

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

Notice is hereby given that, as Lead Agency, the City of Roseville, Development Services Department, Planning Division has prepared an Initial Study leading to a Mitigated Negative Declaration for the project referenced below. This Mitigated Negative Declaration is available for public review and comment.

Project Title/File#: DWSP PCL 21 – West Roseville Marketplace; File # PL22-0089

Project Location: 1798 Pleasant Grove Boulevard, Roseville, Placer County; APN 017-162-049-000

Project Owner: Safeway, Inc.

Project Applicant: Tiffany Wilson, RSC Engineering, Inc.

Project Planner: Escarlet Mar, Associate Planner

Project Description: The proposed project would allow construction of a major tenant building (i.e. Safeway) with several in-line shops, one free standing building with a gas station, and a freestanding pad building with a drive-through. The project includes a major building totaling approximately ±55,600 square feet, inline shops totaling ±14,000 square feet, a freestanding pad building with a drive-through pad totaling ±5,500 square feet, and a gas station including 8 dispensers (total of 16 pumps) and an ±850 square foot freestanding kiosk building. The tentative parcel map as proposed would create a total of four (4) lots. A conditional use permit for the gas station and drive-through food pad is proposed since the property is contiguous to a residential zoned property. The applicant requests approval of a Design Review Permit, Conditional Use Permit, and a Tentative Parcel Map to allow development of the project.

Document Review and Availability: The public review and comment period begins on September 30, 2022 and ends on October 19, 2022. The Mitigated Negative Declaration may be reviewed during normal business hours (8:00 am to 5:00 pm) at the Planning Division offices, located at 311 Vernon Street. It may also be viewed online at <https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8774505>.

Written comments on the adequacy of the Mitigated Negative Declaration may be submitted to Escarlet Mar, Associate Planner at emar@roseville.ca.us and must be received no later than 5:00 pm on October 19, 2022.

This project will be scheduled for a public hearing before the City's Planning Commission. At this hearing, the Planning Commission will consider the Mitigated Negative Declaration and associated project entitlements. The tentative hearing date is October 27, 2022.

Greg Bitter
Planning Manager

Dated: September 29, 2022

Publish: September 30, 2022

MITIGATED NEGATIVE DECLARATION

Project Title/File Number: DWSP PCL 21 – West Roseville Marketplace; File # PL22-0089
Project Location: 1798 Pleasant Grove Boulevard, Roseville, Placer County; APN 017-162-049-000
Project Applicant: Tiffany Wilson, RSC Engineering, Inc.; (916) 788-2884; 1420 Rocky Ridge Drive, Suite 150, Roseville, CA 95661
Property Owner: Safeway, Inc.; 5918 Stoneridge Mall Road, Pleasanton, CA 94588
Lead Agency Contact Person: Escarlet Mar, Associate Planner - City of Roseville; (916) 774-5247
Date: September 29, 2022

Project Description:

The project site is located on two (2) parcels totaling approximately 8.80-acres in the Dell Webb Specific Plan area. The project is located at 1798 Pleasant Grove Boulevard (APN 017-162-049) and 6745 Fiddymont Road (APN 017-162-010). The site is currently undeveloped and has a zoning designation of Community Commercial/Special Area-Del Webb Specific Plan (CC/SA-DW) and a General Plan land use designation of Community Commercial (CC).

The proposed project would allow construction of a major tenant building (i.e. Safeway) with several in-line shops, one free standing building with a gas station, and a freestanding pad building with a drive-through. The project includes a major building totaling approximately ±55,600 square feet, inline shops totaling ±14,000 square feet, a freestanding pad building with a drive-through pad totaling ±5,500 square feet, and a gas station including 8 dispensers (total of 16 pumps) and an ±850 square foot freestanding kiosk building. The tentative parcel map as proposed would create a total of four (4) lots. A conditional use permit for the gas station and drive-through food pad is proposed since the property is contiguous to a residential zoned property. The applicant requests approval of a Design Review Permit, Conditional Use Permit, and a Tentative Parcel Map to allow development of the project.

DECLARATION

The Planning Manager has determined that the above project will not have significant effects on the environment and therefore does not require preparation of an Environmental Impact Report. The determination is based on the attached initial study and the following findings:

- A. *The project will not have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare or threatened species, reduce the number or restrict the range of rare or endangered plants or animals or eliminate important examples of the major periods of California history or prehistory.*
- B. *The project will not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.*
- C. *The project will not have impacts, which are individually limited, but cumulatively considerable.*
- D. *The project will not have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly.*
- E. *No substantial evidence exists that the project may have a significant effect on the environment.*
- F. *The project incorporates all applicable mitigation measures identified in the attached initial study.*
- G. *This Mitigated Negative Declaration reflects the independent judgment of the lead agency.*

INITIAL STUDY & ENVIRONMENTAL CHECKLIST

Project Title/File Number:	DWSP PCL 21 – West Roseville Marketplace; File #PL22-0089
Project Location:	1798 Pleasant Grove Boulevard, Roseville, Placer County; APN 017-162-049
Project Description:	The proposed project is a retail center consisting of a ±55,600 square-foot anchor grocery store, ±14,000 square-feet of inline shops, a ±5,500 square-foot freestanding pad building with a drive-through, and a ±900 square-foot freestanding kiosk building with a gas station including 8 dispensers (total of 16 pumps). The project includes a Design Review Permit to review the site design and proposed buildings, a Tentative Parcel Map to subdivide the existing parcels into four (4) lots, and a Conditional Use Permit for the gas station and drive-through food pad user.
Project Applicant:	Tiffany Wilson, RSC Engineering, Inc.
Property Owner:	Safeway, Inc.
Lead Agency Contact:	Escarlet Mar, Associate Planner – City of Roseville; (916) 774-5247

This initial study has been prepared to identify and assess the anticipated environmental impacts of the above described project application. The document relies on previous environmental documents (see Attachments) and site-specific studies prepared to address in detail the effects or impacts associated with the project. Where documents were submitted by consultants working for the applicant, City staff reviewed such documents in order to determine whether, based on their own professional judgment and expertise, staff found such documents to be credible and persuasive. Staff has only relied on documents that reflect their independent judgment, and has not accepted at face value representations made by consultants for the applicant.

This document has been prepared to satisfy the California Environmental Quality Act (CEQA), (Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (14 CCR 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects.

The initial study is a public document used by the decision-making lead agency to determine whether a project may have a significant effect on the environment. If the lead agency finds substantial evidence that any aspect of the project, either individually or cumulatively, may have a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial, the lead agency is required to prepare an EIR. If the agency finds no substantial evidence that the project or any of its aspects may cause a significant effect on the environment, a negative declaration shall be prepared. If in the course of analysis, the agency recognizes that the project may have a significant impact on the environment, but that by incorporating specific mitigation measures to which the applicant agrees, the impact will be reduced to a less than significant effect, a mitigated negative declaration shall be prepared.

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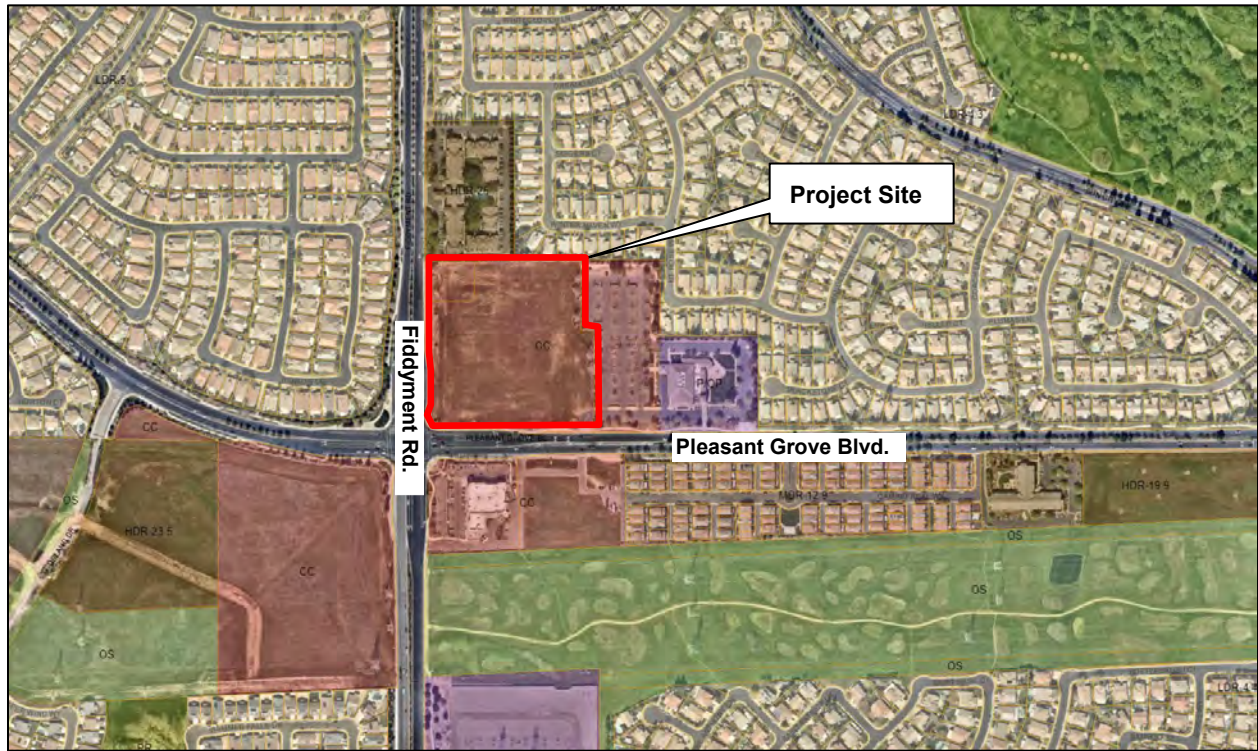
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PROJECT DESCRIPTION

Project Location

The project site is located on two (2) parcels totaling approximately ±8.80-acres in the Dell Webb Specific Plan area (Figure 1). The project is located at 1798 Pleasant Grove Boulevard (APN 017-162-049) and 6745 Fiddyment Road (APN 017-162-010). The site is currently undeveloped and has a zoning designation of Community Commercial/Special Area-Del Webb Specific Plan (CC/SA-DW) and a General Plan land use designation of Community Commercial (CC). Surrounding uses include a senior apartment complex and an age restricted single-family subdivision to the north, a community assembly use (i.e. a church) to the east, commercial property within the North Roseville Specific Plan to the south, and single-family residential properties within the West Roseville Specific Plan to the west.

Figure 1: Project Location



Background

Location	Zoning	General Plan Land Use	Actual Use of Property
Site	CC/SA-DW	CC	Vacant
North	Attached Housing/Design Standards-Dell Webb Specific Plan (R3/DS-DW) & Residential Mixed Use/Special Area-Dell Web Specific Plan (RMU/SA-DW)	High Density Residential (HDR-25) & Low Density Residential (LDR-4.6)	Senior Apartments & Single Family Residences
South	CC	CC	CVS
East	CC/SA-DW & RMU/SA-DW	CC & Public Quasi-Public (P/QP)	Pleasant Grove Community Church

West	Small Lot Residential/Design Standards (RS/DS)	LDR-5	Single Family Residences
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Environmental Setting

The project site has been previously rough graded and consists of annual grassland, ruderal vegetation, and Fremont Cottonwood and Pacific Willow trees. The project site has undergone periodic disking and other ground disturbance throughout the years and no wetlands or other significant natural features are on the site.

Proposed Project

The proposed project would allow construction of a major tenant building (i.e. Safeway) with several in-line shops, one free standing building with a gas station, and a freestanding pad building with a drive-through. The project includes an anchor grocery store totaling approximately ±55,600 square-feet, inline shops totaling ±14,000 square-feet, a freestanding pad building with a drive-through totaling ±5,500 square-feet, a gas station including 8 dispensers (total of 16 pumps), and a ±900 square-foot freestanding kiosk building. The tentative parcel map as proposed would create a total of four (4) lots. A conditional use permit for the gas station and drive-through food pad is requested since the properties are contiguous to a residential zoned property. The applicant requests approval of a Design Review Permit, Conditional Use Permit, and a Tentative Parcel Map to allow development of the project.

CITY OF ROSEVILLE MITIGATION ORDINANCES, GUIDELINES, AND STANDARDS

For projects that are consistent with the development density established by existing zoning, community plan, or general plan policies for which an EIR was certified, CEQA Guidelines section 15183(f) allows a lead agency to rely on previously adopted development policies or standards as mitigation for the environmental effects, when the standards have been adopted by the City, with findings based on substantial evidence, that the policies or standards will substantially mitigate environmental effects, unless substantial new information shows otherwise (CEQA Guidelines §15183(f)). The City of Roseville adopted CEQA Implementing Procedures (Implementing Procedures) which are consistent with this CEQA Guidelines section. The current version of the Implementing Procedures were adopted in April 2008 (Resolution 08-172), along with Findings of Fact, and were updated in January 2021 (Resolution 21-018). The below regulations and ordinances were found to provide uniform mitigating policies and standards, and are applicable to development projects. The City's Mitigating Policies and Standards are referenced, where applicable, in the Initial Study Checklist.

- Noise Regulation (RMC Ch.9.24)
- Flood Damage Prevention Ordinance (RMC Ch.9.80)
- Traffic Mitigation Fee (RMC Ch.4.44)
- Drainage Fees (Dry Creek [RMC Ch.4.49] and Pleasant Grove Creek [RMC Ch.4.48])
- City of Roseville Improvement Standards (Resolution 02-37 and as further amended)
- City of Roseville Design and Construction Standards (Resolution 01-208 and as further amended)
- Tree Preservation Ordinance (RMC Ch.19.66)
- Internal Guidance for Management of Tribal Cultural Resources and Consultation (Tribal Consultation Policy) (Resolution 20-294)
- Subdivision Ordinance (RMC Title 18)
- Community Design Guidelines
- Specific Plan Design Guidelines:
 - Development Guidelines Del Webb Specific Plan

- Landscape Design Guidelines for North Central Roseville Specific Plan
- North Roseville Specific Plan and Design Guidelines
- Northeast Roseville Specific Plan (Olympus Pointe) Signage Guidelines
- North Roseville Area Design Guidelines
- Northeast Roseville Specific Plan Landscape Design Guidelines
- Southeast Roseville Specific Plan Landscape Design Guidelines
- Stoneridge Specific Plan and Design Guidelines
- Highland Reserve North Specific Plan and Design Guidelines
- West Roseville Specific Plan and Design Guidelines
- Sierra Vista Specific Plan and Design Guidelines
- Creekview Specific Plan and Design Guidelines
- Amoruso Ranch Specific Plan and Design Guidelines
- City of Roseville 2035 General Plan

OTHER ENVIRONMENTAL DOCUMENTS RELIED UPON

- 2035 General Plan Update Final Environmental Impact Report, certified August 5, 2020, located online at https://www.roseville.ca.us/government/departments/development_services/planning/general_plan_development_guidelines
- Del Webb Specific Plan Final Environmental Impact Report (SCH# 93042005), located online at <https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8775085>
- 2022 Design and Construction Standards, located online at https://www.roseville.ca.us/government/departments/development_services/engineering_land_development/construction_management_inspection/design_construction_standards

Pursuant to CEQA Guidelines Section 15183, any project which is consistent with the development densities established by zoning, a Community Plan, or a General Plan for which an EIR was certified shall not require additional environmental review, except as may be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site. The 2035 General Plan Update EIR (General Plan EIR) updated all Citywide analyses, including for vehicle miles traveled, greenhouse gas emissions, water supply, water treatment, wastewater treatment, and waste disposal. The proposed project is consistent with the adopted land use designations examined within the environmental documents listed above, and thus this Initial Study focuses on effects particular to the specific project site, impacts which were not analyzed within the EIR, and impacts which may require revisiting due to substantial new information. When applicable, the topical sections within the Initial Study summarize the findings within the environmental documents listed above. The analysis, supporting technical materials, and findings of the environmental document are incorporated by reference, and are available for review at the Civic Center, 311 Vernon Street, Roseville, CA.

EXPLANATION OF INITIAL STUDY CHECKLIST

The California Environmental Quality Act (CEQA) Guidelines recommend that lead agencies use an Initial Study Checklist to determine potential impacts of the proposed project on the physical environment. The Initial Study Checklist provides a list of questions concerning a comprehensive array of environmental issue areas potentially affected by this project. This section of the Initial Study incorporates a portion of Appendix G Environmental Checklist Form, contained in the CEQA Guidelines. Within each topical section (e.g. Air Quality) a description

of the setting is provided, followed by the checklist responses, thresholds used, and finally a discussion of each checklist answer.

There are four (4) possible answers to the Environmental Impacts Checklist on the following pages. Each possible answer is explained below:

- 1) A “Potentially Significant Impact” is appropriate if there is enough relevant information and reasonable inferences from the information that a fair argument based on substantial evidence can be made to support a conclusion that a substantial, or potentially substantial, adverse change may occur to any of the physical conditions within the area affected by the project. When one or more “Potentially significant Impact” entries are made, an EIR is required.
- 2) A “Less Than Significant With Mitigation” answer is appropriate when the lead agency incorporates mitigation measures to reduce an impact from “Potentially Significant” to “Less than Significant.” For example, floodwater impacts could be reduced from a potentially-significant level to a less-than-significant level by relocating a building to an area outside of the floodway. The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level. Mitigation measures are identified as MM followed by a number.
- 3) A “Less Than significant Impact” answer is appropriate if there is evidence that one or more environmental impacts may occur, but the impacts are determined to be less than significant, or the application of development policies and standards to the project will reduce the impact(s) to a less-than-significant level. For instance, the application of the City’s Improvement Standards reduces potential erosion impacts to a less-than-significant level.
- 4) A “No Impact” answer is appropriate where it can be demonstrated that the impact does not have the potential to adversely affect the environment. For instance, a project in the center of an urbanized area with no agricultural lands on or adjacent to the project area clearly would not have an adverse effect on agricultural resources or operations. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources cited in the Initial Study. Where a “No Impact” answer is adequately supported by the information sources cited in the Initial Study, further narrative explanation is not required. A “No Impact” answer is explained when it is based on project-specific factors as well as generous standards.

All answers must take account of the whole action involved, including off- and on-site, indirect, direct, construction, and operation impacts, except as provided for under State CEQA Guidelines.

INITIAL STUDY CHECKLIST

I. Aesthetics

The project site is located in a typical urbanized setting within a commercially zoned area of the City and is adjacent to roadways on two (2) sides. Public views of the site are from Pleasant Grove Boulevard and Fiddymont Road, both arterial roadways, and its adjacent sidewalks. The site has been previously rough graded and consists of annual grassland, ruderal vegetation, and Fremont Cottonwood and Pacific Willow trees. The project will allow construction of a commercial shopping center consisting of multiple buildings totaling approximately ±76,000 square-feet. Surrounding uses include a senior apartment complex and an age restricted single-family dwelling unit community to the north, a community assembly use (i.e. a religious institution) to the east, commercial property within the North Roseville Specific Plan to the south, and single-family residential properties within the West Roseville Specific Plan to the west.

Would the project:

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

Thresholds of Significance and Regulatory Setting:

The significance of an environmental impact cannot always be determined through the use of a specific, quantifiable threshold. CEQA Guidelines Section 15064(b) affirms this by the statement “an ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.” This is particularly true of aesthetic impacts. As an example, a proposed parking lot in a dense urban center would have markedly different visual effects than a parking lot in an open space area. For the purpose of this study, the significance thresholds are as stated in CEQA Guidelines Appendix G, as shown in a–d of the checklist below. The Findings of the Implementing Procedures indicate that compliance with the Zoning Ordinance (e.g. building height, setbacks, etc), Subdivision Ordinance (RMC Ch. 18), Community Design Guidelines (Resolution 95-347), and applicable Specific Plan Policies and/or Specific Plan Design Guidelines will prevent significant impacts in urban settings as it relates to items a, b, and c, below.

