in a cursive, slightly slanted style.

Mike Dickerson, INCE
Principal

Appendix A
CARB EMFAC 2017

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: Air Basin

Region: SOUTH COAST

Calendar Year: 2029

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
SOUTH COAST	2029	HHDT	Aggregated	Aggregated	GAS	77.72681725	1555.15816	2.074582644	2074.582644	1687265.358	10088.26724	13436585.83		7.96 HHDT
SOUTH COAST	2029	HHDT	Aggregated	Aggregated	DSL	108342.8918	1122432.355	1685.190775	1685190.775		13426497.57			
SOUTH COAST	2029	LDA	Aggregated	Aggregated	GAS	6943466.561	32730140.84	6738.621311	6738621.311	6788262.353	247759496.6	250596989.6		36.92 LDA
SOUTH COAST	2029	LDA	Aggregated	Aggregated	DSL	76033.81853	364163.094	49.6410427	49641.0427		2837493.006			
SOUTH COAST	2029	LDA	Aggregated	Aggregated	ELEC	299231.7657	1470927.555	0	0		11918485.44			
SOUTH COAST	2029	LDT1	Aggregated	Aggregated	GAS	854574.3161	3955622.828	939.0081694	939008.1694	939189.0013	29260479.47	29265287.66		31.16 LDT1
SOUTH COAST	2029	LDT1	Aggregated	Aggregated	DSL	165.0364293	682.8434974	0.180831903	180.8319034		4808.189294			
SOUTH COAST	2029	LDT1	Aggregated	Aggregated	ELEC	19028.58949	94110.72453	0	0		772659.0724			
SOUTH COAST	2029	LDT2	Aggregated	Aggregated	GAS	2457379.084	11509572.56	2802.059797	2802059.797	2821152.139	85775004.02	86577620.84		30.69 LDT2
SOUTH COAST	2029	LDT2	Aggregated	Aggregated	DSL	21743.55062	104714.4704	19.09234206	19092.34206		802616.8165			
SOUTH COAST	2029	LDT2	Aggregated	Aggregated	ELEC	68961.83444	340645.3508	0	0		1929589.993			
SOUTH COAST	2029	LHDT1	Aggregated	Aggregated	GAS	169256.0525	2521662.991	499.5583346	499558.3346	734546.6141	5792783.738	11442515.58		15.58 LHDT1
SOUTH COAST	2029	LHDT1	Aggregated	Aggregated	DSL	154935.0358	1948887.842	234.9882795	234988.2795		5649731.844			
SOUTH COAST	2029	LHDT2	Aggregated	Aggregated	GAS	29893.08476	445362.4222	97.84634155	97846.34155	199685.1496	984309.4393	3189743.821		15.97 LHDT2
SOUTH COAST	2029	LHDT2	Aggregated	Aggregated	DSL	62737.70907	789161.4561	101.8388081	101838.8081		2205434.381			
SOUTH COAST	2029	MCV	Aggregated	Aggregated	GAS	345291.6025	690583.2049	59.70996957	59709.96957	59709.96957	2147200.586	2147200.586		35.96 MCV
SOUTH COAST	2029	MDV	Aggregated	Aggregated	GAS	1615341.948	7489864.506	2154.880257	2154880.257	2207690.55	53407502.38	55117026.92		24.97 MDV
SOUTH COAST	2029	MDV	Aggregated	Aggregated	DSL	48510.56074	232743.0983	52.81029255	52810.29255		1709524.542			
SOUTH COAST	2029	MDV	Aggregated	Aggregated	ELEC	46863.66647	232951.6741	0	0		1335640.302			
SOUTH COAST	2029	MH	Aggregated	Aggregated	GAS	32250.46777	3226.336796	53.72463579	53724.63579	64850.93173	308857.5128	437261.1238		6.74 MH
SOUTH COAST	2029	MH	Aggregated	Aggregated	DSL	14386.0159	1438.60159	11.12629594	11126.29594		128403.611			
SOUTH COAST	2029	MHDT	Aggregated	Aggregated	GAS	25928.07401	518768.9048	227.4166953	227416.6953	937263.7999	1283411.708	10019872.67		10.69 MHDT
SOUTH COAST	2029	MHDT	Aggregated	Aggregated	DSL	147045.0283	1507895.507	709.8471046	709847.1046		8736460.96			
SOUTH COAST	2029	OBUS	Aggregated	Aggregated	GAS	5861.799304	117282.8805	38.79603243	38796.03243	76616.26724	219000.4266	584343.5242		7.63 OBUS
SOUTH COAST	2029	OBUS	Aggregated	Aggregated	DSL	5288.77931	51499.26533	37.8202348	37820.2348		365343.0976			
SOUTH COAST	2029	SBUS	Aggregated	Aggregated	GAS	3606.745503	14426.98201	13.79637459	13796.37459	38996.95901	134253.5265	345612.9362		8.86 SBUS
SOUTH COAST	2029	SBUS	Aggregated	Aggregated	DSL	6663.641625	76897.50047	25.20058442	25200.58442		211359.4097			
SOUTH COAST	2029	UBUS	Aggregated	Aggregated	GAS	992.1205609	3968.482243	16.48412339	16484.12339	16484.12339	92942.43298	92942.43298		5.64 UBUS
SOUTH COAST	2029	UBUS	Aggregated	Aggregated	DSL	0	0	0	0		0			
SOUTH COAST	2029	UBUS	Aggregated	Aggregated	NG	5535.507333	22142.02933	153.8126728			605006.7482			

Appendix D

Noise Report

Sierra Madre Housing Element Update

Noise Impact Study

City of Sierra Madre, CA

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Noise Study Reports | Vibration Studies | Air Quality | Greenhouse Gas | Health Risk Assessments

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1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the future development that would be accommodated by the General Plan 2021-2029 Housing Element Update for the City of Sierra Madre would cause a significant impact to the air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by South Coast Air Quality Management District (SCAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project is the adoption of the City of Sierra Madre's 2021-2029 Housing Element (Housing Element), related updates to the Land Use, Safety, and Circulation Elements, and the inclusion of required Environmental Justice policies. Therefore, the project includes a variety of sites that have been recommended for re-designation throughout the City of Sierra Madre, California. The project sites recommended for re-designation and analyzed in this report are shown in Exhibit A.

1.2.2 Project Description

The project is the adoption of the City of Sierra Madre's 2021-2029 Housing Element (Housing Element), related updates to the Land Use, Safety, and Circulation Elements, and the inclusion of required Environmental Justice policies. The Housing Element requires amending General Plan designations on some of the proposed Housing Element opportunity sites, which requires revisions to the Land Use Element and Land Use Map of the City of Sierra Madre General Plan. The Housing Element also necessitates rezoning of some proposed opportunity sites; therefore, the project includes changes to the City's Zoning Code and Zoning Map.

In addition to the Housing and Land Use Element updates, the City is required to make other changes to the General Plan in response to recent State legislation. To comply with Senate Bill (SB) 379, Assembly Bill (AB) 2140, and SB 1241, the project updates the Safety Element. The City recently adopted Transportation Study Guidelines for Vehicle Miles Traveled in July 2020. These Guidelines are incorporated into the General Plan Circulation Element. Lastly, to comply with SB 100, the City is adopting Environmental Justice Element policies.

The City has conducted extensive community outreach, meetings with City decisionmakers and discussions with property owners to identify those sites most suitable for rezoning to address the City's RHNA shortfall. Sites recommended for re-designation were selected based on several factors: existing land use and feasibility for redevelopment within the planning period; neighborhood compatibility and community context; property owner interest; and an overriding goal to disperse affordable housing

opportunities throughout the community. The following describes the opportunity sites proposed for the Housing Element and analyzed in this Air Quality and Greenhouse Gas Impact Study.

Site 1. Rezoning of nine properties on the 200 block of West Mariposa Avenue to R-3-30 (30 to 34 du/acre). Properties are currently developed with older single-family, duplex and fourplex units, ranging in age from 1895 to 1948. Most units are modest, with a low improvement to land value ratio and numerous units exhibiting deferred maintenance. The combined site consists of 25 existing units with a potential net gain of 48 units under the new R-3-30 zoning designation. Two of the parcels were identified as R3-H (20 units/acre) in the prior Housing Element, and therefore to carry over to the 2021-2029 Element, will allow 20 du/acre by-right for inclusion of 20% low-income units.

Site 2. Rezoning of ten properties to R-3-20 (20 to 24 du/acre) on Suffolk Avenue. Two of the parcels have been combined (93 Suffolk) and have an application for development with five apartments, including one restricted to moderate income households. Another property owner at 92 Suffolk has approached the City regarding potential lot consolidation and redevelopment with seven units of multi-family housing. Existing units identified for redevelopment range in age from 1902 to 1947, have a low improvement to land value ratio, and exhibit deferred maintenance. The combined site consists of 13 existing units with a potential net gain of 27 units under the new R-3-20 zoning designation.

Site 3. Rezoning of one property just under one acre fronting on West Sierra Madre Boulevard at the terminus of Park Avenue. The property is currently developed with the Park Avenue Apartments consisting of three buildings developed in 1960 with three to six units each, and a two-unit building constructed in 1935, for a total of seventeen units. The improvement to land value ratio is just 25%, rendering the site economically suitable for redevelopment. The site includes a large surface parking area and undeveloped open space area. The property owner has expressed an interest in potential higher density development on the site, either through infill or redevelopment.

Site 4. Designation of one property on the southwest corner of North Baldwin Avenue and West Laurel Avenue. The site is currently zoned R-3 (13 units/acre) and underdeveloped with an older (1947) single-family home. The improvement to land value ratio is just 30%. The property owner's architect has shared concept plans with the City to redevelop the site with six to seven units, potentially utilizing State density bonus incentives to achieve the extra unit.

Affordable Housing on Congregational Land

Inspired by proposed State legislation to allow affordable housing to be developed on congregational land, City staff began reaching out to pastors and religious leaders in the community in the fall of 2020 to explore the concept of adding an affordable housing overlay to Sierra Madre's religious sites. Several congregations have large parking areas and other underutilized land that, with the necessary zoning in place, could be used to build affordable housing and further the congregation's mission.

Four church sites were identified as having capacity and suitable conditions to accommodate housing. Conceptual site plans illustrating feasible affordable housing development concepts were prepared for each site and provided the basis for establishing development standards for the Overlay.

All residential development within the Religious Housing Overlay will be subject to the following affordability requirements:

- Rental housing: minimum 50% of units restricted to lower income households (up to 80% area median income) for 55 years
- Ownership housing: minimum 50% of units restricted to lower income households, or 90% of units restricted to moderate income households (up to 120% area median income) for 45 years

Approved/Pending Residential Projects

Sierra Madre has two residential subdivisions in various stages of development entitlement that will contribute towards addressing its future RHNA needs, as described below. For the environmental analyses, these projects will be considered as part of the future environmental baseline and not as part of the project.

- Stonegate. The One Carter hillside property at the northern terminus of North Baldwin Avenue has been subdivided into 27 residential lots and two undevelopable lots. The custom homes being developed in Stonegate are subject to the City's Residential Hillside Management Zone, and the Stonegate Design Guidelines. As of April 2021, the City has received 24 applications for development, and has thus far approved seven homes for development.
- The Meadows at Bailey Canyon. The lower 20 acres of the 88-acre Mater Dolorosa Passionist Retreat Center is being proposed for development with 42 detached single-family dwellings and a 3 to 3.5 acre dedicated neighborhood park. An additional 45 acres of hillside open space north of the Retreat Center is to be dedicated to the City of Sierra Madre. The property is currently identified as an institutional land use in the General Plan, and will be amended to include Open Space, Civic/City Park, Institutional, and One Family Residential (7,500 sq. ft. minimum) land use designations. The project is projected to go before City Council in August 2021.

Table 1 summarizes the land uses modeled in this analysis for the future development opportunity sites in the Housing Element under the Existing scenario, 2015 General Plan Update scenario, and the proposed Housing Element scenario. The existing uses were modeled under both the existing year 2021 and the Housing Element's buildout year of 2029, while the 2015 General Plan Update and the proposed Housing Element scenarios were only modeled under the Housing Element's buildout year of 2029.

<Table 1, next page>

Table 1: Land Use Summary

Site ¹	Total Site Acreage	Existing			2015 General Plan Update ⁵			Housing Element		
		Land Use	Unit Amount	Size Metric	Land Use	Unit Amount	Size Metric	Land Use	Unit Amount	Size Metric
Site 1	2.44	Multi-Family Residential Housing (Low-Rise)	25	DU	Multi-Family Housing (Low Rise)	37	DU	Multi-Family Residential Housing (Low-Rise)	73	DU
Site 2 ²	2.11	Multi-Family Residential Housing (Low-Rise)	13	DU	Multi-Family Housing (Low Rise)	37	DU	Multi-Family Residential Housing (Low-Rise)	40	DU
Site 3	0.92	Multi-Family Residential Housing (Low-Rise)	17	DU	Multi-Family Housing (Low Rise)	12	DU	Multi-Family Residential Housing (Low-Rise)	27	DU
Site 4	0.34	Multi-Family Residential Housing (Low-Rise)	1	DU	Multi-Family Housing (Low Rise)	4	DU	Multi-Family Residential Housing (Low-Rise)	5	DU
Site A	0.71	Parking Lot	30.90	TSF	Parking Lot	30.90	TSF	Multi-Family Residential	30	DU
Site B	0.65	Parking Lot	28.50	TSF	Parking Lot	28.50	TSF	Multi-Family Residential	28	DU
Site C ³	0.53	Parking Lot	10.80	TSF	Parking Lot	10.80	TSF	Multi-Family Residential Housing (Low-Rise)	23	DU
		Church Use	12.281	TSF	Church Use	12.281	TSF			
Site D ⁴	0.93	Parking Lot	26.486	TSF	Parking Lot	26.486	TSF	Multi-Family Residential Housing (Low-Rise)	40	DU
		Landscaped Areas	14.143	TSF	Landscaped Areas	14.143	TSF			
Stonegate ⁶	23	Vacant Land	23	AC	Single-Family Housing	27	DU	Single-Family Housing	27	DU
The Meadows ⁶	17	Vacant Land	17	AC	Single-Family Housing	42	DU	Single-Family Housing	42	DU

AC= Acre; DU= Dwelling Unit; TSF= Thousand Square Foot

¹ Existing residential uses at Sites 1 through 4 modeled as multi-family residential to be consistent with the Traffic Analysis.

² Site 2 has a total acreage of 2.81 acres; however, two parcels are not anticipated to be re-developed under the Housing Element Updates. These include the 12 unit apartment building located at 90 Suffolk Avenue and the two-story single-family dwelling unit located at 68 Suffolk Avenue. Therefore, the total acreage was 2.11 acres with a total of 13 existing residential dwelling units (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029).

³ Site C includes an existing 10,800 square foot parking lot and a 12,281 square foot lot containing a 900 square foot building. Both sites are currently associated with the Old North Church. (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029)

⁴ Site D includes an existing 6,977 square foot grassy area, 7,166 square feet of vacant land (landscaped), and 26,486 square feet of existing parking lots which are all currently associated with the Bethany Church and School. (for more details see Appendix C of the Sierra Madre Housing Element 2021-2029)

⁵ For the 2015 General Plan Update Scenario, as Sites A through D are zoned for institutional uses and the existing development on the site is associated with existing institutional (i.e., church) uses it was assumed that these sites would have the same uses under this scenario as they do in the existing scenario. Furthermore, as Stonegate and The Meadows are approved projects and in the Project Description of the SEIR are to be "considered as part of the future environmental baseline" they were assumed to be developed as part of the 2015 General Plan Update scenario as well as the Housing Element scenario.

⁶ Stonegate and The Meadows under existing conditions are vacant land. Therefore, they are not incorporated into the uses modeled in CalEEMod for the Existing scenario.

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses that are more sensitive to noise and vibration than others. Sensitive land uses include residential, schools, libraries, churches, nursing homes, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety.

The closest existing sensitive receptor (to each site area) include the following:

Site 1: Site 1 is located at the northeast corner of Lima Street and Mariposa Avenue. The nearest sensitive receptors include the single-family residential dwelling units located approximately 60 feet to the east (across Lima Street) and 60 feet south (across Mariposa Avenue) of the project site.

- Site 2:* Site 2 is located along the southern side of Suffolk Avenue between Baldwin Avenue and Sierra Place. The nearest sensitive receptors include the single-family residential uses located adjacent to the east and south of the site. In addition, multi-family residential uses located approximately 60 feet north (across Suffolk Avenue) and the single-family residential uses located approximately 75 feet west of the site (across Baldwin Avenue).
- Site 3:* Site 3 is located at 491 W Sierra Madre Boulevard. The nearest sensitive receptors to Site 3 include the single-family residential uses located adjacent to the north and the multi-family residential uses located adjacent to the east and west and approximately 80 feet south (across Sierra Madre Boulevard).
- Site 4:* Site 4 is located at 215 N Baldwin Avenue. The nearest sensitive receptors to Site 4 include the single-family and multi-family residential uses located adjacent to the south and east of the project site. In addition, single-family residential uses are located approximately 50 feet north (across W Laurel Avenue) and a Gooden School is located approximately 75 feet southeast (across Baldwin Avenue) of the project site.
- Site A:* Site A is located within a portion of the property associated with the St. Rita Catholic Church and School. The nearest sensitive receptors include the school associated with the St. Rita Catholic Church which is located adjacent to the northeast and the single-family residential uses located adjacent to the east of the project site. Single-family and multi-family residential uses are also located approximately 60 feet south (across Grandview Avenue) and 60 feet north (across Alegria Avenue) of Site A.
- Site B:* Site B is located at 695 W Sierra Madre Boulevard within a portion of the property associated with the United Methodist Church. The nearest sensitive receptors to Site B include the single-family residential use located adjacent to the east and the multi-family residential uses located adjacent to the southeast. In addition, single-family residential uses are located approximately 55 feet north (across Montecito Avenue) of the project site.
- Site C:* Site C is located within a portion of the property associated with Old North Church. The nearest sensitive receptors to Site C include the single-family residential uses located adjacent to the north and east of the project site. Multi-family and single-family residential uses are located approximately 50 feet west (across Hermosa Avenue) and multi-family residential uses are also located approximately 75 feet east of the project site.
- Site D:* Site D is located within a portion of the property associated with Bethany Church. The nearest sensitive receptors to Site D include the multi-family residential uses located adjacent to the west and the single-family residential use adjacent to the southeast of the project site. In addition, single-family residential uses are located approximately 60 feet north (across Highland Avenue) and 40 feet south (across Montecito Avenue).
- The Meadows:* The Meadows is located within the lower 20 acres of the existing Mater Dolorosa Passionist Retreat Center property. The nearest sensitive receptors to The Meadows

include the single-family residential uses located adjacent to the west, south, and southeast of the project site.

Stonegate: Stonegate is part of the One Carter property located at the northern terminus of North Baldwin Avenue. The nearest sensitive receptors to Stonegate include the single-family residential uses located adjacent to the west, south, and east of the project site.

All other sensitive receptors in the project site vicinity would be located at further distances and would have lower noise and vibration impacts.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Traffic:

Year 2021 and Year 2029 plus Project and the resulting increase with the project are shown in Table 6. Table 6 shows that traffic noise increases without the project from 2021 to 2029 with the project would be up to 2.4 dBA CNEL. This increase includes a 0.5% growth rate and the implementation of the General Plan, the Stonegate and Meadows projects, and Areas 1-5 and A-D. There are no segments that would increase greater than 3 dB. The impact is therefore less than significant.

Construction Noise

Per the General Plan EIR, to minimize construction noise at adjacent land uses, the following noise reduction measures should be taken when construction occurs within 500 feet of sensitive receptors:

1. Require that construction vehicles and equipment (fixed or mobile) be equipped with properly operating and maintained mufflers.
2. Restrict haul routes and construction-related traffic.
3. Place stock piling and/or vehicle-staging areas as far as practical from residential uses.
4. Replace audible backup warning devices with strobe lights or other warning devices during evening construction activity to the extent permitted by the California Division of Occupational Safety and Health.
5. Reduce nonessential idling of construction equipment to no more than five minutes.
6. Consider the installation of temporary sound barriers for construction activities that are adjacent to occupied noise-sensitive structures, depending on length of construction, type of equipment used, and proximity to noise-sensitive uses.

Noise reduction measure 6 should be considered when construction activity with multiple pieces of equipment occurs within 50 feet of a sensitive property line. Barriers should block the line-of-site to noise-sensitive structures.

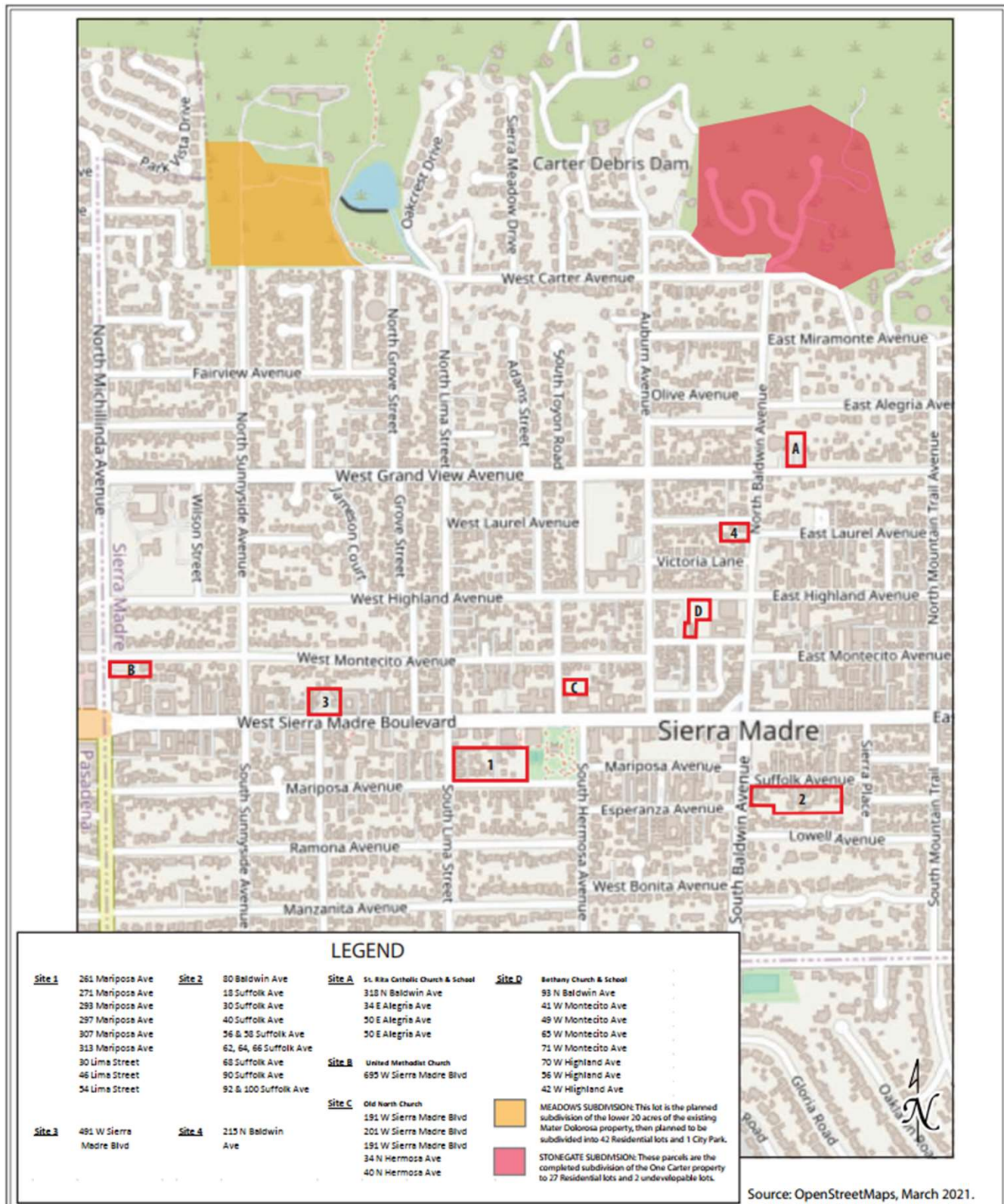
With the noise reduction measures, the impact is less than significant.

Construction Vibration

To avoid structural damage, bulldozers should not come within 15 feet of fragile buildings or within 8 feet of older residential structures and historic buildings. Daytime residential annoyance, defined by the FTA as 78 VdB, would occur at 50 feet from a bulldozer.

Construction activity is not anticipated to be vibration-intensive including the use of blasting, pile driving, and vibratory rollers within 200 feet of sensitive receptors. Construction activity is not expected to fall within the limits of structural damage and therefore the impact is less than significant.

Exhibit A Location Map



2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic, or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

2.2 Frequency and Hertz

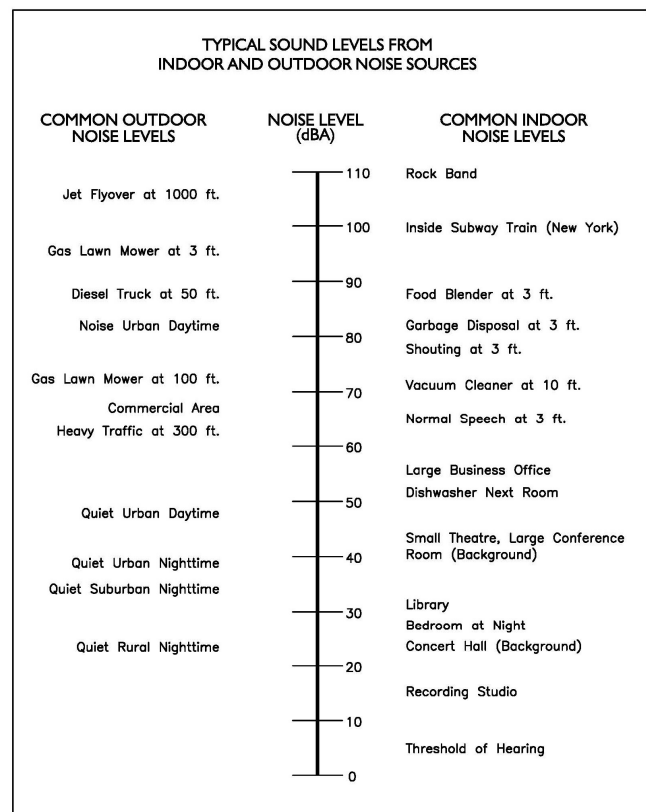
A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second.

Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines its loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measure in units of micro-Newton per square inch meter (N/m²), also called micro-Pascal (μPa). One μPa is approximately one hundred billionths (0.0000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB. Exhibit B illustrates references sound levels for different noise sources.

Exhibit B: Typical A-Weighted Noise Levels



2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a

higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive the change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Table 2: Loudness Perception Levels

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly, L50, L90 and L99, etc.

Noise: Any unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2–3 axle) and heavy truck percentage (4 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity and turbulence can further impact how far sound can travel.

3.0 Ground-Borne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

The proposed project is located in the City of Sierra Madre and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible to regulate noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible to regulate noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers.

The federal government advocates that local jurisdiction use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix”. The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan.

4.3 City of Sierra Madre Regulations

The City of Sierra Madre outlines their noise regulations and standards within the Noise Element of the City's General Plan and the Noise Ordinance located in the City's Municipal Code.

City of Sierra Madre General Plan


Applicable policies and standards governing environmental noise in the City are set forth in the General Plan Noise Element. The City's noise and land use compatibility guidelines for land use planning are presented in Exhibit C. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

Exhibit C: Land Use Compatibility Guidelines


Table 6-8 Land Use Compatibility for Community Noise Exposure¹

Land Uses	CNEL (dBA)					
	55	60	65	70	75	80
Residential - Low Density Single Family, Duplex, Mobile Homes						
Residential - Multiple Family						
Transient Lodging, Motels, Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						
Sports Arena, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Businesses, Commercial and Professional						
Industrial, Manufacturing, Utilities, Agricultural						

Source: Governor's Office of Planning and Research. 2003, October. State of California General Plan Guidelines.

 Normally Acceptable:
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

 Normally Unacceptable:
New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

 Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

 Clearly Unacceptable:
New construction or development should generally not be undertaken.

In addition to the noise standards, the City has outlined goals, policies and implementation measures to reduce potential noise impacts and are presented below:

Goals, Policies, and Implementation Measures

Objectives, policies, and implementation measures from the General Plan that are applicable to the proposed project are presented below.