Discussion of Checklist Answers:

a–b) There are no designated or eligible scenic vistas or scenic highways within or adjacent to the City of Roseville.

c) The project site is in an urban setting, and as a result lacks any prominent or high-quality natural features which could be negatively impacted by development. The site has street frontage along the western and southern property lines, with attached housing and single family residences to the north, community commercial uses to the east and south, and additional single family residences to the west across Fiddymment Road. The City of Roseville has adopted Community Design Guidelines (CDG) for the purpose of creating building and community designs which are a visual asset to the community. The CDG includes guidelines for building design, site design and landscape design, which will result in a project that enhances the existing urban visual environment. The project has been reviewed by City staff and was found to be consistent with the goals and policies of the CDG, the DWSP, and applicable zoning regulations. Accordingly, the aesthetic impacts of the project are less than significant.

d) The project involves nighttime lighting to provide for the security and safety of project users. However, the project is already located within an urbanized setting with many existing lighting sources. Lighting is conditioned to comply with City standards (i.e. CDG) to limit the height of light standards and to require cut-off lenses and glare shields to minimize light and glare impacts. The project will not create a new source of substantial light. None of the project elements are highly reflective, and thus the project will not contribute to an increased source of glare.

II. Agricultural & Forestry Resources

The State Department of Conservation oversees the Farmland Mapping and Monitoring Program, which was established to document the location, quality, and quantity of agricultural lands, and the conversion of those lands over time. The primary land use classifications on the maps generated through this program are: Urban and Built Up Land, Grazing Land, Farmland of Local Importance, Unique Farmland, Farmland of Statewide Importance, and Prime Farmland. According to the current California Department of Conservation Placer County Important Farmland Map (2012), the majority of the City of Roseville is designated as Urban and Built Up Land and most of the open space areas of the City are designated as Grazing Land. There are a few areas designated as Farmland of Local Importance and two small areas designated as Unique Farmland located on the western side of the City along Baseline Road. The current Williamson Act Contract map (2013/2014) produced by the Department of Conservation shows that there are no Williamson Act contracts within the City, and only one (on PFE Road) that is adjacent to the City. None of the land within the City is considered forest land by the Board of Forestry and Fire Protection.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Thresholds of Significance and Regulatory Setting:

Unique Farmland, Farmland of Statewide Importance, and Prime Farmland are called out as protected farmland categories within CEQA Guidelines Appendix G. Neither the City nor the State has adopted quantified significance thresholds related to impacts to protected farmland categories or to agricultural and forestry resources. For the purpose of this study, the significance thresholds are as stated in CEQA Guidelines Appendix G, as shown in a–e of the checklist above.

Discussion of Checklist Answers:

a–e) The project site is not used for agricultural purposes, does not include agricultural zoning, is not within or adjacent to one of the areas of the City designated as a protected farmland category on the Placer County Important Farmland map, is not within or adjacent to land within a Williamson Act Contract, and is not considered forest land. Given the foregoing, the proposed project will have no impact on agricultural resources.

III. Air Quality

The City of Roseville, along with the south Placer County area, is located in the Sacramento Valley Air Basin (SVAB). The SVAB is within the Sacramento Federal Ozone Non-Attainment Area. Under the Clean Air Act, Placer County has been designated a "serious non-attainment" area for the federal 8-hour ozone standard, "non-attainment" for the state ozone standard, and a "non-attainment" area for the federal and state PM₁₀ standard

(particulate matter less than 10 microns in diameter). Within Placer County, the Placer County Air Pollution Control District (PCAPCD) is responsible for ensuring that emission standards are not violated. Would the project:

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

Thresholds of Significance and Regulatory Setting:

In responding to checklist items a–c, project-related air emissions would have a significant effect if they would result in concentrations that either violate an ambient air quality standard or contribute to an existing air quality violation. To assist in making this determination, the PCAPCD adopted thresholds of significance, which were developed by considering both the health-based ambient air quality standards and the attainment strategies outlined in the State Implementation Plan. The PCAPCD-recommended significance threshold for reactive organic gases (ROG) and nitrogen oxides (NO_x) is 82 pounds daily during construction and 55 pounds daily during operation, and for particulate matter (PM) is 82 pounds per day during both construction and operation. For all other constituents, significance is determined based on the concentration-based limits in the Federal and State Ambient Air Quality Standards. Toxic Air Contaminants (TAC) are also of public health concern, but no thresholds or standards are provided because they are considered to have no safe level of exposure. Analysis of TAC is based on the *Air Quality and Land Use Handbook – A Community Health Perspective* (April 2005, California Air Resources Board), which lists TAC sources and recommended buffer distances from sensitive uses. For checklist item c, the PCAPCD’s *CEQA Air Quality Handbook (Handbook)* recommends that the same thresholds used for the project analysis be used for the cumulative impact analysis.

With regard to checklist item d, there are no quantified significance thresholds for exposure to objectionable odors or other emissions. Significance is determined after taking into account multiple factors, including screening distances from odor sources (as found in the PCAPCD CEQA Handbook), the direction and frequency of prevailing winds, the time of day when emissions are detectable/present, and the nature and intensity of the emission source.

Discussion of Checklist Answers:

a–b) Analyses are not included for sulfur dioxide, lead, and other constituents because there are no mass emission thresholds; these are concentration-based limits in the Federal and State Ambient Air Quality Standards which require substantial, point-source emissions (e.g. refineries, concrete plants, etc) before exceedance will occur, and the SVAB is in attainment for these constituents. Likewise, carbon monoxide is not analyzed because the SVAB is in attainment for this constituent, and it requires high localized concentrations (called carbon monoxide “hot spots”) before the ambient air quality standard would be exceeded. “Hot spots” are typically associated with heavy traffic congestion occurring at high-volume roadway intersections. The General Plan EIR analysis of Citywide traffic indicated that more than 70% of signalized intersections would operate at level of service C or better—that is, they will not experience heavy traffic congestion. It further indicated that analyses of existing CO concentrations at the most congested intersections in Roseville show that CO levels are well below federal and state ambient air quality standards. The discussions below focus on emissions of ROG, NO_x, or PM. A project-level analysis has been prepared to determine whether the project will, on a singular level, exceed the established thresholds.

PCAPCD recommends that lead agencies use the California Emissions Estimator Model (CalEEMod) to quantify a project’s construction and operational emissions for criterial air pollutants (NO_x, ROG, and PM). The results are then compared to the significance thresholds established by the district, as detailed above. However, according to PCAPCD’s published screening table, general commercial projects smaller than 249,099 square feet will not result in NO_x emissions that exceed 55 lbs/day, and therefore modeling is not required. Typically, NO_x emissions are substantially higher than ROG and PM10; therefore, it can be assumed that projects that do not exceed the NO_x threshold will not exceed the ROG and PM10 thresholds, and will not result in a significant impact related to operational emissions. The project proposes the construction of a shopping center consisting of a large supermarket with inline tenants, one (1) pad building with a drive-through, and a small convenience store with 8 dispensers (total of 16 pumps) totaling approximately ±76,000 square feet of commercial building, which is well below PCAPCD’s modeled example. Thus, the project is not expected to result in construction or operational emissions that would exceed the district’s thresholds for significance-specific analysis. However, staff still used the CalEEMod program to confirm the project would not exceed construction or operational emissions that would exceed the district’s thresholds for significance-specific analysis. The CalEEMod was run using the model defaults as well as project specific information such as land use. The results are included as Attachment 5 and are summarized in Table 1 below. The modeled emissions for the project do not exceed the construction and operational thresholds of significance. Therefore, the project will not result in a significant impact related to construction or operational emissions. Impacts are less than significant.

Table 1: CalEEMod Results

Pollutant	Project Emissions (lbs/day)	Significance Threshold (lbs/day)	Exceeds Threshold?
Construction Emissions			
ROG	36.20	82	No
NO _x	33.12	82	No
PM ₁₀	21.42	82	No
Operational Emissions			
ROG	42.67	55	No
NO _x	31.54	55	No
PM ₁₀	33.42	82	No

c) With regard to TAC, there are hundreds of constituents which are considered toxic, but they are typically generated by stationary sources like gas stations, facilities using solvents, and heavy industrial operations. The project includes the construction of a gas station consisting of 8 dispensers (total of 16 pumps) and a ±850 square foot freestanding building. A gasoline facility is a source of gasoline vapors that include TACs, primarily benzene. Prior to construction and operation of the gasoline facility, the applicant is required to obtain an Authority to Construct (ATC) permit from the PCAPCD. A Health Risk Assessment (HRA) is required as part of the ATC permit in order to determine the potential cancer risk that will be generated as a result of the project. The applicant provided a project-specific HRA (Attachment 6), prepared by Helix Environmental Planning in May 2022, which concluded the annual amount of gasoline dispensed from the facility will be below the significance threshold for cancer risk of 10 in one million.

The HRA determined that the maximum cancer residential risk associated with the project would be 0.5 cancers/million, which is below the PCAPCD's significance threshold of 10 cancers/million. The HRA also determined that the maximum cancer worker risk associated with the project would be 0.2 cancers/million, which is also below the PCAPCD's significance threshold of 10 cancers/million. Finally, the HRA determined that the acute health effects for residents and workers would be 0.89, which is well below the PCAPCD's significance threshold of 1. Based on these factors, impacts are less than significant.

e) Diesel fumes from construction equipment and delivery trucks are often found to be objectionable; however, construction is temporary and diesel emissions are minimal and regulated. Typical urban projects such as residences and retail businesses generally do not result in substantial objectionable odors when operated in compliance with City Ordinances (e.g. proper trash disposal and storage). The Project is a typical urban development that lacks any characteristics that would cause the generation of substantial unpleasant odors. Thus, construction and operation of the proposed project would not result in the creation of objectionable odors affecting a substantial number of people. A review of the project surroundings indicates that there are no substantial odor-generating uses near the project site; the project location meets the recommended screening distances from odor-generators provided by the PCAPCD. Impacts related to odors are less than significant.

IV. Biological Resources

The project site is currently undeveloped and consists of grasses, ruderal vegetation, and several non-native oak trees. The site has been previously disturbed and has undergone periodic disking and other ground disturbance as shown during a review of aerial photography. City staff determined there are no evidence of wetlands or designated open space areas on the site.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Thresholds of Significance and Regulatory Setting:

There is no ironclad definition of significance as it relates to biological resources. Thus, the significance of impacts to biological resources is defined by the use of expert judgment supported by facts, and relies on the policies, codes, and regulations adopted by the City and by regulatory agencies which relate to biological resources (as cited and described in the Discussion of Checklist Answers section). Thresholds for assessing the significance of environmental impacts are based on the CEQA Guidelines checklist items a–f, above. Consistent with CEQA Guidelines Section 15065, a project may have a significant effect on the environment if:

The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; [or] substantially reduce the number or restrict the range of an endangered, rare or threatened species . . .

Various agencies regulate impacts to the habitats and animals addressed by the CEQA Guidelines checklist. These include the United States Fish and Wildlife Service, National Oceanic and Atmospheric Administration–Fisheries, United States Army Corps of Engineers, Central Valley Regional Water Quality Control Board, and California Department of Fish and Wildlife. The primary regulations affecting biological resources are described in the sections below.

Checklist item a addresses impacts to special status species. A “special status” species is one which has been identified as having relative scarcity and/or declining populations. Special status species include those formally listed as threatened or endangered, those proposed for formal listing, candidates for federal listing, and those classified as species of special concern. Also included are those species considered to be “fully protected” by the California Department of Fish and Wildlife (California Fish and Wildlife), those granted “special animal” status for tracking and monitoring purposes, and those plant species considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS). The primary regulatory protections for special status species are within the Federal Endangered Species Act, California Endangered Species Act, California Fish and Game Code, and the Federal Migratory Bird Treaty Act.

Checklist item b addresses all “sensitive natural communities” and riparian (creekside) habitat that may be affected by local, state, or federal regulations/policies while checklist item c focuses specifically on one type of such a community: protected wetlands. Focusing first on wetlands, the 1987 Army Corps Wetlands Delineation Manual is used to determine whether an area meets the technical criteria for a wetland. A delineation verification by the Army Corps verifies the size and condition of the wetlands and other waters in question, and determines

the extent of government jurisdiction as it relates to Section 404 of the Federal Clean Water Act and Section 401 of the State Clean Water Act.

The Clean Water Act protects all “navigable waters”, which are defined as traditional navigable waters that are or were used for commerce, or may be used for interstate commerce; tributaries of covered waters; and wetlands adjacent to covered waters, including tributaries. Non-navigable waters are called isolated wetlands, and are not subject to either the Federal or State Clean Water Act. Thus, isolated wetlands are not subject to federal wetland protection regulations. However, in addition to the Clean Water Act, the State also has jurisdiction over impacts to surface waters through the Porter-Cologne Water Quality Control Act (Porter-Cologne), which does not require that waters be “navigable”. For this reason, isolated wetlands are regulated by the State of California pursuant to Porter-Cologne. The City of Roseville General Plan also provides protection for wetlands, including isolated wetlands, pursuant to the General Plan Open Space and Conservation Element. Federal, State and City regulations/policies all seek to achieve no net loss of wetland acreage, values, or function.

Aside from wetlands, checklist item b also addresses other “sensitive natural communities” and riparian habitat, which includes any habitats protected by local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. The City of Roseville General Plan Open Space and Conservation Element includes policies for the protection of riparian areas and floodplain areas; these are Vegetation and Wildlife section Policies 2 and 3. Policy 4 also directs preservation of additional area around stream corridors and floodplain if there is sensitive woodland, grassland, or other habitat which could be made part of a contiguous open space area. Other than wetlands, which were already discussed, US Fish and Wildlife and California Department of Fish and Wildlife habitat protections generally result from species protections, and are thus addressed via checklist item a.

For checklist item d, there are no regulations specific to the protection of migratory corridors. This item is addressed by an analysis of the habitats present in the vicinity and analyzing the probable effects on access to those habitats which will result from a project.

The City of Roseville Tree Preservation ordinance (RMC Ch.19.66) requires protection of native oak trees, and compensation for oak tree removal. The Findings of the Implementing Procedures indicate that compliance with the City of Roseville Tree Preservation ordinance (RMC Ch.19.66) will prevent significant impacts related to loss of native oak trees, referenced by item e, above.

Regarding checklist item f, there are no adopted Habitat Conservation Plans within the City of Roseville.

Discussion of Checklist Answers:

a) The project will require the removal of several Fremont Cottonwood and Pacific Willow trees, which could potentially provide habitat for nesting birds. Construction activities could also have the potential to disrupt offsite nesting species. A pre-construction nesting survey, **Mitigation Measure BIO-1**, is required in order to ensure that nesting birds are not harmed during construction. Ground disturbing activities shall not occur during the active nesting season, if it is necessary to conduct such activities during the nesting season, pre-construction surveys and mitigation as described in Mitigation Measure BIO-1, would be required. Compliance with Mitigation Measure BIO-1 will ensure that potential impacts to nesting birds are less than significant

b-c) As discussed in the Environmental Setting, the project site is located in an urbanized area. The site is adjacent to paved roadways and is adjacent to residential and commercial uses. The property does not contain sensitive natural communities which are protected by federal, state or local policies, nor does it contain any wetlands; thus, the project will have no impact with regard to this criterion.

d) The City includes an interconnected network of open space corridors and preserves located throughout the City, to ensure that the movement of wildlife is not substantially impeded as the City develops. The

development of the project site will not negatively impact these existing and planned open space corridors, nor is the project site located in an area that has been designated by the City, United States Fish and Wildlife, or California Department of Fish and Wildlife as vital or important for the movement of wildlife or the use of native wildlife nursery sites.

e) A preliminary arborist report including a tree inventory summary was provided by California Tree and Landscape Consulting, Inc., dated March 31, 2022 (Attachment 7). A total of 17 trees were evaluated, of the 17 trees only 9 are located on the project site. None of the 17 trees evaluated were identified as protected oak trees. The applicant proposes to remove all 9 trees from the project site; none of the proposed trees to be removed are protected oak trees, thus, the project will not conflict with the City’s Zoning Ordinance (Chapter 19.66, Tree Preservation).

f) There are no Habitat Conservation Plans; Natural Community Conservation Plans; or other approved local, regional, or state habitat conservation plans that apply to the project site.

V. Cultural Resources

As described within the Open Space and Conservation Element of the City of Roseville General Plan, the Roseville region was within the territory of the Nisenan (also Southern Maidu or Valley Maidu). Two large permanent Nisenan habitation sites have been identified and protected within the City’s open space (in Maidu Park). Numerous smaller cultural resources, such as midden deposits and bedrock mortars, have also been recorded in the City. The gold rush which began in 1848 marked another settlement period, and evidence of Roseville’s ranching and mining past are still found today. Historic features include rock walls, ditches, low terraces, and other remnants of settlement and activity. A majority of documented sites within the City are located in areas designated for open space uses.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of an historic resource pursuant to in Section 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?			X	
c) Disturb any human remains, including those interred outside of dedicated cemeteries?			X	

Thresholds of Significance and Regulatory Setting:

The significance of impacts to cultural resources is based directly on the CEQA Guidelines checklist items a–e listed above. The Archaeological, Historic, and Cultural Resources section of the City of Roseville General Plan also directs the proper evaluation of and, when feasible, protection of significant resources (Policies 1 and 2). There are also various federal and State regulations regarding the treatment and protection of cultural resources,

including the National Historic Preservation Act and the Antiquities Act (which regulate items of significance in history), Section 7050.5 of the California Health and Safety Code, Section 5097.9 of the California Public Resources Code (which regulates the treatment of human remains) and Section 21073 et seq. of the California Public Resources Code (regarding Tribal Cultural Resources). The CEQA Guidelines also contains specific sections, other than the checklist items, related to the treatment of effects on historic resources.

Pursuant to the CEQA Guidelines, if it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2 (a), (b), and (c)). A *historical resource* is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR) (Section 21084.1); a resource included in a local register of historical resources (Section 15064.5(a)(2)); or any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section 15064.5 (a)(3)). Public Resources Code Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the CRHR.

Discussion of Checklist Answers:

a–b and d) No cultural resources are known to exist on the project site per the Del Webb Specific Plan EIR; however, standard mitigation measures apply which are designed to reduce impacts to cultural resources, should any be found on-site. The measure requires an immediate cessation of work, and contact with the appropriate agencies to address the resource before work can resume. The project will not result in any new impacts beyond those already discussed and disclosed in the Del Webb Specific Plan EIR; project-specific impacts are less than significant.

c) No paleontological resources are known to exist on the project site per the Del Webb Specific Plan EIR; however, standard mitigation measures apply which are designed to reduce impacts to such resources, should any be found on-site. The measure requires an immediate cessation of work, and contact with the appropriate agencies to address the resource before work can resume. The project will not result in any new impacts beyond those already discussed and disclosed in the Del Webb Specific Plan EIR; project-specific impacts are less than significant.

VI. Energy

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy inefficiency?			X	

Thresholds of Significance and Regulatory Setting:

Established in 2002, California's Renewable Portfolio Standard (RPS) currently requires that 33 percent of electricity retail sales be served by renewable energy resources by 2020, and 50 percent by 2030. The City published a Renewables Portfolio Standard Procurement Plan in June 2018, and continues to comply with the RPS reporting and requirements and standards. There are no numeric significance thresholds to define "wasteful, inefficient, or unnecessary" energy consumption, and therefore significance is based on CEQA Guidelines checklist items a and b, above, and by the use of expert judgment supported by facts, relying on the policies, codes, and regulations adopted by the City and by regulatory agencies which relate to energy. The analysis considers compliance with regulations and standards, project design as it relates to energy use (including transportation energy), whether the project will result in a substantial unplanned demand on the City's energy resources, and whether the project will impede the ability of the City to meet the RPS standards.

Discussion of Checklist Answers:

a & b) The project would consume energy both during project construction and during project operation. During construction, fossil fuels, electricity, and natural gas would be used by construction vehicles and equipment. However, the energy consumed during construction would be temporary, and would not represent a significant demand on available resources. There are no unusual project characteristics that would necessitate the use of construction equipment or methods that would be less energy-efficient or which would be wasteful.

The completed project would consume energy related to building operation, exterior lighting, landscape irrigation and maintenance, and vehicle trips to and from the use. In accordance with California Energy Code Title 24, the project would be required to meet the Building Energy Efficiency Standards. This includes standards for water and space heating and cooling equipment; insulation for doors, pipes, walls, and ceilings; and appliances, to name a few. The project would also be eligible for rebates and other financial incentives from both the electric and gas providers for the purchase of energy-efficient appliances and systems, which would further reduce the operational energy demand of the project. The project was distributed to both PG&E and Roseville Electric for comments, and was found to conform to the standards of both providers; energy supplies are available to serve the project.