- Obj HZ14:** Maintaining the quiet residential character of the City, free from excessive noise from transportation or fixed source generators.
- HZ14.1:** Formulate measures to mitigate noise impacts from mobile and stationary noise sources through compatible land use planning and the discretionary review of development projects.
- HZ14.2:** Identify and control the noise levels associated with transportation and general circulation patterns in the City to ensure the residential quality of the community.
- HZ14.3:** Enact noise regulations to prohibit unnecessary excessive and annoying noise sources. These controls currently relate to the general category of disturbing- the-peace nuisances.
- HZ14.4:** Ensure that the noise level of the commercial districts does not interfere with the normal business, commercial or residential activities.
- HZ14.5:** To the extent possible, protect schools, hospitals, libraries, churches, parks and recreational areas from excessive sound levels so as not to adversely affect their normal activities.
- HZ14.6:** Review current guidelines regarding the use of gas powered lawn equipment and consider restricting the type of equipment, hours and duration of operation.
- Obj HZ15:** Minimizing the noise impacts associated with the development of residential units above ground floor commercial uses.
- HZ15.1:** Require that commercial uses developed as part of a residential mixed-use project are not noise intensive.
- HZ15.2:** Design mixed-use structures to prevent the transfer of noise from the commercial use to the residential use.
- HZ15.3:** Require that common walls and floors between commercial and residential uses be constructed to minimize the transmission of noise and vibration.
- Obj HZ16:** Minimizing the impacts of construction noise on adjacent uses.

- H216.1: Limit construction activities to reasonable weekday and weekend/holiday hours in order to reduce noise impacts on adjacent residences.
- H216.2: Require that construction activities incorporate feasible and practical techniques to minimize the noise impacts on adjacent uses.

Land Use Element

- Policy L3. 1: Maintain an area in the City for commercial development through the review and update of appropriate standards and regulations for new construction.
- Policy L37.7: Accommodate housing units (i) on the second level, or to the rear of buildings provided that the impacts of noise, odor, and other adverse characteristic of commercial activity can be adequately mitigated, and a healthy, safe, and well-designed environment is achieved for the residential units, and (ii) in the easterly third of the Artisan Mixed-Use area.
- Policy L37.8: Ensure that all development and new uses are compatible with adjacent uses, and yield no significant negative impacts to noise, air quality, water quality and traffic.
- Policy L38.2: Adopt an Artisan Mixed Use Zoning Ordinance to regulate commercial, light-manufacturing and residential uses.
- Policy L38.3: Require the issuance of a conditional use permit for new uses to adequately protect adjacent uses.
- Policy L53.1: Develop a comprehensive Citywide approach to residential street traffic calming.
- Policy L53.4: Install and maintain traffic calming measures where appropriate.

Noise Implementation Program

- Measure IM-1: The City shall review its zoning ordinances and amend as necessary to include measures to mitigate noise impacts from mobile and stationary noise sources.
- Measure IM-2: The City shall identify opportunities to control noise levels associated with vehicular traffic throughout the City.
- Measure IM-3: The City shall amend its Noise Ordinance as needed to prohibit unnecessary excessive and annoying noise sources.
- Measure IM-4: The City shall continue to enforce its Noise Ordinance to ensure that noise levels in the commercial areas do not interfere with the normal business, commercial and residential activities.
- Measure IM-5: The City shall continue to enforce its Noise Ordinance to protect schools, hospitals, libraries, churches, parks and recreational areas from excessive sound levels.
- Measure IM-6: The City shall consider amending its Noise Ordinance to further restrict the use of gas powered lawn equipment.

- Measure IM-7: The City shall amend the Commercial Zone Ordinance to exclude noise-intensive uses that may be allowed in mixed-use projects.
- Measure IM-8: The City shall amend the Commercial Zone Ordinance to require that mixed-use projects be designed to prevent the transfer of noise between the commercial and residential uses.
- Measure IM-9: The City shall continue to limit construction activities to reasonable weekday and weekend/holiday hours to reduce noise impacts to residential uses, and enforce noise regulations addressing construction activities.

City of Sierra Madre Municipal Code

Section 9.32 (Noise) of the City's Municipal Code includes the City's noise standards to regulate noise sources within the city. Per Section 9.32, the limit for noise sources affecting residential properties is 6 dB above the local ambient noise level, 8 dB above the local ambient noise level for sources on commercial or industrial property, and 15 dB above the local ambient noise level for sources on public property. Additionally, it is unlawful for any person to create any noise that causes a disturbance to any school, institution of learning, church, or hospital, or to create noise which unreasonably disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person. However, any noise source that produces a noise level below 80 dBA at a distance of 25 feet is exempt between the hours of 7:00 AM and 9:00 PM on Monday through Saturday, and between 10:00 AM and 6:00 PM on Sundays and holidays. These standards do not gauge the compatibility of developments in the noise environment but provide restrictions on the amount of noise generated at a property, as measured at the property line of the noise receptor. This Chapter also regulates the hours of construction noise.

Construction Noise Regulations

Noise sources associated with construction activity are exempt from the noise standards presented in Table 5.10-3, provided said activities take place only between the hours of 7:00 AM and 7:00 PM on Monday through Saturday, between the hours of 10:00 AM and 6:00 PM on a Sunday or holiday, and provided noise levels outside the property do not exceed 85 dBA. Per Section 9.32.090 (Exception Permits) of the City's Municipal Code, if a project applicant can demonstrate to the City Manager that a diligent investigation of available noise abatement techniques indicates that immediate compliance with the regulations would be impractical or unreasonable, a permit to allow exception may be issued, with appropriate conditions to minimize the public detriment caused by such exceptions. Any such permit shall be of as short duration as possible up to three months, but renewable upon a showing of good cause.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

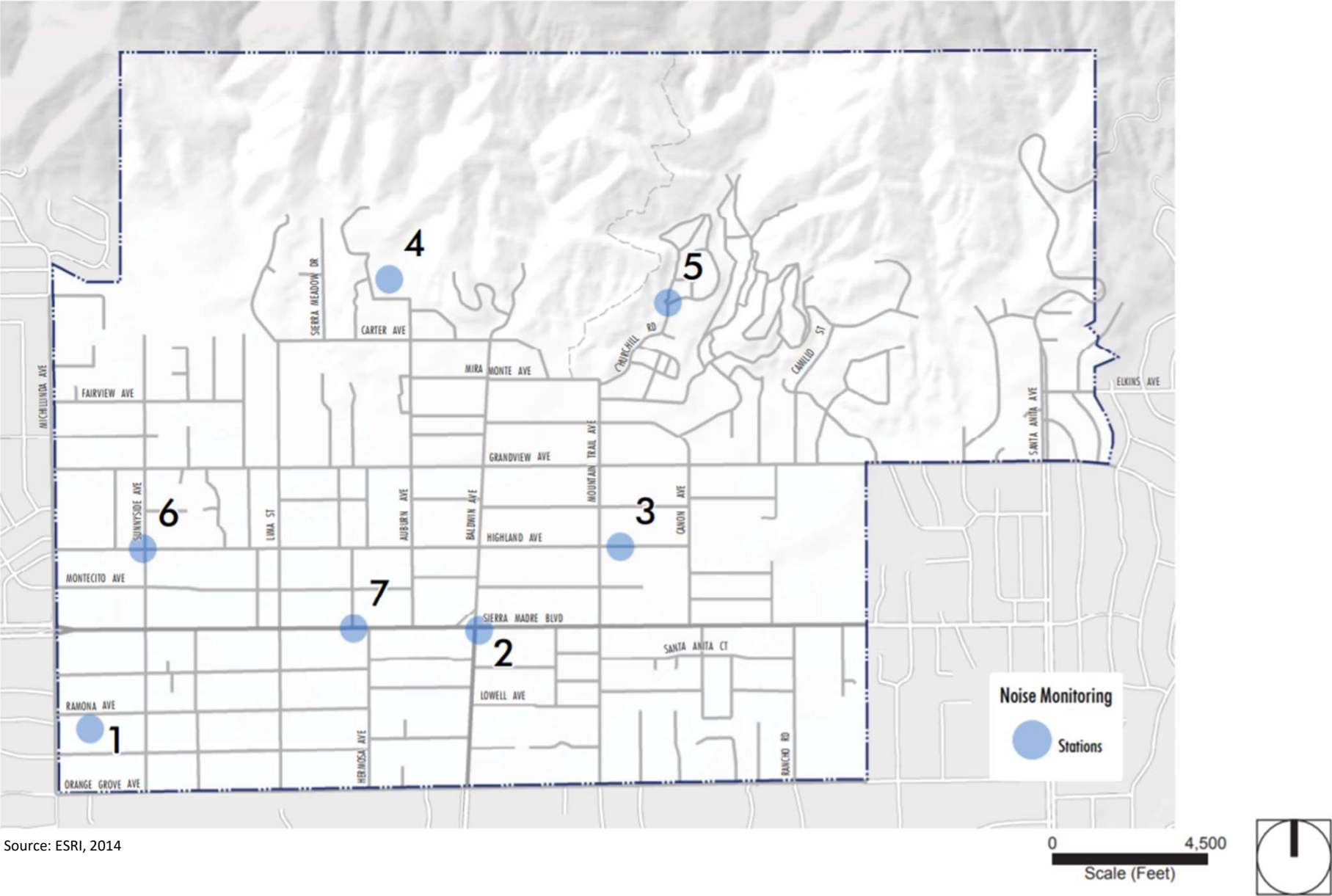
MD used the noise measurements taken for the 2035 General Plan. Three (3) 24-Hour long-term noise measurement and four (4) 15-minute short-term noise measurements were taken throughout the City. Appendix A includes the measured noise data. Exhibit D illustrates the location of the measurements.

5.3 FHWA Traffic Noise Prediction Model

Existing, Existing Plus Project, and Future traffic noise from vehicular traffic was projected using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL).

Traffic information from the General Plan Traffic Impact Study Draft Report was utilized for modeling purposes. The existing 2015 counts were projected to 2021 and 2029 with a yearly 0.5% growth. The 2029 without Project scenario includes the General Plan buildout trips. Inputs for the model including road classification, speed, land distance, and vehicle mix were taken from the noise modeling for the General Plan Draft EIR Noise Background and Technical Analysis appendix. Data input is provided in Appendix B.

Exhibit D
Measurement Locations



Source: ESRI, 2014

6.0 Existing Noise Environment

Four (4) short-term and three (3) long-term 24-hour ambient noise measurements were conducted around the City for the 2035 General Plan. The measurements measured the Leq, Lmin, Lmax and other statistical data (e.g. L2, L8). The noise measurements were taken to determine the existing baseline noise conditions.

6.1 Short-Term Noise Measurement Results

The results of the short-term noise data are presented in Table 3.

Table 3: Short-Term Noise Measurement Data (dBA)¹

Noise Monitoring Location	Time	Leq	Lmin	Lmax
4	12:08-12:24 PM	42.6	32.3	62.7
5	12:33-12:50 PM	44.3	34.4	59.0
6	2:31-2:47 PM	62.7	40.6	81.3
7	3:00-3:16 PM	59.1	44.9	73.9
Notes: 1. Measurements were taken over a fifteen-minute interval. Measurement locations are indicated in Exhibit D.				

Short-term noise data indicates the ambient noise levels ranged between 42.6 to 62.7 dBA Leq. The measured noise levels and field notes indicate that traffic noise is the main source of noise impacting the project site.

6.2 Long-Term Noise Measurement Results

The results of the long-term noise data are presented in Table 4. Long-term noise data indicates the ambient noise levels ranged between 51.1 and 62.1 dBA CNEL. The measured noise levels and field notes indicate that traffic noise is the main source of noise impacting the project site.

Table 4: Long-Term Noise Measurement Data (dBA)¹

Noise Monitoring Location	CNEL	Highest 1-hour Leq	Hour	Lowest 1-hour Leq	Hour
1	58.6	55.8	2 PM	46.4	2 AM
2	62.1	63.8	4 PM	46.6	2 AM
3	51.1	52.5	8 AM	39.9	2 AM
Notes: 1. Measurements were taken over a 24-hour interval. Measurement locations are indicated in Exhibit D.					

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts to the project and compares the results to the City's Noise Standards. The analysis details the estimated exterior noise levels associated with traffic from adjacent roadway sources.

7.1 Off-Site Traffic Noise Impacts

The potential off-site noise impacts caused by the increase in vehicular traffic as a result of the project were calculated at a distance of 50 feet. The distance to the 55, 60, 65, and 70 dBA CNEL noise contours are also provided for reference. The noise level at 50 feet is representative of approximate distances to existing land uses along the subject roadway. The noise contours were calculated for the following scenarios and conditions:

- Year 2021 Condition: This scenario refers to the 2021 traffic noise condition.
- Year 2029 Condition: This scenario refers to the 2029 traffic noise condition. This condition includes the trips from the General Plan buildout and the Stonegate and Meadows projects.
- Year 2029 Plus Project Condition: This scenario refers to the 2029 plus project traffic noise condition. This condition also includes the trips from the General Plan buildout.

Without Project Scenario

Year 2021 and Year 2029 and the resulting increase without the project are shown in Table 5. Table 5 shows that traffic noise increases without the project from 2021 to 2029 would be up to 1.7 dBA CNEL. This increase includes a 0.5% growth rate and the implementation of the General Plan and Stonegate and Meadows projects. There are no segments that would increase greater than 3 dB. The impact is therefore less than significant.

<Table 5, Next Page>

Table 5: Traffic Noise Increases – 2029 without Project (dBA CNEL)

ROADWAY	SEGMENT LIMITS	Year 2021	Year 2029	Increase without Project	Potentially Significant?
Michillinda Avenue	Edgeview Drive to Grandview Avenue	61.0	61.2	0.2	No
Michillinda Avenue	Grandview Avenue to Highland Avenue	63.7	63.9	0.2	No
Michillinda Avenue	Highland Avenue to Mariposa Avenue	66.0	66.4	0.4	No
Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	66.7	67.2	0.5	No
Baldwin Avenue	Grandview Avenue to Victoria Lane	59.8	61.5	1.7	No
Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	60.8	62.1	1.3	No
Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	64.6	65.6	1.0	No
Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	65.8	66.4	0.6	No
Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	58.8	58.9	0.1	No
Grandview Avenue	Sunnyside Avenue to Lima Street	60.5	60.7	0.2	No
Grandview Avenue	Lima Street to Baldwin Avenue	60.6	60.8	0.2	No
Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	59.9	60.1	0.2	No
Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	59.2	60.0	0.8	No
Grandview Avenue	Coburn Avenue to Olivera Lane	58.3	58.5	0.2	No
Grandview Avenue	Olivera Lane to Santa Anita Avenue	57.5	57.7	0.2	No
Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	63.4	63.8	0.4	No
Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	64.1	64.7	0.6	No
Sierra Madre Boulevard	Lima Street to Baldwin Avenue	63.9	64.5	0.6	No
Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	62.3	63.2	0.8	No
Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	61.9	62.4	0.5	No
Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	59.5	60.4	0.9	No
Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	63.4	63.6	0.1	No
Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	63.9	64.5	0.5	No
Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	63.3	63.9	0.5	No
Orange Grove Avenue	S Coburn Avenue to Olivera Lane	62.1	62.8	0.7	No

With Project Scenario

Year 2021 and Year 2029 plus Project and the resulting increase with the project are shown in Table 6. Table 6 shows that traffic noise increases without the project from 2021 to 2029 with the project would be up to 2.4 dBA CNEL. This increase includes a 0.5% growth rate and the implementation of the General Plan, the Stonegate and Meadows projects, and Areas 1-5 and A-D. There are no segments that would increase greater than 3 dB. The impact is therefore less than significant.

<Table 6, next page>

Table 6: Traffic Noise Increases – 2029 with Project (dBA CNEL)

ROADWAY	SEGMENT LIMITS	2021	2029 with Project	Increase with Project	Potentially Significant?
Michillinda Avenue	Edgeview Drive to Grandview Avenue	61.0	61.2	0.2	No
Michillinda Avenue	Grandview Avenue to Highland Avenue	63.7	63.9	0.2	No
Michillinda Avenue	Highland Avenue to Mariposa Avenue	66.0	66.5	0.5	No
Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	66.7	67.3	0.7	No
Baldwin Avenue	Grandview Avenue to Victoria Lane	59.8	62.1	2.4	No
Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	60.8	62.6	1.8	No
Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	64.6	66.0	1.3	No
Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	65.8	66.6	0.8	No
Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	58.8	58.9	0.1	No
Grandview Avenue	Sunnyside Avenue to Lima Street	60.5	60.7	0.2	No
Grandview Avenue	Lima Street to Baldwin Avenue	60.6	60.8	0.2	No
Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	59.9	60.1	0.2	No
Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	59.2	60.3	1.1	No
Grandview Avenue	Coburn Avenue to Olivera Lane	58.3	58.5	0.2	No
Grandview Avenue	Olivera Lane to Santa Anita Avenue	57.5	57.7	0.2	No
Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	63.4	63.9	0.5	No
Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	64.1	64.9	0.8	No
Sierra Madre Boulevard	Lima Street to Baldwin Avenue	63.9	64.7	0.8	No
Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	62.3	63.4	1.1	No
Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	61.9	62.6	0.7	No
Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	59.5	60.7	1.1	No
Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	63.4	63.6	0.1	No
Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	63.9	64.6	0.7	No
Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	63.3	64.1	0.7	No
Orange Grove Avenue	S Coburn Avenue to Olivera Lane	62.1	63.1	0.9	No

7.2 On-Site Traffic Noise Impacts

Year 2029 with Project traffic noise contours are presented in Table 7. These contours can be utilized to evaluate the Project's compatibility with the future noise environment.

Area 2 is currently within the normally acceptable/conditionally acceptable range at 64.6 dBA CNEL and will increase to 66.0 dBA CNEL which is in the conditionally acceptable range for multifamily residential. Area B is currently within the conditionally acceptable range at 66.0 dBA CNEL and will remain in that range at 66.5 dBA CNEL. All other project areas are within the normally acceptable range for their respective land uses.

Table 7: Future Traffic Noise Contours (dBA, CNEL)

ROADWAY	SEGMENT	2029 WITH PROJECT	DISTANCE TO NOISE CONTOUR (FT.)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Michillinda Ave	Edgeview Dr to Grandview Ave	61.2	7	21	66	210
Michillinda Ave	Grandview Ave to Highland Ave	63.9	12	39	124	391
Michillinda Ave	Highland Ave to Mariposa Ave	66.5	22	71	223	706
Michillinda Ave	Mariposa Ave to Orange Grove Ave	67.3	27	85	270	855
Baldwin Ave	Grandview Ave to Victoria Ln	62.1	8	26	81	258
Baldwin Ave	Victoria Ln to Sierra Madre Blvd	62.6	9	29	91	287
Baldwin Ave	Sierra Madre Blvd to Lowell Ave	66.0	20	62	197	623
Baldwin Ave	Lowell Ave to Orange Grove Ave	66.6	23	72	227	717
Grandview Ave	Michillinda Ave to Sunnyside Ave	58.9	4	12	39	123
Grandview Ave	Sunnyside Ave to Lima St	60.7	6	18	58	185
Grandview Ave	Lima St to Baldwin Ave	60.8	6	19	60	188
Grandview Ave	Baldwin Ave to Mountain Trail Ave	60.1	5	16	51	162
Grandview Ave	Mountain Trail Ave to Coburn Ave	60.3	5	17	54	169
Grandview Ave	Coburn Ave to Olivera Ln	58.5	4	11	35	112
Grandview Ave	Olivera Ln to Santa Anita Ave	57.7	3	9	29	92
Sierra Madre Blvd	Michillinda Ave to Sunnyside Ave	63.9	12	39	123	388
Sierra Madre Blvd	Sunnyside Ave to Lima St	64.9	15	49	154	488
Sierra Madre Blvd	Lima St to Baldwin Ave	64.7	15	47	147	465
Sierra Madre Blvd	Baldwin Ave to Mountain Trail Ave	63.4	11	35	109	346
Sierra Madre Blvd	Mountain Trail Ave to Coburn Ave	62.6	9	29	91	288
Sierra Madre Blvd	Coburn Ave to Olivera Lane	60.7	6	18	58	185
Orange Grove Ave	Michillinda Ave to Sunnyside Ave	63.6	11	36	113	358
Orange Grove Ave	Sunnyside Ave to Baldwin Ave	64.6	14	46	145	458
Orange Grove Ave	Baldwin Ave to S Canon Ave	64.1	13	40	127	402
Orange Grove Ave	S Coburn Ave to Olivera Lane	63.1	10	32	101	320

8.0 Construction Noise and Vibration Impacts

The degree of construction noise may vary for different areas of the project site and vary depending on the construction activities. This section summarizes discusses noise and ground-borne vibration modeling efforts, impact analysis, and mitigation, if necessary.

8.1 Construction Noise

Construction noise is exempt from the City's noise limits between the hours of 7AM and 7PM Monday through Saturday and 10AM to 6PM on Sundays and holidays as long as the levels do not exceed 85 dBA on the property line.

Typical construction equipment noise levels are presented in Table 8.

Table 8: Typical Construction Equipment Noise Levels

Equipment	Typical Noise Level (dBA at 50 feet)	Equipment	Typical Noise Level (dBA at 50 feet)
Air Compressor	80	Paver	85
Backhoe	80	Pile-driver (Impact)	101
Ballast Equalizer	82	Piler-driver (Sonic)	95
Ballast Tamper	83	Pneumatic Tool	85
Compactor	82	Pump	77
Concrete Mixer	85	Rail Saw	90
Concrete Pump	82	Rock Drill	95
Concrete Vibrator	76	Roller	85
Crane, Derrick	88	Saw	76
Crane, Mobile	83	Scarifier	83
Dozer	85	Scraper	85
Generator	82	Shovel	82
Grader	85	Spike Driver	77
Impact Wrench	85	Tie Cutter	84
Jack Hammer	88	Tie Insertter	85
Loader	80	Truck	84

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, 2018.

The loudest expected piece of equipment for the Project is 85 dBA at 50 feet (concrete mixer, dozer, grader, paver, etc.). Given a usage factor of 50% per the Federal Highway Road Noise Construction Model, the maximum Leq level for one piece of equipment is 82 dBA at 50 feet. In the likely scenario that two pieces of equipment are operating simultaneously 50 feet from the same point on the property line, the overall level would be 85 dBA, Leq which is the City's construction limit.

Per the General Plan EIR, to minimize construction noise at adjacent land uses, the following noise reduction measures should be taken when construction occurs within 500 feet of sensitive receptors:

7. Require that construction vehicles and equipment (fixed or mobile) be equipped with properly operating and maintained mufflers.
8. Restrict haul routes and construction-related traffic.
9. Place stock piling and/or vehicle-staging areas as far as practical from residential uses.
10. Replace audible backup warning devices with strobe lights or other warning devices during evening construction activity to the extent permitted by the California Division of Occupational Safety and Health.
11. Reduce nonessential idling of construction equipment to no more than five minutes.
12. Consider the installation of temporary sound barriers for construction activities that are adjacent to occupied noise-sensitive structures, depending on length of construction, type of equipment used, and proximity to noise-sensitive uses.

Noise reduction measure 6 should be considered when construction activity with multiple pieces of equipment occurs within 50 feet of a sensitive property line. Barriers should block the line-of-site to noise-sensitive structures.

With the noise reduction measures, the impact is less than significant.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (25/D_{\text{rec}})^n$$

Where: PPV_{ref} = reference PPV at 25 ft.

D_{rec} = distance from equipment to receiver in ft.

$n = 1.5$ (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 9 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 9: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013. Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.		

Table 10 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 10: Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)	0.008 in soil	66
	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
RMS velocity in decibels, VdB re 1 micro-in/sec Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, 2018.		

To avoid structural damage, bulldozers should not come within 15 feet of fragile buildings or within 8 feet of older residential structures and historic buildings. Daytime residential annoyance, defined by the FTA as 78 VdB, would occur at 50 feet from a bulldozer.

Construction activity is not anticipated to be vibration-intensive including the use of blasting, pile driving, and vibratory rollers within 200 feet of sensitive receptors. Construction activity is not expected to fall within the limits of structural damage and therefore the impact is less than significant.

9.0 References

City of Sierra Madre

- 2015 2035 General Plan
- 2021 Municipal Code Section 9.32

California Department of Transportation (Caltrans)

- 2013 Transportation and Construction Induced Vibration Guidance Manual.