The project is consistent with the existing land use designation of Community Commercial, and has been assumed for development with commercial uses in citywide environmental analyses, such as in the City's 2035 General Plan Update, certified on August 5, 2020. The project is consistent with the current citywide assessment of energy demand, and will not result in substantial unplanned demands, inefficient, wasteful, or unnecessary consumption of energy; impacts are less than significant.

VII. Geology and Soils

As described in the Safety Element of the City of Roseville General Plan, there are three inactive faults (Volcano Hill, Linda Creek, and an unnamed fault) in the vicinity, but there are no known active seismic faults within Placer County. The last seismic event recorded in the South Placer area occurred in 1908, and is estimated to have been at least a 4.0 on the Richter Scale. Due to the geographic location and soil characteristics within the City, the General Plan indicates that soil liquefaction, landslides, and subsidence are not a significant risk in the area.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:			X	
i) Ruptures of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located in a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				X

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?			X	

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to geology and soils is based directly on the CEQA Guidelines checklist items a–f listed above. Regulations applicable to this topic include the Alquist-Priolo Act, which addresses earthquake safety in building permits, and the Seismic Hazards Mapping Act, which requires the state to gather and publish data on the location and risk of seismic faults. The Archaeological, Historic, and Cultural Resources section of the City of Roseville General Plan also directs the proper evaluation of and, when feasible, protection of significant archeological resources, which for this evaluation will include paleontological resources (Policies 1 and 2). Section 50987.5 of the California Public Code Section is only applicable to public land; this section prohibits the excavation, removal, destruction, or defacement/injury to any vertebrate paleontological site, including fossilized footprints or other paleontological feature.

The Findings of the Implementing Procedures indicate that compliance with the Flood Damage Prevention Ordinance (RMC Ch.9.80) and Design/Construction Standards (Resolution 07-107) will prevent significant impacts related to checklist item b. The Ordinance and standards include permit requirements for construction and development in erosion-prone areas and ensure that grading activities will not result in significant soil erosion or loss of topsoil. The use of septic tanks or alternative waste systems is not permitted in the City of Roseville, and therefore no analysis of criterion e is necessary.

Discussion of Checklist Answers:

a) The project will not expose people or structures to potential substantial adverse effects involving seismic shaking, ground failure or landslides.

i–iii) According to United States Geological Service mapping and literature, active faults are largely considered to be those which have had movement within the last 10,000 years (within the Holocene or Historic time periods)¹ and there are no major active faults in Placer County. The California Geological Survey has prepared a map of the state which shows the earthquake shaking potential of areas throughout California based primarily on an area’s distance from known active faults. The map shows that the City lies in a relatively low-intensity ground-shaking zone. Commercial, institutional, and residential buildings as well as all related infrastructure are required, in conformance with Chapter 16, *Structural Design Requirements*, Division IV, *Earthquake Design* of the California Building Code, to lessen the exposure to potentially damaging vibrations

¹ United States Geological Survey, <http://earthquake.usgs.gov/learn/glossary/?term=active%20fault>, Accessed January 2016

through seismic-resistant design. In compliance with the Code, all structures in the Project area would be well-built to withstand ground shaking from possible earthquakes in the region; impacts are less than significant.

iv) Landslides typically occur where soils on steep slopes become saturated or where natural or manmade conditions have taken away supporting structures and vegetation. The existing and proposed slopes of the project site are not steep enough to present a hazard during development or upon completion of the project. In addition, measures would be incorporated during construction to shore minor slopes and prevent potential earth movement. Therefore, impacts associated with landslides are less than significant.

b) Grading activities will result in the disruption, displacement, compaction and over-covering of soils associated with site preparation (grading and trenching for utilities). Grading activities for the project will be limited to the project site. Grading activities require a grading permit from the Engineering Division. The grading permit is reviewed for compliance with the City's Improvement Standards, including the provision of proper drainage, appropriate dust control, and erosion control measures. Grading and erosion control measures will be incorporated into the required grading plans and improvement plans. Therefore, the impacts associated with disruption, displacement, and compaction of soils associated with the project are less than significant.

c, d) A review of the Natural Resources Conservation Service Soil Survey for Placer County, accessed via the Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>), indicates that the soils on the site are Cometa-Fiddyment complex, 1 to 5 percent slopes and Fiddyment-Kaseberg loams, 2 to 9 percent slopes, which are not listed as geologically unstable or sensitive. Therefore, the project has no impacts related to this criteria.

f) No paleontological resources are known to exist on the project site per the Del Webb Specific Plan EIR; however, standard mitigation measures apply which are designed to reduce impacts to such resources, should any be found on-site. The measure requires an immediate cessation of work, and contact with the appropriate agencies to address the resource before work can resume. The project will not result in any new impacts beyond those already discussed and disclosed in the Del Webb Specific Plan EIR; project-specific impacts are less than significant.

VIII. Greenhouse Gases

Greenhouse gases trap heat in the earth's atmosphere. The principal greenhouse gases (GHGs) that enter the atmosphere because of human activities are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. As explained by the United States Environmental Protection Agency², global average temperature has increased by more than 1.5 degrees Fahrenheit since the late 1800s, and most of the warming of the past half century has been caused by human emissions. The City has taken proactive steps to reduce greenhouse gas emissions, which include the introduction of General Plan policies to reduce emissions, changes to City operations, and climate action initiatives.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	

² <http://www3.epa.gov/climatechange/science/overview.html>. Accessed January 2016

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Thresholds of Significance and Regulatory Setting:

In Assembly Bill 32 (the California Global Warming Solutions Act), signed by Governor Schwarzenegger of California in September 2006, the legislature found that climate change resulting from global warming was a threat to California, and directed that “the State Air Resources Board design emissions reduction measures to meet the statewide emissions limits for greenhouse gases . . .”. The target established in AB 32 was to reduce emissions to 1990 levels by the year 2020. CARB subsequently prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008. The Scoping Plan provides the outline for actions to reduce California’s GHG emissions, and has been updated twice.

The current 2017 Scoping Plan updated the target year from 2020 to 2030, based on the targets established in Senate Bill 32 (SB 32). SB 32 was signed by the Governor on September 8, 2016, to establish a reduction target of 40 percent below 1990 levels by 2030. Critically, the 2017 Scoping Plan also sets the path toward compliance with the 2050 target embodied within Executive Order S-3-05 as well. According to the 2017 Scoping Plan the statewide 2030 target is 260 million metric tons. The Scoping Plan recommends an efficiency target approach for local governments for 2030 and 2050 target years.

The Placer County Air Pollution Control District (PCAPCD) recommends that thresholds of significance for GHG be related to statewide reduction goals and has adopted thresholds of significance which take into account the 2030 reduction target. The thresholds include a de minimis and a bright-line maximum threshold, as well as residential and non-residential efficiency thresholds. However, the City developed its own thresholds as part of the 2035 General Plan Update project approved in July 2020. The justification for the City’s thresholds is contained within the General Plan EIR. The thresholds were developed based on statewide emissions data adjusted for relevant local conditions and land uses. The significance thresholds are shown in Table 2 below.

Table 2: GHG Significance Thresholds

	2020	2030	2035	2050
Per Capita Emissions Efficiency Targets (MT CO ₂ e/capita/yr)	7.21	4.00	3.22	1.19
Per Service Population Emissions Efficiency Targets (MT CO ₂ e/SP/yr)	5.07	2.79	2.25	0.83
Projects which use these thresholds for environmental analysis should include a brief justification of the type of efficiency target and the target year selected. Per capita is most applicable to projects which only include residential uses, or in cases where reliable data to generate a service population estimate is unavailable. Projects should generally use the 2035 target year. Note that future projects consistent with the General Plan will not require further analysis, per the tiering provisions of CEQA. Note: MMT CO ₂ e = million metric tons of carbon dioxide equivalent; Service Population (SP) = population + employment				

Discussion of Checklist Answers:

a–b) Per the tiering provisions of CEQA, and as explicitly stated within the City’s adopted GHG significance thresholds in Table 2 (above), a project which is consistent with the General Plan is not required to provide further analysis. The Project is consistent with the General Plan, and therefore does not require greenhouse gas analysis. The consistency of the project with the General Plan EIR analysis is described below. Greenhouse gases are primarily emitted as a result of vehicle operation associated with trips to and from a project, and energy consumption from operation of the buildings.

Greenhouse gases from vehicles is assessed based on the vehicle miles traveled (VMT) resulting from a project, on a Citywide basis. Residential projects, destination centers (such as a regional mall), and major employers tend to increase VMT in a study area, either by adding new residents traveling in an area, or by encouraging longer trip lengths and drawing in trips from a broader regional area. However, non-residential projects and neighborhood-serving uses (e.g. neighborhood parks) tend to lower VMT in a study area because they do not generate new trips within the study area, they divert existing trips. These trips are diverted because the new use location is closer to home, on their way to another destination (e.g. work), or is otherwise more convenient.

In support of this, according to the City’s Design and Construction Standards (see Attachment 3), which were developed based on the City’s 2035 General Plan EIR (refer to the more detailed discussion in the Transportation section), VMT impacts may be determined by screening, if a project meets any of the listed screening criteria discussed in section 4-9 of the document. Based on the project uses and location, the project reduces citywide trip lengths and VMT by adding “local-serving” retail opportunity within close proximity of existing uses that improve retail destination proximity. For the residential areas adjacent to the Project site, the nearest existing grocery store is currently 1.5 miles away and the nearest gas station is 2 miles away. For the residential areas furthest east from the site, the nearest grocery store is 3 miles away, and the nearest gas station is 4.5 miles away. The Project will reduce citywide VMT by bringing necessary services closer to existing residential areas.

The General Plan EIR analysis relied on VMT to calculate mobile greenhouse gas emissions at buildout, based on the land uses of the General Plan. The proposed project is consistent with the General Plan land use, and therefore will not contribute mobile emissions which are specific to the site or project, and which were not considered in the General Plan EIR analysis. Even on a stand-alone basis, as described above, the project will have the net effect of reducing existing VMT, and therefore would reduce mobile-related greenhouse gas emissions.

Greenhouse gases from buildings is based on energy to supply the buildings, area emissions such as landscape equipment to maintain the site, water and wastewater energy demands. The combined total of the buildings on the site have an approximate 0.20 floor area ratio, which is within the range typically expected for the Community Commercial land use according to the General Plan Land Use Element (Table II-2, Non-Residential Land Use Characteristics). Therefore, the proposed development is consistent with the assumptions used as part of the citywide analysis of greenhouse gas provided in the General Plan EIR.

As discussed above, the project would not be anticipated to increase VMT, since it is providing services in closer proximity to developed residential areas of the City, and is consistent with the General Plan and the assumptions used in the General Plan EIR. The project will not contribute greenhouse gas emissions which are in excess of the emissions evaluated in the General Plan EIR, and therefore project-generated GHG emissions would not conflict with and are consistent with statewide goals for greenhouse gas emissions reduction. This impact is considered less than significant.

IX. Hazards and Hazardous Materials

There are no hazardous cleanup sites of record within 1,000 feet of the site according to both the Department of Toxic Substances Control EnviroStor database (<http://www.envirostor.dtsc.ca.gov/public/>) and the State Water

Resources Control Board GeoTracker (<http://geotracker.waterboards.ca.gov/>). The project is not located on a site where existing hazardous materials have been identified, and the project does not have the potential to expose individuals to hazardous materials.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?				X

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to hazardous materials is based directly on the CEQA Guidelines checklist items a–g listed above. A material is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state or local regulatory agency, or if it has characteristics defined as hazardous by such an agency. The determination of significance based on the above criteria depends on the probable frequency and severity of consequences to people who might be exposed to the health hazard, and the degree to which Project design or existing regulations would reduce the frequency of or severity of exposure. As an example, products commonly used for household cleaning are classified as hazardous when transported in large quantities, but one would not conclude that the presence of small quantities of household cleaners at a home would pose a risk to a school located within ¼-mile.

Many federal and State agencies regulate hazards and hazardous substances, including the United States Environmental Protection Agency (US EPA), California Department of Toxic Substances Control (DTSC), Central Valley Regional Water Quality Control Board (Regional Water Board), and the California Occupational Safety and Health Administration (CalOSHA). The state has been granted primacy (primary responsibility for oversight) by the US EPA to administer and enforce hazardous waste management programs. State regulations also have detailed planning and management requirements to ensure that hazardous materials are handled, stored, and disposed of properly to reduce human health risks. California regulations pertaining to hazardous waste management are published in the California Code of Regulations (see 8 CCR, 22 CCR, and 23 CCR).

The project is not within an airport land use plan or within two miles of a public or private use airport. Therefore, no further discussion is provided for item e.

Discussion of Checklist Answers:

a, b) Standard construction activities would require the use of hazardous materials such as fuels, oils, lubricants, glues, paints and paint thinners, soaps, bleach, and solvents. These are common household and commercial materials routinely used by both businesses and average members of the public. The materials only pose a hazard if they are improperly used, stored, or transported either through upset conditions (e.g. a vehicle accident) or mishandling. In addition to construction use, the operational project would result in the use of common hazardous materials as well, including bleach, solvents, and herbicides. Regulations pertaining to the transport of materials are codified in 49 Code of Federal Regulations 171–180, and transport regulations are enforced and monitored by the California Department of Transportation and by the California Highway Patrol. Specifications for storage on a construction site are contained in various regulations and codes, including the California Code of Regulations, the Uniform Fire Code, and the California Health and Safety Code. These same codes require that all hazardous materials be used and stored in the manner specified on the material packaging.

Existing regulations and programs are sufficient to ensure that potential impacts as a result of the use or storage of hazardous materials are reduced to less than significant levels.

c) See response to Items (a) and (b) above. While development of the site will result in the use, handling, and transport of materials deemed to be hazardous, the materials in question are commonly used in both residential and commercial applications, and include materials such as bleach and herbicides. The project will not result in the use of any acutely hazardous materials, substances, or waste.

d) The project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5³; therefore, no impact will occur.

e) This project is located within an area currently receiving City emergency services and development of the site has been anticipated and incorporated into emergency response plans. As such, the project will cause a less than significant impact to the City's Emergency Response or Management Plans. Furthermore, the project will be required to comply with all local, State and federal requirements for the handling of hazardous materials, which will ensure less-than-significant impacts. These will require the following programs:

- A Risk Management and Prevention Program (RMPP) is required of uses that handle toxic and/or hazardous materials in quantities regulated by the California Health and Safety Code and/or the City.
- Businesses that handle toxic or hazardous materials are required to complete a Hazardous Materials Management Program (HMMP) pursuant to local, State, or federal requirements.

g) The California Department of Forestry and Fire Protection (CAL FIRE) is the state agency responsible for wildland fire protection and management. As part of that task, CAL FIRE maintains maps designating Wildland Fire Hazard Severity zones. The City is not located within a Very High Fire Hazard Severity Zone, and is not in a CAL FIRE responsibility area; fire suppression is entirely within local responsibility. The project site is in an urban area, and therefore would not expose people to any risk from wildland fire. There would be no impact with regard to this criterion.

X. Hydrology and Water Quality

As described in the Open Space and Conservation Element of the City of Roseville General Plan, the City is located within the Pleasant Grove Creek Basin and the Dry Creek Basin. Pleasant Grove Creek and its tributaries drain most of the western and central areas of the City and Dry Creek and its tributaries drain the remainder of the City. Most major stream areas in the City are located within designated open space.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	

³ <http://www.calepa.ca.gov/SiteCleanup/CorteseList/SectionA.htm>

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			X	
i) result in substantial erosion or siltation on or off-site;			X	
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;				X
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater systems or provide substantial additional sources of polluted runoff; or				X
iv) impede or redirect flood flows?				X
d) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	
e) In flood hazard, tsunami, or seiches zones, risk release of pollutants due to project inundation?				X

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to hydrology and water quality is based directly on the CEQA Guidelines checklist items a–e listed above. For checklist item a, c (i), d, and e, the Findings of the Implementing Procedures indicate that compliance with the City of Roseville Design/Construction Standards (Resolution 07-107), Urban Stormwater Quality Management and Discharge Control Ordinance (RMC Ch. 14.20), and Stormwater Quality Design Manual (Resolution 16-152) will prevent significant impacts related to water quality or erosion. The standards require preparation of an erosion and sediment control plan for construction activities and includes designs to control pollutants within post-construction urban water runoff. Likewise, it is indicated that the Drainage Fees for the Dry Creek and Pleasant Grove Watersheds (RMC Ch.4.48) and City of Roseville Design/Construction Standards (Resolution 07-107) will prevent significant impacts related to checklist items c (ii) and c (iii). The ordinance and standards require the collection of drainage fees to fund improvements that mitigate potential flooding impacts, and require the design of a water drainage system that will adequately convey anticipated stormwater flows without increasing the rate or amount of surface runoff. These same ordinances and standards prevent impacts related to groundwater (items a and d), because developers are required to treat and detain all stormwater onsite using stormwater swales and other methods which slow flows and preserve infiltration. Finally, it is indicated that compliance with the Flood Damage Prevention Ordinance (RMC Ch. 9.80) will prevent significant impacts related to items c (iv) and e. The Ordinance includes standard requirements for all new construction, including regulation of development with the potential to impede or redirect flood flows, and prohibits development within flood hazard areas. Impacts from tsunamis and seiches were screened out of the analysis (item e) because the project is not located near a water body or other feature that would pose a risk of such an event.

Discussion of Checklist Answers:

a, c (i), d, e) The project will involve the disturbance of on-site soils and the construction of impervious surfaces, such as asphalt paving and buildings. Disturbing the soil can allow sediment to be mobilized by rain or wind, and cause displacement into waterways. To address this and other issues, the developer is required to receive approval of a grading permit and/or improvement plants prior to the start of construction. The permit or plans are required to incorporate mitigation measures for dust and erosion control. In addition, the City has a National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit issued by the Central Valley Regional Water Quality Control Board which requires the City to reduce pollutants in stormwater to the maximum extent practicable. The City does this, in part, by means of the City's 2016 Design/Construction Standards, which require preparation and implementation of a Stormwater Pollution Prevention Plan. All permanent stormwater quality control measures must be designed to comply with the City's Manual for Stormwater Quality Control Standards for New Development, the City's 2016 Design/Construction Standards, Urban Stormwater Quality Management and Discharge Control Ordinance, and Stormwater Quality Design Manual. For these reasons, impacts related to water quality are less than significant.

b, d) The project does not involve the installation of groundwater wells. The City maintains wells to supplement surface water supplies during multiple dry years, but the effect of groundwater extraction on the aquifer was addressed in the City's Urban Water Master Plan and evaluated in the General Plan EIR. The proposed project is consistent with the General Plan land use designation, and is thus consistent with the citywide evaluation of water supply. Project impacts related to groundwater extraction are less than significant. Furthermore, all permanent stormwater quality control measures must be designed to comply with the Stormwater Quality Design Manual, which requires the use of bioswales and other onsite detention and infiltration methods. These standards ensure that stormwater will continue to infiltrate into the groundwater aquifer.

c (ii and iii)) The project has been reviewed by City Engineering staff for conformance with City ordinances and standards. The project includes adequate and appropriate facilities to ensure no net increase in the amount or rate of stormwater runoff from the site, and which will adequately convey stormwater flows.

c (iv) and e) The project has been reviewed by City Engineering staff for conformance with City ordinances and standards. The project is not located within either the Federal Emergency Management Agency floodplain or the City’s Regulatory Floodplain (defined as the floodplain which will result from full buildout of the City). Therefore, the project will not impede or redirect flood flows, nor will it be inundated. The proposed project is located within an area of flat topography and is not near a waterbody or other feature which could cause a seiche or tsunami. There would be no impact with regard to these criterion.

XI. Land Use and Planning

The project site has a General Plan land use designation of Community Commercial and a consistent zoning designation of Community Commercial/Special Area-Del Webb Specific Plan. Surrounding properties have a residential, commercial, or public land use and zoning designations, as described in the Background section of this Initial Study.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation of an agency adopted for the purpose of avoiding or mitigating an environmental effect?				X

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to land use is based directly on the CEQA Guidelines checklist items a and b listed above. Consistency with applicable City General Plan policies, Improvement Standards, and design standards is already required and part of the City’s processing of permits and plans, so these requirements do not appear as mitigation measures.

Discussion of Checklist Answers:

a) The project area has been master planned for development, including adequate roads, pedestrian paths, and bicycle paths to provide connections within the community. The project will not physically divide an established community.

b) The proposed project is consistent with the General Plan and the DWSP, and does not conflict with the City’s policies and regulations adopted for the purpose of avoiding or mitigating an environmental impact.