Federal Transit Administration (FTA)

- 2018 Transit Noise and Vibration Impact Assessment Manual

Governor's Office of Planning and Research

- State of California General Plan Guidelines, 1998

Appendix A:
Field Measurement Data

Sound Level Meter Summary

Translated: 3-Nov-11 15:32:18
 File Translated:
 Model Number: 814
 Serial Number: A0124
 Firmware Rev: 1.026
 Software Version: 1.07
 Name:
 Descr1:
 Descr2:
 Setup: NORMAL.slm
 Setup Descr: Untitled
 Octave Filters: 1/1 Octave Filters

Location: **Sierra Madre GP update measurements**
 Note 1: **Site 4**
 Note 2:

Overall Measurement

Start Time:	1-Nov-11	12:08:05	Start Time	12:08:05
Elapsed Time:	15:01.0		Elapsed Time	15:01.0
Leq:	42.6		Leq:	42.6
SEL:	72.1		SEL:	72.1
Dose:	838		Dose:	838
Proj. Dose:	26816		Proj. Dose:	26816
Threshold:	0		Threshold:	0
Criterion:	0		Criterion:	0
Exchange Rate:	3		Exchange Rate:	3

Current Measurement

Min:	32.3		Min:	32.3	
Min Occurred:	1-Nov-11	12:22:06	Min Occurred:	1-Nov-11	12:22:06
Max:	62.7		Max:	62.7	
Max Occurred:	1-Nov-11	12:16:57	Max Occurred:	1-Nov-11	12:16:57
Peak-1:	95.4		Peak-1:	95.4	
Peak-1 Occurred:	1-Nov-11	12:10:45	Peak-1 Occurred:	1-Nov-11	12:10:45
Peak-2:	88.5		Peak-2:	88.5	
Peak-2 Occurred:	1-Nov-11	12:11:45	Peak-2 Occurred:	1-Nov-11	12:11:45

L1.00	52.2
L10.00	43.5
L25.00	40.5
L50.00	38.1
L90.00	34.0
L99.00	32.7

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	115	Exceeded:	0 times
SPL Exceedance Level 2:	120	Exceeded:	0 times
Peak-1 Exceedance Level:	140	Exceeded:	0 times
Peak-2 Exceedance Level:	140	Exceeded:	0 times
Hysteresis:	2		
Overloaded:	0		
Pause Count:	0	Pause Time:	00:00.0

Calibrated:	1-Nov-11	12:06:26	Offset:	18.3 dB
Checked:	1-Nov-11	12:06:26	Level:	93.8 dB
Calibrator:	not set		Level:	93.8
Cal Record Count:	1			

Interval Records:	Enabled	Number Interval Rec	2
Time History:	Enabled	Number History Rec	18

814 Memory:	262144	Percent Free:	75.23%
Free Memory:	197221	Source:	INT
Battery Level:	49%		

Sound Level Meter Time History

Translated: 3-Nov-11 15:36:31

File Translated:

Model Number: 814

Serial Number: A0124

Firmware Rev: 1.026

Software Version: 1.07

Name:

Descr1:

Descr2:

Setup: NORMAL.slm

Setup Descr: Untitled

Octave Filters: 1/1 Octave Filters

Location: **Sierra Madre GP update measurements**

Note 1: **Site 4**

Note 2:

Rec #	Date	Time	Leq
1	1-Nov-11	12:08:05	Run
2	1-Nov-11	12:08:05	40.9
3	1-Nov-11	12:09:05	38.4
4	1-Nov-11	12:10:05	40.9
5	1-Nov-11	12:11:05	46.9
6	1-Nov-11	12:12:05	38.2
7	1-Nov-11	12:13:05	38.4
8	1-Nov-11	12:14:05	43.1
9	1-Nov-11	12:15:05	40.3
10	1-Nov-11	12:16:05	49.9
11	1-Nov-11	12:17:05	42.0
12	1-Nov-11	12:18:05	40.3
13	1-Nov-11	12:19:05	37.9
14	1-Nov-11	12:20:05	38.8
15	1-Nov-11	12:21:05	38.1
16	1-Nov-11	12:22:05	36.1
17	1-Nov-11	12:23:05	38.0
18	1-Nov-11	12:24:05	Stop

Sound Level Meter Summary

Translated: 3-Nov-11 15:54:10
 File Translated:
 Model Number: 814
 Serial Number: A0124
 Firmware Rev: 1.026
 Software Version: 1.07
 Name:
 Descr1:
 Descr2:
 Setup: NORMAL.slm
 Setup Descr: Untitled
 Octave Filters: 1/1 Octave Filters

Location: **Sierra Madre GP update measurements**
 Note 1: **Site 5**
 Note 2:

Overall Measurement		Current Measurement	
Start Time:	1-Nov-11 12:33:13	Start Time	12:33:13
Elapsed Time:	15:49.5	Elapsed Time	15:49.5
Leq:	44.3	Leq:	44.3
SEL:	74.1	SEL:	74.1
Dose:	1328	Dose:	1328
Proj. Dose:	40448	Proj. Dose:	40448
Threshold:	0	Threshold:	0
Criterion:	0	Criterion:	0
Exchange Rate:	3	Exchange Rate:	3
Min:	34.4	Min:	34.4
Min Occurred:	1-Nov-11 12:35:37	Min Occurred:	1-Nov-11 12:35:37
Max:	59	Max:	59
Max Occurred:	1-Nov-11 12:45:52	Max Occurred:	1-Nov-11 12:45:52
Peak-1:	95.5	Peak-1:	95.5
Peak-1 Occurred:	1-Nov-11 12:37:45	Peak-1 Occurred:	1-Nov-11 12:37:45
Peak-2:	90.6	Peak-2:	90.6
Peak-2 Occurred:	1-Nov-11 12:46:44	Peak-2 Occurred:	1-Nov-11 12:46:44

L1.00 53.8
 L10.00 49.2
 L25.00 43.4
 L50.00 39.3
 L90.00 36.3
 L99.00 34.6

Detector: Slow
 Weighting: A
 SPL Exceedance Level 1: 115 Exceeded: 0 times
 SPL Exceedance Level 2: 120 Exceeded: 0 times
 Peak-1 Exceedance Level: 140 Exceeded: 0 times
 Peak-2 Exceedance Level: 140 Exceeded: 0 times
 Hysteresis: 2
 Overloaded: 0
 Pause Count: 1 Pause Time: 00:11.0

Calibrated: 1-Nov-11 12:06:26 Offset: 18.3 dB
 Checked: 1-Nov-11 12:06:26 Level: 93.8 dB
 Calibrator: not set Level: 93.8
 Cal Record Count: 0

Interval Records: Enabled Number Interval Re 2
 Time History: Enabled Number History Rec 21

814 Memory: 262144
 Free Memory: 197221 Percent Free: 75.23%
 Battery Level: 47% Source: INT

Sound Level Meter Time History

Translated: 3-Nov-11 15:56:34

File Translated:

Model Number: 814

Serial Number: A0124

Firmware Rev: 1.026

Software Version: 1.07

Name:

Descr1:

Descr2:

Setup: NORMAL.slm

Setup Descr: Untitled

Octave Filters: 1/1 Octave Filters

Location: **Sierra Madre GP update measurements**

Note 1: **Site 5**

Note 2:

Rec #	Date	Time	Leq
1	1-Nov-11	12:33:13	Run
2	1-Nov-11	12:33:13	45.6
3	1-Nov-11	12:34:13	41.8
4	1-Nov-11	12:35:13	36.5
5	1-Nov-11	12:36:13	39.3
6	1-Nov-11	12:37:13	47.5
7	1-Nov-11	12:38:13	41.3
8	1-Nov-11	12:39:13	38.6
9	1-Nov-11	12:40:13	46.0
10	1-Nov-11	12:41:13	44.5
11	1-Nov-11	12:42:13	40.1
12	1-Nov-11	12:43:13	39.2
13	1-Nov-11	12:44:13	41.8
14	1-Nov-11	12:45:13	50.0
15	1-Nov-11	12:46:13	Pause
16	1-Nov-11	12:47:13	Cont
17	1-Nov-11	12:46:03	49.3
18	1-Nov-11	12:47:03	40.1
19	1-Nov-11	12:48:03	43.9
20	1-Nov-11	12:49:03	43.8
21	1-Nov-11	12:50:03	Stop

Sound Level Meter Summary

Translated: 3-Nov-11 16:03:39
 File Translated: C:\Documents and Settings\User\My Documents\Projects\TPC\SierraMadreGP\Data\Raw\SierraMadreGP-ST_4.slm
 Model Number: 814
 Serial Number: A0124
 Firmware Rev: 1.026
 Software Version: 1.07
 Name:
 Descr1:
 Descr2:
 Setup: NORMAL.slm
 Setup Descr: Untitled
 Octave Filters: 1/1 Octave Filters

Location: Sierra Madre GP update measurements
 Note 1:
 Note 2:

Overall Measurement		Current Measurement			
Start Time:	1-Nov-11	14:31:07	Start Time	14:31:07	
Elapsed Time:	15:41.2		Elapsed Time	15:41.2	
Leq:	62.7		Leq:	62.7	
SEL:	92.4		SEL:	92.4	
Dose:	89856		Dose:	89856	
Proj. Dose:	0		Proj. Dose:	0	
Threshold:	0		Threshold:	0	
Criterion:	0		Criterion:	0	
Exchange Rate:	3		Exchange Rate:	3	
Min:	40.6		Min:	40.6	
Min Occurred:	1-Nov-11	14:34:10	Min Occurred:	1-Nov-11	14:34:10
Max:	81.3		Max:	81.3	
Max Occurred:	1-Nov-11	14:39:49	Max Occurred:	1-Nov-11	14:39:49
Peak-1:	103.5		Peak-1:	103.5	
Peak-1 Occurred:	1-Nov-11	14:39:47	Peak-1 Occurred:	1-Nov-11	14:39:47
Peak-2:	94.8		Peak-2:	94.8	
Peak-2 Occurred:	1-Nov-11	14:39:49	Peak-2 Occurred:	1-Nov-11	14:39:49
L1.00	75.8				
L10.00	64.0				
L25.00	60.6				
L50.00	56.1				
L90.00	47.4				
L99.00	41.3				

Detector: Slow
 Weighting: A
 SPL Exceedance Level 1: 115 Exceeded: 0 times
 SPL Exceedance Level 2: 120 Exceeded: 0 times
 Peak-1 Exceedance Level: 140 Exceeded: 0 times
 Peak-2 Exceedance Level: 140 Exceeded: 0 times
 Hysteresis: 2
 Overloaded: 0
 Pause Count: 0 Pause Time: 00:00.0

Calibrated: 1-Nov-11 12:06:26 Offset: 18.3 dB
 Checked: 1-Nov-11 12:06:26 Level: 93.8 dB
 Calibrator: not set Level: 93.8
 Cal Record Count: 0

Interval Records: Enabled Number Interval Re 2
 Time History: Enabled Number History Re 18

814 Memory: 262144
 Free Memory: 197221 Percent Free: 75.23%
 Battery Level: 47% Source: INT

Sound Level Meter Time History

Translated: 3-Nov-11 16:05:13

File Translated:

Model Number: 814

Serial Number: A0124

Firmware Rev: 1.026

Software Version: 1.07

Name:

Descr1:

Descr2:

Setup: NORMAL.slm

Setup Descr: Untitled

Octave Filters: 1/1 Octave Filters

Location: **Sierra Madre GP update measurements**

Note 1: **Site 6**

Note 2:

Rec #	Date	Time	Leq
1	1-Nov-11	14:31:07	Run
2	1-Nov-11	14:31:07	61.9
3	1-Nov-11	14:32:07	61.9
4	1-Nov-11	14:33:07	54.1
5	1-Nov-11	14:34:07	59.6
6	1-Nov-11	14:35:07	63.7
7	1-Nov-11	14:36:07	57.4
8	1-Nov-11	14:37:07	56.9
9	1-Nov-11	14:38:07	65.9
10	1-Nov-11	14:39:07	69.7
11	1-Nov-11	14:40:07	67.2
12	1-Nov-11	14:41:07	61.3
13	1-Nov-11	14:42:07	55.6
14	1-Nov-11	14:43:07	51.9
15	1-Nov-11	14:44:07	58.7
16	1-Nov-11	14:45:07	54.3
17	1-Nov-11	14:46:07	57.9
18	1-Nov-11	14:47:07	Stop

Sound Level Meter Summary

Translated: 3-Nov-11 16:08:14
 File Translated:
 Model Number: 814
 Serial Number: A0124
 Firmware Rev: 1.026
 Software Version: 1.07
 Name:
 Descr1:
 Descr2:
 Setup: NORMAL.slm
 Setup Descr: Untitled
 Octave Filters: 1/1 Octave Filters

Location: **Sierra Madre GP update measurements**
 Note 1: **Site 7**
 Note 2:

Overall Measurement

Start Time: 1-Nov-11 15:00:31
 Elapsed Time: 15:03.2
 Leq: 59.1
 SEL: 88.6
 Dose: 37632
 Proj. Dose: 0
 Threshold: 0
 Criterion: 0
 Exchange Rate: 3

Min: 44.9
 Min Occurred: 1-Nov-11 15:06:16
 Max: 73.9
 Max Occurred: 1-Nov-11 15:03:34
 Peak-1: 101.5
 Peak-1 Occurred: 1-Nov-11 15:02:19
 Peak-2: 91.3
 Peak-2 Occurred: 1-Nov-11 15:03:34

L1.00 67.3
 L10.00 63.4
 L25.00 59.8
 L50.00 55.2
 L90.00 48.8
 L99.00 46.2

Current Measurement

Start Time: 15:00:31
 Elapsed Time: 15:03.2
 Leq: 59.1
 SEL: 88.6
 Dose: 37632
 Proj. Dose: 0
 Threshold: 0
 Criterion: 0
 Exchange Rate: 3

Min: 44.9
 Min Occurred: 1-Nov-11 15:06:16
 Max: 73.9
 Max Occurred: 1-Nov-11 15:03:34
 Peak-1: 101.5
 Peak-1 Occurred: 1-Nov-11 15:02:19
 Peak-2: 91.3
 Peak-2 Occurred: 1-Nov-11 15:03:34

Detector: Slow
 Weighting: A

SPL Exceedance Level 1: 115
 SPL Exceedance Level 2: 120
 Peak-1 Exceedance Level: 140
 Peak-2 Exceedance Level: 140
 Hysteresis: 2
 Overloaded: 0
 Pause Count: 0

Exceeded: 0 times
 Exceeded: 0 times
 Exceeded: 0 times
 Exceeded: 0 times

Pause Time: 00:00.0

Calibrated: 1-Nov-11 12:06:26
 Checked: 1-Nov-11 12:06:26
 Calibrator: not set
 Cal Record Count: 0

Offset: 18.3 dB
 Level: 93.8 dB
 Level: 93.8

Interval Records: Enabled
 Time History: Enabled

Number Interval Recd: 2
 Number History Recd: 18

814 Memory: 262144
 Free Memory: 197221
 Battery Level: 47%

Percent Free: 75.23%
 Source: INT

Sound Level Meter Time History

Translated: 3-Nov-11 16:10:08

File Translated:

Model Number: 814

Serial Number: A0124

Firmware Rev: 1.026

Software Version: 1.07

Name:

Descr1:

Descr2:

Setup: NORMAL.slm

Setup Descr: Untitled

Octave Filters: 1/1 Octave Filters

Location: **Sierra Madre GP update measurements**

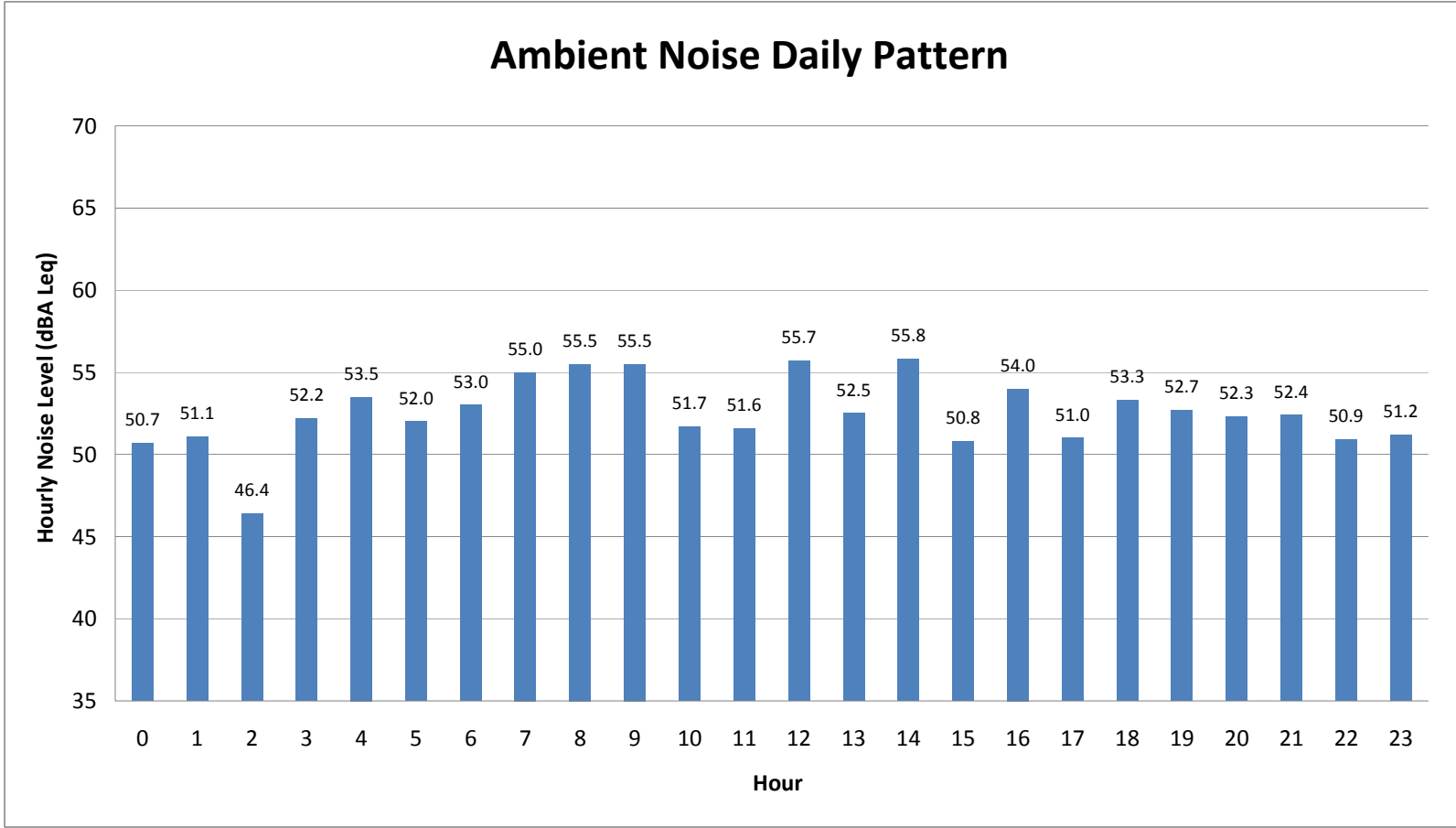
Note 1: **Site 7**

Note 2:

Rec #	Date	Time	Leq
1	1-Nov-11	15:00:31	Run
2	1-Nov-11	15:00:31	56.3
3	1-Nov-11	15:01:31	60.4
4	1-Nov-11	15:02:31	57.1
5	1-Nov-11	15:03:31	62.0
6	1-Nov-11	15:04:31	58.0
7	1-Nov-11	15:05:31	58.7
8	1-Nov-11	15:06:31	57.9
9	1-Nov-11	15:07:31	58.3
10	1-Nov-11	15:08:31	61.5
11	1-Nov-11	15:09:31	59.2
12	1-Nov-11	15:10:31	60.0
13	1-Nov-11	15:11:31	57.6
14	1-Nov-11	15:12:31	58.9
15	1-Nov-11	15:13:31	59.2
16	1-Nov-11	15:14:31	57.2
17	1-Nov-11	15:15:31	56.1
18	1-Nov-11	15:16:31	Stop

LONG TERM NOISE MEASUREMENT RESULTS

MEASUREMENT LOCATION 1



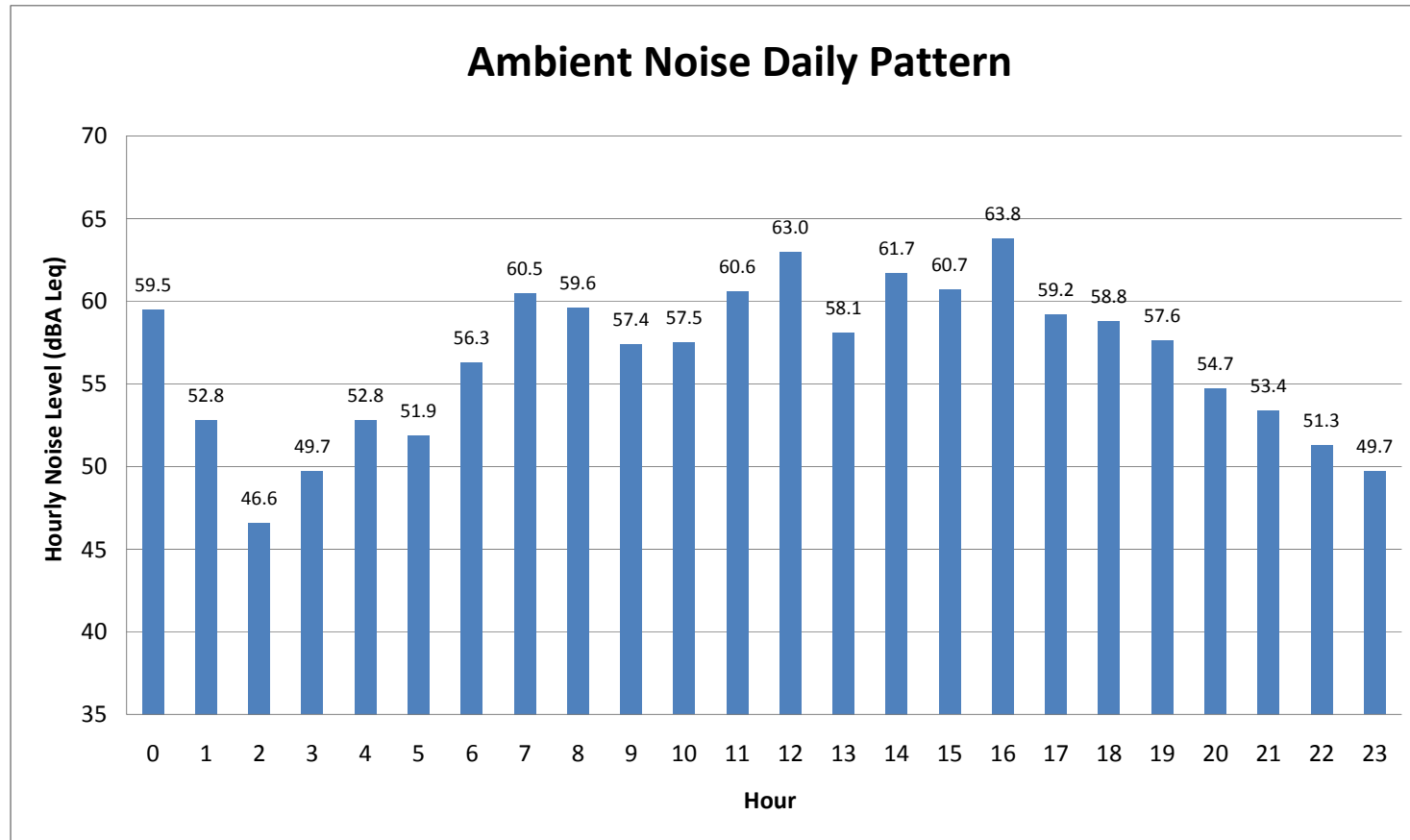
Noise Peak Hour = 2PM

Peak Hour Noise (dBA Leq)= 55.8

Community Noise Equivalent Level (CNEL) = 58.6

LONG TERM NOISE MEASUREMENT RESULTS

MEASUREMENT LOCATION 2



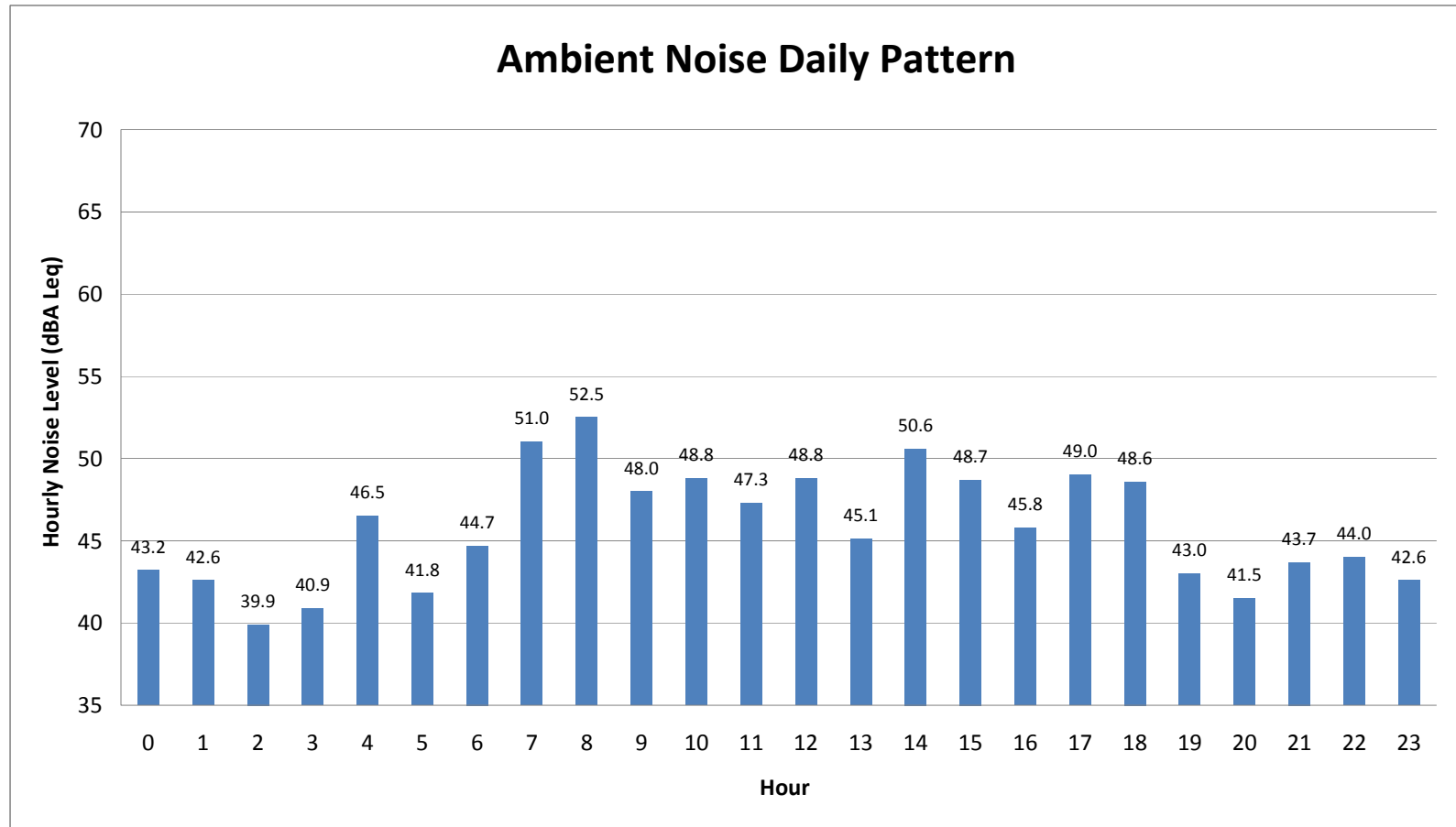
Noise Peak Hour = 4PM

Peak Hour Noise (dBA Leq)= 63.8

Community Noise Equivalent Level (CNEL) = 62.1

LONG TERM NOISE MEASUREMENT RESULTS

MEASUREMENT LOCATION 3



Noise Peak Hour = 8AM

Peak Hour Noise (dBA Leq)= 52.5

Community Noise Equivalent Level (CNEL) = 51.1

Appendix B:
Traffic FHWA Worksheets

Sierra Madre GP Update

EXISTING NO PROJECT

#	ROADWAY	SEGMENT	ADT	POSTED SPEED LIMIT	LANE DISTANCE	SITE CONDITION	LANES	GRADE (%)	
1	Michillinda Avenue	Edgeview Drive to Grandview Avenue	3,500	35	12	Soft	2U	0%	1
2	Michillinda Avenue	Grandview Avenue to Highland Avenue	6,600	35	12	Soft	2U	0%	2
3	Michillinda Avenue	Highland Avenue to Mariposa Avenue	11,100	35	12	Soft	2U	0%	3
4	Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	12,900	35	12	Soft	2U	0%	4
5	Baldwin Avenue	Grandview Avenue to Victoria Lane	3,800	30	12	Soft	2U	0%	5
6	Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	7,150	25	12	Soft	2U	0%	6
7	Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	8,100	35	12	Soft	2U	0%	7
8	Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	10,500	35	12	Soft	2U	0%	8
9	Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	3,000	30	12	Soft	2U	0%	9
10	Grandview Avenue	Sunnyside Avenue to Lima Street	4,500	30	12	Soft	2U	0%	10
11	Grandview Avenue	Lima Street to Baldwin Avenue	4,600	30	12	Soft	2U	0%	11
12	Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	3,900	30	12	Soft	2U	0%	12
13	Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	3,300	30	12	Soft	2U	0%	13
14	Grandview Avenue	Coburn Avenue to Olivera Lane	2,700	30	12	Soft	2U	0%	14
15	Grandview Avenue	Olivera Lane to Santa Anita Avenue	2,200	30	12	Soft	2U	0%	15
16	Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	8,600	30	12	Soft	2U	0%	16
17	Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	10,300	30	12	Soft	2U	0%	17
18	Sierra Madre Boulevard	Lima Street to Baldwin Avenue	9,700	30	12	Soft	2U	0%	18
19	Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	6,800	30	12	Soft	2U	0%	19
20	Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	6,200	30	12	Soft	2U	0%	20
21	Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	3,600	30	12	Soft	2U	0%	21
22	Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	6,100	35	12	Soft	2U	0%	22
23	Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	6,900	35	12	Soft	2U	0%	23
24	Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	6,000	35	12	Soft	2U	0%	24
25	Orange Grove Avenue	S Canon Avenue to Olivera Lane	4,600	35	12	Soft	2U	0%	25
26									26
27									27
28									28
29									29
30									30

GP Update

ANALYST
NJF

ROAD CLASSIFICATION	SPEED	LANE DISTANCE
2U	40	12
4U	40	36
4D	45	48
6D	45	84
2D	40	24

73.6 75.55%
13.6 13.96%
10.22 10.49%

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.42%	DAY	75.5%
% MT	1.84%	EVENING	14.0%
% HT	0.74%	NIGHT	10.5%

Source: Riverside, County of, Department of Public Health, Office of Industrial Hygiene. 2009, November. For Determining and Mitigating Traf
Riverside County Fleet Mix: Secondary, Collectors, or Smaller

Vehicle	Overall %	Day (7 AM to Evening (7 Night (10 PM to 7 AM)		
Auto	97%	73.60	13.60	10.22
Medium Truck	2%	0.90	0.04	0.90
Heavy Truck	1%	0.35	0.04	0.35
		74.85	13.68	11.47

Sierra Madre GP Update
EXISTING NO PROJECT CONDITIONS NOISE CONTOURS RESULT SUMMARY TABLE

#	ROADWAY	SEGMENT	DAILY TRAFFIC VOLUMES	NOISE LEVEL AT 50 FT. (dBA CNEL)	DISTANCE TO NOISE CONTOUR (FT.)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Michillinda Avenue	Edgeview Drive to Grandview Avenue	3,500	60.8	12	26	57
2	Michillinda Avenue	Grandview Avenue to Highland Avenue	6,600	63.6	19	40	87
3	Michillinda Avenue	Highland Avenue to Mariposa Avenue	11,100	65.9	26	57	123
4	Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	12,900	66.5	29	63	136
5	Baldwin Avenue	Grandview Avenue to Victoria Lane	3,800	59.6	10	22	47
6	Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	7,150	60.6	12	26	55
7	Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	8,100	64.5	21	46	100
8	Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	10,500	65.6	26	55	118
9	Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	3,000	58.6	9	19	40
10	Grandview Avenue	Sunnyside Avenue to Lima Street	4,500	60.4	11	25	53
11	Grandview Avenue	Lima Street to Baldwin Avenue	4,600	60.5	12	25	54
12	Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	3,900	59.8	10	22	48
13	Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	3,300	59.0	9	20	43
14	Grandview Avenue	Coburn Avenue to Olivera Lane	2,700	58.2	8	17	38
15	Grandview Avenue	Olivera Lane to Santa Anita Avenue	2,200	57.3	7	15	33
16	Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	8,600	63.2	18	38	82
17	Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	10,300	64.0	20	43	92
18	Sierra Madre Boulevard	Lima Street to Baldwin Avenue	9,700	63.7	19	41	88
19	Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	6,800	62.2	15	32	70
20	Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	6,200	61.8	14	15	33
21	Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	3,600	59.4	10	38	82
22	Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	6,100	63.3	18	43	92
23	Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	6,900	63.8	19	41	88
24	Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	6,000	63.2	18	32	70
25	Orange Grove Avenue	S Canon Avenue to Olivera Lane	4,600	62.0	15	30	66

Sierra Madre GP Update

2035 NO PROJECT

#	ROADWAY	SEGMENT	ADT	POSTED SPEED LIMIT	LANE DISTANCE	SITE CONDITION	LANES	GRADE (%)	
1	Michillinda Avenue	Edgeview Drive to Grandview Avenue	4,000	35	12	Soft	2U	0%	1
2	Michillinda Avenue	Grandview Avenue to Highland Avenue	7,500	35	12	Soft	2U	0%	2
3	Michillinda Avenue	Highland Avenue to Mariposa Avenue	12,500	35	12	Soft	2U	0%	3
4	Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	14,000	35	12	Soft	2U	0%	4
5	Baldwin Avenue	Grandview Avenue to Victoria Lane	4,000	30	12	Soft	2U	0%	5
6	Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	8,000	25	12	Soft	2U	0%	6
7	Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	9,000	35	12	Soft	2U	0%	7
8	Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	12,000	35	12	Soft	2U	0%	8
9	Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	3,500	30	12	Soft	2U	0%	9
10	Grandview Avenue	Sunnyside Avenue to Lima Street	5,000	30	12	Soft	2U	0%	10
11	Grandview Avenue	Lima Street to Baldwin Avenue	5,000	30	12	Soft	2U	0%	11
12	Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	4,500	30	12	Soft	2U	0%	12
13	Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	3,500	30	12	Soft	2U	0%	13
14	Grandview Avenue	Coburn Avenue to Olivera Lane	3,000	30	12	Soft	2U	0%	14
15	Grandview Avenue	Olivera Lane to Santa Anita Avenue	2,500	30	12	Soft	2U	0%	15
16	Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	9,500	30	12	Soft	2U	0%	16
17	Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	11,500	30	12	Soft	2U	0%	17
18	Sierra Madre Boulevard	Lima Street to Baldwin Avenue	11,000	30	12	Soft	2U	0%	18
19	Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	7,500	30	12	Soft	2U	0%	19
20	Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	7,000	30	12	Soft	2U	0%	20
21	Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	4,000	30	12	Soft	2U	0%	21
22	Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	7,000	35	12	Soft	2U	0%	22
23	Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	7,500	35	12	Soft	2U	0%	23
24	Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	6,500	35	12	Soft	2U	0%	24
25	Orange Grove Avenue	S Canon Avenue to Olivera Lane	5,000	35	12	Soft	2U	0%	25
26									26
27									27
28									28
29									29
30									30

GP Update

ANALYST
NJF

ROAD CLASSIFICATION	SPEED	LANE DISTANCE
2U	40	12
4U	40	36
4D	45	48
6D	45	84
2D	40	24

73.6 75.55%
13.6 13.96%
10.22 10.49%

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.42%	DAY	75.5%
% MT	1.84%	EVENING	14.0%
% HT	0.74%	NIGHT	10.5%

Source: Riverside, County of, Department of Public Health, Office of Industrial Hygiene. 2009, November. For Determining and Mitigating Traf
Riverside County Fleet Mix: Secondary, Collectors, or Smaller

Vehicle	Overall %	Day (7 AM to Evening (7 Night (10 PM to 7 AM)		
Auto	97%	73.60	13.60	10.22
Medium Truck	2%	0.90	0.04	0.90
Heavy Truck	1%	0.35	0.04	0.35
		74.85	13.68	11.47

Sierra Madre GP Update
2035 NO PROJECT CONDITIONS NOISE CONTOURS RESULT SUMMARY TABLE

#	ROADWAY	SEGMENT	DAILY TRAFFIC VOLUMES	NOISE LEVEL AT 50 FT. (dBA CNEL)	DISTANCE TO NOISE CONTOUR (FT.)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Michillinda Avenue	Edgeview Drive to Grandview Avenue	4,000	61.4	13	29	62
2	Michillinda Avenue	Grandview Avenue to Highland Avenue	7,500	64.2	20	44	95
3	Michillinda Avenue	Highland Avenue to Mariposa Avenue	12,500	66.4	29	62	133
4	Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	14,000	66.9	31	67	144
5	Baldwin Avenue	Grandview Avenue to Victoria Lane	4,000	59.9	11	23	49
6	Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	8,000	61.1	13	28	59
7	Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	9,000	65.0	23	50	107
8	Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	12,000	66.2	28	60	129
9	Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	3,500	59.3	10	21	45
10	Grandview Avenue	Sunnyside Avenue to Lima Street	5,000	60.8	12	26	57
11	Grandview Avenue	Lima Street to Baldwin Avenue	5,000	60.8	12	26	57
12	Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	4,500	60.4	11	25	53
13	Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	3,500	59.3	10	21	45
14	Grandview Avenue	Coburn Avenue to Olivera Lane	3,000	58.6	9	19	40
15	Grandview Avenue	Olivera Lane to Santa Anita Avenue	2,500	57.8	8	17	36
16	Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	9,500	63.6	19	40	87
17	Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	11,500	64.5	21	46	99
18	Sierra Madre Boulevard	Lima Street to Baldwin Avenue	11,000	64.3	21	45	96
19	Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	7,500	62.6	16	35	74
20	Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	7,000	62.3	15	17	36
21	Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	4,000	59.9	11	40	87
22	Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	7,000	63.9	19	46	99
23	Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	7,500	64.2	20	45	96
24	Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	6,500	63.5	19	35	74
25	Orange Grove Avenue	S Canon Avenue to Olivera Lane	5,000	62.4	16	33	71

Sierra Madre GP Update
2035 WITH PROJECT

#	ROADWAY	SEGMENT	ADT	POSTED SPEED LIMIT	LANE DISTANCE	SITE CONDITION	LANES	GRADE (%)	
1	Michillinda Avenue	Edgeview Drive to Grandview Avenue	4,000	35	12	Soft	2U	0%	1
2	Michillinda Avenue	Grandview Avenue to Highland Avenue	7,500	35	12	Soft	2U	0%	2
3	Michillinda Avenue	Highland Avenue to Mariposa Avenue	13,000	35	12	Soft	2U	0%	3
4	Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	15,000	35	12	Soft	2U	0%	4
5	Baldwin Avenue	Grandview Avenue to Victoria Lane	5,500	30	12	Soft	2U	0%	5
6	Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	10,000	25	12	Soft	2U	0%	6
7	Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	10,500	35	12	Soft	2U	0%	7
8	Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	13,000	35	12	Soft	2U	0%	8
9	Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	3,500	30	12	Soft	2U	0%	9
10	Grandview Avenue	Sunnyside Avenue to Lima Street	5,000	30	12	Soft	2U	0%	10
11	Grandview Avenue	Lima Street to Baldwin Avenue	5,000	30	12	Soft	2U	0%	11
12	Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	4,500	30	12	Soft	2U	0%	12
13	Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	4,000	30	12	Soft	2U	0%	13
14	Grandview Avenue	Coburn Avenue to Olivera Lane	3,000	30	12	Soft	2U	0%	14
15	Grandview Avenue	Olivera Lane to Santa Anita Avenue	2,500	30	12	Soft	2U	0%	15
16	Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	10,000	30	12	Soft	2U	0%	16
17	Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	12,500	30	12	Soft	2U	0%	17
18	Sierra Madre Boulevard	Lima Street to Baldwin Avenue	12,000	30	12	Soft	2U	0%	18
19	Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	8,500	30	12	Soft	2U	0%	19
20	Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	7,500	30	12	Soft	2U	0%	20
21	Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	4,500	30	12	Soft	2U	0%	21
22	Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	7,000	35	12	Soft	2U	0%	22
23	Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	8,000	35	12	Soft	2U	0%	23
24	Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	7,000	35	12	Soft	2U	0%	24
25	Orange Grove Avenue	S Canon Avenue to Olivera Lane	5,500	35	12	Soft	2U	0%	25
26									26
27									27
28									28
29									29
30									30

GP Update

ANALYST
NJF

ROAD CLASSIFICATION	SPEED	LANE DISTANCE
2U	40	12
4U	40	36
4D	45	48
6D	45	84
2D	40	24

73.6 75.55%
13.6 13.96%
10.22 10.49%

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.42%	DAY	75.5%
% MT	1.84%	EVENING	14.0%
% HT	0.74%	NIGHT	10.5%

Source: Riverside, County of, Department of Public Health, Office of Industrial Hygiene. 2009, November. For Determining and Mitigating Traf
Riverside County Fleet Mix: Secondary, Collectors, or Smaller

Vehicle	Overall %	Day (7 AM to Evening (7 Night (10 PM to 7 AM)		
Auto	97%	73.60	13.60	10.22
Medium Truck	2%	0.90	0.04	0.90
Heavy Truck	1%	0.35	0.04	0.35
		74.85	13.68	11.47

Sierra Madre GP Update
2035 WITH PROJECT CONDITIONS NOISE CONTOURS RESULT SUMMARY TABLE

#	ROADWAY	SEGMENT	DAILY TRAFFIC VOLUMES	NOISE LEVEL AT 50 FT. (dBA CNEL)	DISTANCE TO NOISE CONTOUR (FT.)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Michillinda Avenue	Edgeview Drive to Grandview Avenue	4,000	61.4	13	29	62
2	Michillinda Avenue	Grandview Avenue to Highland Avenue	7,500	64.2	20	44	95
3	Michillinda Avenue	Highland Avenue to Mariposa Avenue	13,000	66.5	29	63	137
4	Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	15,000	67.2	32	70	150
5	Baldwin Avenue	Grandview Avenue to Victoria Lane	5,500	61.2	13	28	61
6	Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	10,000	62.1	15	32	69
7	Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	10,500	65.6	26	55	118
8	Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	13,000	66.5	29	63	137
9	Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	3,500	59.3	10	21	45
10	Grandview Avenue	Sunnyside Avenue to Lima Street	5,000	60.8	12	26	57
11	Grandview Avenue	Lima Street to Baldwin Avenue	5,000	60.8	12	26	57
12	Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	4,500	60.4	11	25	53
13	Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	4,000	59.9	11	23	49
14	Grandview Avenue	Coburn Avenue to Olivera Lane	3,000	58.6	9	19	40
15	Grandview Avenue	Olivera Lane to Santa Anita Avenue	2,500	57.8	8	17	36
16	Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	10,000	63.8	19	42	90
17	Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	12,500	64.8	23	49	105
18	Sierra Madre Boulevard	Lima Street to Baldwin Avenue	12,000	64.6	22	47	102
19	Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	8,500	63.1	17	38	81
20	Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	7,500	62.6	16	17	36
21	Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	4,500	60.4	11	42	90
22	Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	7,000	63.9	19	49	105
23	Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	8,000	64.4	21	47	102
24	Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	7,000	63.9	19	38	81
25	Orange Grove Avenue	S Canon Avenue to Olivera Lane	5,500	62.8	17	35	74

Overall Project Off-Site Contributions

Roadway	Segment	CNEL at 50 feet (dBA)				
		Existing	2035 With Project	Overall Increase	Project Contribution	Potential Impact?
Michillinda Avenue	Edgeview Drive to Grandview Avenue	60.8	61.4	0.6	0.0	no
Michillinda Avenue	Grandview Avenue to Highland Avenue	63.6	64.2	0.6	0.0	no
Michillinda Avenue	Highland Avenue to Mariposa Avenue	65.9	66.5	0.7	0.1	no
Michillinda Avenue	Mariposa Avenue to Orange Grove Avenue	66.5	67.2	0.7	0.3	no
Baldwin Avenue	Grandview Avenue to Victoria Lane	59.6	61.2	1.6	1.3	no
Baldwin Avenue	Victoria Lane to Sierra Madre Boulevard	60.6	62.1	1.5	1.0	no
Baldwin Avenue	Sierra Madre Boulevard to Lowell Avenue	64.5	65.6	1.1	0.6	no
Baldwin Avenue	Lowell Avenue to Orange Grove Avenue	65.6	66.5	0.9	0.3	no
Grandview Avenue	Michillinda Avenue to Sunnyside Avenue	58.6	59.3	0.7	0.0	no
Grandview Avenue	Sunnyside Avenue to Lima Street	60.4	60.8	0.5	0.0	no
Grandview Avenue	Lima Street to Baldwin Avenue	60.5	60.8	0.4	0.0	no
Grandview Avenue	Baldwin Avenue to Mountain Trail Avenue	59.8	60.4	0.6	0.0	no
Grandview Avenue	Mountain Trail Avenue to Coburn Avenue	59.0	59.9	0.8	0.6	no
Grandview Avenue	Coburn Avenue to Olivera Lane	58.2	58.6	0.5	0.0	no
Grandview Avenue	Olivera Lane to Santa Anita Avenue	57.3	57.8	0.6	0.0	no
Sierra Madre Boulevard	Michillinda Avenue to Sunnyside Avenue	63.2	63.8	0.7	0.2	no
Sierra Madre Boulevard	Sunnyside Avenue to Lima Street	64.0	64.8	0.8	0.3	no
Sierra Madre Boulevard	Lima Street to Baldwin Avenue	63.7	64.6	0.9	0.3	no
Sierra Madre Boulevard	Baldwin Avenue to Mountain Trail Avenue	62.2	63.1	1.0	0.5	no
Sierra Madre Boulevard	Mountain Trail Avenue to Coburn Avenue	61.8	62.6	0.8	0.3	no
Sierra Madre Boulevard	Coburn Avenue to Olivera Lane	59.4	60.4	1.0	0.5	no
Orange Grove Avenue	Michillinda Avenue to Sunnyside Avenue	63.3	63.9	0.6	0.0	no
Orange Grove Avenue	Sunnyside Avenue to Baldwin Avenue	63.8	64.4	0.6	0.2	no
Orange Grove Avenue	Baldwin Avenue to S Canon Avenue	63.2	63.9	0.7	0.4	no
Orange Grove Avenue	S Canon Avenue to Olivera Lane	62.0	62.8	0.8	0.4	no

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Victoria to Sierra Madre](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 7,400
SPEED = 25
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 740

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.7	56.7	55.4	49.4	57.8	58.4
MEDIUM TRUCKS	53.1	51.1	49.8	43.8	52.2	52.8
HEAVY TRUCKS	55.3	53.3	52.0	46.0	54.4	55.0
VEHICULAR NOISE	61.1	59.1	57.8	51.7	60.2	60.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	19	60	190
LDN	5	16	52	164

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Michillinda Avenue](#)
SEGMENT: [Edgeview to Grandview](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [3,600](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [360](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.8	57.8	56.5	50.4	58.9	59.5
MEDIUM TRUCKS	52.3	50.2	48.9	42.9	51.3	52.0
HEAVY TRUCKS	53.5	51.5	50.2	44.2	52.6	53.2
VEHICULAR NOISE	61.3	59.3	58.0	51.9	60.4	61.0

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	20	63	198
LDN	5	17	54	172

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
 ROADWAY: Michillinda Avenue
 SEGMENT: Mariposa to Orange Grove
 LOCATION: Sierra Madre, CA

SCENARIO: 2021

JOB #: 0332-2021-04
 DATE: 14-Jul-21
 ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 13,300
 SPEED = 35
 PK HR % = 10
 NEAR LANE/FAR LANE DIST = 12
 ROAD ELEVATION = 0
 GRADE = 0
 PK HR VOL = 1,330

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
 DIST C/L TO WALL = 0
 RECEIVER HEIGHT = 5
 WALL DISTANCE FROM RECEIVER = 50
 PAD ELEVATION = 0
 ROADWAY VIEW: LF ANGLE -90
 RT ANGLE 90
 DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
 MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
 HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
 AMBIENT = 0
 BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.4	63.4	62.1	56.1	64.5	65.2
MEDIUM TRUCKS	57.9	55.9	54.6	48.6	57.0	57.6
HEAVY TRUCKS	59.2	57.2	55.9	49.9	58.3	58.9
VEHICULAR NOISE	66.9	64.9	63.6	57.6	66.0	66.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	23	73	232	733
LDN	20	63	201	635

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Sierra Madre to Lowell](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 8,300
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 830

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.4	61.4	60.1	54.1	62.5	63.1
MEDIUM TRUCKS	55.9	53.9	52.6	46.6	55.0	55.6
HEAVY TRUCKS	57.1	55.1	53.8	47.8	56.2	56.9
VEHICULAR NOISE	64.9	62.9	61.6	55.6	64.0	64.6

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	14	46	145	458
LDN	13	40	125	396

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Lowell to Orange Grove](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 10,800
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,080

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	64.5	62.5	61.2	55.2	63.6	64.3
MEDIUM TRUCKS	57.0	55.0	53.7	47.7	56.1	56.7
HEAVY TRUCKS	58.3	56.3	55.0	49.0	57.4	58.0
VEHICULAR NOISE	66.0	64.0	62.7	56.7	65.1	65.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	19	60	188	595
LDN	16	52	163	515

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Grandview Avenue
SEGMENT: Michillinda to Sunnyside
LOCATION: Sierra Madre, CA

SCENARIO: 2021

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 3,100
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 310

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	57.2	55.2	53.9	47.9	56.3	56.9
MEDIUM TRUCKS	50.6	48.5	47.3	41.2	49.6	50.3
HEAVY TRUCKS	52.2	50.2	48.9	42.9	51.3	52.0
VEHICULAR NOISE	59.1	57.0	55.7	49.7	58.1	58.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	4	12	38	119
LDN	3	10	33	103

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Grandview Avenue
SEGMENT: Sunnyside to Lima
LOCATION: Sierra Madre, CA

SCENARIO: 2021

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,600
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 460

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.9	56.9	55.6	49.6	58.0	58.6
MEDIUM TRUCKS	52.3	50.3	49.0	42.9	51.4	52.0
HEAVY TRUCKS	54.0	51.9	50.6	44.6	53.0	53.7
VEHICULAR NOISE	60.8	58.8	57.5	51.4	59.9	60.5

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	18	56	177
LDN	5	15	48	153

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Lima to Bladwin](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 10,000
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,000

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.3	60.3	59.0	52.9	61.4	62.0
MEDIUM TRUCKS	55.6	53.6	52.3	46.3	54.7	55.4
HEAVY TRUCKS	57.3	55.3	54.0	48.0	56.4	57.0
VEHICULAR NOISE	64.1	62.1	60.8	54.8	63.2	63.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	12	38	122	385
LDN	11	33	105	333

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Baldwin to Mountain Trail](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [7,000](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [700](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.7	58.7	57.4	51.4	59.8	60.4
MEDIUM TRUCKS	54.1	52.1	50.8	44.8	53.2	53.8
HEAVY TRUCKS	55.8	53.8	52.5	46.5	54.9	55.5
VEHICULAR NOISE	62.6	60.6	59.3	53.3	61.7	62.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	9	27	85	269
LDN	7	23	74	233

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Mountain Trail to Coburn](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 6,400
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 640

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.3	58.3	57.0	51.0	59.4	60.1
MEDIUM TRUCKS	53.7	51.7	50.4	44.4	52.8	53.4
HEAVY TRUCKS	55.4	53.4	52.1	46.1	54.5	55.1
VEHICULAR NOISE	62.2	60.2	58.9	52.9	61.3	61.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	8	25	78	246
LDN	7	21	67	213

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Lima to Bladwin](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [4,700](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [470](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.0	57.0	55.7	49.7	58.1	58.7
MEDIUM TRUCKS	52.4	50.4	49.1	43.0	51.5	52.1
HEAVY TRUCKS	54.1	52.0	50.7	44.7	53.1	53.8
VEHICULAR NOISE	60.9	58.9	57.6	51.5	60.0	60.6

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	18	57	181
LDN	5	16	49	156

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Baldwin to Mountain Trail](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [4,000](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [400](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.3	56.3	55.0	49.0	57.4	58.0
MEDIUM TRUCKS	51.7	49.7	48.4	42.3	50.8	51.4
HEAVY TRUCKS	53.4	51.3	50.0	44.0	52.4	53.1
VEHICULAR NOISE	60.2	58.2	56.9	50.8	59.3	59.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	5	15	49	154
LDN	4	13	42	133

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Mountain Trail to Coburn](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 3,400
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 340

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	57.6	55.6	54.3	48.3	56.7	57.3
MEDIUM TRUCKS	51.0	49.0	47.7	41.6	50.0	50.7
HEAVY TRUCKS	52.6	50.6	49.3	43.3	51.7	52.4
VEHICULAR NOISE	59.5	57.4	56.1	50.1	58.5	59.2

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	4	13	41	131
LDN	4	11	36	113

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Michillinda Avenue
SEGMENT: Grandview to Highland
LOCATION: Sierra Madre, CA

SCENARIO: 2021

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 6,800
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 680

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.5	60.5	59.2	53.2	61.6	62.2
MEDIUM TRUCKS	55.0	53.0	51.7	45.7	54.1	54.7
HEAVY TRUCKS	56.3	54.3	53.0	46.9	55.4	56.0
VEHICULAR NOISE	64.0	62.0	60.7	54.7	63.1	63.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	12	37	119	375
LDN	10	32	103	324

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Michillinda Avenue](#)
SEGMENT: [Highland to Mariposa](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [11,400](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [1,140](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	64.8	62.8	61.5	55.4	63.9	64.5
MEDIUM TRUCKS	57.3	55.2	54.0	47.9	56.3	57.0
HEAVY TRUCKS	58.5	56.5	55.2	49.2	57.6	58.2
VEHICULAR NOISE	66.3	64.3	63.0	56.9	65.4	66.0

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	20	63	199	629
LDN	17	54	172	544

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Baldwin Avenue
SEGMENT: Grandview to Victoria
LOCATION: Sierra Madre, CA

SCENARIO: 2021

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 3,900
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 390

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.2	56.2	54.9	48.9	57.3	57.9
MEDIUM TRUCKS	51.6	49.5	48.2	42.2	50.6	51.3
HEAVY TRUCKS	53.2	51.2	49.9	43.9	52.3	53.0
VEHICULAR NOISE	60.1	58.0	56.7	50.7	59.1	59.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	5	15	47	150
LDN	4	13	41	130

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Orange Grove Avenue](#)
SEGMENT: [Sunnyside to Lima](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 7,100
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 710

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.7	60.7	59.4	53.4	61.8	62.4
MEDIUM TRUCKS	55.2	53.2	51.9	45.9	54.3	54.9
HEAVY TRUCKS	56.5	54.4	53.1	47.1	55.5	56.2
VEHICULAR NOISE	64.2	62.2	60.9	54.9	63.3	63.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	12	39	124	391
LDN	11	34	107	339

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Orange Grove Avenue
SEGMENT: Baldwin to Mountain Trail
LOCATION: Sierra Madre, CA

SCENARIO: 2021

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 6,200
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 620

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.1	60.1	58.8	52.8	61.2	61.8
MEDIUM TRUCKS	54.6	52.6	51.3	45.3	53.7	54.3
HEAVY TRUCKS	55.9	53.9	52.6	46.5	55.0	55.6
VEHICULAR NOISE	63.6	61.6	60.3	54.3	62.7	63.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	11	34	108	342
LDN	9	30	94	296

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Orange Grove Avenue](#)
SEGMENT: [S Canon to Olivera](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [4,700](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [470](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.9	58.9	57.6	51.6	60.0	60.6
MEDIUM TRUCKS	53.4	51.4	50.1	44.1	52.5	53.1
HEAVY TRUCKS	54.7	52.7	51.4	45.3	53.8	54.4
VEHICULAR NOISE	62.4	60.4	59.1	53.1	61.5	62.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	8	26	82	259
LDN	7	22	71	224

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Coburn to Olivera](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 3,700
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 370

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.0	55.9	54.6	48.6	57.0	57.7
MEDIUM TRUCKS	51.3	49.3	48.0	42.0	50.4	51.0
HEAVY TRUCKS	53.0	51.0	49.7	43.7	52.1	52.7
VEHICULAR NOISE	59.8	57.8	56.5	50.5	58.9	59.5

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	4	14	45	142
LDN	4	12	39	123

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Sunnyside to Lima](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 10,600
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,060

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.5	60.5	59.2	53.2	61.6	62.2
MEDIUM TRUCKS	55.9	53.9	52.6	46.6	55.0	55.6
HEAVY TRUCKS	57.6	55.6	54.3	48.3	56.7	57.3
VEHICULAR NOISE	64.4	62.4	61.1	55.1	63.5	64.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	13	41	129	408
LDN	11	35	112	353

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Coburn to Olivera](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 2,800
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 280

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	56.7	54.7	53.4	47.4	55.8	56.5
MEDIUM TRUCKS	50.1	48.1	46.8	40.8	49.2	49.8
HEAVY TRUCKS	51.8	49.8	48.5	42.5	50.9	51.5
VEHICULAR NOISE	58.6	56.6	55.3	49.3	57.7	58.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	3	11	34	108
LDN	3	9	29	93

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Olivera to Santa Anita](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [2,300](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [230](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	55.9	53.9	52.6	46.6	55.0	55.6
MEDIUM TRUCKS	49.3	47.3	46.0	39.9	48.4	49.0
HEAVY TRUCKS	50.9	48.9	47.6	41.6	50.0	50.7
VEHICULAR NOISE	57.8	55.7	54.5	48.4	56.8	57.5

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	3	9	28	88
LDN	2	8	24	77

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Michillinda to Sunnyside](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [8,900](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [890](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.8	59.8	58.5	52.4	60.9	61.5
MEDIUM TRUCKS	55.1	53.1	51.8	45.8	54.2	54.9
HEAVY TRUCKS	56.8	54.8	53.5	47.5	55.9	56.5
VEHICULAR NOISE	63.6	61.6	60.3	54.3	62.7	63.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	11	34	108	342
LDN	9	30	94	296

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Orange Grove Avenue](#)
SEGMENT: [Michillinda to Sunnyside](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2021

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 6,300
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 630

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.2	60.2	58.9	52.9	61.3	61.9
MEDIUM TRUCKS	54.7	52.7	51.4	45.4	53.8	54.4
HEAVY TRUCKS	55.9	53.9	52.6	46.6	55.0	55.7
VEHICULAR NOISE	63.7	61.7	60.4	54.4	62.8	63.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	11	35	110	347
LDN	10	30	95	301

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Michillinda Avenue
SEGMENT: Edgeview to Grandview
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 3,800
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 380

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.0	58.0	56.7	50.7	59.1	59.7
MEDIUM TRUCKS	52.5	50.5	49.2	43.2	51.6	52.2
HEAVY TRUCKS	53.7	51.7	50.4	44.4	52.8	53.5
VEHICULAR NOISE	61.5	59.5	58.2	52.2	60.6	61.2

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	7	21	66	210
LDN	6	18	57	181

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Michillinda Avenue
SEGMENT: Grandview to Highland
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 7,100
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 710

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.7	60.7	59.4	53.4	61.8	62.4
MEDIUM TRUCKS	55.2	53.2	51.9	45.9	54.3	54.9
HEAVY TRUCKS	56.5	54.4	53.1	47.1	55.5	56.2
VEHICULAR NOISE	64.2	62.2	60.9	54.9	63.3	63.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	12	39	124	391
LDN	11	34	107	339

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Michillinda Avenue
SEGMENT: Highland to Mariposa
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 12,400
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,240

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.1	63.1	61.8	55.8	64.2	64.9
MEDIUM TRUCKS	57.6	55.6	54.3	48.3	56.7	57.3
HEAVY TRUCKS	58.9	56.9	55.6	49.6	58.0	58.6
VEHICULAR NOISE	66.6	64.6	63.3	57.3	65.7	66.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	22	68	216	684
LDN	19	59	187	592