XII. Mineral Resources

The Surface Mining and Reclamation Act (SMARA) of 1975 requires the State Geologist to classify land into Mineral Resource Zones (MRZ’s) based on the known or inferred mineral resource potential of that land. The California Division of Mines and Geology (CDMG) was historically responsible for the classification and designation of areas containing—or potentially containing—significant mineral resources, though that responsibility now lies with the California Geological Survey (CGS). CDMG published Open File Report 95-10,

which provides the mineral classification map for Placer County. A detailed evaluation of mineral resources has not been conducted within the City limits, but MRZ's have been identified. There are four broad MRZ categories (MRZ-1 through MRZ-4), and only MRZ-2 represents an area of known significant mineral resources. The City of Roseville General Plan EIR included Exhibit 4.1-3, depicting the location of MRZ's in the City limits. There is only one small MRZ-2 designation area, located at the far eastern edge of the City.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to mineral resources is based directly on the CEQA Guidelines checklist items a and b listed above.

Discussion of Checklist Answers:

a–b) The project site is not in the area of the City known to include any mineral resources that would be of local, regional, or statewide importance; therefore, the project has no impacts on mineral resources.

XIII. Noise

The project site is currently undeveloped and is surrounded by residential and commercial uses, which typically do not generate substantial noise volumes. The project site is bounded by Pleasant Grove Boulevard to the south and Fiddymont Road to the east, both of these roadways are identified as transportation noise sources in the City's General Plan Noise Element. According to the General Plan, the project site is within the 60 dB Ldn noise contour for existing roadways and within the 65 dB Ldn noise contour for future roadways (City of Roseville 2015, Figure IX-1 and Figure IX-2).

Would the project result in:

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

Thresholds of Significance and Regulatory Setting:

Standards for transportation noise and non-transportation noise affecting existing or proposed land uses are established within the City of Roseville General Plan Noise Element, and these standards are used as the thresholds to determine the significance of impacts related to items a and c. The significance of other noise impacts is based directly on the CEQA Guidelines checklist items b and c listed above. The Findings of the Implementing Procedures indicate that compliance with the City Noise Regulation (RMC Ch. 9.24) will prevent significant non-transportation noise as it relates to items a and b. The Ordinance establishes noise exposure standards that protect noise-sensitive receptors from a variety of noise sources, including non-transportation/fixed noise, amplified sound, industrial noise, and events on public property. The project is not within an airport land use plan, within two miles of a public or public use airport and there are also no private airstrips in the vicinity of the project area. Therefore, item c has been ruled out from further analysis.

Discussion of Checklist Answers:

a) The City of Roseville General Plan Noise Element includes Policy N1.1, which requires proposed fixed noise sources to be mitigated so as not to exceed the noise level performance standards contained within Sound Level Standards Table 1 in the City’s Municipal Code Chapter 9.324 (Noise Regulation). These standards are included in Table 3 below. Fixed noise sources are defined as noises that come from a specified area, while moving noise sources are from transportation facilities (roadway noise, train noise, etc.); the proposed project will generate fixed noise.

Table 3: Noise Element Table IX-3

PERFORMANCE STANDARDS FOR NON-TRANSPORTATION NOISE SOURCES OR PROJECTS AFFECTED BY NON-TRANSPORTATION NOISE SOURCES (As Measured at the Property Line of Noise-Sensitive Uses)		
Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	50	45
Maximum level, dB	70	65
<p>¹ For municipal power plants consisting primarily of broadband, steady state noise sources, the hourly (Leq) noise standard may be increased up to 10 dB(A), but not exceed 55 dB(A) Hourly Leq dB.</p> <p>Each of the noise levels specified above should be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. Such noises are generally considered by residents to be particularly annoying and are a primary source of noise complaints. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).</p> <p>No standards have been included for interior noise levels. Standard construction practices should, with exterior noise levels identified, result in acceptable interior noise levels.</p>		

The proposed project is a shopping center including a grocery store and a mix of retail and commercial uses. The project includes a covered loading dock adjacent to the grocery store at the rear of the building and adjacent to existing residences. The project also includes a ±900 square-foot freestanding kiosk building with a gas station including 8 dispensers (total of 16 pumps) on Pad A, which is located on the southwestern portion of the project site (see Figure 2). An Environmental Noise Assessment was prepared for the project by Bollard Acoustical Consultants, Inc. (BAC) and is included as Attachment 8. The assessment evaluated the noise generated from the proposed loading dock area, the outdoor patio area, the gas station fueling area, and the restaurant drive-through lane. It concluded the primary noise sources associated with the project have been identified as delivery truck loading dock activities, on-site truck circulation, restaurant drive-through operations, parking movements, rooftop mechanical equipment (HVAC), outdoor patio conversations, and trash compactor operation. As such, only noise mitigation measures for the loading dock are required in order to comply with the General Plan noise standards, and to ensure impacts are less than significant. Below is a summary of the results of the study.

Loading Dock Noise

The study found that primary noise sources associated with the loading dock area are a result of the heavy and medium-duty trucks stopping (air brakes), backing into the loading bays (back-up alarms), and pulling away from the dock area (revving engines). An existing CMU masonry wall is located on the northern boundary of the project site, adjacent to the existing residences. Based on reference noise levels of 60 dB Leq and 80 dB Lmax, and assuming standard spherical spreading loss (-6 dB per doubling of distance), loading dock noise exposure at the property lines of the nearest residential uses was predicted and the results of those results are presented in Table 4 below.

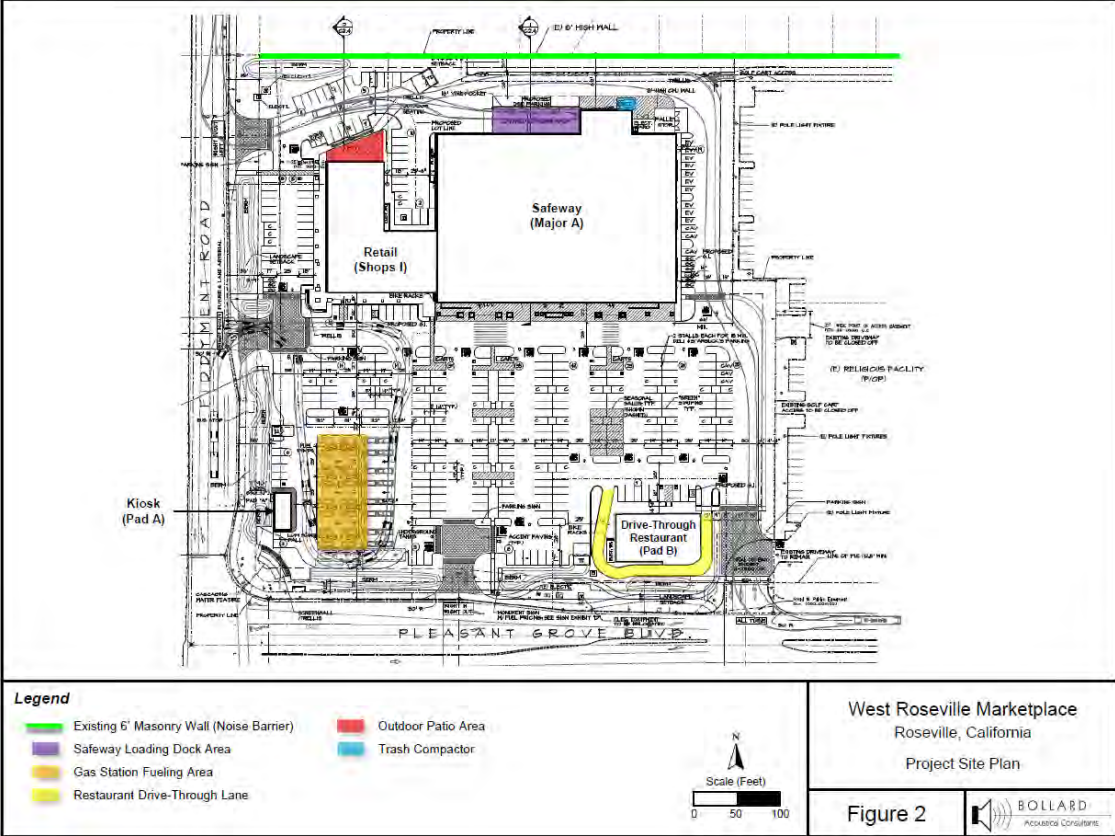
Table 4
Predicted Loading Dock Activity Noise Levels at Nearest Residential Uses

Receiver ¹	Land Use	Distance from Loading Dock Area (ft) ²	Predicted Noise Levels (dB)	
			Leq	Lmax
R-1	Multi-Family Res.	100	49	69
R-2	Single-Family Res.	75	51	71
R-3	Single-Family Res.	450	36	56
General Plan Daytime Noise Standards (dB)			55	75

¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1.
² Distances scaled from loading dock area to residential property lines using provided site plans.
 Source: *Bollard Acoustical Consultants, Inc. (2022)*

As indicated in Table 4, loading dock noise levels are predicted to satisfy the applicable Roseville General Plan daytime hourly average (Leq) and maximum (Lmax) noise level standards at the property lines of the nearest residential uses. The predicted compliance includes consideration of attenuation that would be provided by existing 6' sound walls. However, It should be noted that to ensure compliance of the General Plan's noise level criteria, all on-site operations associated with delivery trucks (e.g., loading dock activities, truck circulation, etc.) should be limited to daytime hours only (7:00 a.m. to 10:00 p.m.), as proposed. This is reflected in Mitigation Measure NOI-1.

Figure 2: Project Site Plan



b) Surrounding uses may experience short-term increases in groundborne vibration, groundborne noise, and airborne noise levels during construction. However, these increases would only occur for a short period of time. When conducted during daytime hours, construction activities are exempt from Noise Ordinance standards, but the standards do apply to construction occurring during nighttime hours. While the noise generated may be a minor nuisance, the City Noise Regulation standards are designed to ensure that impacts are not unduly intrusive. Based on this, the impact is less than significant.

XIV. Population and Housing

The project site is located within the Del Webb Specific Plan and has a land use designation of Community Commercial (CC). The City of Roseville General Plan Table II-4 identifies the total number of residential units and population anticipated as a result of buildout of the City, and the Specific Plan likewise includes unit allocations and population projections for the Plan Area. Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to population and housing is based directly on the CEQA Guidelines checklist items a and b listed above.

Discussion of Checklist Answers:

a) The CEQA Guidelines identify several ways in which a project could have growth-inducing impacts (Public Resources Code Section 15126.2), either directly or indirectly. Growth-inducement may be the result of fostering economic growth, fostering population growth, providing new housing, or removing barriers to growth. Growth inducement may be detrimental, beneficial, or of no impact or significance under CEQA. An impact is only deemed to occur when it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be shown that the growth will significantly affect the environment in some other way. The project is consistent with the land use designation of the site. Therefore, while the project in question will induce some level of growth, this growth was already identified and its effects disclosed and mitigated within the Del Webb Specific Plan EIR. Therefore, the impact of the project is less than significant.

b) The project site is vacant. No housing exists on the project site, and there would be no impact with respect to these criteria.

XV. Public Services

Fire protection, police protection, park services, and library services are provided by the City. The project is located within the Dry Creek Joint Elementary School District and the Roseville Joint Union High School District. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Fire protection?			X	
b) Police protection?			X	
c) Schools?			X	
d) Parks?			X	
e) Other public facilities?			X	

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to public services is based directly on the CEQA Guidelines checklist items a–e listed above. The EIR for the Specific Plan addressed the level of public services which would need to be provided in order to serve planned growth in the community. Development Agreements and other conditions have been adopted in all proposed growth areas of the City which identify the physical facilities needed to serve growth, and the funding needed to provide for the construction and operation of those facilities and services; the project is consistent with the Specific Plan. In addition, the project has been routed to the various public service agencies, both internal and external, to ensure that the project meets the agencies’ design standards (where applicable) and to provide an opportunity to recommend appropriate conditions of approval.

Discussion of Checklist Answers:

- a) Existing City codes and regulations require adequate water pressure in the water lines, and construction must comply with the Uniform Fire and Building Codes used by the City of Roseville. Additionally, the applicant is required to pay a fire service construction tax, which is used for purchasing capital facilities for the Fire Department. Existing codes, regulations, funding agreements, and facilities plans are sufficient to ensure less than significant impacts.
- b) Pursuant to the Development Agreement for the project area, the developer is required to pay fees into a Community Facilities District, which provides funding for police services. Sales taxes and property taxes resulting from the development will add revenue to the General Fund, which also serves to fund police services. Existing codes, regulations, funding agreements, and facilities plans are sufficient to ensure less than significant impacts.
- c) The applicant for this project is required to pay school impact fees at a rate determined by the local school districts. School fees will be collected prior to the issuance of building permits, consistent with City requirements. School sites have already been designated as part of the Specific Plan process. Existing codes, regulations, funding agreements, and facilities plans are sufficient to ensure less than significant impacts.
- d) Pursuant to the Development Agreement for the project area, the developer will be required to pay fees into a Community Facilities District, which provides funding for park services. Future park and recreation sites

and facilities have already been identified as part of the Specific Plan process. Existing codes, regulations, funding agreements, and facilities plans are sufficient to ensure less than significant impacts.

e) Pursuant to the Development Agreement for the project area, the developer will be required to pay fees into a Community Facilities District, which provides funding for the library system and other such facilities and services. In addition, the City charges fees to end-users for other services, such as garbage and greenwaste collection, in order to fund those services. Existing codes, regulations, funding agreements, and facilities plans are sufficient to ensure less than significant impacts.

XVI. Recreation

There are no parks or recreation facilities immediately adjacent to the project site. The nearest recreation area is Mahany Regional Park, located approximately 1-mile east of the site, along Pleasant Grove Boulevard.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to recreation services is based directly on the CEQA Guidelines checklist items a–b listed above.

Discussion of Checklist Answers:

a) The EIR for the Specific Plan addressed the level of park services—including new construction, maintenance, and operations—which would need to be provided in order to serve planned growth in the community. Given that the project is consistent with the General Plan and Specific Plan, the project would not cause any unforeseen or new impacts related to the use of existing or proposed parks and recreational facilities. Existing codes, regulations, funding agreements, and facilities plans are sufficient to ensure less than significant impacts.

b) Park sites and other recreational facilities were identified within the Specific Plan, and the plan-level impacts of developing those facilities were addressed within the Final EIR for the Specific Plan. The project will not cause any unforeseen or new impacts related to the construction or expansion of recreational facilities.

XVII. Transportation

The project site is located at the northeast corner of Pleasant Grove Boulevard and Fiddymment Road, both of which are major arterials with transit facilities in the City of Roseville. Pleasant Grove Boulevard includes on-street, striped bicycle lanes and constructed detached sidewalks. Fiddymment Road includes on-street, striped bicycle lanes, attached sidewalks, and a bus turn-out for a future transit stop.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature(s) (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?			X	

Thresholds of Significance and Regulatory Setting:

The City has adopted the following plans, ordinances, or policies applicable to checklist item a: Pedestrian Master Plan, Bicycle Master Plan, and Short-Range Transit Plan, and General Plan Circulation Element. The project is evaluated for consistency with these plans and the policies contained within them. For checklist item b, the CEQA Guidelines Section 15064.3 establishes a detailed process for evaluating the significance of transportation impacts. In accordance with this section, the analysis must focus on the generation of vehicle miles traveled (VMT); effects on automobile delay cannot be considered a significant impact. The City developed analysis guidance and thresholds as part of the 2035 General Plan Update project approved in July 2020. The detailed evaluation and justification is contained within the General Plan EIR and has been .

Future projects consistent with the General Plan will not require further VMT analysis, pursuant to the tiering provisions of CEQA. For projects which are inconsistent, CEQA Guidelines Section 15064.3(b) allows lead agencies discretion to determine, in the context of a particular project, whether to rely on a qualitative analysis or performance-based standards. CEQA Guidelines Section 15064.7(b) allows lead agencies the discretion to select their own thresholds and allow for differences in thresholds based on context.

According to the City’s Design and Construction Standards (see Attachment 3), which were developed based on the City’s 2035 General Plan EIR, quantitative VMT analysis would not be required if it can be

demonstrated that the project would generate VMT which is equivalent to or less than what was assumed in the General Plan EIR. Examples of such projects include:

- Local-serving retail and other local-serving development, which generally reduces existing trip distances by providing services in closer proximity to residential areas, and therefore reduce VMT.
- Multi-family residences, which generally have fewer trips per household than single-family residences, and therefore also produce less VMT per unit.
- Infill projects in developed areas generally have shorter trips, reduced vehicle trips, and therefore less VMT.
- Pedestrian, bicycle, transit, and electric vehicle transportation projects.
- Residential projects in low per-capita household VMT areas and office projects in low per-worker VMT areas (85 percent or less than the regional average) as shown on maps maintained by SACOG or within low VMT areas as shown within Table 4.3-8 of the General Plan EIR.

When quantitative analysis is required, the threshold of 12.8 VMT/capita may be used for projects not within the scope of the General Plan EIR, provided the cumulative context of the 2035 General Plan has not changed substantially. Since approval of the 2035 General Plan, the City has not annexed new land, substantially changed roadway network assumptions, or made any other changes to the 2035 assumptions which would require an update to the City's VMT thresholds contained within the General Plan EIR. The project is consistent with the General Plan and the uses are building intensity are consistent with the assumptions of the General Plan EIR, as previously discussed in the Greenhouse Gases section. Therefore, further VMT analysis is not required pursuant to the tiering provisions of CEQA.

Impacts with regard to items c and d are assessed based on the expert judgment of the City Engineer and City Fire Department, as based upon facts and consistency with the City's Design and Construction Standards.

Discussion of Checklist Answers:

a) The City of Roseville has adopted a Pedestrian Master Plan, Bicycle Master Plan, and Short-Range Transit Plan. The project was reviewed for consistency with these documents. Pedestrian facilities have already been constructed adjacent to Pleasant Grove Boulevard and Fiddymment Road. Bicycle facilities have also been constructed adjacent to Pleasant Grove Boulevard and Fiddymment Road, and the project will not decrease the performance or safety of those facilities. The project is consistent with the policies of the Pedestrian Master Plan, Bicycle Master Plan, and Short-Range Transit Plan. In addition, the proposed project is consistent with the underlying land use designations, and does not contribute new, unanticipated trips; a cumulative conditions traffic model is not required. However, it was determined by the City Engineering that an access and circulation analysis was needed to evaluate the project and the existing circulation system. Fehr & Peers prepared an Access & On-Site Circulation study for the proposed project (Attachment 9). The analysis evaluated the project's access points and localized circulation, including the proposed left-turn ingress lane on Fiddymment Road, the consistency of the project driveways and there design with applicable City standards, estimation of maximum queue lengths for outbound movements at the proposed driveways, and internal circulation. The study concluded the following improvements would need to be constructed/addressed by the project:

1. The removal of landscaping in a portion of the median near the north farthest driveway along Fiddymment Road would ensure that motorist in the left-turn lane would have adequate line of sight of oncoming traffic.
2. The driveway closest to the intersection of Fiddymment Road and Pleasant Grove Boulevard would need to be modified to allow a large throat depth for queuing.

3. The applicant to construct a continuous right-turn deceleration/acceleration lane on westbound Pleasant Grove Boulevard beginning 185 feet east of Driveway 4 and connecting to the existing right-turn lane at Fiddymment Road.
4. Construct a right-turn curb flare at Driveway 1 on Fiddymment Road.
5. Post “Do Not Block Intersection” signs at the Pleasant Grove Community Church Driveway 4.
6. Stripe “Do Not Block Intersection” pavement markings across the inbound lane on Driveway 4 at the Pleasant Grove Community Church Driveway.

Refer to Attachment 9 Figure 6 for study recommendations.

These improvements have been incorporated into the project plans. Given the project is consistent with the most recent Citywide traffic analysis within the General Plan EIR, and will not result in any new or unanticipated impacts with respect to the City’s Level of Service policy; impacts to traffic and level of service have been determined to be less than significant.

b) Traffic analyses focus on the number of trips traveling in specified areas during peak periods, in order to quantify impacts as specific intersections. However, there is no direct relationship between the number of trips and the amount of VMT generated by a use. Projects which substantially increase trips to a specific area may in fact decrease VMT in the City. As an example, if a new grocery store is added to an area, customers who go to that store were already going to a grocery store elsewhere, and are most likely to choose the new store because it is closer to home or on their way to another location (e.g. work). So while the store would generate substantial new trips, it would lower Citywide VMT. Unless a project includes unique characteristics, nonresidential projects do not increase VMT; they divert existing trips into a similar or more efficient pathway.