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Victoria to Sierra Madre](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 9,700
SPEED = 25
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 970

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.9	57.9	56.6	50.5	59.0	59.6
MEDIUM TRUCKS	54.3	52.3	51.0	44.9	53.4	54.0
HEAVY TRUCKS	56.5	54.5	53.2	47.1	55.6	56.2
VEHICULAR NOISE	62.3	60.2	58.9	52.9	61.3	62.0

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	8	25	79	249
LDN	7	22	68	215

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Sierra Madre to Lowell](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 10,200
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,020

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	64.3	62.3	61.0	55.0	63.4	64.0
MEDIUM TRUCKS	56.8	54.8	53.5	47.4	55.9	56.5
HEAVY TRUCKS	58.0	56.0	54.7	48.7	57.1	57.7
VEHICULAR NOISE	65.8	63.8	62.5	56.5	64.9	65.5

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	18	56	178	562
LDN	15	49	154	487

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Baldwin Avenue
SEGMENT: Lowell to Orange Grove
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 12,300
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,230

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.1	63.1	61.8	55.8	64.2	64.8
MEDIUM TRUCKS	57.6	55.6	54.3	48.3	56.7	57.3
HEAVY TRUCKS	58.8	56.8	55.5	49.5	57.9	58.6
VEHICULAR NOISE	66.6	64.6	63.3	57.3	65.7	66.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	21	68	214	678
LDN	19	59	186	587

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Coburn to Olivera](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [2,900](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [290](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	56.9	54.9	53.6	47.6	56.0	56.6
MEDIUM TRUCKS	50.3	48.3	47.0	40.9	49.4	50.0
HEAVY TRUCKS	52.0	49.9	48.6	42.6	51.0	51.7
VEHICULAR NOISE	58.8	56.8	55.5	49.4	57.9	58.5

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	4	11	35	112
LDN	3	10	31	97

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Olivera to Santa Anita](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 2,400
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 240

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	56.1	54.1	52.8	46.7	55.2	55.8
MEDIUM TRUCKS	49.4	47.4	46.1	40.1	48.5	49.2
HEAVY TRUCKS	51.1	49.1	47.8	41.8	50.2	50.8
VEHICULAR NOISE	57.9	55.9	54.6	48.6	57.0	57.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	3	9	29	92
LDN	3	8	25	80

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Grandview Avenue
SEGMENT: Michillinda to Sunnyside
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 3,200
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 320

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	57.3	55.3	54.0	48.0	56.4	57.0
MEDIUM TRUCKS	50.7	48.7	47.4	41.4	49.8	50.4
HEAVY TRUCKS	52.4	50.4	49.1	43.1	51.5	52.1
VEHICULAR NOISE	59.2	57.2	55.9	49.9	58.3	58.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	4	12	39	123
LDN	3	11	34	106

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Sunnyside to Lima](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,800
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 480

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.1	57.1	55.8	49.8	58.2	58.8
MEDIUM TRUCKS	52.5	50.4	49.2	43.1	51.5	52.2
HEAVY TRUCKS	54.1	52.1	50.8	44.8	53.2	53.9
VEHICULAR NOISE	61.0	58.9	57.6	51.6	60.0	60.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	18	58	185
LDN	5	16	51	160

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Michillinda Avenue](#)
SEGMENT: [Mariposa to Orange Grove](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 14,800
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,480

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.9	63.9	62.6	56.6	65.0	65.6
MEDIUM TRUCKS	58.4	56.4	55.1	49.1	57.5	58.1
HEAVY TRUCKS	59.6	57.6	56.3	50.3	58.7	59.4
VEHICULAR NOISE	67.4	65.4	64.1	58.1	66.5	67.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	26	82	258	816
LDN	22	71	223	706

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Baldwin Avenue
SEGMENT: Grandview to Victoria
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 5,600
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 560

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.8	57.7	56.4	50.4	58.8	59.5
MEDIUM TRUCKS	53.1	51.1	49.8	43.8	52.2	52.8
HEAVY TRUCKS	54.8	52.8	51.5	45.5	53.9	54.5
VEHICULAR NOISE	61.6	59.6	58.3	52.3	60.7	61.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	7	22	68	215
LDN	6	19	59	186

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Michillinda to Sunnyside](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [9,700](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [970](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.1	60.1	58.8	52.8	61.2	61.9
MEDIUM TRUCKS	55.5	53.5	52.2	46.2	54.6	55.2
HEAVY TRUCKS	57.2	55.2	53.9	47.9	56.3	56.9
VEHICULAR NOISE	64.0	62.0	60.7	54.7	63.1	63.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	12	37	118	373
LDN	10	32	102	323

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Orange Grove Avenue
SEGMENT: Michillinda to Sunnyside
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 6,500
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 650

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.3	60.3	59.0	53.0	61.4	62.0
MEDIUM TRUCKS	54.8	52.8	51.5	45.5	53.9	54.5
HEAVY TRUCKS	56.1	54.1	52.8	46.7	55.2	55.8
VEHICULAR NOISE	63.8	61.8	60.5	54.5	62.9	63.6

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	11	36	113	358
LDN	10	31	98	310

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Sunnyside to Lima](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 12,000
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,200

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.1	61.1	59.8	53.7	62.2	62.8
MEDIUM TRUCKS	56.4	54.4	53.1	47.1	55.5	56.2
HEAVY TRUCKS	58.1	56.1	54.8	48.8	57.2	57.8
VEHICULAR NOISE	64.9	62.9	61.6	55.6	64.0	64.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	15	46	146	462
LDN	13	40	126	399

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Lima to Bladwin](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,900
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 490

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.2	57.2	55.9	49.8	58.3	58.9
MEDIUM TRUCKS	52.5	50.5	49.2	43.2	51.6	52.3
HEAVY TRUCKS	54.2	52.2	50.9	44.9	53.3	53.9
VEHICULAR NOISE	61.0	59.0	57.7	51.7	60.1	60.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	19	60	188
LDN	5	16	52	163

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Grandview Avenue
SEGMENT: Baldwin to Mountain Trail
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,200
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 420

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.5	56.5	55.2	49.2	57.6	58.2
MEDIUM TRUCKS	51.9	49.9	48.6	42.5	51.0	51.6
HEAVY TRUCKS	53.6	51.6	50.3	44.2	52.7	53.3
VEHICULAR NOISE	60.4	58.4	57.1	51.0	59.5	60.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	5	16	51	162
LDN	4	14	44	140

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Grandview Avenue
SEGMENT: Mountain Trail to Coburn
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,000
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 400

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.3	56.3	55.0	49.0	57.4	58.0
MEDIUM TRUCKS	51.7	49.7	48.4	42.3	50.8	51.4
HEAVY TRUCKS	53.4	51.3	50.0	44.0	52.4	53.1
VEHICULAR NOISE	60.2	58.2	56.9	50.8	59.3	59.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	5	15	49	154
LDN	4	13	42	133

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Orange Grove Avenue
SEGMENT: Sunnyside to Lima
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 7,900
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 790

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.2	61.2	59.9	53.9	62.3	62.9
MEDIUM TRUCKS	55.7	53.7	52.4	46.3	54.8	55.4
HEAVY TRUCKS	56.9	54.9	53.6	47.6	56.0	56.6
VEHICULAR NOISE	64.7	62.7	61.4	55.4	63.8	64.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	14	44	138	436
LDN	12	38	119	377

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Orange Grove Avenue](#)
SEGMENT: [Baldwin to Mountain Trail](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [6,900](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = 690

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.6	60.6	59.3	53.3	61.7	62.3
MEDIUM TRUCKS	55.1	53.1	51.8	45.7	54.2	54.8
HEAVY TRUCKS	56.3	54.3	53.0	47.0	55.4	56.1
VEHICULAR NOISE	64.1	62.1	60.8	54.8	63.2	63.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	12	38	120	380
LDN	10	33	104	329

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Orange Grove Avenue
SEGMENT: S Canon to Olivera
LOCATION: Sierra Madre, CA

SCENARIO: 2029

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 5,400
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 540

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.5	59.5	58.2	52.2	60.6	61.2
MEDIUM TRUCKS	54.0	52.0	50.7	44.7	53.1	53.7
HEAVY TRUCKS	55.3	53.3	52.0	45.9	54.4	55.0
VEHICULAR NOISE	63.0	61.0	59.7	53.7	62.1	62.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	9	30	94	298
LDN	8	26	81	258

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Lima to Bladwin](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 11,400
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,140

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.8	60.8	59.5	53.5	61.9	62.6
MEDIUM TRUCKS	56.2	54.2	52.9	46.9	55.3	55.9
HEAVY TRUCKS	57.9	55.9	54.6	48.6	57.0	57.6
VEHICULAR NOISE	64.7	62.7	61.4	55.4	63.8	64.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	14	44	139	438
LDN	12	38	120	379

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Baldwin to Mountain Trail](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 8,300
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 830

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.5	59.5	58.2	52.1	60.6	61.2
MEDIUM TRUCKS	54.8	52.8	51.5	45.5	53.9	54.6
HEAVY TRUCKS	56.5	54.5	53.2	47.2	55.6	56.2
VEHICULAR NOISE	63.3	61.3	60.0	54.0	62.4	63.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	10	32	101	319
LDN	9	28	87	276

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Mountain Trail to Coburn](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 7,100
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 710

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.8	58.8	57.5	51.5	59.9	60.5
MEDIUM TRUCKS	54.2	52.1	50.9	44.8	53.2	53.9
HEAVY TRUCKS	55.8	53.8	52.5	46.5	54.9	55.6
VEHICULAR NOISE	62.7	60.6	59.3	53.3	61.7	62.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	9	27	86	273
LDN	7	24	75	236

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Coburn to Olivera](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,400
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 440

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.7	56.7	55.4	49.4	57.8	58.4
MEDIUM TRUCKS	52.1	50.1	48.8	42.8	51.2	51.8
HEAVY TRUCKS	53.8	51.8	50.5	44.4	52.9	53.5
VEHICULAR NOISE	60.6	58.6	57.3	51.2	59.7	60.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	5	17	54	169
LDN	5	15	46	146

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Michillinda Avenue
SEGMENT: Edgeview to Grandview
LOCATION: Sierra Madre, CA

SCENARIO: 2029 plus Project

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 3,800
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 380

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.0	58.0	56.7	50.7	59.1	59.7
MEDIUM TRUCKS	52.5	50.5	49.2	43.2	51.6	52.2
HEAVY TRUCKS	53.7	51.7	50.4	44.4	52.8	53.5
VEHICULAR NOISE	61.5	59.5	58.2	52.2	60.6	61.2

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	7	21	66	210
LDN	6	18	57	181

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Michillinda Avenue](#)
SEGMENT: [Mariposa to Orange Grove](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [15,500](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [1,550](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	66.1	64.1	62.8	56.8	65.2	65.8
MEDIUM TRUCKS	58.6	56.6	55.3	49.3	57.7	58.3
HEAVY TRUCKS	59.9	57.8	56.5	50.5	58.9	59.6
VEHICULAR NOISE	67.6	65.6	64.3	58.3	66.7	67.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	27	85	270	855
LDN	23	74	234	740

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Grandview to Victoria](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [6,700](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [670](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.5	58.5	57.2	51.2	59.6	60.3
MEDIUM TRUCKS	53.9	51.9	50.6	44.6	53.0	53.6
HEAVY TRUCKS	55.6	53.6	52.3	46.3	54.7	55.3
VEHICULAR NOISE	62.4	60.4	59.1	53.1	61.5	62.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	8	26	81	258
LDN	7	22	71	223

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Victoria to Sierra Madre](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 11,200
SPEED = 25
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 1,120

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	60.5	58.5	57.2	51.2	59.6	60.2
MEDIUM TRUCKS	54.9	52.9	51.6	45.6	54.0	54.6
HEAVY TRUCKS	57.1	55.1	53.8	47.8	56.2	56.8
VEHICULAR NOISE	62.9	60.9	59.6	53.5	62.0	62.6

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	9	29	91	287
LDN	8	25	79	249

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Sierra Madre to Lowell](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [11,300](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [1,130](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	64.7	62.7	61.4	55.4	63.8	64.5
MEDIUM TRUCKS	57.2	55.2	53.9	47.9	56.3	56.9
HEAVY TRUCKS	58.5	56.5	55.2	49.1	57.6	58.2
VEHICULAR NOISE	66.2	64.2	62.9	56.9	65.3	66.0

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	20	62	197	623
LDN	17	54	170	539

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Baldwin Avenue](#)
SEGMENT: [Lowell to Orange Grove](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [13,000](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [1,300](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.3	63.3	62.0	56.0	64.4	65.1
MEDIUM TRUCKS	57.8	55.8	54.5	48.5	56.9	57.5
HEAVY TRUCKS	59.1	57.1	55.8	49.8	58.2	58.8
VEHICULAR NOISE	66.8	64.8	63.5	57.5	65.9	66.6

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	23	72	227	717
LDN	20	62	196	620

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Grandview Avenue
SEGMENT: Michillinda to Sunnyside
LOCATION: Sierra Madre, CA

SCENARIO: 2029 plus Project

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 3,200
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 320

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	57.3	55.3	54.0	48.0	56.4	57.0
MEDIUM TRUCKS	50.7	48.7	47.4	41.4	49.8	50.4
HEAVY TRUCKS	52.4	50.4	49.1	43.1	51.5	52.1
VEHICULAR NOISE	59.2	57.2	55.9	49.9	58.3	58.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	4	12	39	123
LDN	3	11	34	106

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Michillinda Avenue
SEGMENT: Grandview to Highland
LOCATION: Sierra Madre, CA

SCENARIO: 2029 plus Project

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 7,100
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 710

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.7	60.7	59.4	53.4	61.8	62.4
MEDIUM TRUCKS	55.2	53.2	51.9	45.9	54.3	54.9
HEAVY TRUCKS	56.5	54.4	53.1	47.1	55.5	56.2
VEHICULAR NOISE	64.2	62.2	60.9	54.9	63.3	63.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	12	39	124	391
LDN	11	34	107	339

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Michillinda Avenue](#)
SEGMENT: [Highland to Mariposa](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [12,800](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [1,280](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	65.3	63.3	62.0	55.9	64.4	65.0
MEDIUM TRUCKS	57.8	55.8	54.5	48.4	56.9	57.5
HEAVY TRUCKS	59.0	57.0	55.7	49.7	58.1	58.7
VEHICULAR NOISE	66.8	64.8	63.5	57.5	65.9	66.5

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	22	71	223	706
LDN	19	61	193	611

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Coburn to Olivera](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [2,900](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [290](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	56.9	54.9	53.6	47.6	56.0	56.6
MEDIUM TRUCKS	50.3	48.3	47.0	40.9	49.4	50.0
HEAVY TRUCKS	52.0	49.9	48.6	42.6	51.0	51.7
VEHICULAR NOISE	58.8	56.8	55.5	49.4	57.9	58.5

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	4	11	35	112
LDN	3	10	31	97

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Olivera to Santa Anita](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [2,400](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [240](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	56.1	54.1	52.8	46.7	55.2	55.8
MEDIUM TRUCKS	49.4	47.4	46.1	40.1	48.5	49.2
HEAVY TRUCKS	51.1	49.1	47.8	41.8	50.2	50.8
VEHICULAR NOISE	57.9	55.9	54.6	48.6	57.0	57.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	3	9	29	92
LDN	3	8	25	80

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Michillinda to Sunnyside](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [10,100](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [1,010](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.3	60.3	59.0	53.0	61.4	62.0
MEDIUM TRUCKS	55.7	53.7	52.4	46.4	54.8	55.4
HEAVY TRUCKS	57.4	55.4	54.1	48.0	56.5	57.1
VEHICULAR NOISE	64.2	62.2	60.9	54.9	63.3	63.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	12	39	123	388
LDN	11	34	106	336

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Sunnyside to Lima](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [12,700](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [1,270](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.3	61.3	60.0	54.0	62.4	63.0
MEDIUM TRUCKS	56.7	54.7	53.4	47.4	55.8	56.4
HEAVY TRUCKS	58.4	56.4	55.1	49.0	57.5	58.1
VEHICULAR NOISE	65.2	63.2	61.9	55.9	64.3	64.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	15	49	154	488
LDN	13	42	134	423

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Sunnyside to Lima](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,800
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 480

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.1	57.1	55.8	49.8	58.2	58.8
MEDIUM TRUCKS	52.5	50.4	49.2	43.1	51.5	52.2
HEAVY TRUCKS	54.1	52.1	50.8	44.8	53.2	53.9
VEHICULAR NOISE	61.0	58.9	57.6	51.6	60.0	60.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	18	58	185
LDN	5	16	51	160

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Lima to Bladwin](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,900
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 490

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.2	57.2	55.9	49.8	58.3	58.9
MEDIUM TRUCKS	52.5	50.5	49.2	43.2	51.6	52.3
HEAVY TRUCKS	54.2	52.2	50.9	44.9	53.3	53.9
VEHICULAR NOISE	61.0	59.0	57.7	51.7	60.1	60.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	19	60	188
LDN	5	16	52	163

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Baldwin to Mountain Trail](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [4,200](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [420](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.5	56.5	55.2	49.2	57.6	58.2
MEDIUM TRUCKS	51.9	49.9	48.6	42.5	51.0	51.6
HEAVY TRUCKS	53.6	51.6	50.3	44.2	52.7	53.3
VEHICULAR NOISE	60.4	58.4	57.1	51.0	59.5	60.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	5	16	51	162
LDN	4	14	44	140

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Grandview Avenue](#)
SEGMENT: [Mountain Trail to Coburn](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [4,400](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [440](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	58.7	56.7	55.4	49.4	57.8	58.4
MEDIUM TRUCKS	52.1	50.1	48.8	42.8	51.2	51.8
HEAVY TRUCKS	53.8	51.8	50.5	44.4	52.9	53.5
VEHICULAR NOISE	60.6	58.6	57.3	51.2	59.7	60.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	5	17	54	169
LDN	5	15	46	146

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Coburn to Olivera](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [4,800](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [480](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.1	57.1	55.8	49.8	58.2	58.8
MEDIUM TRUCKS	52.5	50.4	49.2	43.1	51.5	52.2
HEAVY TRUCKS	54.1	52.1	50.8	44.8	53.2	53.9
VEHICULAR NOISE	61.0	58.9	57.6	51.6	60.0	60.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	6	18	58	185
LDN	5	16	51	160

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Sierra Madre Housing Update
ROADWAY: Orange Grove Avenue
SEGMENT: Michillinda to Sunnyside
LOCATION: Sierra Madre, CA

SCENARIO: 2029 plus Project

JOB #: 0332-2021-04
DATE: 14-Jul-21
ENGINEER: C Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 6,500
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 650

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.3	60.3	59.0	53.0	61.4	62.0
MEDIUM TRUCKS	54.8	52.8	51.5	45.5	53.9	54.5
HEAVY TRUCKS	56.1	54.1	52.8	46.7	55.2	55.8
VEHICULAR NOISE	63.8	61.8	60.5	54.5	62.9	63.6

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	11	36	113	358
LDN	10	31	98	310

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Orange Grove Avenue](#)
SEGMENT: [Sunnyside to Lima](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029 plus Project

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 8,300
SPEED = 35
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 830

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.4	61.4	60.1	54.1	62.5	63.1
MEDIUM TRUCKS	55.9	53.9	52.6	46.6	55.0	55.6
HEAVY TRUCKS	57.1	55.1	53.8	47.8	56.2	56.9
VEHICULAR NOISE	64.9	62.9	61.6	55.6	64.0	64.6

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	14	46	145	458
LDN	13	40	125	396

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Orange Grove Avenue](#)
SEGMENT: [Baldwin to Mountain Trail](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [7,300](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [730](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	62.8	60.8	59.5	53.5	61.9	62.6
MEDIUM TRUCKS	55.3	53.3	52.0	46.0	54.4	55.0
HEAVY TRUCKS	56.6	54.6	53.3	47.2	55.7	56.3
VEHICULAR NOISE	64.3	62.3	61.0	55.0	63.4	64.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	13	40	127	402
LDN	11	35	110	348

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Orange Grove Avenue](#)
SEGMENT: [S Canon to Olivera](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [5,800](#)
SPEED = [35](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [580](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.8	59.8	58.5	52.5	60.9	61.6
MEDIUM TRUCKS	54.3	52.3	51.0	45.0	53.4	54.0
HEAVY TRUCKS	55.6	53.6	52.3	46.3	54.7	55.3
VEHICULAR NOISE	63.3	61.3	60.0	54.0	62.4	63.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	10	32	101	320
LDN	9	28	88	277

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Lima to Bladwin](#)
LOCATION: [Sierra Madre, CA](#)

JOB #: [0332-2021-04](#)
DATE: [14-Jul-21](#)
ENGINEER: [C Pincock](#)

SCENARIO: 2029 plus Project

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = [12,100](#)
SPEED = [30](#)
PK HR % = [10](#)
NEAR LANE/FAR LANE DIST = [12](#)
ROAD ELEVATION = [0](#)
GRADE = [0](#)
PK HR VOL = [1,210](#)

RECEIVER INPUT DATA

RECEIVER DISTANCE = [50](#)
DIST C/L TO WALL = [0](#)
RECEIVER HEIGHT = [5](#)
WALL DISTANCE FROM RECEIVER = [50](#)
PAD ELEVATION = [0](#)
ROADWAY VIEW: LF ANGLE [-90](#)
RT ANGLE [90](#)
DF ANGLE [180](#)

SITE CONDITIONS

AUTOMOBILES [10](#)
MED TRUCKS [10](#) (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS [10](#)

WALL INFORMATION

HTH WALL = [0](#) FT
AMBIENT = [0](#)
BARRIER = [0](#) (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.1	61.1	59.8	53.8	62.2	62.8
MEDIUM TRUCKS	56.5	54.5	53.2	47.1	55.6	56.2
HEAVY TRUCKS	58.2	56.1	54.8	48.8	57.2	57.9
VEHICULAR NOISE	65.0	63.0	61.7	55.6	64.1	64.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	15	47	147	465
LDN	13	40	127	403

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Baldwin to Mountain Trail](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029 plus Project

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 9,000
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 900

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.8	59.8	58.5	52.5	60.9	61.5
MEDIUM TRUCKS	55.2	53.2	51.9	45.9	54.3	54.9
HEAVY TRUCKS	56.9	54.9	53.6	47.5	56.0	56.6
VEHICULAR NOISE	63.7	61.7	60.4	54.4	62.8	63.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	11	35	109	346
LDN	9	30	95	300

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: [Sierra Madre Housing Update](#)
ROADWAY: [Sierra Madre Boulevard](#)
SEGMENT: [Mountain Trail to Coburn](#)
LOCATION: [Sierra Madre, CA](#)

SCENARIO: 2029 plus Project

JOB #: [0332-2021-04](#)
DATE: 14-Jul-21
ENGINEER: [C Pincock](#)

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 7,500
SPEED = 30
PK HR % = 10
NEAR LANE/FAR LANE DIST = 12
ROAD ELEVATION = 0
GRADE = 0
PK HR VOL = 750

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
DIST C/L TO WALL = 0
RECEIVER HEIGHT = 5
WALL DISTANCE FROM RECEIVER = 50
PAD ELEVATION = 0
ROADWAY VIEW: LF ANGLE -90
RT ANGLE 90
DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 10
MED TRUCKS 10 (HARD SITE=10, SOFT SITE=15)
HVY TRUCKS 10

WALL INFORMATION

HTH WALL = 0 FT
AMBIENT = 0
BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.755	0.140	0.105	0.018
HEAVY TRUCKS	0.755	0.140	0.105	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.0	59.0	57.7	51.7	60.1	60.7
MEDIUM TRUCKS	54.4	52.4	51.1	45.1	53.5	54.1
HEAVY TRUCKS	56.1	54.1	52.8	46.8	55.2	55.8
VEHICULAR NOISE	62.9	60.9	59.6	53.6	62.0	62.6

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	9	29	91	288
LDN	8	25	79	250

Appendix E

Transportation Report

DRAFT

**TRANSPORTATION IMPACT STUDY
FOR THE
CITY OF SIERRA MADRE
GENERAL PLAN UPDATE**

SIERRA MADRE, CALIFORNIA

JULY 2021

PREPARED FOR
ECOTIERRA CONSULTING

PREPARED BY



DRAFT

**TRANSPORTATION IMPACT STUDY
FOR THE
CITY OF SIERRA MADRE
GENERAL PLAN UPDATE
SIERRA MADRE, CALIFORNIA**

July 2021

Prepared for:

ECOTIERRA CONSULTING

Prepared by:

GIBSON TRANSPORTATION CONSULTING, INC.

555 W. 5th Street, Suite 3375
Los Angeles, California 90013
(213) 683-0088

Ref: J1898

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Chapter 1

Introduction

This study presents the transportation impact analysis for the General Plan Update for the City of Sierra Madre (City). The methodology and base assumptions used in the analysis were established in conjunction with City staff.

GENERAL PLAN UPDATE DESCRIPTION

The General Plan Update includes zoning revisions to 10 sites within the City that will allow for increasing density of housing developments or additional housing developments so the City can meet its Regional Housing Needs Allocation (RHNA) goals of 204 additional dwelling units provided throughout the City. One of the sites included in this study (Stonegate) has already been approved and another (Meadows) is currently in the approval process, but both have been included to provide a comprehensive analysis.

The 10 sites being updated in the General Plan and included in this analysis are spread throughout the City and are shown in Figure 1:

- Site 1 consists of nine contiguous parcels located at the northeast corner of South Lima Street & Mariposa Avenue
- Site 2 consists of nine contiguous parcels located at southeast corner of South Baldwin Avenue & Suffolk Avenue
- Site 3 is one parcel located at 491 West Sierra Madre Boulevard
- Site 4 consists of one parcel located at 2215 North Baldwin Avenue
- Site A is St. Rita Catholic Church & School, consisting of four parcels at the northeast corner of North Baldwin Avenue & West Grand View Avenue

-
- Site B is United Methodist Church located at 695 West Sierra Madre Boulevard
 - Site C is Old North Church, consisting of five parcels at the northeast corner of South Hermosa Avenue & West Sierra Madre Boulevard
 - Site D is Bethany Church & School, consisting of nine parcels located between South Baldwin Avenue, Auburn Avenue, Highland Avenue, and Montecito Avenue
 - Stonegate site is the One Carter property
 - Meadows site is the Mater Dolorosa property

The General Plan creates a framework for future development within the City. For the purposes of California Environmental Quality Act (CEQA) analysis, Table 1 summarizes the potential residential zoning and unit count summary of the General Plan. Sites 1-4 include existing market-rate residential developments that can be modified or replaced to provide additional units above the current supply. Combining Sites 1-4 would allow a total of 146 units, an increase of 90 units from the existing supply of 56 units. Sites A-D are existing churches that have agreed to accommodate affordable housing projects within their current site boundaries. Each site will be allowed to build 32-35 dwelling units per acre provided that at least 50% of those units are affordable housing. Between the four church properties, a total of 121 dwelling units could be provided, with approximately 60 of those units being affordable housing. The Stonegate site has already been approved and consists of a completed subdivision of the One Carter property to include 27 residential lots and two undevelopable lots. The Meadows site is currently in the approval process and is a planned subdivision of the lower 20 acres of the existing Mater Dolorosa property into 42 residential lots and a City park.

In total, the General Plan Update allows for the development of up to 280 additional dwelling units with the inclusion of the Stonegate and Meadows sites. Without those two sites, up to 211 units can be added to the City's residential supply. With or without the Stonegate and Meadows sites, the City would meet its RHNA housing requirement of 204 additional dwelling units.

Of the possible development scenarios for the City, including all 10 sites with 280 potential units represents the most intense yet feasible buildout and, therefore, is considered the maximum development capacity for analysis purposes.

ANALYSIS METHODOLOGY

The scope of analysis for this study was developed in consultation with the City and is in compliance with the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 and following). The base assumptions and methodologies were identified as part of the study approach and discussed with and approved by City staff.

This study presents an analysis of potential CEQA-related transportation impacts and details the consistency of the proposed development sites with adopted City plans and policies and the improvements, if necessary, associated with the results of a vehicle miles traveled (VMT) analysis compliant with State requirements under *State of California Senate Bill 743* (Steinberg, 2013) (SB 743). SB 743 required the Governor's Office of Planning and Research to change the CEQA Guidelines regarding the analysis of transportation impacts. Under SB 743, the focus of transportation analysis shifted from vehicular delay (level of service [LOS]) to VMT, with the intent of reducing greenhouse gas (GHG) emissions, creating multimodal networks, and promoting mixed-use developments.


Per the CEQA Guidelines, the CEQA transportation analysis contains the following thresholds for identifying significant impacts:

- Conflicting with Plans, Programs, Ordinances, or Policies
- Causing Substantial VMT
- Substantially Inducing Additional Automobile Travel Analysis
- Substantially Increasing Hazards Due to a Geometric Design Feature or Incompatible Use
- Resulting in Inadequate Emergency Access.

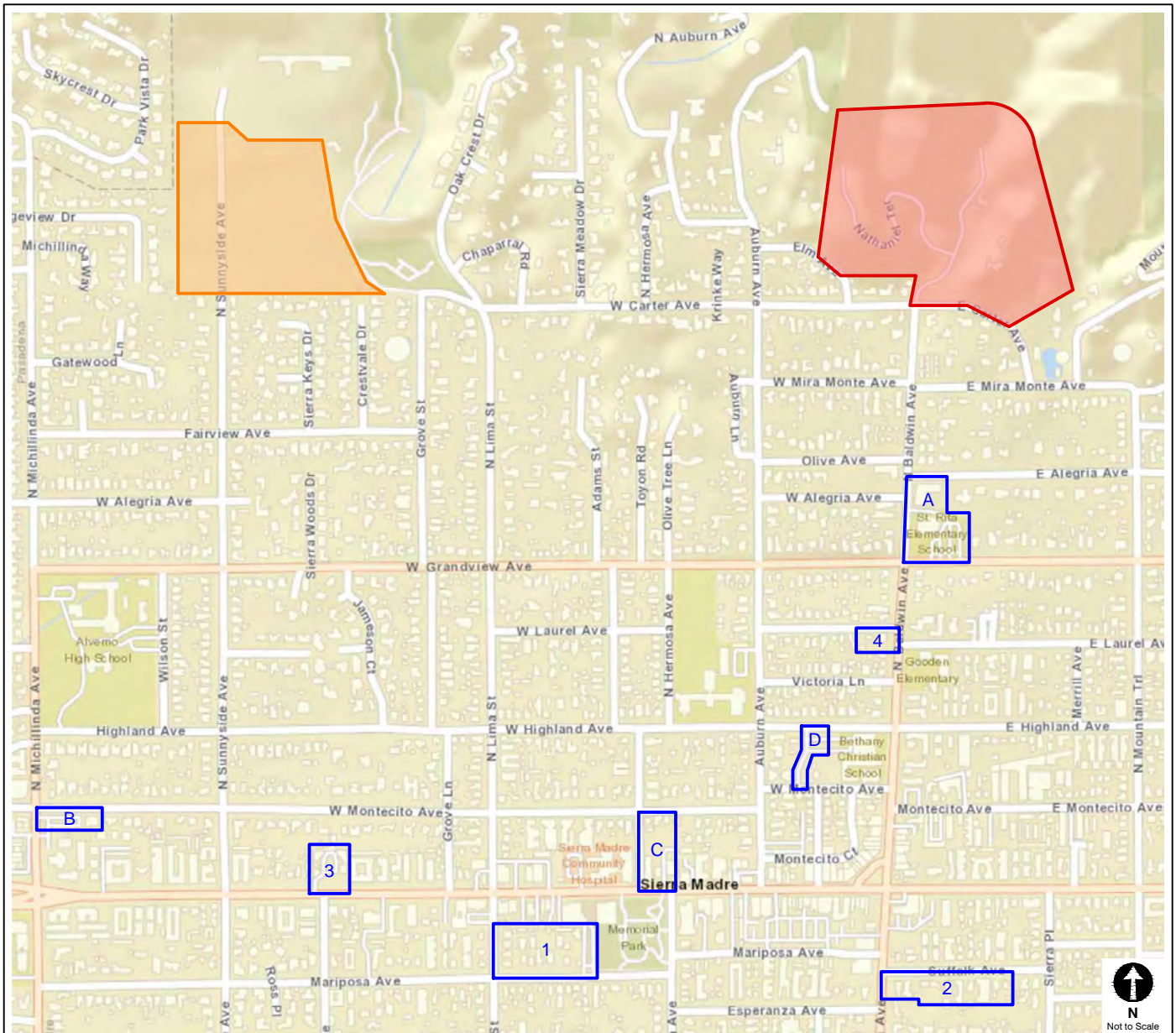
These thresholds were reviewed and analyzed, as detailed in the following chapters.

ORGANIZATION OF REPORT

This report is divided into six chapters, including this Introduction. Chapters 2-5 include the General Plan's CEQA-required transportation analysis. Chapter 6 provides a summary of the



report findings. The Appendices contain supporting documentation and additional details of the technical analyses.



LEGEND

#

Site

Meadows Subdivision

Stonegate Subdivision

Site 1

261 Mariposa Ave
271 Mariposa Ave
293 Mariposa Ave
297 Mariposa Ave
307 Mariposa Ave
313 Mariposa Ave
30 Lima St
46 Lima St
54 Lima St

Site 2

80 Baldwin Ave
18 Suffolk Ave
30 Suffolk Ave
40 Suffolk Ave
56, 58 Suffolk Ave
62, 64, 66 Suffolk Ave
68 Suffolk Ave
90 Suffolk Ave
92, 100 Suffolk Ave

Site 3

491 W Sierra Madre Blvd

Site 4

215 N Baldwin Ave

Site A

St. Rita Catholic Church & School
318 N Baldwin Ave
34 E Alegria Ave
50 E Alegria Ave

Site B

United Methodist Church
695 W Sierra Madre Blvd

Site C

Old North Church
191 W Sierra Madre Blvd
201 W Sierra Madre Blvd
34 N Hermosa Ave
40 N Hermosa Ave

Site D

Bethany Church & School
93 N Baldwin Ave
41 W Montecito Ave
49 W Montecito Ave
65 W Montecito Ave
71 W Montecito Ave
70 W Highland Ave
56 W Highland Ave
42 W Highland Ave

GENERAL PLAN UPDATE SITES

FIGURE
1

TABLE 1
SIERRA MADRE GENERAL PLAN UPDATE
RESIDENTIAL ZONING AND UNIT COUNT SUMMARY

Map ID	Acres	Existing Residential		Proposed Residential			Net Increase from Provided
		Zoning	Total Provided	Zoning	Rate	Total Allowed	
1	2.44	Res High Density	25	Res High Density	30-34 du / 1 acre	73	48
2	2.81	Res High Density	13	Res High Density	20-24 du / 1 acre	40	27
3	0.92	Res High Density	17	Res High Density	30-34 du / 1 acre	27	10
4	0.34	Res High Density	1	Res High Density	20-24 du / 1 acre	6	5
A ¹	0.71	Institutional	0	Affordable Overlay	32-35 du / 1 acre	30	30
B ¹	0.65	Institutional	0	Affordable Overlay	32-35 du / 1 acre	28	28
C ¹	0.53	Institutional	0	Affordable Overlay	32-35 du / 1 acre	23	23
D ¹	0.93	Institutional	0	Affordable Overlay	32-35 du / 1 acre	40	40
Meadows ²	20	Institutional	0	Res Low Density	2.5 du / 1 acre	42	42
Stonegate ³	32	Hillside	0	Res Low Density	0.85 du / 1 acre	27	27

Notes:

¹Sites A-D include the addition of an overlay zone, existing uses will be maintained.

²The lower 20 acres of the 88-acre Mater Dolorosa Passionist Retreat Center is being proposed for development with 42 detached single-family dwellings and a 3 to 3.5 acre dedicated neighborhood park.

³The One Carter hillside property at the northern terminus of North Baldwin Avenue has been subdivided into 27 residential lots and two undevelopable lots.
du - dwelling unit.

Chapter 2

Plans, Programs, Ordinances, and Policies Analysis

The CEQA Guidelines state that a project would result in an impact if it conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities.

PLANS, PROGRAMS, ORDINANCES, AND POLICIES

Per the CEQA Guidelines, a project that generally conforms with and does not obstruct the City development policies and standards will generally be considered to be consistent with and not in conflict with City plans, programs, ordinances, or policies. As discussed below, the identified development sites are consistent with and do not conflict with the City plans, policies, programs, ordinances, and standards; therefore, the development of these specific sites would not result in significant impacts. Detailed discussion of the plans, programs, ordinances, or policies related to the proposed residential land use changes is provided below.

General Plan – Land Use Element

The Land Use Element of the City's General Plan establishes the following three goals that define the City transportation policies in relation to land uses:

- 1. A balanced transportation system which accommodates all modes of travel including automobiles, pedestrians, bicycles, and transit users*
- 2. Safe and well-maintained streets*
- 3. Preservation of quiet neighborhoods with limited thru traffic*

The sites proposed for development as part of the General Plan Update would be constructed on existing parcels and not require widened or narrowed streets, nor reductions in the current pedestrian, transit, and bicycle facilities provided. The design of each site would not preclude the installation of sidewalk enhancements to further improve the pedestrian experience along the perimeter of each Project Site. The sidewalks and street half-widths will be constructed, upgraded, or maintained to meet their General Plan requirements. The sites all consist of residential developments and will not contribute to increases in non-local traffic.

Thus, the proposed development sites would be consistent with the goals of the Land Use Element of the General Plan.

General Plan – Community Services Element

The Community Services Element of the General Plan provides for the following goal that defines the City transportation policies in relation to community services:

- A quality transportation service available to a wide demographic in the community.

The proposed development sites would not preclude the installation of transit systems or support facilities. Further, the potential population increase associated with the increase in housing may make additional or more frequent transit services more viable without overwhelming system capacity.

Likewise, the proposed residential increases would not preclude the further maintenance and development of the pedestrian and bicycle systems in the City, nor would the amount of new development exceed the capacity of the existing/proposed systems.

Thus, the Project would be consistent with the goals of the Community Services Element of the General Plan.

Sidewalk Master Plan

The City is currently developing a sidewalk master plan that has not been released or adopted at the time of this study. As each development site has yet to be designed, and the sidewalk master plan is not yet available for review, a complete evaluation of the added development effects on the plan is not possible. However, each site, at the time of future development, should be designed to provide an internal pedestrian circulation system that connects with the City's sidewalk system and replaces any missing sidewalks adjacent to the sites to maintain contiguous and accessible paths. In this way, the development of the sites would support feasible sidewalk master plan elements once that plan is implemented.

Thus, the Project would be consistent with the goals of a future sidewalk master plan.

Sierra Madre Municipal Code (SMMC) Section 17.28.100

SMMC Section 17.28.100 details the vehicle parking requirements for medium/high density residential developments. Each site will provide the required amount of parking; thus, each site would be consistent with SMMC.

CUMULATIVE ANALYSIS

The General Plan Update is consistent with the City plans and policies listed above; therefore, it would not result in a significant impact under the Conflicting with Plans, Programs, Ordinances, or Policies Analysis.

In addition to potential specific impacts of the residential development included in the General Plan Update, the CEQA Guidelines require that all projects be reviewed in combination with nearby Related Projects to determine if there may be a cumulatively significant impact resulting from inconsistency with a particular program, plan, policy, or ordinance. The General Plan Update, along with Related Projects within the Study Area, would not result in a cumulative impact that

would preclude the City from serving the transportation needs as defined in its adopted programs, plans, ordinances, or policies.

Each related project considered for development in the City would be separately reviewed and approved by the City, including a check for their consistency with applicable policies. Therefore, the General Plan Update, together with any related project, would not create inconsistencies nor result in cumulative impacts with respect to the identified programs, plans, policies, and ordinances.

Chapter 3

VMT Analysis

This section presents the results of an analysis of CEQA-related transportation impacts pertaining to the potential increases in VMT due to the increase of residential units at the proposed development sites. The analysis satisfies State requirements under SB 743.

METHODOLOGY

SB 743, made effective in January 2014 and required to be adopted by every California jurisdiction by July 1, 2020, required the Governor's Office of Planning and Research to change the CEQA guidelines regarding the analysis of transportation impacts. Under SB 743, the focus of transportation analysis shifted from driver delay (i.e., LOS) to VMT. The goals of this change were to reduce GHG emissions, create multimodal networks, and promote mixed-use developments.

The City Council approved VMT significance criteria, provided in Appendix A, on June 9, 2020. As this study represents a General Plan update, the most appropriate methodology is to analyze each development site as an independent land use program using the following impact criteria:

1. Project Impact: A significant impact would occur if the VMT rate for the plan would exceed a level of 15% below the applicable baseline VMT rate.
2. Cumulative Project Effect: A significant impact would occur if the project increased total regional VMT compared to cumulative without project conditions.

The VMT analysis presented below was conducted for the development sites in accordance with the City VMT Thresholds using the San Gabriel Valley Coalition of Governments (SGVCOG) *SGVCOG VMT Evaluation Tool* (October 2020) (VMT Calculator), which satisfies State analysis requirements under SB 743.

The vehicle trips and VMT were calculated based on the VMT Calculator methodology, as detailed in *SGVCOG VMT Tool: Quick Start Guide* (SGVCOG, August 2020) (VMT User Guide), which states that the VMT Calculator was developed to “estimate project-generated VMT for certain types of land use projects in the San Gabriel Valley and calculate VMT reductions associated with certain VMT-reducing measures.” The four primary land uses incorporated into the VMT Calculator are residential, office, industrial, and commercial uses. For each land use, the VMT Calculator generates Home-Based VMT per capita and Home-Based VMT per worker for developments within the San Gabriel Valley, which are based on the following types of one-way trips:

- Home-Based Work Production: origin trips from a residential use to a workplace destination
- Home-Based Other Production: origin trips from a residential use to a non-workplace destination (e.g., retail, restaurant, etc.)
- Home-Based Work Attraction: destination trips to a workplace originating from a residential use

As detailed in the VMT User Guide, the Total VMT per Service Population threshold applies to all trips.

As shown in Appendix B, the Total VMT per Service Population target for the various sites is 15% below the Baseline Area average of 35.46 VMT per service population, or a target of 30.14.

Neighborhood Place Types (NPT)

The SGVCOG developed NPT categories to determine the magnitude of VMT and vehicle trip reductions that could be achieved through Transportation Demand Management (TDM) strategies. As detailed in *SGVCOG VMT Reduction Calculations* (Fehr & Peers, August 2020), the development of the NPT considered the population density, land use, and general accessibility and access to transit of each census tract in the San Gabriel Valley. The NPTs are categorized as follows:

-
1. *Central City Urban: Very high density, excellent accessibility, high public transit access, low single-family homes, older high-value housing stock*
 2. *Urban High Transit Use: High density, good accessibility, high public transit access, low single-family homes, middle-aged and older housing stock*
 3. *Urban Low Transit Use: Good accessibility, low vacancy, middle-aged housing stock*
 4. *Suburb with Multifamily Housing: Average on most indicators, low single-family homes, and relatively lower housing values*
 5. *Suburb with Single-Family Homes: Low density and accessibility, low vacancy, high newer single-family homes, and relatively higher housing values*
 6. *Rural in Urbanized Area: Slightly better accessibility than the truly “rural” tracts, more likely to have multifamily housing*
 7. *Rural: Very low access, high vacancy, high newer single-family homes with lower housing values (mainly outside population centers of any kind)*

The VMT Calculator determines a project's NPT based on the project parcel address. Sites 1-4 and B-D are in NPT 1 and Site A is in NPT 5.

Trip Lengths

The VMT Calculator determines a project's VMT based on trip length information from the Southern California Association of Governments (SCAG) Regional Transportation Plan travel demand forecasting model (RTP Model). The RTP Model considers the traffic analysis zones within a certain distance of a project to determine the trip lengths and trip types that factor into the calculation of a project's VMT.

Population and Employment Assumptions

As previously stated, the VMT thresholds are based on Total VMT per Service Population. Thus, the VMT Calculator contains population assumptions developed based on census data for the City and employment assumptions derived from multiple data sources, including the RTP Model,

the SCAG transportation analysis model, and the California Department of Transportation's California Household Travel Survey.

VTM Reduction Strategies

Additionally, the VMT Calculator measures the reduction in VMT resulting from a project's incorporation of VMT reduction strategies as project design features (PDFs) or mitigation measures. The following four tiers of VMT reduction strategies are included in the VMT Calculator:

1. Project Characteristics
2. Multimodal Infrastructure
3. Parking
4. TDM Programs

VTM reduction strategies within each of these categories have been empirically demonstrated to reduce trip-making or mode choice in such a way as to reduce VMT, as documented in *Quantifying Greenhouse Gas Mitigation Measures* (California Air Pollution Control Officers Association, 2010).

SITE VMT ANALYSIS

The VMT Calculator was used to evaluate each site's VMT for comparison to the VMT impact criteria. The VMT Calculator utilized each site's land uses and its respective size, including the maximum allowable dwelling units, as the primary input.

The VMT analysis results based on the VMT Calculator are summarized in Table 2. Detailed output from the VMT Calculator is provided in Appendix B.

Site VMT, Prior to Mitigation

As shown in Table 2 and Appendix B, the VMT Calculator estimates that the sites without the development of the allowed increase in housing would generate an average Total VMT per Service Population of 33.80 for Sites 1-4 and B-D and 30.84 for Site A and the Meadows and Stonegate sites, all of which exceed the SGVCOG significant VMT impact threshold of 30.14. Thus, without the consideration of any PDFs or TDM strategies, all 10 sites would result in significant VMT impacts.

PDFs Added to Sites

The addition of PDF measures would reduce the VMT impacts of each site. The available PDF strategies are listed as Tier 1-3 improvements in Table 2.

Sites 1 Through 4. Also shown in Table 2 and Appendix B, Sites 1 through 4 incorporate design features that would reduce the VMT of the existing sites, including:

- An increase in residential density and diversity, categorized under Tier 1 Project Characteristics of VMT reduction strategies
- On-site traffic calming and pedestrian network improvements, categorized under Tier 2 Project Characteristics of VMT reduction strategies
- The provision of bicycle parking and end-of-trip facilities, categorized under Tier 3 Project Characteristics of VMT reduction strategies.

With the development of the sites and application of the above PDFs, the sites would generate an average Total VMT per Service Population between 32.23 and 33.72, which exceeds the SGVCOG significant VMT impact threshold of 30.14. Therefore, mitigation measures would be required to further reduce Total VMT per Service Population.

Sites A Through D. Sites A through D, as shown in Table 2 and Appendix B, incorporate similar PDFs that would reduce the VMT of the existing sites, including:

-
- An increase in residential density and diversity, as well as affordable housing requirements, categorized under Tier 1 Project Characteristics of VMT reduction strategies
 - On-site traffic calming and pedestrian network improvements, categorized under Tier 2 Project Characteristics of VMT reduction strategies
 - The provision of bicycle parking and end-of-trip facilities, categorized under Tier 3 Project Characteristics of VMT reduction strategies.

With the development of the sites and application of the above PDFs, Site A would generate an average Total VMT per Service Population of 29.03, which is below the SGVCOG significant VMT impact threshold of 30.14. Sites B through D would generate an average Total VMT per Service Population between 31.34 and 31.74, which exceeds the SGVCOG significant VMT impact threshold of 30.14. Therefore, mitigation measures would be required to further reduce Total VMT per Service Population for Sites B through D.

Meadows and Stonegate. The Meadows and Stonegate sites incorporate similar PDFs that would reduce the VMT of the existing sites, including:

- An increase in residential density and diversity, categorized under Tier 1 Project Characteristics of VMT reduction strategies
- On-site traffic calming and pedestrian network improvements, categorized under Tier 2 Project Characteristics of VMT reduction strategies
- The provision of bicycle parking and end-of-trip facilities, categorized under Tier 3 Project Characteristics of VMT reduction strategies.

With the development of the sites and application of the above PDFs, these sites would generate an average Total VMT per Service Population of 30.50 for Meadows and 30.62 for Stonegate, which both exceed the SGVCOG significant VMT impact threshold of 30.14. Therefore, mitigation measures would be required to further reduce Total VMT per Service Population.

MITIGATION PROGRAM

A TDM program would be implemented as part of each site's mitigation program aimed at further reducing VMT and vehicular trips to each site through transportation strategies. The TDM Program would be intended to promote non-automobile travel and the reduction of single occupancy vehicle trips. As the individual development projects are submitted to the City, the TDM program for each site would be subject to review and approval by the City. The individual site TDM programs analyzed in this study would include various combinations of the Tier 4 TDM measures listed in Table 2. These strategies include school carpool programs, neighborhood schools, marketing and education, telecommuting and alternative work schedules, unbundled parking costs, and bicycle share programs. Each of these strategies is explained briefly below.

TDM Mitigation Strategies

School Carpool Programs. The TDM program for each development site would provide matching services for residents with school-aged children to establish carpooling to/from school and ultimately reduce the number of vehicle trips at each site.

Provision of Neighborhood Schools. The TDM program would encourage site residents to send children to local schools rather than out-of-area schools to reduce travel distance of trips between the sites and schools.

Marketing and Education. The TDM program would provide on-site informational services to educate residents on the various non-automobile travel modes available in the area. Generally, this program consists of an accessible kiosk providing information on accessible transit, bicycle, and ride-sharing services.

Telecommuting and Alternative Work Schedules. The TDM program would encourage or incentivize working from home and/or allow flexible work schedules that reduce employee work trips, thereby reducing the number of vehicle trips to and from the site.

Unbundling Parking Costs. The TDM program for individual sites would unbundle the parking costs from the rental/sale price of the multifamily unit. The monthly rental or purchase price of a parking space would be separated from the rental/purchase price of the dwelling unit. Research has shown that the number of vehicles per household decreases when residential tenants/owners are required to pay separately for the cost of parking spaces, resulting in less reliance on personal vehicles and reducing overall VMT.

Bicycle Share Programs. The TDM program for individual sites would provide either financial assistance or physical space to help establish or expand a City-wide bicycle share program.

Effects of TDM Mitigation on Site VMT

For the purposes of this analysis, implementation of combinations of the programs discussed above as TDM strategies was considered as mitigation in the VMT evaluation. As shown in Table 2, the sites with implementation of a mitigation program are estimated to generate average Total VMT per Service Population between 29.03 and 30.06, which would not exceed the SGVCOG significant VMT impact threshold of 30.14. Therefore, each site, with mitigation, would fully mitigate its VMT impact.

The output from the VMT Calculator and a more detailed description of the TDM program for each site are provided in Appendix B.

It is important to note that the PDFs and mitigation measures discussed above are examples of potential VMT reduction programs that would reduce each site's VMT impacts to less than significant, but they are not the only set of features or combination of measures that could be applied to each site to reduce VMT. They are intended to demonstrate that the Total VMT per Service Population can be reduced to less than significant levels when each development site implements reasonable VMT reduction features and measures. As each site develops, a VMT reduction program will be tailored to the needs of the residents and may include, but is not limited to, the features and measures analyzed in this study.

CUMULATIVE VMT ANALYSIS

Cumulative effects of development projects are determined based on the consistency with the air quality and GHG reduction goals of *Connect SoCal – The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy* (SCAG, Adopted September 2020) (RTP/SCS) in terms of development location, density, and intensity. The RTP/SCS presents a long-term vision for the region's transportation system through Year 2045 and balances the region's future mobility and housing needs with economic, environmental, and public health goals.

As detailed in Section 3.1.4.3 of *Transportation Impact Analysis Guidelines* (Los Angeles County Public Works, September 2020), for projects that do not demonstrate an impact by applying an efficiency-based impact threshold (i.e., Total VMT per Service Population) in the project impact analysis, a less than significant impact conclusion is sufficient in demonstrating there is no cumulative VMT impact for those projects that align with the long-term VMT and GHG reduction goals of the RTP/SCS. The Project would not result in a significant VMT impact with implementation of the mitigation program, as described above. The addition of multifamily residential units, including affordable housing units, in an infill development format is consistent with the goals of the RTP/SCS. Therefore, the development sites are not anticipated to result in a cumulative VMT impact and no further evaluation or mitigation measures would be required.

**TABLE 2
VMT ANALYSIS SUMMARY**

Project Analysis [a]				
Jurisdiction		Sierra Madre		
Baseline Year		2021		
Baseline Area VMT [b]		35.46		
Site	VMT Analysis	Without Project	With Project & Tier 1-3 Reductions [c]	With Project & All VMT Reductions [c]
1	Total VMT per Service Population	33.80	32.23	29.97
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO
2	Total VMT per Service Population	33.80	33.38	30.06
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO
3	Total VMT per Service Population	33.80	33.46	30.06
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO
4	¹ Sites A-D include the addition of an overlay zone, existing uses v	33.80	33.72	29.93
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO
A	du - dwelling unit.	30.84	29.03	29.03
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	NO	NO
B	Total VMT per Service Population	33.80	31.74	29.50
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO
C	Total VMT per Service Population	33.80	31.34	29.84
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO
D	Total VMT per Service Population	33.80	31.56	30.06
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO
Meadows	Total VMT per Service Population	30.84	30.50	29.12
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO
Stonegate	Total VMT per Service Population	30.84	30.62	29.22
	Impact Threshold	30.14	30.14	30.14
	Significant Impact	YES	YES	NO

Notes:

[a] Project Analysis based on the *San Gabriel Valley Council of Governments (SGVCOG) VMT Evaluation Tool* (October 2020).

[b] Baseline Area VMT represents value of SGVCOG region VMT.

[c] The following VMT reduction strategies were variously accounted for in the VMT evaluation:

- Increase residential density (Tier 1)
- Increase residential diversity (Tier 1)
- Affordable Housing (Tier 1)
- Traffic Calming (On-Site only) (Tier 2)
- Pedestrian Networks (On-Site only) (Tier 2)
- Provide Bike Facilities w/ end-of-trip bike facilities (Tier 3)
- School pool programs (Tier 4)
- Marketing and education (Tier 4)
- Telecommuting and Alternative Work Schedules (Tier 4)
- Neighborhood Schools (Tier 4)
- Unbundle Parking Costs (Tier 4)
- Bike Share Program (Tier 4)

Chapter 4

Induced Additional Automobile Travel Analysis

The intent of this analysis is to assess whether a transportation project would induce substantial VMT by increasing vehicular capacity on the roadway network, such as the addition of through traffic lanes on existing or new highways, including general purpose lanes, high-occupancy vehicle lanes, peak period lanes, auxiliary lanes, and lanes through grade-separated interchanges.

The General Plan Update is not a transportation project that would induce automobile travel. Therefore, the General Plan Update would not result in a significant impact under the Substantially Inducing Additional Automobile Travel Analysis and no further evaluation is required.

Chapter 5

Substantially Increasing Hazards Due to a Geometric Design Feature or Incompatible Use Analysis

This analysis requires that a project undergo further evaluation if it proposes new driveways or new vehicle access points to the property from the public right-of-way (ROW) or it proposes modifications along the public ROW (i.e., street dedications). Site access plans will be developed in the future for each site to ensure it would not substantially increase hazards due to geometric design features, including safety, operational, or capacity impacts, with consideration to the following factors: (1) the relative amount of pedestrian activity at site access points; (2) design features/physical configurations that affect the visibility of pedestrians and bicyclists to drivers entering and exiting the site, and the visibility of cars to pedestrians and bicyclists; (3) the type of bicycle facilities the driveway(s) crosses and the relative level of utilization; (4) the physical conditions of the site and surrounding area, such as curves, slopes, walks, landscaping or other barriers that could result in vehicle/pedestrian, vehicle/bicycle, or vehicle/vehicle impacts; (5) the site location, or site-related changes to the public ROW; and (6) any other conditions, including the approximate location of incompatible uses that would substantially increase a transportation hazard.

DRIVEWAY DESIGN FEATURES

Each site either has an existing driveway or will design driveway(s) that meet the principles discussed above. Each site will require site plan review where the City may determine if the driveways are in compliance.

Pedestrian and Bicycle Activity

Access to each site would be designed to remain clear of hardscapes, vegetation, or signage that would impede sight lines to allow for maximum visibility between pedestrians, vehicles, and bicycles.

Physical Terrain

The sites are mostly located on flat parcels with little to no change in vertical elevation. Therefore, no line-of-sight issues would be caused by changes in elevation, and drivers would be able to identify approaching vehicles, pedestrians, and bicycles at driveways. When feasible, driveways will be designed to intersect the public ROW at right angles with adequate building setback to allow pedestrians and bicyclists to observe vehicles within the driveways.

All landscaping would be designed to provide appropriate visibility between vehicles and pedestrians.