The proposed project is a non-residential development of a vacant property, surrounded by existing development. The project does not include any unique characteristics which would draw in regional traffic, or which would prompt longer trips. The project would locate services and employment in proximity to existing developed areas, and would therefore have a neutral or positive impact on vehicle miles traveled; impacts are less than significant.

c, d) The project has been reviewed by the City Engineering and City Fire Department staff, and has been found to be consistent with the City’s Design Standards. Furthermore, standard conditions of approval added to all City project require compliance with Fire Codes and other design standards. Compliance with existing regulations ensure that impacts are less than significant.

XVIII. Tribal Cultural Resources

As described within the Open Space and Conservation Element of the City of Roseville General Plan, the Roseville region was within the territory of the Nisenan (also Southern Maidu or Valley Maidu). Two large permanent Nisenan habitation sites have been identified and protected within the City’s open space (in Maidu Park). Numerous smaller cultural resources, such as midden deposits and bedrock mortars, have also been recorded in the City. A majority of documented sites within the City are located in areas designated for open space uses.

Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically

defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?			X	
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1 the lead agency shall consider the significance of the resource to a California Native American tribe.			X	

Thresholds of Significance and Regulatory Setting:

In addition to archeological resources, tribal cultural resources are also given particular treatment. Tribal cultural resources are defined in Public Resources Code Section 21074, as either 1) a site, feature, place, geographically-defined cultural landscape, sacred place, or object with cultural value to a California Native American Tribe, that is listed or eligible for listing on the California Register or Historical Resources, or on a local register of historical resources or as 2) a resource determined by the lead agency, supported by substantial evidence, to be significant according to the historical register criteria in Public Resources Code section 5024.1(c), and considering the significance of the resource to a California Native American Tribe.

Discussion of Checklist Answers:

a) The Del Webb Specific Plan EIR included historic and cultural resources study, which included research on whether any listed or eligible sites had been documented in the project area. No such sites were found. However, standard mitigation measures apply which are designed to reduce impacts to any previously undiscovered resources, should any be found on-site. The measure requires an immediate cessation of work, and contact with the appropriate agencies to address the resource before work can resume. The project will not result in any new impacts beyond those already discussed and disclosed in the Del Webb Specific Plan EIR; project-specific impacts are less than significant.

b) Notice of the proposed project was mailed to tribes which had requested such notice pursuant to AB 52. A request for consultation was not received. As discussed in item a, above, no resources are known to occur in

the area. However, standard mitigation measures apply which are designed to reduce impacts to resources, should any be found on-site. The measure requires an immediate cessation of work, and contact with the appropriate agencies to address the resource before work can resume. The project will not result in any new impacts beyond those already discussed and disclosed in the Del Webb Specific Plan EIR; project-specific impacts are less than significant.

XIX. Utilities and Service Systems

Water and sewer services will be provided by the City of Roseville. The developer will be responsible for extending new lines onto the site in order to serve the project. Storm water will be collected on-site and transferred via pipe into an off-site storm drain system. The project includes several on-site bioretention storm water planters that will collect the project’s storm water. Solid waste will be collected by the City of Roseville’s Refuse Department. The City of Roseville will provide electric service to the site, while natural gas will be provided by PG&E. Comcast will provide cable. The project has been reviewed by the City’s Engineering Division, Environmental Utilities, Roseville Electric and PG&E. Adequate services are available for the project.

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider which serves the project that it has adequate capacity to serve the project’s projected demand in addition of the provider’s existing commitments?			X	

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to utilities and service systems is based directly on the CEQA Guidelines checklist items a–e listed above.

Discussion of Checklist Answers:

a) The project is consistent with the Specific Plan, and will be required to construct any utilities infrastructure necessary to serve the project, as well as pay fees which fund the operation of the facilities and the construction of major infrastructure. The construction impacts related to building the major infrastructure were disclosed in the EIR for the Specific Plan, and appropriate mitigation was adopted. Minor additional infrastructure will be constructed within the project site to tie the project into the major systems, but these facilities will be constructed in locations where site development is already occurring as part of the overall project; there are no additional substantial impacts specific or particular to the minor infrastructure improvements.

b) The City of Roseville 2015 Urban Water Management Plan (UWMP), adopted May 2016, estimates water demand and supply for the City through the year 2040, based on existing land use designations and population projections. In addition, the General Plan EIR estimates water demand and supply for ultimate General Plan buildout. The project is consistent with existing land use designations, and is therefore consistent with the assumptions of the UWMP and General Plan EIR. The UWMP indicates that existing water supply sources are sufficient to meet all near term needs, estimating an annual water demand of 48,762 acre-feet per year (AFY) by the year 2035 and existing surface and recycled water supplies in the amount of 60,400 AFY in normal years. The UWMP establishes some water supply deficit during dry year scenarios, but establishes that mandatory water conservation measures and the use of groundwater to offset reductions in surface water supplies are sufficient to offset the deficit. The project, which is consistent with existing land use designations, would not require new or expanded water supply entitlements.

c) The proposed project would be served by the Pleasant Grove Wastewater Treatment Plant (PGWWTP). The Central Valley Regional Water Quality Control Board (RWQCB) regulates water quality and quantity of effluent discharged from the City’s wastewater treatment facilities. The Pleasant Grove WWTP has the capacity⁴ to treat 12 million gallons per day (mgd) and is currently treating 7.0⁵ mgd. The project is consistent with existing land use designations, which is how infrastructure capacity is planned. Therefore, the volume of wastewater

⁴ Waste Discharge Requirements/Monitoring & Reporting Program/NPDES Permit No. CA0079502, Adopted on 28 March 2014

⁵ Dave Samuelson, City of Roseville Environmental Utilities, Personal communication, July 6, 2016.

generated by the proposed project could be accommodated by the facility; the proposed project will not contribute to an exceedance of applicable wastewater treatment requirements. The impact would be less than significant.

d, e) The Western Placer Waste Management Authority is the regional agency handling recycling and waste disposal for Roseville and surrounding areas. The regional waste facilities include a Material Recovery Facility (MRF) and the Western Regional Sanitary Landfill (WRSL). Currently, the WRSL is permitted to accept up to 1,900 tons of municipal solid waste per day. According to the solid waste analysis of the General Plan EIR, under current projected development conditions the WRSL has a projected lifespan extending through 2058. There is sufficient existing capacity to serve the proposed project. Though the project will contribute incrementally to an eventual need to find other means of waste disposal, this impact of City buildout has already been disclosed and mitigation applied as part of each Specific Plan the City has approved. All residences and business in the City pay fees for solid waste collection, a portion of which is collected to fund eventual solid waste disposal expansion. The project will not result in any new impacts associated with major infrastructure. Environmental Utilities staff has reviewed the project for consistency with policies, codes, and regulations related to waste disposal and waste reduction regulations and policies and has found that the project design is in compliance.

XX. Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

Thresholds of Significance and Regulatory Setting:

The significance of impacts related to wildfire is based directly on the CEQA Guidelines checklist items a–d listed above. The California Department of Forestry and Fire Protection (CAL FIRE) is the state agency responsible for wildland fire protection and management. As part of that task, CAL FIRE maintains maps designating Wildland Fire Hazard Severity zones. The City is not located within a Very High Fire Hazard Severity Zone, and is not in a CAL FIRE responsibility area; fire suppression is entirely within local responsibility.

Discussion of Checklist Answers:

a–d) Checklist questions a–d above do not apply, because the project site is not within a Very High Fire Hazard Severity Zone and is not in a CAL FIRE responsibility area.

XXI. Mandatory Findings of Significance

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, threatened or rare species, or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts which are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that			X	

Environmental Issue	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Significance Criteria and Regulatory Setting:

The significance of impacts related to mandatory findings of significance is based directly on the CEQA Guidelines checklist items a–c listed above.

Discussion of Checklist Answers:

a–c) Long term environmental goals are not impacted by the proposed project. The cumulative impacts do not deviate beyond what was contemplated in the Specific Plan EIR, and mitigation measures have already been incorporated via the Specific Plan EIR. With implementation of the City’s Mitigating Ordinances, Guidelines, and Standards and best management practices, mitigation measures described in this chapter, and permit conditions, the proposed project will not have a significant impact on the habitat of any plant or animal species. Based on the foregoing, the proposed project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of any wildlife species, or create adverse effects on human beings.

ENVIRONMENTAL DETERMINATION:

*In reviewing the site specific information provided for this project and acting as Lead Agency, the City of Roseville, Development Services Department, Planning Division has analyzed the potential environmental impacts created by this project and determined that with mitigation the impacts are less than significant. As demonstrated in the initial study checklist, there are no “project specific significant effects which are peculiar to the project or site” that cannot be reduced to less than significant effects through mitigation (CEQA Section 15183) and therefore an EIR **is not** required. Therefore, **on the basis of the foregoing initial study:***

[X] I find that the proposed project COULD, but with mitigation agreed to by the applicant, clearly will not have a significant effect on the environment and a *MITIGATED NEGATIVE DECLARATION* has been prepared.

Initial Study Prepared by:



Escarlet Mar, Associate Planner
City of Roseville, Development Services – Planning Division

Attachments:

1. 2035 General Plan Update Final Environmental Impact Report, certified August 5, 2020, located online at https://www.roseville.ca.us/government/departments/development_services/planning/general_plan_development_guidelines
2. Del Webb Specific Plan Final Environmental Impact Report (SCH# 93042005), located online at <https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8775085>
3. 2022 Design and Construction Standards, located online at https://www.roseville.ca.us/government/departments/development_services/engineering_land_development/construction_management_inspection/design_construction_standards
4. Mitigation Monitoring & Reporting Program
5. CalEEMod Results
6. Health Risk Assessment
7. Preliminary Arborist Report & Tree Inventory
8. Environmental Noise Assessment
9. Access & On-Site Circulation study



DEVELOPMENT SERVICES DEPARTMENT – PLANNING DIVISION

311 Vernon Street, Roseville, CA 95678 (916) 774-5276

MITIGATION MONITORING AND REPORTING PROGRAM

Project Title/File Number:	DWSP PCL 21 – West Roseville Marketplace; File # PL22-0089
Project Location:	1798 Pleasant Grove Boulevard, Roseville, Placer County; APN 017-162-049
Project Description:	The proposed project would allow construction of a major tenant building (i.e. Safeway) with several in-line shops, one free standing building with a gas station, and a freestanding pad building with a drive-through. The project includes a major building totaling approximately ±55,600 square feet, inline shops totaling ±14,000 square feet, a freestanding pad building with a drive-through pad totaling ±5,500 square feet, and a gas station including 8 dispensers (total of 16 pumps) and an ±900 square foot freestanding kiosk building. The tentative parcel map as proposed would create a total of four (4) lots. A conditional use permit for the gas station and drive-through food pad is proposed since the property is contiguous to a residential zoned property. The applicant requests approval of a Design Review Permit, Conditional Use Permit, and a Tentative Parcel Map to allow development of the project.
Environmental Document	Mitigated Negative Declaration
Project Applicant:	Tiffany Wilson, RSC Engineering, Inc.
Property Owner:	Safeway, Inc.
Lead Agency Contact Person:	Escarlet Mar, Associate Planner, 916-774-5247

Section 21081.6 of the California Public Resources Code requires public agencies to "adopt a reporting and monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." This Mitigation Monitoring and Reporting Program has been adopted for the purpose of avoiding environmental impacts

MONITORING PROCESS: Existing monitoring mechanisms are in place that assist the City of Roseville in meeting the intent of CEQA. These existing monitoring mechanisms eliminate the need to develop new monitoring processes for each mitigation measure. These mechanisms include grading plan review and approval, improvement/building plan review and approval and on-site inspections by City Departments. Given that these monitoring processes are requirements of the project, they are not included in the mitigation monitoring program.

It shall be the responsibility of the project applicant/owner to provide written notification to the City using the Mitigation Verification Cover Sheet and Forms, in a timely manner, of the completion of each Mitigation Measure as identified on the following pages. The City will verify that the project is in compliance with the adopted Mitigation Monitoring and Reporting Program. Any non-compliance will be reported by the City to the applicant/owner, and it shall be the project applicant's/owner's responsibility to rectify the situation by bringing the project into compliance. The purpose of this program is to ensure diligent and good faith compliance with the Mitigation Measures which have been adopted as part of the project.

TABLE OF MITIGATION MEASURES

Mitigation Measure	Implementation	Timing	Reviewing Party	Documents to be Submitted to City	Staff Use Only
<p>BIO-1: Avoid nesting sites</p> <p>To ensure that fully protected bird and raptor species are not injured or disturbed by construction in the vicinity of nesting habitat, the project applicant shall implement the following measures:</p> <p>(a) When feasible, all tree removal shall occur between August 30 and February 15 to avoid the breeding season of any raptor species that could be using the area, and to discourage hawks from nesting in the vicinity of an upcoming construction area. This period may be modified with the authorization of the DFG; or</p> <p>(b) Prior to the beginning of mass grading, including grading for major infrastructure improvements, during the period between February 15 and August 30, all trees and potential burrowing owl habitat within 350 feet of any grading or earthmoving activity shall be surveyed for active raptor nests or burrows by a qualified biologist no more than 30 days prior to disturbance. If active raptor nests or burrows are found, and the site is within 350 feet of potential construction activity, a fence shall be erected around the tree or burrow(s) at a distance of up to 350 feet, depending on the species, from the edge of the canopy to prevent construction disturbance and intrusions on the nest area. The appropriate buffer shall be determined by the City in consultation with CDFG.</p> <p>(c) No construction vehicles shall be permitted within restricted areas (i.e., raptor protection zones), unless directly related to the management or protection of the legally protected species.</p> <p>(d) In the event that a nest is abandoned, despite efforts to minimize disturbance, and if the nestlings are still alive, the developer shall contact CDFG and, subject to CDFG approval, fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).</p> <p>(e) If a legally protected species nest is located in a tree designated for removal, the removal shall be deferred until after August 30th, or until the adults and young of the year are no longer dependent on the nest site as determined by a qualified biologist.</p> <p>(f) The project applicant, in consultation with the CDFG, shall conduct a pre-construction survey within the phases of the project site that are scheduled for construction activities. The survey shall be conducted by a qualified biologist to determine if burrowing owls are occupying the project site. The survey shall be conducted no more than three weeks prior to grading of the project site.</p> <p>If the above survey does not identify burrowing owls on the project site, then no further mitigation would be required. However, should burrowing owls be found on the project site, the following measures shall be required:</p> <p>(g) The applicant shall avoid all potential burrowing owl burrows that may be disturbed by project construction during the breeding season between February 15 and August 30 (the period when nest burrows are typically occupied by adults with eggs or young). Avoidance shall include the establishment of a 350-foot diameter non-disturbance buffer zone around any occupied burrows. The buffer zone shall be delineated by highly visible temporary construction fencing. Disturbance of any occupied burrows shall only occur outside of the breeding season (August 30 through February 15).</p> <p>Based on approval by the CDFG, preconstruction and nonbreeding season exclusion measures may be implemented to preclude burrowing owl occupation of the project site prior to project-related disturbance (such as grading). Burrowing owls may be passively excluded from burrows in the construction area by placing one-way doors in the burrows according to current CDFG protocol. The one-way doors must be in place for a minimum of three days. All burrows that may be occupied by burrowing owls, regardless of whether they exhibit signs of occupation, must be cleared. Burrows that have been cleared through the use of the one-way doors shall then be closed or backfilled to prevent owls from entering the burrow. The one-way doors shall not be used more than two weeks before construction to ensure that owls do not recolonize the area of construction.</p>	<p>Results of preconstruction surveys shall be submitted prior to the issuance of a grading permit or Improvement Plans. Applicable construction restrictions shall be reflected within plans. The applicants shall prepare annual reports on the status and success of mitigation and shall submit these reports to USFWS and CDFG. The applicants shall coordinate with USFWS and CDFG to modify as necessary any mitigation plans in an effort to attain mitigation success.</p>	<p><i>Pre-Construction and Construction:</i> Surveys required prior to construction. If surveys are positive for birds, then remainder of mitigation steps are required prior to construction.</p> <p>Add as note on Improvement Plans.</p>	<p>Engineering</p>	<p>Nesting bird surveys</p>	
<p>NOI-1: Commercial Noise Control</p>	<p>Project plans will be reviewed for compliance. The applicants shall submit site-specific acoustical</p>	<p><i>Pre-Construction:</i> Prior to issuance of Improvement Plans and/or Building Permits</p>	<p>Engineering will review Improvement Plans for</p>	<p>An Acoustical Study</p>	

<p>For all commercial uses within 150 feet of residential uses, implement the following or equally effective measures:</p> <p>(a) For commercial loading docks and on-site truck circulation areas that are planned to be within 150 feet of sensitive receptors (including backyards), the following measures shall be implemented:</p> <p>(1) Loading docks and on-site truck circulation routes shall be designed to ensure that noise levels do not exceed 75 dB Lmax or 55 dB hourly Leq at the nearest residence. An acoustic analysis shall demonstrate that the loading area design, including any noise attenuation features (e.g., covering, sound walls, orientation) would be adequate to achieve this standard; and,</p> <p>(2) Deliveries shall generally be limited to the hours between 7:00 A.M. and 10:00 P.M. Signs shall be placed on the truck loading areas behind the anchor tenant space and at the rear of the shops building which list the hours for deliveries.</p> <p>(b) For all commercial buildings, roof-top HVAC shall be oriented away from residential areas and systems shall not produce noise levels that exceed 50 dB at a distance of 25 feet. In addition, roof-top parapets shall block line-of-sight from noise-sensitive uses to HVAC equipment.</p> <p>(c) Setbacks or enhanced barriers (e.g., 6 feet tall) as needed to achieve City standards.</p> <p>An acoustical analysis shall be conducted to demonstrate that City noise standards would be achieved by these measures. Additional measures shall be implemented, if needed, to meet the standards.</p>	<p>analyses to the Chief Building Inspector for review.</p>	<p>Add as note on Improvement Plans and Building Plans</p>	<p>compliance with wall and noise requirements. Building will review Building Plans for compliance with HVAC requirements.</p>		
<p>TCR-1: Inadvertent Discoveries</p> <p>If any TCRs are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find. The appropriate tribal representatives from culturally affiliated tribes shall be immediately notified. Work at the discovery location cannot resume until it is determined, in consultation with culturally affiliated tribes, that the find is not a TCR, or that the find is a TCR and all necessary investigation and evaluation of the discovery under the requirements of the CEQA, including AB 52, has been satisfied. Preservation in place is the preferred alternative under CEQA and UAIC protocols, and every effort must be made to preserve the resources in place, including through project redesign. The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary.</p>	<p>This condition shall be reflected in all construction and building plans, and construction site workers shall be advised by the site manager of this measure.</p>	<p><i>Construction:</i> Measure applies if resources are discovered during construction.</p> <p>Add as note on Improvement Plans and Building Plans.</p>	<p>Engineering and Building</p>	<p>None</p>	



MITIGATION VERIFICATION SUBMITTAL COVER SHEET

Project Title/Planning File #
Project Address
Property Owner
Planning Division Contact

SUMMARY OF VERIFICATION MATERIALS INCLUDED IN THIS SUBMITTAL

Table with 3 columns: Mitigation Measure, Supporting Attachments Included, Date Complete. Contains 8 empty rows for data entry.

I HAVE ATTACHED THE FOLLOWING REQUIRED ITEMS:

- Table of Applicable Mitigation Measures
Mitigation Verification Form(s)
Specific supporting documentation required by measure(s), if applicable (e.g. biologist's report)

I hereby certify under penalty of perjury under the laws of the State of California that I am the property owner or an agent of the property owner and am authorized to submit this Mitigation Verification Form. I also certify that the above-listed mitigation measures have been completed in the manner required, and that all of the information in this submittal is true and correct, to the best of my knowledge:

Signature and Date
Print Name
Contact Number

MITIGATION VERIFICATION FORM

Mitigation Measure _____

Description of Monitoring and Verification Work Performed. The following information is a required part of the description: dates, personnel names or titles, and the stage/phase of construction work. Additional notes sheets may be attached, if necessary, or the below may simply reference a separate attachment that provides the required information.

INSTRUCTIONS

COVER SHEET:

A Cover Sheet for the project/development is prepared by City staff, with the top portion filled out. Each time Mitigation Verification Forms(s) are being submitted, a Cover Sheet completed by the Developer, Contractor, or Designee is required. An example of a completed summary table is provided below. The signature on the Cover Sheet must be *original wet ink*.

EXAMPLE MITIGATION VERIFICATION SUBMITTAL COVER SHEET

Project Title/Planning File #	New Coffee Shop, PL15-0000
Project Address	10 Justashort Street
Property Owner	Jane Owner
Planning Division Contact	Joe Planner, Associate Planner, (916) 774-####

SUMMARY OF VERIFICATION MATERIALS INCLUDED IN THIS SUBMITTAL

Mitigation Measure	Supporting Attachments Included	Date Complete
MM-3	Copy of survey report signed by biologist	5/10/2016
MM-4	All information included in Mitigation Verification Form	5/12/2016
MM-5	E-mail from Air District approving Dust Control Plan	5/05/2016

MITIGATION VERIFICATION FORM:

A Mitigation Verification Form is provided by City staff, along with the Cover Sheet and Table of Applicable Mitigation Measures. A form is filled in and submitted for each mitigation measure by the Developer, Contractor, or Designee. The form needs only the mitigation number to be filled in, along with the Description of Monitoring and Verification Work Performed. Multiple forms may be submitted simultaneously, under one cover sheet. It is also permissible to submit a form for each part of a measure, on separate dates. For instance, in the example measure MM-4 in the table above, the actual mitigation requires informing construction workers *and* retaining a qualified archeologist if resources are uncovered. Thus, a developer may submit a form in May certifying that construction workers have been informed, and also submit a second copy of the form in July because resources were discovered and additional actions had to be undertaken.

Each mitigation measure specifies the type of supporting documentation required; this must be submitted in order for the City to accept the mitigation as complete. An example of a completed Mitigation Verification Form is provided below.

EXAMPLE **MITIGATION VERIFICATION FORM**

Mitigation Measure MM3

Description of Monitoring and Verification Work Performed. The following information is a required part of the description: dates, personnel names or titles, and the stage/phase of construction work. Additional notes sheets may be attached, if necessary, or the below may simply reference a separate attachment that provides the required information.

The mitigation measure text is included on the Improvement Plans General Notes page (Improvement Plan EN15-0001). On May 4, 2016, prior to any ground-disturbing activities (the pre-construction phase), a site meeting was held. At this meeting, workers on the site were informed of the potential to unearth remains, and were instructed to cease work and notify their supervisor immediately if any resources were observed.

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

**Del Webb Specific Plan Parcel 21 – West Roseville Marketplace
Placer-Sacramento County, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Supermarket	55.90	1000sqft	5.37	55,900.00	0
Regional Shopping Center	19.50	1000sqft	2.47	19,500.00	0
Convenience Market with Gas Pumps	16.00	Pump	0.96	2,258.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	74
Climate Zone	2			Operational Year	2024
Utility Company	Roseville Electric				
CO2 Intensity (lb/MWhr)	471.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage based on proposed parcel map.

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	1.28	5.37
tblLandUse	LotAcreage	0.45	2.47
tblLandUse	LotAcreage	0.05	0.96

2.0 Emissions Summary

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2270	33.1146	21.0050	0.0399	19.8049	1.6133	21.4182	10.1417	1.4843	11.6259	0.0000	3,860.349 4	3,860.349 4	1.1958	0.0482	3,887.571 6
2023	36.2010	14.9946	17.0666	0.0314	0.2935	0.7043	0.9978	0.0798	0.6628	0.7426	0.0000	3,016.476 7	3,016.476 7	0.7167	0.0464	3,045.625 2
Maximum	36.2010	33.1146	21.0050	0.0399	19.8049	1.6133	21.4182	10.1417	1.4843	11.6259	0.0000	3,860.349 4	3,860.349 4	1.1958	0.0482	3,887.571 6

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2270	33.1146	21.0050	0.0399	19.8049	1.6133	21.4182	10.1417	1.4843	11.6259	0.0000	3,860.349 4	3,860.349 4	1.1958	0.0482	3,887.571 6
2023	36.2010	14.9946	17.0666	0.0314	0.2935	0.7043	0.9978	0.0798	0.6628	0.7426	0.0000	3,016.476 7	3,016.476 7	0.7167	0.0464	3,045.625 2
Maximum	36.2010	33.1146	21.0050	0.0399	19.8049	1.6133	21.4182	10.1417	1.4843	11.6259	0.0000	3,860.349 4	3,860.349 4	1.1958	0.0482	3,887.571 6

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Energy	0.0712	0.6476	0.5439	3.8900e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0143	781.6765
Mobile	40.7417	30.8901	211.4171	0.3535	33.0501	0.3244	33.3744	8.8216	0.3039	9.1255		35,985.1228	35,985.1228	3.0666	2.2880	36,743.5997
Total	42.6729	31.5377	211.9704	0.3574	33.0501	0.3736	33.4236	8.8216	0.3531	9.1747		36,762.2016	36,762.2016	3.0815	2.3022	37,525.2975

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	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Energy	0.0712	0.6476	0.5439	3.8900e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0143	781.6765
Mobile	40.7417	30.8901	211.4171	0.3535	33.0501	0.3244	33.3744	8.8216	0.3039	9.1255		35,985.1228	35,985.1228	3.0666	2.2880	36,743.5997
Total	42.6729	31.5377	211.9704	0.3574	33.0501	0.3736	33.4236	8.8216	0.3531	9.1747		36,762.2016	36,762.2016	3.0815	2.3022	37,525.2975

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/20/2022	8/16/2022	5	20	
2	Site Preparation	Site Preparation	8/17/2022	8/30/2022	5	10	
3	Grading	Grading	8/31/2022	9/27/2022	5	20	
4	Building Construction	Building Construction	9/28/2022	8/15/2023	5	230	
5	Paving	Paving	8/16/2023	9/12/2023	5	20	
6	Architectural Coating	Architectural Coating	9/13/2023	10/10/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 116,488; Non-Residential Outdoor: 38,829; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	25.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0474	0.0259	0.4110	1.1200e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		113.5683	113.5683	3.0400e-003	2.8000e-003	114.4795
Total	0.0474	0.0259	0.4110	1.1200e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		113.5683	113.5683	3.0400e-003	2.8000e-003	114.4795

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0474	0.0259	0.4110	1.1200e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		113.5683	113.5683	3.0400e-003	2.8000e-003	114.4795
Total	0.0474	0.0259	0.4110	1.1200e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		113.5683	113.5683	3.0400e-003	2.8000e-003	114.4795

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	19.6570	1.6126	21.2696	10.1025	1.4836	11.5860		3,686.0619	3,686.0619	1.1922		3,715.8655

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0568	0.0311	0.4932	1.3500e-003	0.1479	7.5000e-004	0.1486	0.0392	6.9000e-004	0.0399		136.2819	136.2819	3.6500e-003	3.3600e-003	137.3754
Total	0.0568	0.0311	0.4932	1.3500e-003	0.1479	7.5000e-004	0.1486	0.0392	6.9000e-004	0.0399		136.2819	136.2819	3.6500e-003	3.3600e-003	137.3754

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	19.6570	1.6126	21.2696	10.1025	1.4836	11.5860	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0568	0.0311	0.4932	1.3500e-003	0.1479	7.5000e-004	0.1486	0.0392	6.9000e-004	0.0399		136.2819	136.2819	3.6500e-003	3.3600e-003	137.3754
Total	0.0568	0.0311	0.4932	1.3500e-003	0.1479	7.5000e-004	0.1486	0.0392	6.9000e-004	0.0399		136.2819	136.2819	3.6500e-003	3.3600e-003	137.3754

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.046 4	2,872.046 4	0.9289		2,895.268 4
Total	1.9486	20.8551	15.2727	0.0297	7.0826	0.9409	8.0234	3.4247	0.8656	4.2903		2,872.046 4	2,872.046 4	0.9289		2,895.268 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0474	0.0259	0.4110	1.1200e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		113.5683	113.5683	3.0400e-003	2.8000e-003	114.4795
Total	0.0474	0.0259	0.4110	1.1200e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		113.5683	113.5683	3.0400e-003	2.8000e-003	114.4795

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.046 4	2,872.046 4	0.9289		2,895.268 4
Total	1.9486	20.8551	15.2727	0.0297	7.0826	0.9409	8.0234	3.4247	0.8656	4.2903	0.0000	2,872.046 4	2,872.046 4	0.9289		2,895.268 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0474	0.0259	0.4110	1.1200e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		113.5683	113.5683	3.0400e-003	2.8000e-003	114.4795
Total	0.0474	0.0259	0.4110	1.1200e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		113.5683	113.5683	3.0400e-003	2.8000e-003	114.4795

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0247	0.6655	0.2047	2.7200e-003	0.0881	6.3900e-003	0.0945	0.0254	6.1200e-003	0.0315		287.8317	287.8317	1.2600e-003	0.0435	300.8322
Worker	0.0789	0.0431	0.6849	1.8700e-003	0.2054	1.0400e-003	0.2064	0.0545	9.5000e-004	0.0554		189.2804	189.2804	5.0700e-003	4.6700e-003	190.7992
Total	0.1036	0.7087	0.8896	4.5900e-003	0.2935	7.4300e-003	0.3009	0.0798	7.0700e-003	0.0869		477.1122	477.1122	6.3300e-003	0.0482	491.6314

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0247	0.6655	0.2047	2.7200e-003	0.0881	6.3900e-003	0.0945	0.0254	6.1200e-003	0.0315		287.8317	287.8317	1.2600e-003	0.0435	300.8322
Worker	0.0789	0.0431	0.6849	1.8700e-003	0.2054	1.0400e-003	0.2064	0.0545	9.5000e-004	0.0554		189.2804	189.2804	5.0700e-003	4.6700e-003	190.7992
Total	0.1036	0.7087	0.8896	4.5900e-003	0.2935	7.4300e-003	0.3009	0.0798	7.0700e-003	0.0869		477.1122	477.1122	6.3300e-003	0.0482	491.6314

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0155	0.5714	0.1873	2.6300e-003	0.0881	3.6000e-003	0.0917	0.0254	3.4500e-003	0.0288		278.0346	278.0346	8.1000e-004	0.0420	290.5770
Worker	0.0733	0.0383	0.6353	1.8100e-003	0.2054	9.8000e-004	0.2064	0.0545	9.0000e-004	0.0554		183.2321	183.2321	4.5900e-003	4.3500e-003	184.6421
Total	0.0888	0.6097	0.8226	4.4400e-003	0.2935	4.5800e-003	0.2980	0.0798	4.3500e-003	0.0842		461.2667	461.2667	5.4000e-003	0.0464	475.2191

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0155	0.5714	0.1873	2.6300e-003	0.0881	3.6000e-003	0.0917	0.0254	3.4500e-003	0.0288		278.0346	278.0346	8.1000e-004	0.0420	290.5770
Worker	0.0733	0.0383	0.6353	1.8100e-003	0.2054	9.8000e-004	0.2064	0.0545	9.0000e-004	0.0554		183.2321	183.2321	4.5900e-003	4.3500e-003	184.6421
Total	0.0888	0.6097	0.8226	4.4400e-003	0.2935	4.5800e-003	0.2980	0.0798	4.3500e-003	0.0842		461.2667	461.2667	5.4000e-003	0.0464	475.2191

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0440	0.0230	0.3812	1.0900e-003	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		109.9393	109.9393	2.7500e-003	2.6100e-003	110.7853
Total	0.0440	0.0230	0.3812	1.0900e-003	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		109.9393	109.9393	2.7500e-003	2.6100e-003	110.7853

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0440	0.0230	0.3812	1.0900e-003	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		109.9393	109.9393	2.7500e-003	2.6100e-003	110.7853
Total	0.0440	0.0230	0.3812	1.0900e-003	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		109.9393	109.9393	2.7500e-003	2.6100e-003	110.7853

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	35.9947					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	36.1864	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0147	7.6600e-003	0.1271	3.6000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		36.6464	36.6464	9.2000e-004	8.7000e-004	36.9284
Total	0.0147	7.6600e-003	0.1271	3.6000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		36.6464	36.6464	9.2000e-004	8.7000e-004	36.9284

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	35.9947					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	36.1864	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0147	7.6600e-003	0.1271	3.6000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		36.6464	36.6464	9.2000e-004	8.7000e-004	36.9284
Total	0.0147	7.6600e-003	0.1271	3.6000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		36.6464	36.6464	9.2000e-004	8.7000e-004	36.9284

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not 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	40.7417	30.8901	211.4171	0.3535	33.0501	0.3244	33.3744	8.8216	0.3039	9.1255		35,985.12 28	35,985.12 28	3.0666	2.2880	36,743.59 97
Unmitigated	40.7417	30.8901	211.4171	0.3535	33.0501	0.3244	33.3744	8.8216	0.3039	9.1255		35,985.12 28	35,985.12 28	3.0666	2.2880	36,743.59 97

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	5,160.00	5,160.00	5160.00	2,767,846	2,767,846
Regional Shopping Center	736.13	899.34	411.45	1,250,210	1,250,210
Supermarket	5,969.00	9,928.96	9305.67	7,975,046	7,975,046
Total	11,865.13	15,988.30	14,877.12	11,993,102	11,993,102

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
Convenience Market with Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.466187	0.061512	0.210180	0.153350	0.034639	0.008391	0.014417	0.011935	0.000556	0.000412	0.031993	0.000977	0.005450
Regional Shopping Center	0.466187	0.061512	0.210180	0.153350	0.034639	0.008391	0.014417	0.011935	0.000556	0.000412	0.031993	0.000977	0.005450
Supermarket	0.466187	0.061512	0.210180	0.153350	0.034639	0.008391	0.014417	0.011935	0.000556	0.000412	0.031993	0.000977	0.005450

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	0.0712	0.6476	0.5439	3.8900e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0143	781.6765
NaturalGas Unmitigated	0.0712	0.6476	0.5439	3.8900e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0143	781.6765

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market with Gas Pumps	71.6628	7.7000e-004	7.0300e-003	5.9000e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.4309	8.4309	1.6000e-004	1.5000e-004	8.4810
Regional Shopping Center	618.658	6.6700e-003	0.0607	0.0510	3.6000e-004		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003		72.7832	72.7832	1.4000e-003	1.3300e-003	73.2158
Supermarket	5914.68	0.0638	0.5799	0.4871	3.4800e-003		0.0441	0.0441		0.0441	0.0441		695.8446	695.8446	0.0133	0.0128	699.9797
Total		0.0712	0.6476	0.5439	3.8800e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0142	781.6765

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market with Gas Pumps	0.0716628	7.7000e-004	7.0300e-003	5.9000e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.4309	8.4309	1.6000e-004	1.5000e-004	8.4810
Regional Shopping Center	0.618658	6.6700e-003	0.0607	0.0510	3.6000e-004		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003		72.7832	72.7832	1.4000e-003	1.3300e-003	73.2158
Supermarket	5.91468	0.0638	0.5799	0.4871	3.4800e-003		0.0441	0.0441		0.0441	0.0441		695.8446	695.8446	0.0133	0.0128	699.9797
Total		0.0712	0.6476	0.5439	3.8800e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0142	781.6765

6.0 Area Detail

6.1 Mitigation Measures Area

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Unmitigated	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213

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	0.1972					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6000e-004	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Total	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1972					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6000e-004	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Total	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213

7.0 Water Detail

7.1 Mitigation Measures Water

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

**Del Webb Specific Plan Parcel 21 – West Roseville Marketplace
Placer-Sacramento County, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Supermarket	55.90	1000sqft	5.37	55,900.00	0
Regional Shopping Center	19.50	1000sqft	2.47	19,500.00	0
Convenience Market with Gas Pumps	16.00	Pump	0.96	2,258.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	74
Climate Zone	2			Operational Year	2024
Utility Company	Roseville Electric				
CO2 Intensity (lb/MW hr)	471.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage based on proposed parcel map.

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	1.28	5.37
tblLandUse	LotAcreage	0.45	2.47
tblLandUse	LotAcreage	0.05	0.96

2.0 Emissions Summary

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2229	33.1223	20.9676	0.0398	19.8049	1.6133	21.4182	10.1417	1.4843	11.6259	0.0000	3,849.109 1	3,849.109 1	1.1964	0.0490	3,876.476 6
2023	36.2000	15.0470	17.0174	0.0312	0.2935	0.7043	0.9978	0.0798	0.6628	0.7426	0.0000	2,998.997 9	2,998.997 9	0.7172	0.0472	3,028.407 3
Maximum	36.2000	33.1223	20.9676	0.0398	19.8049	1.6133	21.4182	10.1417	1.4843	11.6259	0.0000	3,849.109 1	3,849.109 1	1.1964	0.0490	3,876.476 6

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2229	33.1223	20.9676	0.0398	19.8049	1.6133	21.4182	10.1417	1.4843	11.6259	0.0000	3,849.109 1	3,849.109 1	1.1964	0.0490	3,876.476 6
2023	36.2000	15.0470	17.0174	0.0312	0.2935	0.7043	0.9978	0.0798	0.6628	0.7426	0.0000	2,998.997 9	2,998.997 9	0.7172	0.0472	3,028.407 3
Maximum	36.2000	33.1223	20.9676	0.0398	19.8049	1.6133	21.4182	10.1417	1.4843	11.6259	0.0000	3,849.109 1	3,849.109 1	1.1964	0.0490	3,876.476 6

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Energy	0.0712	0.6476	0.5439	3.8900e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0143	781.6765
Mobile	30.6827	35.5369	243.0404	0.3303	33.0501	0.3249	33.3749	8.8216	0.3044	9.1260		33,626.6516	33,626.6516	3.8505	2.5193	34,473.6587
Total	32.6139	36.1845	243.5937	0.3341	33.0501	0.3741	33.4242	8.8216	0.3536	9.1752		34,403.7304	34,403.7304	3.8655	2.5335	35,255.3564

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	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Energy	0.0712	0.6476	0.5439	3.8900e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0143	781.6765
Mobile	30.6827	35.5369	243.0404	0.3303	33.0501	0.3249	33.3749	8.8216	0.3044	9.1260		33,626.6516	33,626.6516	3.8505	2.5193	34,473.6587
Total	32.6139	36.1845	243.5937	0.3341	33.0501	0.3741	33.4242	8.8216	0.3536	9.1752		34,403.7304	34,403.7304	3.8655	2.5335	35,255.3564

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/20/2022	8/16/2022	5	20	
2	Site Preparation	Site Preparation	8/17/2022	8/30/2022	5	10	
3	Grading	Grading	8/31/2022	9/27/2022	5	20	
4	Building Construction	Building Construction	9/28/2022	8/15/2023	5	230	
5	Paving	Paving	8/16/2023	9/12/2023	5	20	
6	Architectural Coating	Architectural Coating	9/13/2023	10/10/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 116,488; Non-Residential Outdoor: 38,829; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	25.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0440	0.0323	0.3736	1.0100e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3279	102.3279	3.5700e-003	3.2500e-003	103.3845
Total	0.0440	0.0323	0.3736	1.0100e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3279	102.3279	3.5700e-003	3.2500e-003	103.3845

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0440	0.0323	0.3736	1.0100e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3279	102.3279	3.5700e-003	3.2500e-003	103.3845
Total	0.0440	0.0323	0.3736	1.0100e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3279	102.3279	3.5700e-003	3.2500e-003	103.3845

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	19.6570	1.6126	21.2696	10.1025	1.4836	11.5860		3,686.0619	3,686.0619	1.1922		3,715.8655

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0528	0.0388	0.4483	1.2100e-003	0.1479	7.5000e-004	0.1486	0.0392	6.9000e-004	0.0399		122.7935	122.7935	4.2800e-003	3.9000e-003	124.0615
Total	0.0528	0.0388	0.4483	1.2100e-003	0.1479	7.5000e-004	0.1486	0.0392	6.9000e-004	0.0399		122.7935	122.7935	4.2800e-003	3.9000e-003	124.0615

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	19.6570	1.6126	21.2696	10.1025	1.4836	11.5860	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0528	0.0388	0.4483	1.2100e-003	0.1479	7.5000e-004	0.1486	0.0392	6.9000e-004	0.0399		122.7935	122.7935	4.2800e-003	3.9000e-003	124.0615
Total	0.0528	0.0388	0.4483	1.2100e-003	0.1479	7.5000e-004	0.1486	0.0392	6.9000e-004	0.0399		122.7935	122.7935	4.2800e-003	3.9000e-003	124.0615