Summary

When designed, each site would be required to not install any geometric features that would substantially increase hazards related to traffic movement, mobility, or pedestrian accessibility and, thus, impacts would be considered less than significant.

EMERGENCY VEHICLE RESPONSE TIMES

The addition of 211-280 residential dwelling units to the housing stock in the City is not expected to add enough traffic along any single street in the City to cause safety or congestion problems. The total VMT for the traffic analysis zones that include the City is projected to be 427,000 VMT/day. The addition of 280 residential dwelling units would increase the VMT/day by 16,800,

or less than 4%. Therefore, the addition of residential dwelling units dispersed through the community as proposed is not anticipated to increase emergency vehicle response times in the City.

CUMULATIVE ANALYSIS

In addition to potential General Plan Update impacts, the CEQA Guidelines require that the General Plan Update be reviewed in combination with Related Projects with access points along the same block as the proposed project to determine if there may be a cumulatively significant impact. No Related Projects were identified on the same block as the sites. Therefore, the General Plan Update would not result in cumulative impacts that would substantially increase hazards due to geometric design features, including safety, operational, or capacity impacts.

Chapter 6

Summary and Conclusions

This study was undertaken to analyze the potential impacts of the General Plan Update on the regional transportation system. The following summarizes the results of this analysis:

- The General Plan Update proposes development of up to 280 additional residential units across 10 sites throughout the City (including the Meadows and Stonegate sites) or up to 211 additional multi-family residential dwelling units across eight sites (without the Meadows and Stonegate sites).
- In accordance with SB 743, a VMT evaluation was conducted to determine the potential for CEQA impacts.
- All sites, except for Site A, has significant VMT impacts without the inclusion of a TDM program as a mitigation measure.
- The VMT impacts of the nine sites can be mitigated and reduced to less than significant levels with a TDM program consisting of strategies outlined by SGVCOG.
- Each site will be required to meet the vehicular and bicycle parking requirements of the City.
- Access to/from each site would be required to meet the City's design standards with respect to location, width, and sight distance.

With the above mitigation measures, the General Plan Update residential land uses can be added to the City housing supply without any remaining significant CEQA transportation impacts.

References

California Environmental Quality Act (CEQA) Guidelines, California Code of Regulations, Title 14, Section 15000 and following.

Connect SoCal – The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy, Southern California Association of Governments, Adopted September 2020.

Quantifying Greenhouse Gas Mitigation Measures (California Air Pollution Control Officers Association, 2010).

State of California Senate Bill 743, Steinberg, 2013.

SGVCOG VMT Evaluation Tool, San Gabriel Valley Council of Governments, October 2020.

SGVCOG VMT Reduction Calculations, Fehr & Peers, August 2020.

SGVCOG VMT Tool: Quick Start Guide, San Gabriel Valley Council of Governments, August 2020.

Transportation Impact Analysis Guidelines, Los Angeles County Public Works, September 2020.

Appendix A

Sierra Madre VMT Significance Thresholds

City of Sierra Madre
VMT Baselines and Thresholds of Significance

Consistent with State CEQA guidelines section 15064.3, the City of Sierra Madre has adopted the project baselines and thresholds of significance set forth in Table 1 to guide in determining when a project will have a significant transportation impact.

Table 1

Project Type	Thresholds
Land Use Plan	<ol style="list-style-type: none"> 1) Project Impact: A significant impact would occur if the VMT rate for the plan would exceed a level of 15% below the applicable baseline VMT rate. 2) Cumulative Project Effect: A significant impact would occur if the project increases total regional VMT compared to cumulative no project conditions.
Land Use Project	<ol style="list-style-type: none"> 1) Project Impact: A significant impact would occur if the VMT rate for the project would exceed a level of 15% below the applicable baseline VMT rate. 2) Cumulative Project Effect: A significant impact would occur if the project increases total regional VMT compared to baseline conditions. <p>A significant impact would occur if the project increases total regional VMT compared to cumulative no project conditions.</p>
Retail Project	<ol style="list-style-type: none"> 1) Project Impact: A significant impact would occur if the VMT rate for the project would exceed a level of 15% below the applicable baseline VMT. 2) Cumulative Project Effect: A significant impact would occur if the project increases total VMT in the study area compared to baseline conditions.
Transportation Project	A significant impact would occur if the project causes a net increase in total regional VMT compared to baseline conditions, opening year no project conditions, or cumulative no project conditions.
All land use and transportation projects	A significant impact would occur if the project is inconsistent with the RTP/SCS.

Notes: Baseline VMT rate is defined as the "Northwest Region" per applicable service population.
 Baseline threshold may be changed pending updates to the SCAG RTP model.

Appendix B

VMT Output Worksheets

Project Details

Timestamp of Analysis: June 15, 2021, 02:35:52 PM

Project Name: Sierra Madre General Plan Update

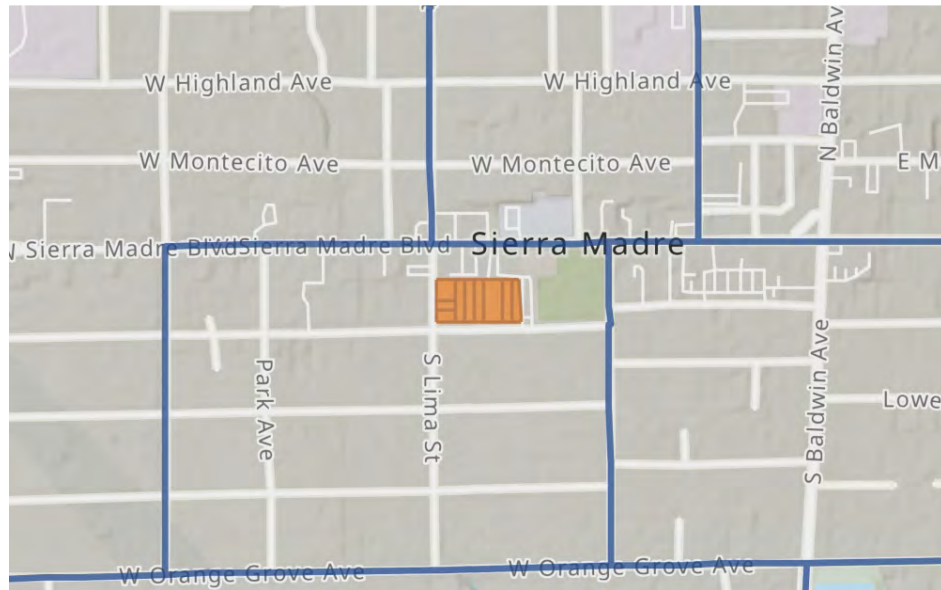
Project Description: Area 1 - 73 Total MF DUs Allowed (48 DU Increase)

Project Location

Jurisdiction:
Sierra Madre

APN	TAZ	5768-020-011	22208400	5768-020-012	22208400
5768-020-013	22208400	5768-020-014	22208400	5768-020-016	22208400
5768-020-017	22208400	5768-020-018	22208400	5768-020-019	22208400
5768-020-038	22208400				

Inside a TPA?
No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 73

Total DUs: 73

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

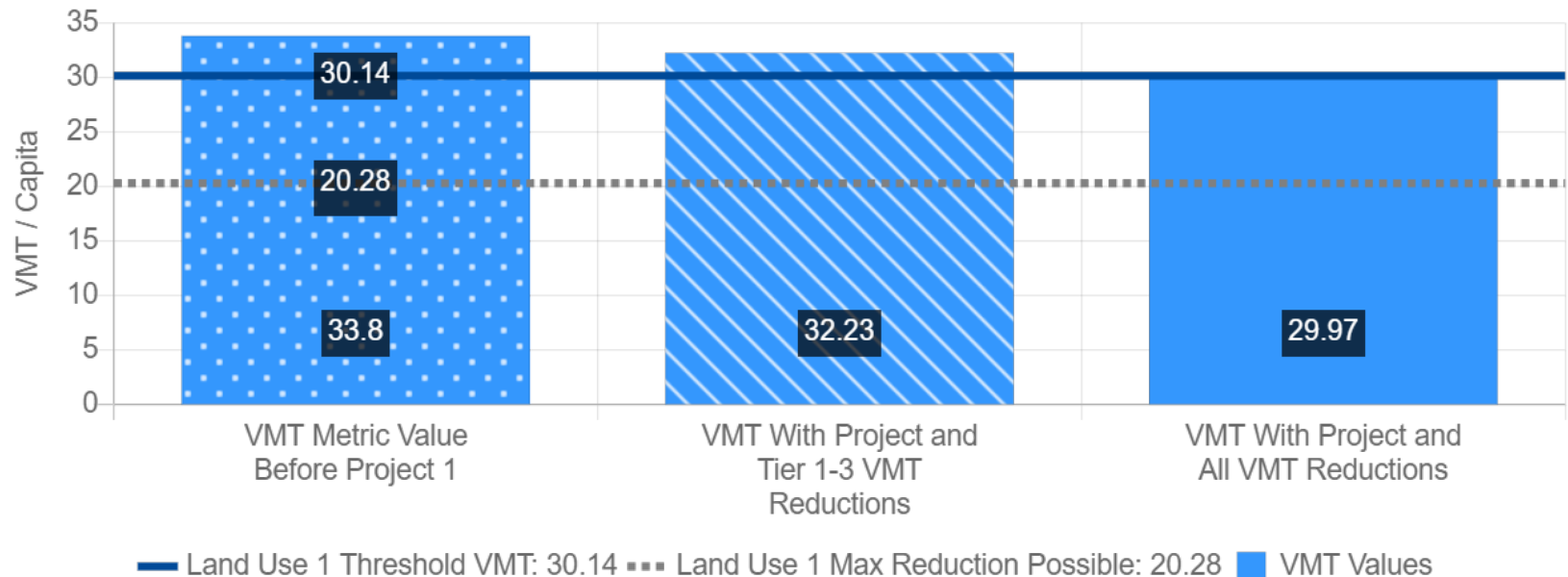
Motor Vehicle Parking: 128

Bicycle Parking: 146

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	32.23	29.97
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	4
With Project Residential Density:	4.68

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.38
With Project Residential Diversity Index:	0.34

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
--	--

MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	146
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	20 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	19 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	100 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 03:11:02 PM

Project Name: Sierra Madre General Plan Update

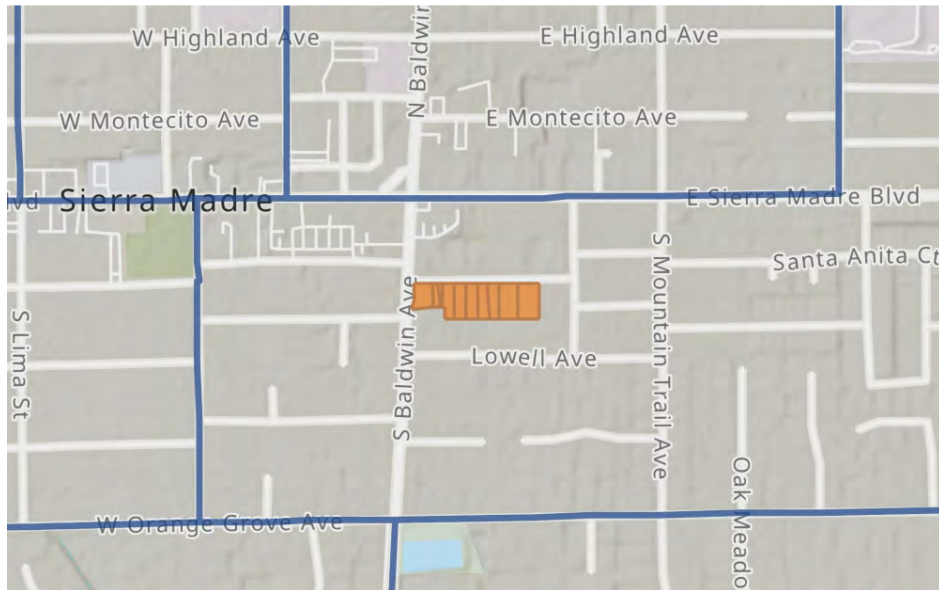
Project Description: Area 2 - 40 Total MF DUs Allowed (27 DU Increase)

Project Location

Jurisdiction:
Sierra Madre

APN	TAZ	5767-026-005	22208100	5767-026-008	22208100
5767-026-009	22208100	5767-026-010	22208100	5767-026-011	22208100
5767-026-012	22208100	5767-026-013	22208100	5767-026-033	22208100
5767-026-035	22208100	5767-026-036	22208100		

Inside a TPA?
No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 40

Total DUs: 40

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

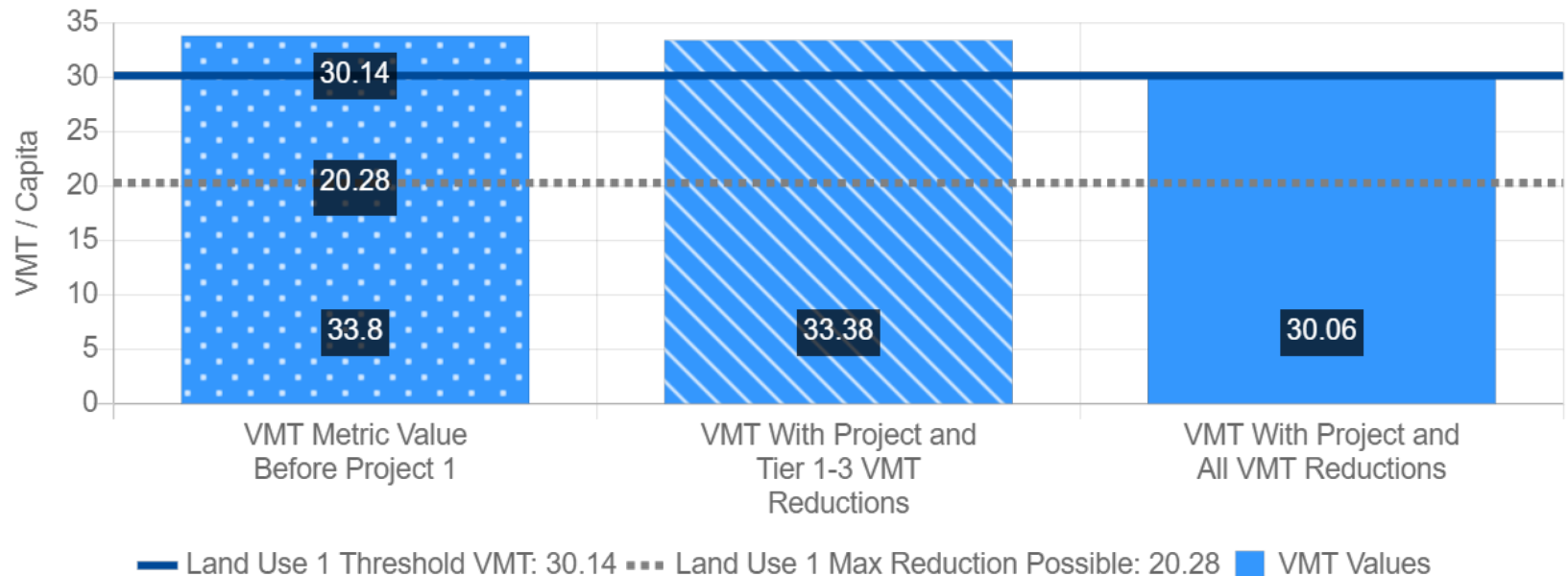
Motor Vehicle Parking: 70

Bicycle Parking: 80

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	33.38	30.06
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	4.76
With Project Residential Density:	4.94

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.35
With Project Residential Diversity Index:	0.34

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
--	--

MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	80
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	10 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	125 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:03:07 PM

Project Name: Sierra Madre General Plan Update

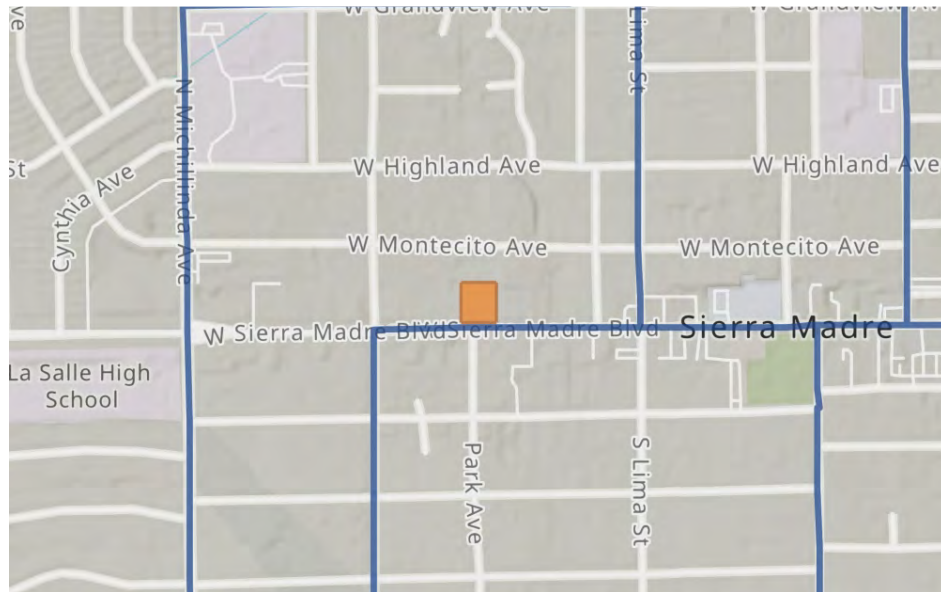
Project Description: Area 3 - 27 MFDUs

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5768-017-017	22208500

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 27

Total DUs: 27

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

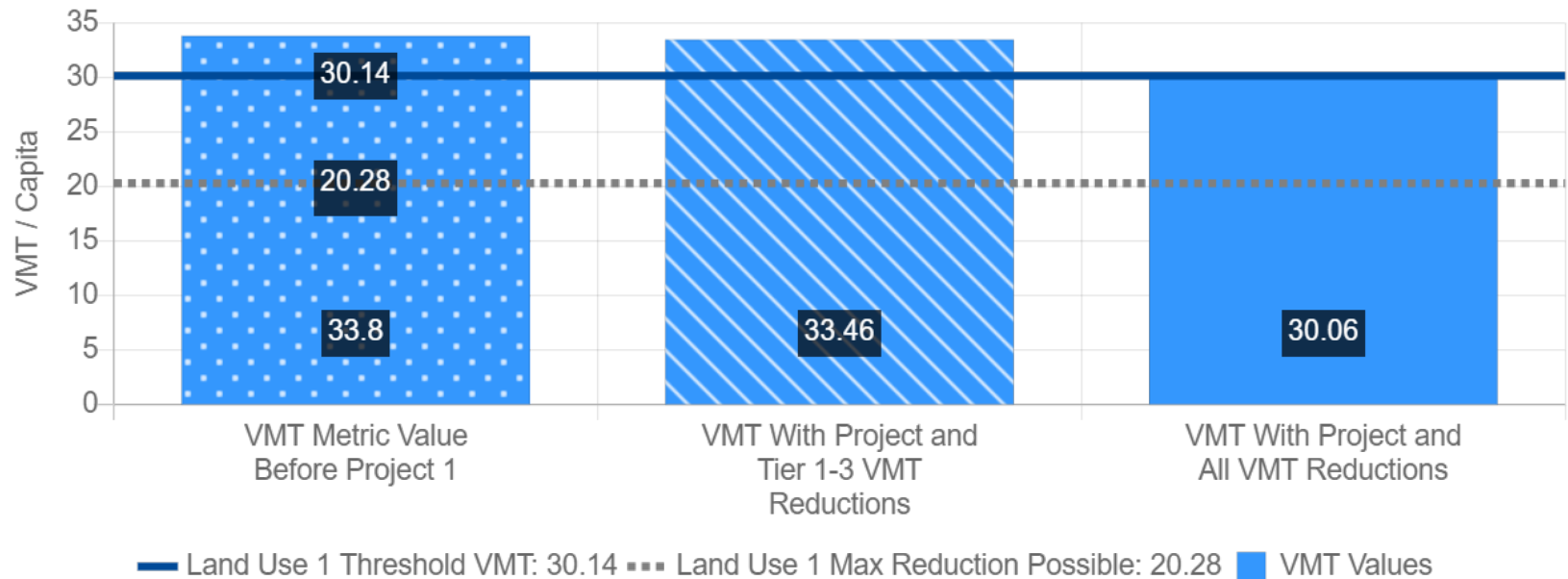
Motor Vehicle Parking: 47

Bicycle Parking: 54

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	33.46	30.06
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	3.36
With Project Residential Density:	3.49

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.17
With Project Residential Diversity Index:	0.16

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
--	--

MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	54
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	8 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	125 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:10:36 PM

Project Name: Sierra Madre General Plan Update

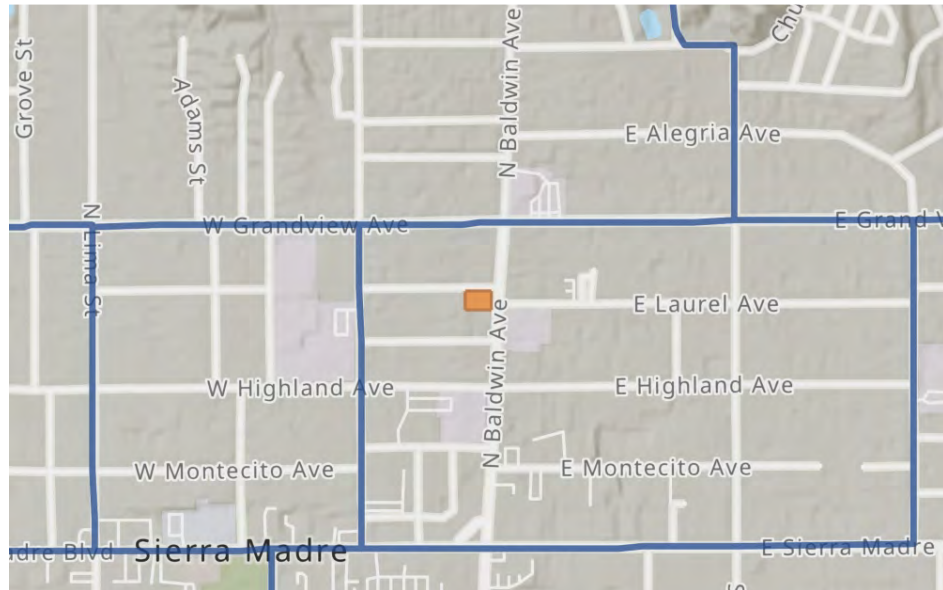
Project Description: Area 4 - 6 MFDUs

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5767-003-035	22208200

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 6

Total DUs: 6

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

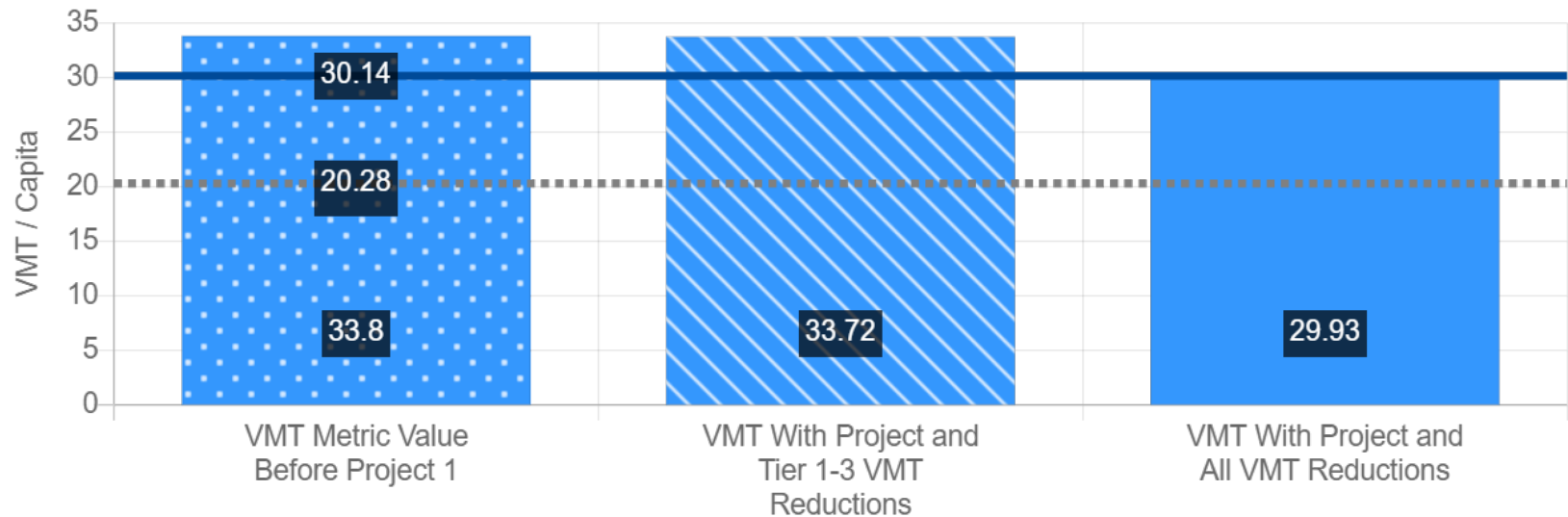
Motor Vehicle Parking: 10

Bicycle Parking: 12

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	33.72	29.93
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



— Land Use 1 Threshold VMT: 30.14 --- Land Use 1 Max Reduction Possible: 20.28 ■ VMT Values

Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	3.78
With Project Residential Density:	3.81

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.57
With Project Residential Diversity Index:	0.57

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	12
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	2 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	150 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:14:41 PM

Project Name: Sierra Madre General Plan Update

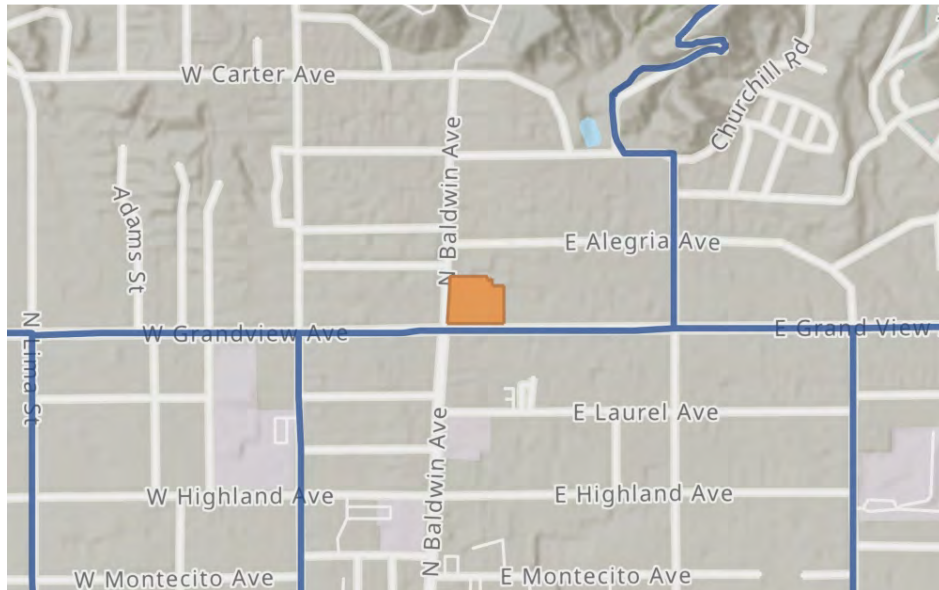
Project Description: Area A - 30 MFDUs w/ 50% Affordable

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5762-016-020	22212100

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 30

Total DUs: 30

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 50 %

Parking:

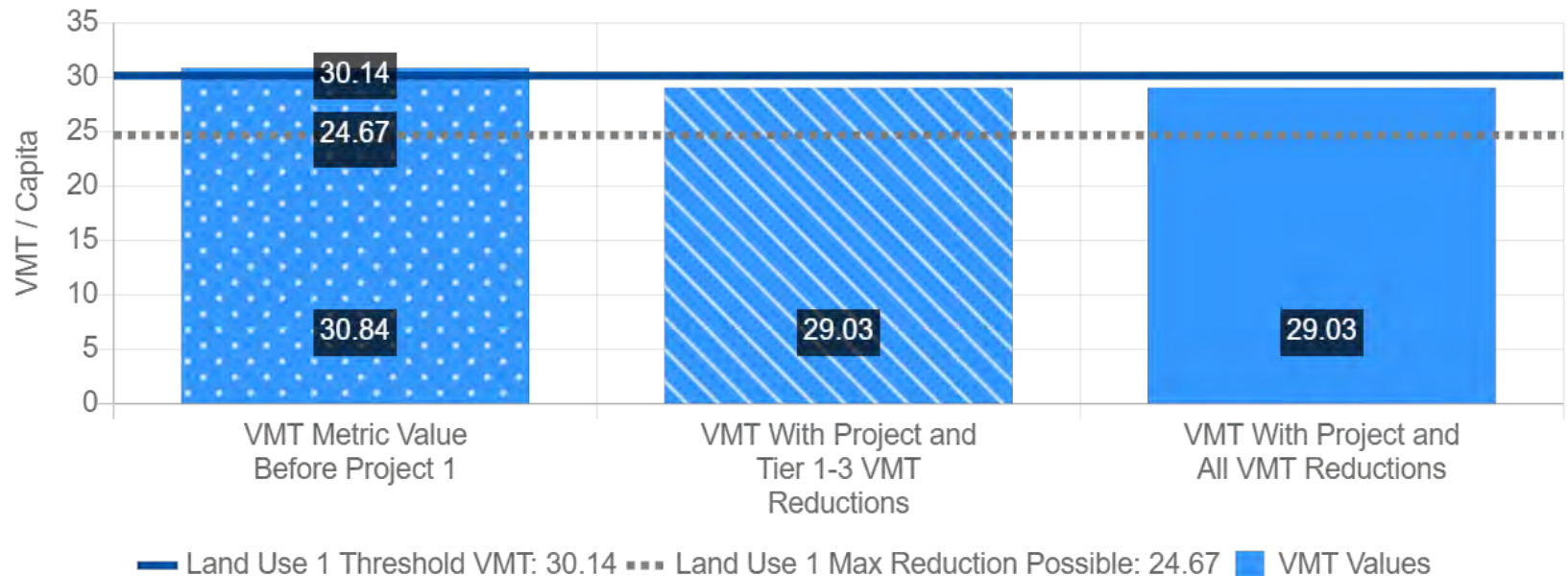
Motor Vehicle Parking: 20

Bicycle Parking: 60

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	30.84	29.03	29.03
Low VMT Screening Analysis	No (Fail)	Yes (Pass)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	2.74
With Project Residential Density:	2.83

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.11
With Project Residential Diversity Index:	0.11

PC03 Affordable Housing

Low Income:	50 %
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Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	60
Project End-of-trip Bike Facilities:	Yes

Project Details

Timestamp of Analysis: June 15, 2021, 05:21:21 PM

Project Name: Sierra Madre General Plan Update

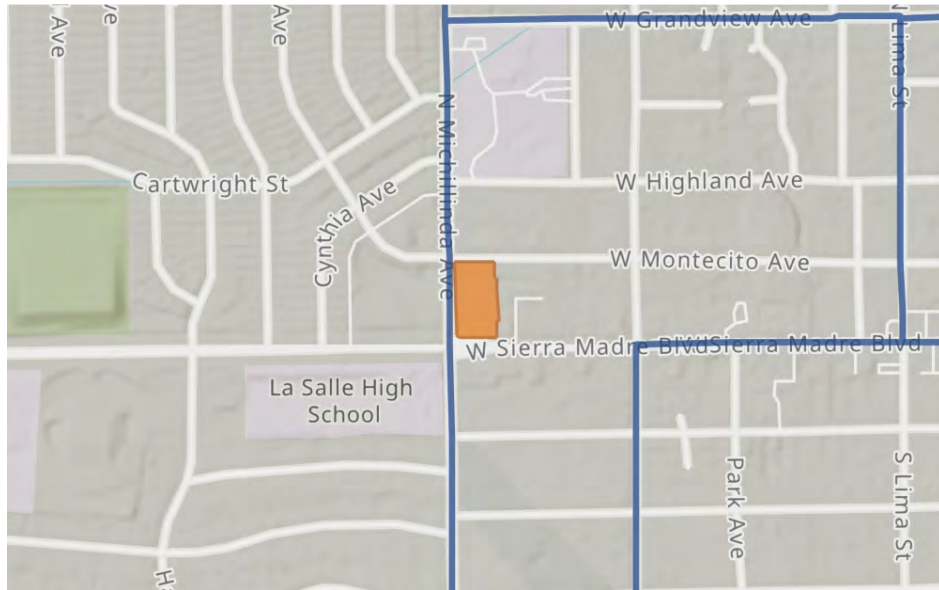
Project Description: Area B - 28 MFDUs w/ 50% Affordable

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5768-015-032	22208500

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 28

Total DUs: 28

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 50 %

Parking:

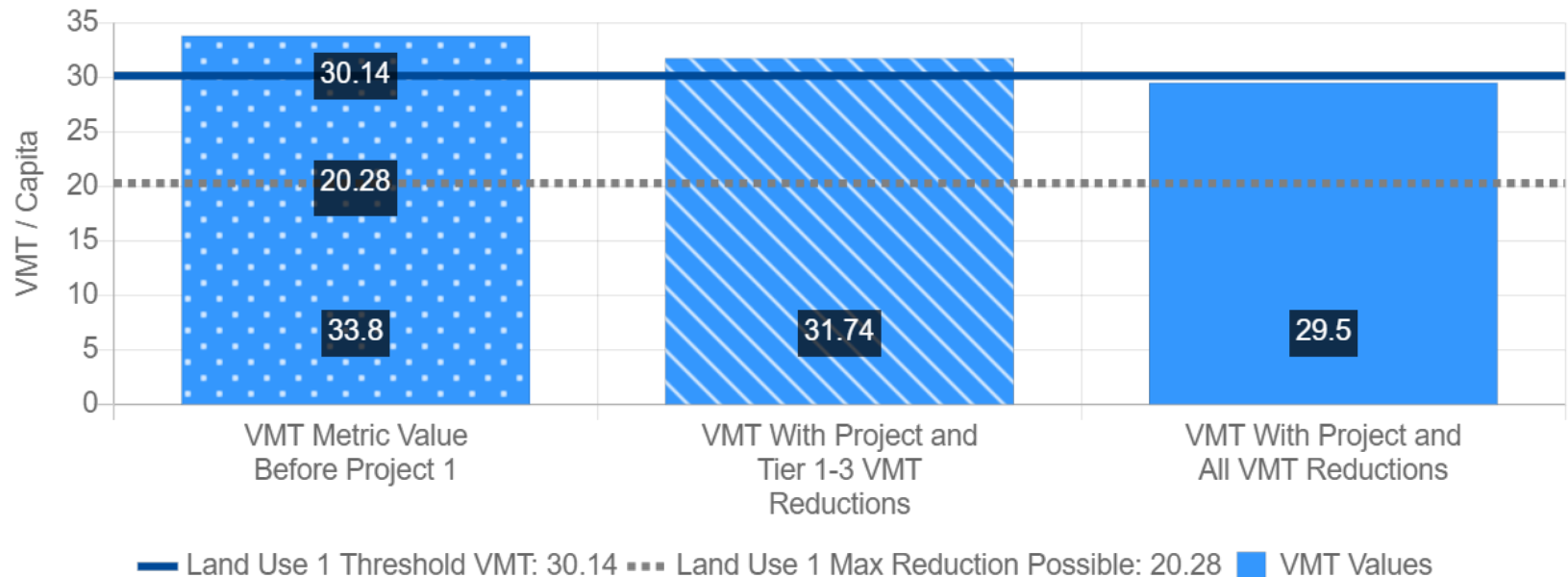
Motor Vehicle Parking: 19

Bicycle Parking: 58

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	31.74	29.5
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	3.36
With Project Residential Density:	3.5

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.17
With Project Residential Diversity Index:	0.16

PC03 Affordable Housing

Low Income:	50 %
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Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
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Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	58
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	8 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	100 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:24:00 PM

Project Name: Sierra Madre General Plan Update

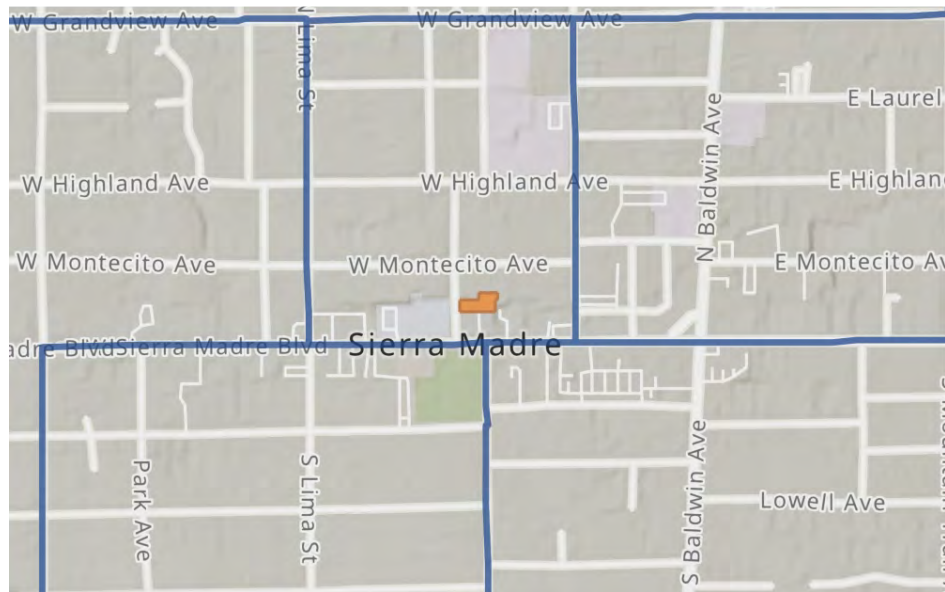
Project Description: Area C - 23 MFDUs w/ 50% Affordable

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5767-022-053	22208300

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 23

Total DUs: 23

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 50 %

Parking:

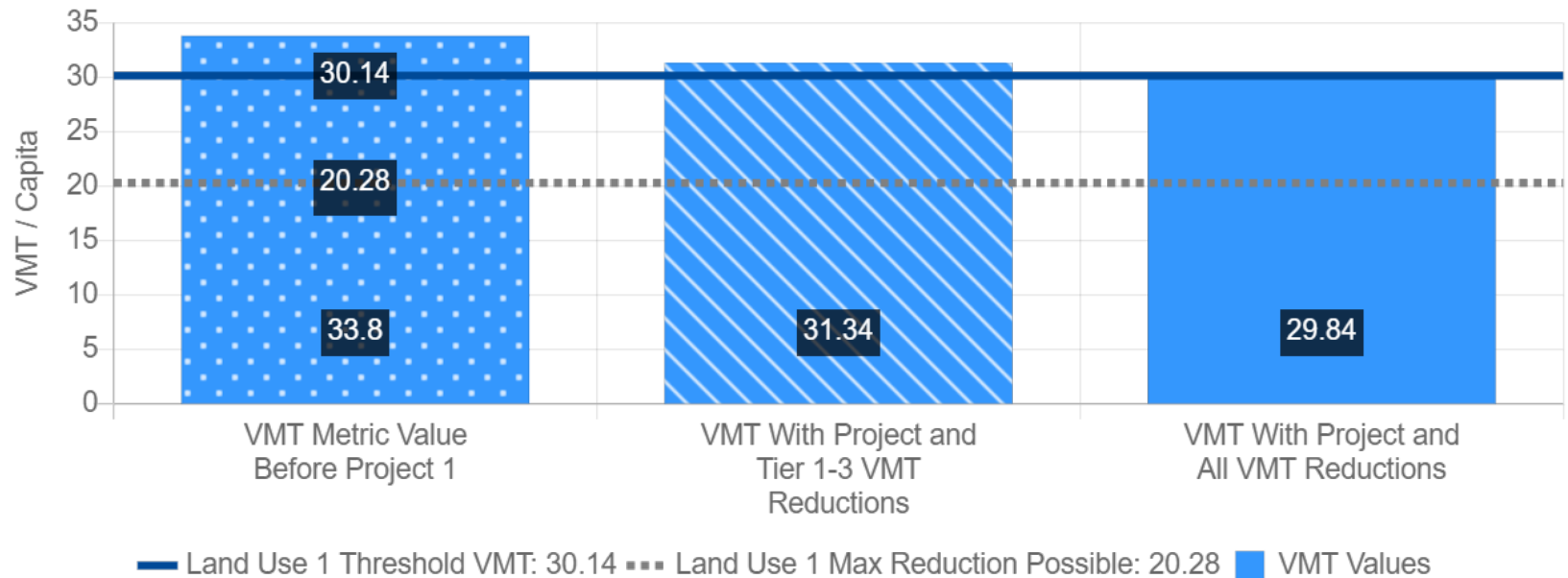
Motor Vehicle Parking: 17

Bicycle Parking: 46

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	31.34	29.84
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	4.09
With Project Residential Density:	4.42

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.39
With Project Residential Diversity Index:	0.37

PC03 Affordable Housing

Extremely Low Income:	0 %
Low Income:	50 %

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
--	--

Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	46
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	6 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	50 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 05:28:32 PM

Project Name: Sierra Madre General Plan Update

Project Description: Area D - 40 MFDUs w/ 50% Affordable

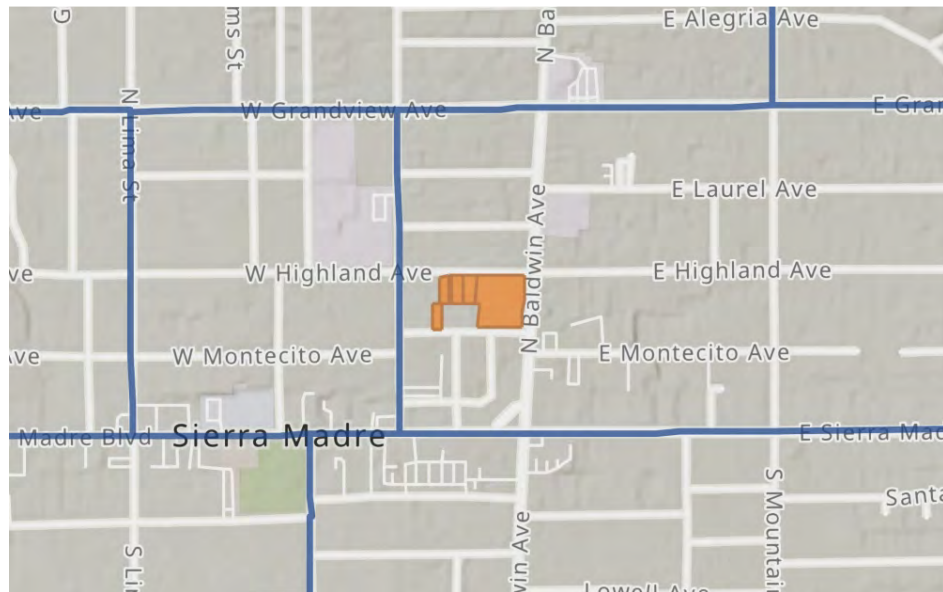
Project Location

Jurisdiction:
Sierra Madre

APN	TAZ	5767-017-006	22208200	5767-017-014	22208200
5767-017-015	22208200	5767-017-016	22208200	5767-017-017	22208200
5767-017-028	22208200				

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU:

Multifamily DU: 40

Total DUs: 40

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 50 %

Parking:

Motor Vehicle Parking: 34

Bicycle Parking: 60

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	33.8	31.56	30.06
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)

Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	3.78
With Project Residential Density:	4

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.57
With Project Residential Diversity Index:	0.55

PC03 Affordable Housing

Extremely Low Income:	0 %
Low Income:	50 %

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
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Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	60
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	10 Families

TP16 Unbundle Parking Costs from Property Cost (On Site Parking)

Is the Surrounding Street Parking Restricted?:	Yes
Monthly Parking Cost:	50 \$USD

Project Details

Timestamp of Analysis: June 15, 2021, 04:52:53 PM

Project Name: Sierra Madre General Plan Update

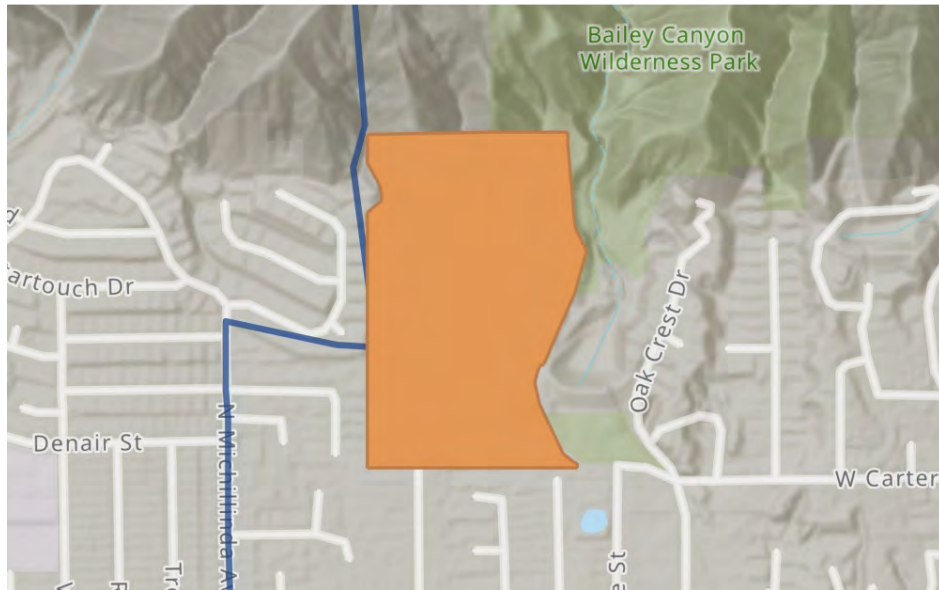
Project Description: The Meadows - 42 SFDU

Project Location

Jurisdiction:	APN	TAZ
Sierra Madre	5761-002-008	22212100

Inside a TPA?

No (Fail)



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU: 42

Multifamily DU:

Total DUs: 42

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

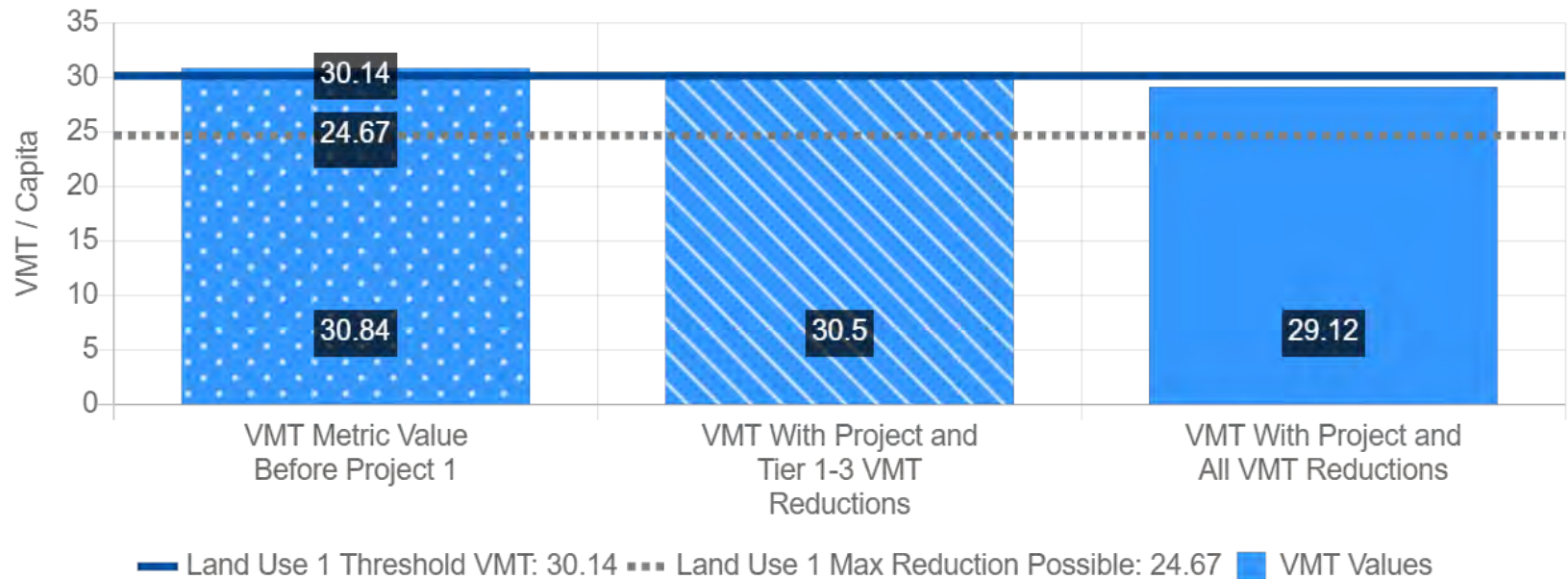
Motor Vehicle Parking: 84

Bicycle Parking: 84

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	30.84	30.5	29.12
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	2.74
With Project Residential Density:	2.87

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.11
With Project Residential Diversity Index:	0.1

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
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Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	84
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	11 Families

Project Details

Timestamp of Analysis: June 15, 2021, 04:08:22 PM

Project Name: Sierra Madre General Plan Update

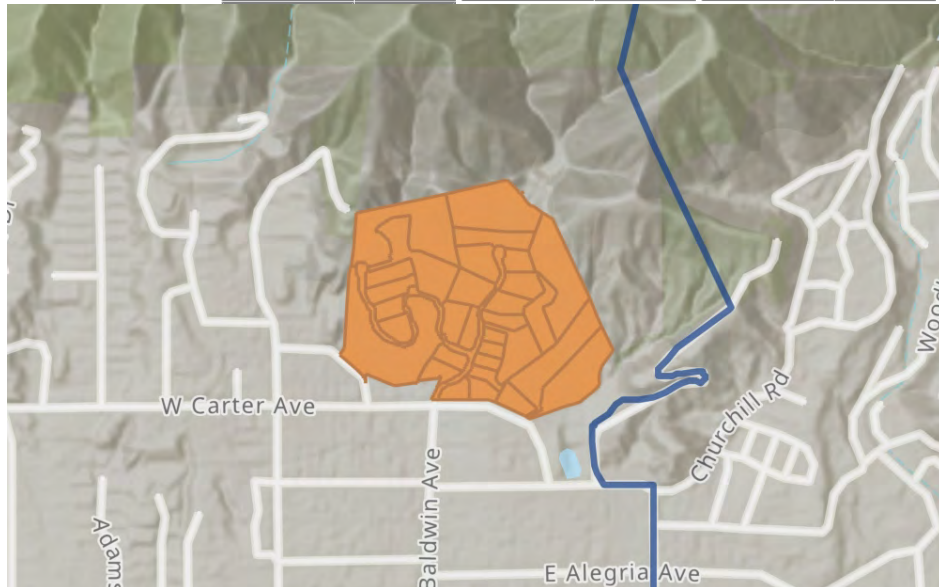
Project Description: Stonegate - 27 SFDU

Project Location

Jurisdiction:
Sierra Madre

Inside a TPA?
No (Fail)

APN	TAZ	5762-030-003	22212100	5762-030-004	22212100
5762-030-005	22212100	5762-030-006	22212100	5762-030-007	22212100
5762-030-009	22212100	5762-030-010	22212100	5762-030-011	22212100
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5762-030-037	22212100	5762-030-038	22212100	5762-030-039	22212100



Analysis Details

Data Version: SCAG Regional Travel Demand Model
2016 RTP Base Year 2012

Analysis Methodology: TAZ

Baseline Year: 2021

Project Land Use

Residential:

Single Family DU: 27

Multifamily DU:

Total DUs: 27

Non-Residential:

Office KSF:

Local Serving Retail KSF:

Industrial KSF:

Residential Affordability (percent of all units):

Extremely Low Income: 0 %

Very Low Income: 0 %

Low Income: 0 %

Parking:

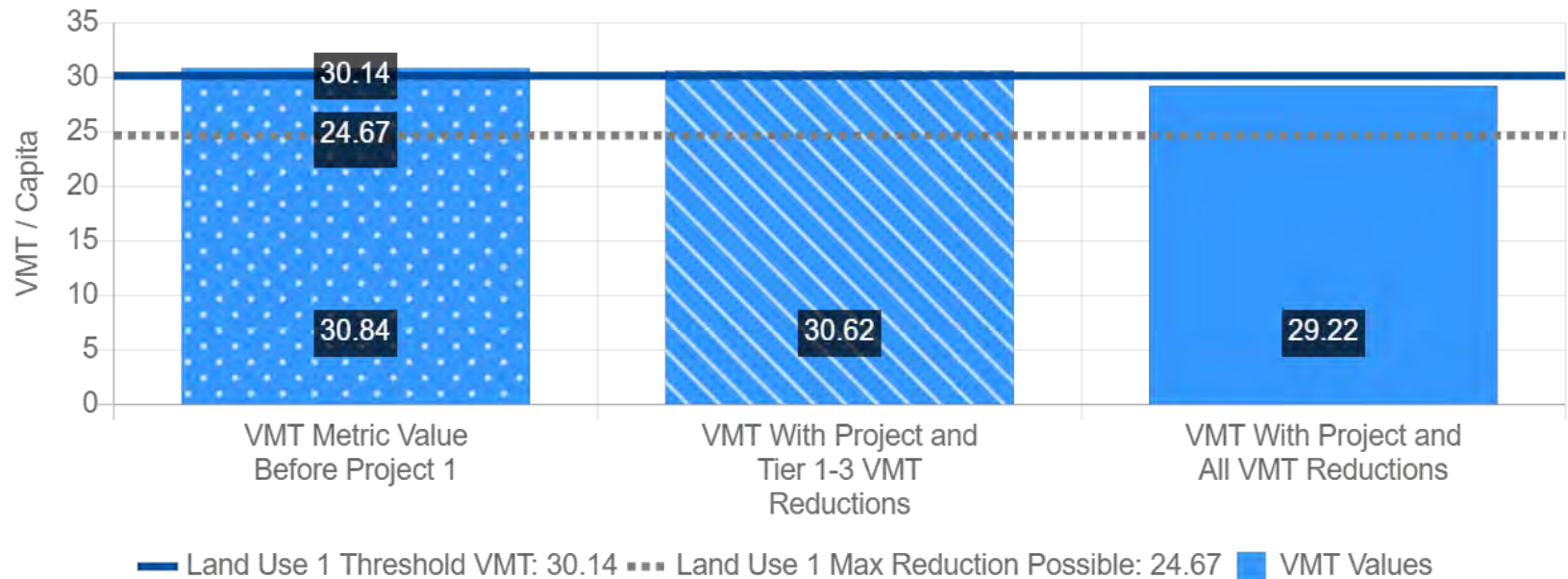
Motor Vehicle Parking: 54

Bicycle Parking: 54

Residential Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Residential
VMT Without Project 1:	Total VMT per Service Population
VMT Baseline Description 1:	Subarea Average
VMT Baseline Value 1:	35.46
VMT Threshold Description 1:	-15%
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	30.84	30.62	29.22
Low VMT Screening Analysis	No (Fail)	No (Fail)	Yes (Pass)



Tier 1 Project Characteristics

PC01 Increase Residential Density

Existing Residential Density:	2.74
With Project Residential Density:	2.83

PC02 Increase Residential Diversity

Existing Residential Diversity Index:	0.11
With Project Residential Diversity Index:	0.11

Tier 2 Multimodal Infrastructure

MI04 Traffic Calming

Traffic Calming Added Beyond Development Frontage:	
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MI05 Pedestrian Networks

Pedestrian Improvements Beyond Development Frontage:	
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Tier 3 Parking

PK02 Provide Bike Facilities

Bicycle Parking:	54
Project End-of-trip Bike Facilities:	Yes

Tier 4 TDM Programs

TP01 School Pool Programs

School Pool Program Percent of Expected Participant Households:	25 %
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TP02 Bike Share Programs

Percent Change in Bike Trips:	6%
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TP04 CTR Marketing and Education

CTR Marketing/Education Percent Expected Participants:	100 %
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TP08 Telecommuting and Alternative Work Schedules

Telecommuting and Alternative Work Schedule Type:	Telecommute 1.5 days/week
Alternative Work Schedule Percent Participants:	25 %

TP12 Neighborhood Schools

Type of School Served By the Project:	Neighborhood School
Families With School-Aged Children in the Project:	8 Families