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.046 4	2,872.046 4	0.9289		2,895.268 4
Total	1.9486	20.8551	15.2727	0.0297	7.0826	0.9409	8.0234	3.4247	0.8656	4.2903		2,872.046 4	2,872.046 4	0.9289		2,895.268 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0440	0.0323	0.3736	1.0100e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3279	102.3279	3.5700e-003	3.2500e-003	103.3845
Total	0.0440	0.0323	0.3736	1.0100e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3279	102.3279	3.5700e-003	3.2500e-003	103.3845

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.046 4	2,872.046 4	0.9289		2,895.268 4
Total	1.9486	20.8551	15.2727	0.0297	7.0826	0.9409	8.0234	3.4247	0.8656	4.2903	0.0000	2,872.046 4	2,872.046 4	0.9289		2,895.268 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0440	0.0323	0.3736	1.0100e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3279	102.3279	3.5700e-003	3.2500e-003	103.3845
Total	0.0440	0.0323	0.3736	1.0100e-003	0.1232	6.2000e-004	0.1238	0.0327	5.7000e-004	0.0333		102.3279	102.3279	3.5700e-003	3.2500e-003	103.3845

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0238	0.7134	0.2129	2.7300e-003	0.0881	6.4100e-003	0.0945	0.0254	6.1400e-003	0.0315		288.1656	288.1656	1.2100e-003	0.0436	301.1910
Worker	0.0733	0.0538	0.6226	1.6900e-003	0.2054	1.0400e-003	0.2064	0.0545	9.5000e-004	0.0554		170.5465	170.5465	5.9400e-003	5.4100e-003	172.3076
Total	0.0971	0.7672	0.8355	4.4200e-003	0.2935	7.4500e-003	0.3009	0.0798	7.0900e-003	0.0869		458.7121	458.7121	7.1500e-003	0.0490	473.4986

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0238	0.7134	0.2129	2.7300e-003	0.0881	6.4100e-003	0.0945	0.0254	6.1400e-003	0.0315		288.1656	288.1656	1.2100e-003	0.0436	301.1910
Worker	0.0733	0.0538	0.6226	1.6900e-003	0.2054	1.0400e-003	0.2064	0.0545	9.5000e-004	0.0554		170.5465	170.5465	5.9400e-003	5.4100e-003	172.3076
Total	0.0971	0.7672	0.8355	4.4200e-003	0.2935	7.4500e-003	0.3009	0.0798	7.0900e-003	0.0869		458.7121	458.7121	7.1500e-003	0.0490	473.4986

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0144	0.6143	0.1941	2.6400e-003	0.0881	3.6200e-003	0.0917	0.0254	3.4600e-003	0.0288		278.6476	278.6476	7.6000e-004	0.0422	291.2266
Worker	0.0682	0.0478	0.5793	1.6300e-003	0.2054	9.8000e-004	0.2064	0.0545	9.0000e-004	0.0554		165.1404	165.1404	5.4000e-003	5.0300e-003	166.7747
Total	0.0826	0.6621	0.7734	4.2700e-003	0.2935	4.6000e-003	0.2981	0.0798	4.3600e-003	0.0842		443.7880	443.7880	6.1600e-003	0.0472	458.0013

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0144	0.6143	0.1941	2.6400e-003	0.0881	3.6200e-003	0.0917	0.0254	3.4600e-003	0.0288		278.6476	278.6476	7.6000e-004	0.0422	291.2266
Worker	0.0682	0.0478	0.5793	1.6300e-003	0.2054	9.8000e-004	0.2064	0.0545	9.0000e-004	0.0554		165.1404	165.1404	5.4000e-003	5.0300e-003	166.7747
Total	0.0826	0.6621	0.7734	4.2700e-003	0.2935	4.6000e-003	0.2981	0.0798	4.3600e-003	0.0842		443.7880	443.7880	6.1600e-003	0.0472	458.0013

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0409	0.0287	0.3476	9.8000e-004	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		99.0843	99.0843	3.2400e-003	3.0200e-003	100.0648
Total	0.0409	0.0287	0.3476	9.8000e-004	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		99.0843	99.0843	3.2400e-003	3.0200e-003	100.0648

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0409	0.0287	0.3476	9.8000e-004	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		99.0843	99.0843	3.2400e-003	3.0200e-003	100.0648
Total	0.0409	0.0287	0.3476	9.8000e-004	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		99.0843	99.0843	3.2400e-003	3.0200e-003	100.0648

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	35.9947					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	36.1864	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0136	9.5600e-003	0.1159	3.3000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		33.0281	33.0281	1.0800e-003	1.0100e-003	33.3549
Total	0.0136	9.5600e-003	0.1159	3.3000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		33.0281	33.0281	1.0800e-003	1.0100e-003	33.3549

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	35.9947					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	36.1864	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0136	9.5600e-003	0.1159	3.3000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		33.0281	33.0281	1.0800e-003	1.0100e-003	33.3549
Total	0.0136	9.5600e-003	0.1159	3.3000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		33.0281	33.0281	1.0800e-003	1.0100e-003	33.3549

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not 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	30.6827	35.5369	243.0404	0.3303	33.0501	0.3249	33.3749	8.8216	0.3044	9.1260		33,626.65 16	33,626.65 16	3.8505	2.5193	34,473.65 87
Unmitigated	30.6827	35.5369	243.0404	0.3303	33.0501	0.3249	33.3749	8.8216	0.3044	9.1260		33,626.65 16	33,626.65 16	3.8505	2.5193	34,473.65 87

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	5,160.00	5,160.00	5160.00	2,767,846	2,767,846
Regional Shopping Center	736.13	899.34	411.45	1,250,210	1,250,210
Supermarket	5,969.00	9,928.96	9305.67	7,975,046	7,975,046
Total	11,865.13	15,988.30	14,877.12	11,993,102	11,993,102

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
Convenience Market with Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.466187	0.061512	0.210180	0.153350	0.034639	0.008391	0.014417	0.011935	0.000556	0.000412	0.031993	0.000977	0.005450
Regional Shopping Center	0.466187	0.061512	0.210180	0.153350	0.034639	0.008391	0.014417	0.011935	0.000556	0.000412	0.031993	0.000977	0.005450
Supermarket	0.466187	0.061512	0.210180	0.153350	0.034639	0.008391	0.014417	0.011935	0.000556	0.000412	0.031993	0.000977	0.005450

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	0.0712	0.6476	0.5439	3.8900e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0143	781.6765
NaturalGas Unmitigated	0.0712	0.6476	0.5439	3.8900e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0143	781.6765

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market with Gas Pumps	71.6628	7.7000e-004	7.0300e-003	5.9000e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.4309	8.4309	1.6000e-004	1.5000e-004	8.4810
Regional Shopping Center	618.658	6.6700e-003	0.0607	0.0510	3.6000e-004		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003		72.7832	72.7832	1.4000e-003	1.3300e-003	73.2158
Supermarket	5914.68	0.0638	0.5799	0.4871	3.4800e-003		0.0441	0.0441		0.0441	0.0441		695.8446	695.8446	0.0133	0.0128	699.9797
Total		0.0712	0.6476	0.5439	3.8800e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0142	781.6765

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market with Gas Pumps	0.0716628	7.7000e-004	7.0300e-003	5.9000e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.4309	8.4309	1.6000e-004	1.5000e-004	8.4810
Regional Shopping Center	0.618658	6.6700e-003	0.0607	0.0510	3.6000e-004		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003		72.7832	72.7832	1.4000e-003	1.3300e-003	73.2158
Supermarket	5.91468	0.0638	0.5799	0.4871	3.4800e-003		0.0441	0.0441		0.0441	0.0441		695.8446	695.8446	0.0133	0.0128	699.9797
Total		0.0712	0.6476	0.5439	3.8800e-003		0.0492	0.0492		0.0492	0.0492		777.0588	777.0588	0.0149	0.0142	781.6765

6.0 Area Detail

6.1 Mitigation Measures Area

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Unmitigated	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213

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	0.1972					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6000e-004	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Total	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1972					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6000e-004	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213
Total	1.8600	8.0000e-005	9.3200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0200	0.0200	5.0000e-005		0.0213

7.0 Water Detail

7.1 Mitigation Measures Water

Del Webb Specific Plan Parcel 21 – West Roseville Marketplace - Placer-Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation



West Roseville Marketplace

Retail Gasoline Station Health Risk Assessment

May 2022 | 02137.00008.001

Prepared for:

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ACRONYMS AND ABBREVIATIONS

ADMRT	Air Dispersion Modeling and Risk Tool
AERMAP	AERMOD terrain preprocessor
AERMOD	USEPA gaussian plume air dispersion model
BPIP	Building Profile Input Program
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
City	City of Roseville
CNS	central nervous system
EVR	enhanced vapor recovery
°F	Fahrenheit
HARP	Hotspots Analysis and Reporting Program
HRA	health risk assessment
IARC	International Agency on Research for Cancer
IEM	Iowa Environmental Mesonet
ISD	in-station diagnostic
K	Kelvin
m	meters
m/s	meters per second
MEIR	maximally exposed individual resident
MEIW	maximally exposed individual worker
NA	not applicable
NED	National Elevation Dataset
OEHHA	Office of Environmental Health Hazard Assessment
ORVR	onboard refueling vapor recovery
PCAPCD	Placer County Air Pollution Control District
REL	Recommended Exposure Limit
RMP	Risk Management Policy
SF	square feet
SMAQMD	Sacramento Metropolitan Air Quality Management District
SVAB	Sacramento Valley Air Basin

ACRONYMS AND ABBREVIATIONS (cont.)

TACs	toxic air contaminants
T-BACT	Toxics Best Available Control Technology
TOG	total organic gas
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	underground storage tank
UTM	Universal Transverse Mercator

EXECUTIVE SUMMARY

This report presents an assessment of the potential for increased cancer risk, non-cancer chronic health effects, and acute health effects resulting from long-term operation of a proposed retail gasoline dispensing facility (gas station) included as a component of the West Roseville Marketplace Project. Future emissions of the toxic air contaminants (TACs) from the gas station were estimated following the California Air Resources Board (CARB's) *2022 Gasoline Service Station Industrywide Risk Assessment Technical Guidance*, and the CARB's *2013 Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities*. The project would be required to install, operate, and maintain Phase I and Phase II Enhanced Vapor Recovery (EVR) systems to control the emissions of gasoline vapor. Air dispersion modeling and health risk analysis were completed for the proposed maximum permitted annual gasoline throughput of 5.2 million gallons per year. The increased cancer risk, non-cancer chronic hazard indices, and acute hazard indices for the exposed individual residents, off-site workers, and future non-gas station project workers would be below their respective thresholds. Long-term operation of the proposed gas station would not result in a significant impact related to the exposure of sensitive receptors to substantial TAC concentrations.

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1.0 INTRODUCTION

This report presents an assessment of potential community health risk impacts associated with long-term operation of the proposed retail gasoline dispensing facility (gas station) component of the West Roseville Marketplace Project (project).

1.1 PROJECT LOCATION

The project site consists of two parcels totaling approximately 8.80 acres located on the northeast corner of the intersection of Pleasant Grove Boulevard and Fiddymment Road in the City of Roseville, California (City; see Figure 1, *Regional Location*). The project site is within the Placer County portion of the Sacramento Valley Air Basin (SVAB). Air quality in the project area is under the jurisdiction of the Placer County Air Pollution Control District (PCAPCD).

1.1.1 Existing site Conditions

The project site is currently vacant, undeveloped land covered by grass and ruderal vegetation.

1.2 PROJECT DESCRIPTION

The project consists of a retail shopping center anchored by an approximately 55,592 square-foot (SF) major tenant (store). Additional shops would include approximately 13,950 SF of retail space adjacent to the store, and approximately 5,500 SF of retail/restaurant space in a freestanding building. The gas station would be located in the southwest corner of the project site and would include eight multi-product dispensers, sixteen dispensing nozzles, and two underground storage tanks (USTs; one for gasoline and one split between gasoline and diesel). The gasoline dispensers/refueling stations would be covered by an approximately 5,805 SF canopy (45 feet by 129 feet; see Figure 2, *Site Plan*).

1.2.1 Toxics Best Available Control Technology

The Toxics Best Available Control Technology (T-BACT) for gas stations are vapor recovery systems installed to collect gasoline vapors that would otherwise escape into the atmosphere. Gasoline vapor emissions at gas stations are controlled in two phases. Phase I vapor recovery collects vapors displaced from USTs when a cargo tank truck delivers gasoline to a gas station. Phase II vapor recovery collects vapors displaced during the transfer of gasoline from a dispensing nozzle to a vehicle, fuel container, or gasoline-powered equipment; and vapors related to the storage of gasoline at a gas station. California Air Resources Board (CARB) regulations establish standards for the level of emissions control vapor recovery systems must achieve during the transfer and storage of gasoline.

Vapor recovery system performance standards for gas stations have become more stringent over the years. Since 2001, CARB has adopted a number of significant advancements as part of the enhanced vapor recovery (EVR) program. Phase I EVR, in accordance with California Executive Order VR-102, requires more durable and leak-tight components, along with an increased collection efficiency of 98 percent. Phase II EVR, in accordance with California Executive Order VR-204, includes three major advancements: (1) dispensing nozzles with less spillage and required compatibility with onboard refueling vapor recovery (ORVR) vehicles, (2) a processor to control the static pressure of the ullage, or vapor space, in the underground storage tank, and (3) an in-station diagnostic (ISD) system that provides

warning alarms to alert a gas station operator of potential vapor recovery system malfunctions. Phase I EVR was fully implemented in 2005. Phase II EVR was fully implemented between 2009 and 2011 (CARB 2013). The project would be required to implement Phase I EVR and Phase II EVR systems (with an ISD system) meeting the latest CARB performance standards.

ORVR systems were phased in beginning with 1998 model year passenger vehicles, and are now installed on all passenger, light-duty, and medium-duty vehicles manufactured since the 2006 model year. When an ORVR vehicle is fueled, almost all the gasoline vapor displaced from the fuel tank is routed to a carbon canister in the vehicle fuel system. At the start of dispensing, a small portion of the vapor in the vehicle fuel tank may escape through the fill-pipe before the onboard system is fully engaged. Uncontrolled fill-pipe emissions from ORVR vehicles are approximately two orders of magnitude lower than the same emissions from vehicles without ORVR and are easily captured by Phase II vapor recovery systems (CARB 2013).

2.0 REGULATORY AND ENVIRONMENTAL SETTING

2.1 STATE REGULATIONS

The following state legislation and regulations are applicable to the installation and operation of a retail gas station:

AB 2588 – The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels. As a retail gas station, the project would be subject to AB 2588 requirements through CARB and PCAPCD rules and regulations.

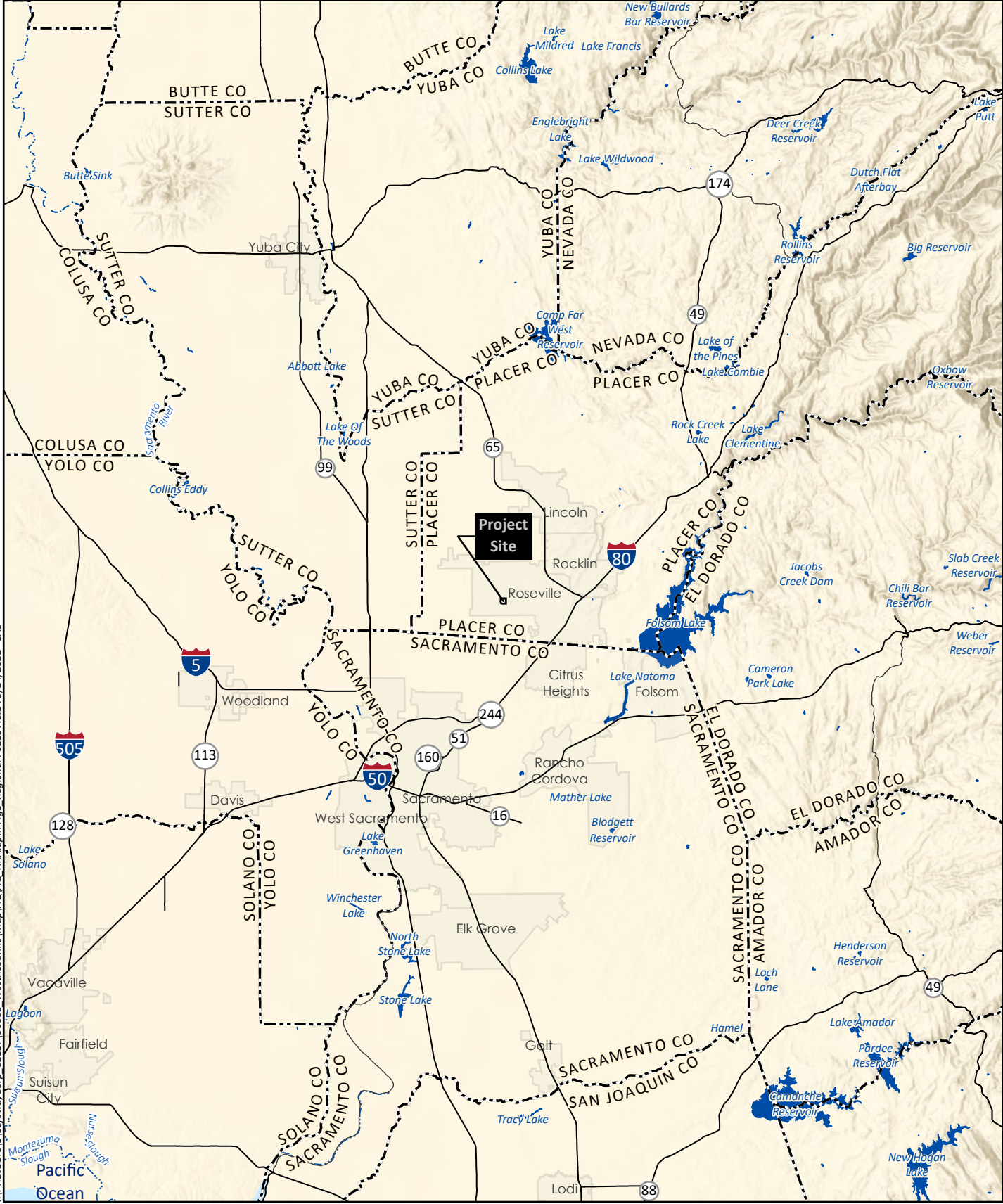
Health and Safety Code Section 42301.6 – California Health and Safety Code Section 42301.6 includes public notification requirements for new or modified source(s) of toxic air contaminants (TACs) located within 1,000 feet of a school with 12 or more students (grades kindergarten [K] through 12), also known as a "Waters Bill Notification." There are no schools with 12 or more K through 12th grade students within 1,000 feet of the project site and public notification per Health and Safety Code Section 42301.6 would not apply.

Health and Safety Code Section 93101 – California Health and Safety Code Section 93101, Airborne Toxic Control Measure – Retail Service Stations, requires owners or operators of retail gas stations to install and maintain Phase I and Phase II vapor recovery systems.

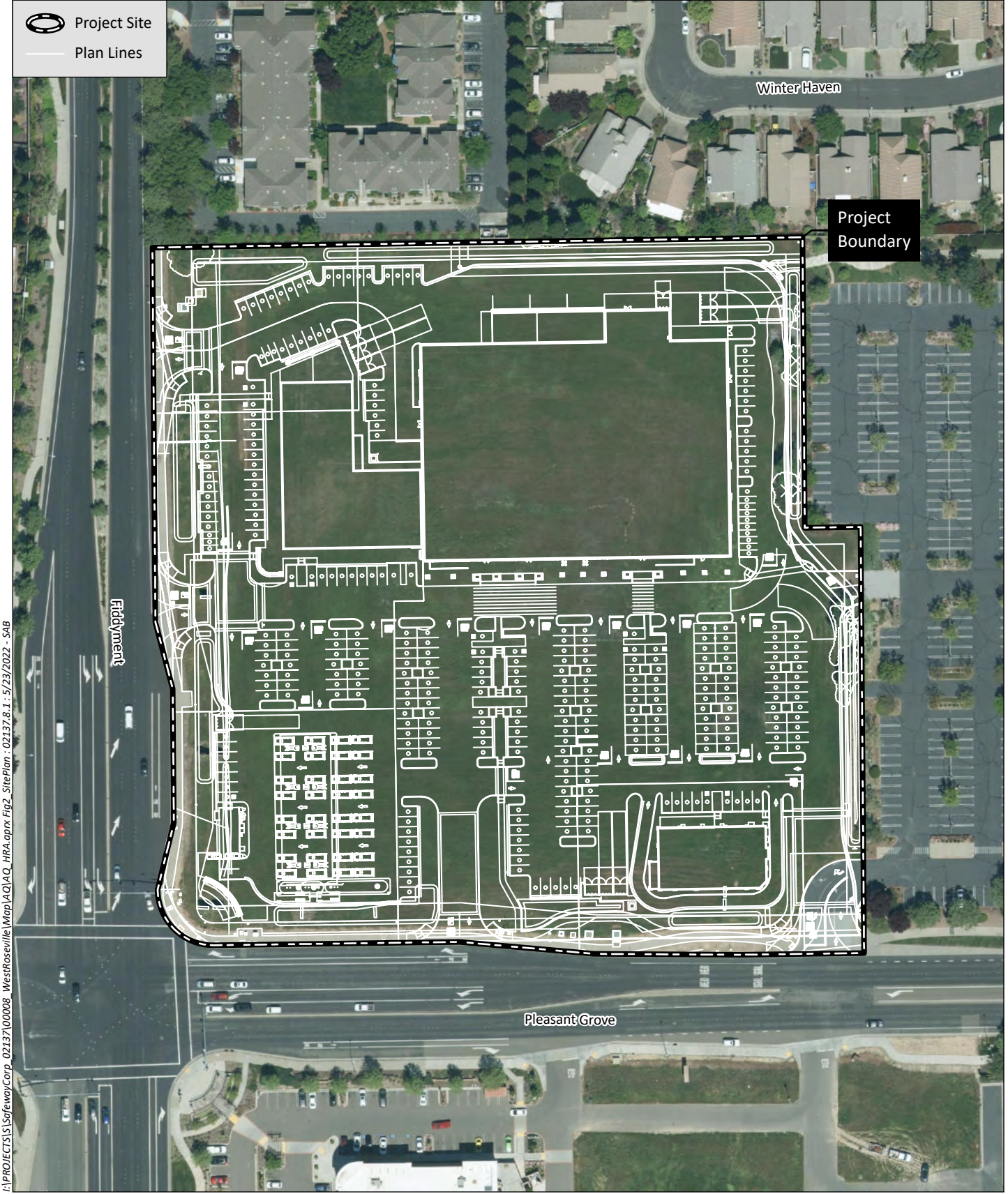
2.2 LOCAL REGULATIONS

The following PCAPCD rules would be applicable to the project's retail gas station component:

Rule 205 Nuisance – prohibits the discharge, from any source, quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or the public (PCAPCD 1993).



Source: Base Map Layers (ESRI, 2013)



I:\PROJECTS\15\SafeWayCorp_02137\00008_WestRoseville\Map\AQ\AQ_HRA.aprx Fig2_SitePlan : 02137.8.1 : 5/23/2022 - SAB

Project Boundary

Winter Haven

Fiddyment

Pleasant Grove

Source: Aerial (NearMap, 2019)



Rule 212 Storage of Organic Liquids – requires installation and maintenance of vapor recovery systems, and associated recordkeeping, for tanks used to store organic liquids (e.g., gasoline, diesel; PCAPCD 1997).

Rule 213 Gasoline Transfer into Stationary Storage Containers – prohibits the transfer of gasoline to any tank of more than 250 gallons unless the tank is equipped with a permanent submerged fill pipe and displaced gasoline vapors or gases are processed by a CARB certified vapor recovery system (PCAPCD 2013a).

Rule 214 Transfer of Gasoline into Vehicle Tanks – prohibits the transfer of gasoline from a stationary storage container, subject to Rule 213, into any motor vehicle fuel tank of greater than 5 gallons capacity unless such transfer is made through a fill nozzle which directs the gasoline vapors displaced by the transfer through the fill nozzle to a CARB certified vapor recovery system (PCAPCD 2013b).

Rule 410 Recordkeeping for Volatile Organic Compounds Emissions – requires an owner or operator of a stationary source using fuels, adhesives, coatings, solvents, and/or graphic arts materials to maintain daily records of operations for the most recent two-year period. In addition, the operating parameters of basic process equipment, any control equipment and capture system(s) shall be recorded and those records maintained (PCAPCD 1994).

Rule 502 New Source Review – provides for the review of new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct for such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards (PCAPCD 2021).

2.3 TOXIC AIR CONTAMINANTS

TACs are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness or that may pose a present or potential hazard to human health. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects such as eye watering, respiratory irritation (a cough), runny nose, throat pain, and headaches. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For carcinogenic TACs, there is no level of exposure that is considered safe, and impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

Activities at gasoline dispensing facilities can release gasoline vapor into the air. Gasoline vapor consists of a mixture of organic gases, including seven gases classified as TACs with quantifiable health risk factors: benzene, ethyl benzene, n-hexane, naphthalene, propylene (or propene), xylenes and toluene (CARB 2022). Note that, although the proposed gas station may include diesel dispensing, TACs associated with diesel vapor are not released in quantities sufficient enough to require analysis or reporting. For example, gasoline in the U.S. contains 0.6 to 1.3 percent benzene by volume, diesel fuel contains less than 0.02 percent benzene (International Agency on Research for Cancer [IARC] 1989).

Benzene – Benzene is a potent carcinogen and one of the highest-risk air pollutants regulated by CARB. Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as

eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic inhalation exposure to benzene has caused various disorders in the blood. Benzene is classified as a known human carcinogen for all routes of exposure (U.S. Environmental Protection Agency [USEPA] 2012a). Benzene contributes approximately 78 percent of the cancer risk and nearly 100 percent of the non-cancer chronic health impacts resulting from gasoline vapor emissions at retail gas stations in California (CARB 2022).

Ethyl benzene – Acute exposure to ethylbenzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects such as dizziness (USEPA 2000a).

N-hexane – Chronic exposure to hexane in air is associated with polyneuropathy in humans, with numbness in the extremities, muscular weakness, blurred vision, headache, and fatigue observed. Neurotoxic effects have also been exhibited in rats (USEPA 2000b).

Naphthalene – Acute exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to the liver, and neurological damage. Chronic exposure of workers and rodents to naphthalene has been reported to cause cataracts and damage to the retina. Classified as a possible human carcinogen (USEPA 2000c).

Xylenes – Acute inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, and neurological effects. Chronic inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported (USEPA 2000d).

Toluene – The CNS is the primary target organ for toluene toxicity in both humans and animals for acute and chronic exposures. CNS dysfunction and narcosis have been frequently observed in humans acutely exposed to elevated airborne levels of toluene; symptoms include fatigue, sleepiness, headaches, and nausea. Chronic inhalation exposure of humans to toluene also causes irritation of the upper respiratory tract and eyes, sore throat, dizziness, and headache (USEPA 2012b).

2.4 SENSITIVE RECEPTORS

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: adults over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005; OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptors locations. Examples of these sensitive receptor locations are residences, schools, hospitals, and daycare centers. For health risk assessments, the health impacts are analyzed for individual residents assumed to be standing in their primary outdoor spaces closest to the source of TACs, and for individual off-site workers assumed to be standing outside of a commercial or industrial building.

The closest existing sensitive receptor locations to the proposed gasoline pump location are single-family residences, approximately 260 feet across Fiddymont Road to the west. Additional sensitive receptor locations are senior apartments approximately 550 feet to the north, and single-family

residences approximately 640 feet northeast. The closest school to the project site is the Coyote Ridge Elementary School approximately 2,400 feet (0.45 mile) to the southeast. See Figure 3, *Modeled Receptor Locations*.

3.0 METHODOLOGY

Potential health risks to nearby sensitive receptors from the emission of TACs during operations at the proposed gasoline fueling facility were analyzed in accordance with the CARB's *Gasoline Service Station Industrywide Risk Assessment Technical Guidance* (CARB 2022), the California Air Pollution Control Officer's Association's (CAPCOA) *Gasoline Service Station Industrywide Risk Assessment Guidelines* (CAPCOA 1997), and OEHHA's *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015).

3.1 TAC SPECIATION

The TAC content in gasoline is dependent on regulated formulations. California has a summer and a winter formulation, with the summer formulation having higher a TAC content. In accordance with the CARB technical guidance, chronic (long-term) health effects are analyzed assuming an average annual TAC content based on 59.2 percent summer formulation and 40.8 percent winter formulation (CARB 2022). Acute (short-term) health effects are analyzed assuming the highest TAC content in the summer formulation (CARB 2022). Table 1, *TAC Percent Weight in Gasoline Vapor*, shows the TAC content in gasoline vapor used in the analysis. Of the seven TACs, only benzene, toluene, and xylenes have quantifiable acute health effect factors. Therefore, other TACs are not included in the acute health effect analysis (CARB 2022).

Table 1
TAC PERCENT WEIGHT IN GASOLINE VAPOR

Substance	Chronic Effects – Combined Summer and Winter Formulation	Acute Effects – Summer Formulation Only
Benzene	0.457%	0.549%
Ethyl Benzene	0.107%	NA
n-Hexane	1.82%	NA
Naphthalene	0.000445%	NA
Propylene	0.0003594%	NA
Toluene	1.11%	1.35%
Xylenes	0.409%	0.509%

Source: CARB 2022

TAC = toxic air contaminant; NA = not applicable

3.2 TAC EMISSIONS

The emissions of TACs in gasoline vapor were calculated in accordance with the CARB's *Gasoline Service Station Industrywide Risk Assessment Technical Guidance* (CARB 2022) and the CARB's *Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities* (CARB 2013).

3.2.1 Modeled Sources

In accordance with the CARB technical guidance, gas station TAC emissions are broken into five sources (CARB 2022):

Loading – Emissions occur when gasoline vapors are displaced by rising liquid in the gasoline station USTs during bulk transfer of gasoline from a cargo tank to an UST. The displaced vapors are collected by a Phase I vapor recovery system that returns approximately 98 percent of vapors to the cargo tank. The remaining vapors may be emitted from the UST vent stack.

Breathing – Emissions are generated when gasoline vapors are displaced to the atmosphere during the day-to-day operation of a gas station. During periods when there is either no dispensing or when there is a significant slowdown in the dispensing of fuel to vehicles, such as overnight periods, gasoline in an UST evaporates into the headspace above the liquid fuel. The vapor growth caused by this evaporation increases UST static pressure and results in pressure driven emissions. Pressure-driven emissions are currently controlled by a processing unit that includes either a bladder tank, membrane separator, carbon canister or thermal oxidizer. The remaining vapors may be emitted from the UST vent stack.

Refueling – During the refueling process, gasoline vapors are emitted at the vehicle/nozzle interface. When dispensing gasoline to vehicles not equipped with ORVR, the rising liquid level in the vehicle fuel tank displaces gasoline vapors back through the fill-pipe where they are captured by a Phase II vapor recovery system. Vapors not captured by the Phase II vapor recovery system are emitted to the atmosphere. When an ORVR vehicle is fueled, almost all the gasoline vapor displaced from the fuel tank is routed to a carbon canister in the vehicle fuel system. At the start of dispensing, a small portion of the vapor in the vehicle fuel tank may escape through the fill-pipe before the onboard system is fully engaged. All passenger, light-duty, and medium-duty vehicles manufactured since the 2006 model year are equipped with ORVR systems. For this analysis, 89 percent of vehicles refueling at the proposed gas station were assumed to be equipped with ORVR systems, corresponding to the estimated statewide penetration of ORVR vehicles in the fleet mix in 2023 (CARB 2013).

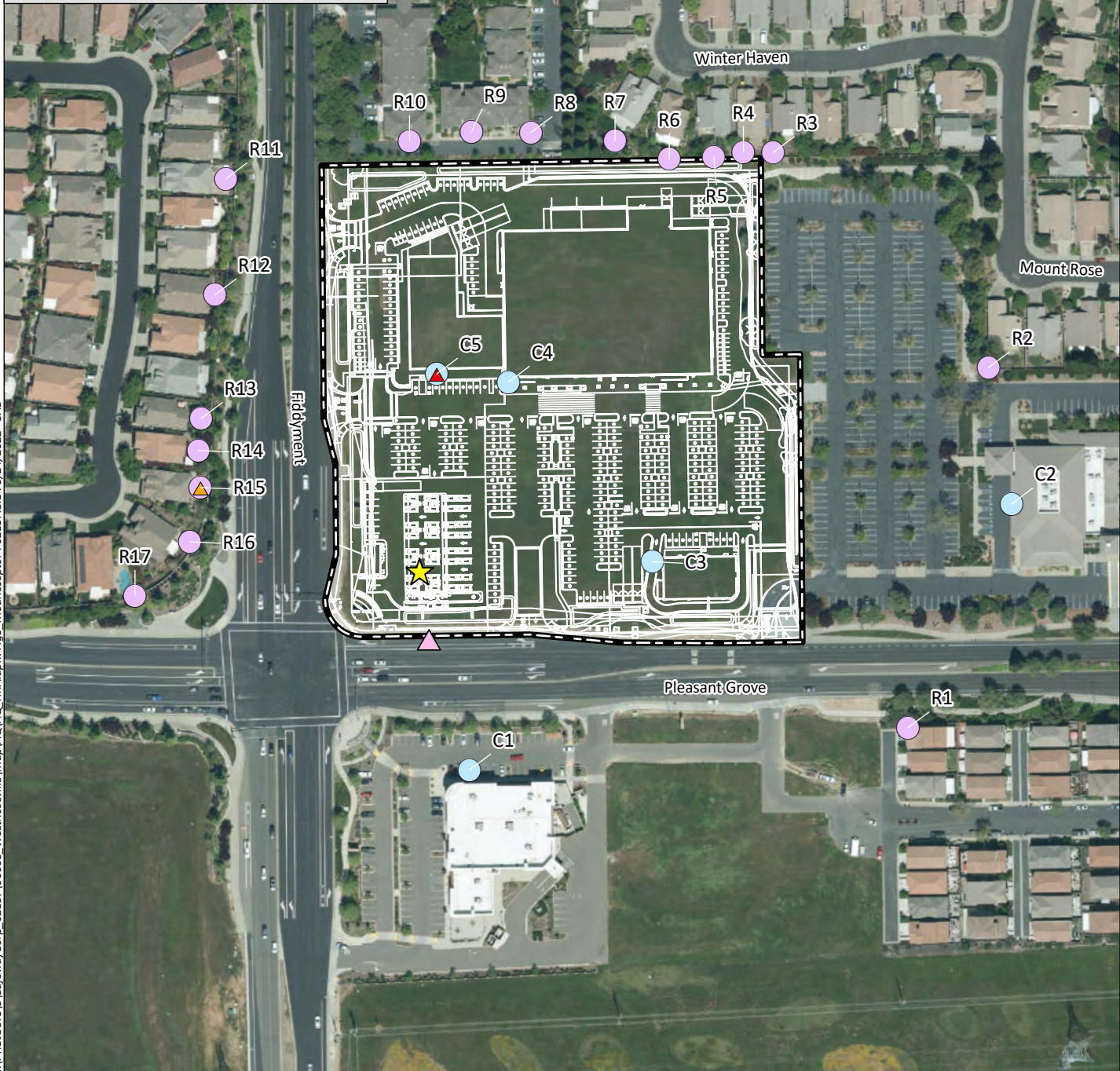
Spillage – Emissions occur during vehicle fueling if there is overflow after a tank is filled or when other liquid fuel unintentionally discharges from the nozzle and evaporates.

Hose Permeation – Emissions occur when liquid gasoline or gasoline vapors diffuse through the dispensing hose outer surface to the atmosphere. CARB adopted performance standards for gasoline dispensing hose permeation on July 26, 2012, with all facilities subject to the standard required to comply by 2017 (CARB 2022).

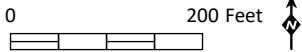
3.2.2 Gasoline Throughput

Health risks are analyzed based on the average annual emissions and maximum hourly emissions. Gas station TAC emissions are proportional to the gasoline throughput (amount of gasoline dispensed in a time period). Per the project applicant, the project is anticipated to have a maximum annual throughput of 5.2 million gallons per year. Average annual TAC emissions for all sources were calculated using the reported maximum annual throughput. Maximum hourly emissions are dependent on the activity for each source and were estimated following the CARB technical guidance. The loading source (filling of underground storage tanks) maximum hourly throughput assumes one truckload of gasoline (at the maximum legal gross vehicle weight) of 8,800 gallons loaded in one hour. The breathing source

- Project Site
- Plan Lines
- Gas Pumps
- Residential Receptor
- Worker Receptor
- Point of Maximum Impact
- Maximally Exposed Individual Worker
- Maximally Exposed Individual Resident



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Source: Aerial (City of Roseville, 2019)

maximum hourly throughput is based on the average hourly gasoline throughput: 5.2 million gallons per year divided by 8,766 hours per year, or 583 gallons per hour. The refueling, spillage, and hose permeation sources maximum hourly throughput is based on the estimated maximum hourly volume of gasoline dispensed. Based on survey data, for gas stations with 5 million to 10 million gallons per year throughput, the recommended hourly throughput for modeling is 2,000 gallons per hour (CARB 2022).

3.2.3 Modeled Emissions

TAC emissions used in this analysis are calculated using emission factors for total organic gases (TOGs; equivalent to the gasoline vapor) per 1,000 gallons of gasoline throughput by source from CARB's *Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities* (CARB 2013). The emission factors by source are presented in Table 2, *Gas Station Emission Factors*.

Table 2
GAS STATION EMISSION FACTORS

Source	Emission Factor (TOG pounds per 1,000 gallons)
Loading	0.150
Breathing	0.024
Refueling (Non-ORVR Vehicles)	0.420
Refueling (ORVR Vehicles)	0.021
Spillage	0.240
Hose Permeation	0.009

Source: CARB 2013

TOG = total organic gas; ORVR = onboard refueling vapor recovery

Based on the above emission factors and assumptions, the TAC emissions by source for chronic health effect analysis are shown in Table 3, *Chronic Health Effect TAC Emissions*. The complete emissions calculation sheet is included in Appendix A, *HRA Modeling Input/Output*, to this report.

Table 3
CHRONIC HEALTH EFFECT TAC EMISSIONS

Source	Benzene	Ethyl Benzene	n-Hexane	Naphthalene	Propylene	Toluene	Xylenes
Loading Annual (pounds/year)	3.56	0.83	14.2	0.003	0.028	8.58	3.19
Loading Hourly (pounds/hour)	6.03E-3	1.41E-3	2.40E-2	5.87E06	4.74E-5	1.45E-2	5.40E-3
Breathing Annual (pounds/year)	0.57	0.13	2.27	0.001	0.004	1.37	0.51
Breathing Hourly (pounds/hour)	6.51E-5	1.52E-3	2.59E-4	6.34E-7	5.21E-7	1.57E-4	5.28E-5
Refueling Annual (pounds/year)	1.54	0.36	6.14	0.002	0.012	3.71	1.38
Refueling Hourly (pounds/hour)	5.93E-4	1.39E-4	2.63E-3	5.78E-7	4.66E-6	1.43E-3	5.31E-4
Spillage Annual (pounds/year)	5.70	1.34	22.71	0.006	0.045	13.73	5.10
Spillage Hourly (pounds/hour)	2.19E-3	5.14E-4	8.74E-3	2.14E-6	1.73E-5	5.28E-3	1.96E-3
Hose Permeation Annual (pounds/year)	0.21	0.05	0.85	0.0002	0.002	0.51	0.19
Hose Permeation Hourly (pounds/hour)	8.23E-5	1.93E-5	3.28E-4	8.01E-8	6.47E-7	1.98E-4	7.36E-5

Source: CARB 2022, CARB 2013

The TAC emissions by source for acute health effect analysis are shown in Table 4, *Acute Health Effect TAC Emissions*. The complete emissions calculation sheet is included in Appendix A to this report.

Table 4
CHRONIC HEALTH EFFECT TAC EMISSIONS

Source	Benzene	Toluene	Xylenes
Loading Annual (pounds/year)	4.28	10.53	3.97
Loading Hourly (pounds/hour)	7.25E-3	1.78E-2	6.72E-3
Breathing Annual (pounds/year)	0.69	1.68	0.64
Breathing Hourly (pounds/hour)	7.82E-5	1.92E-4	7.25E-5
Refueling Annual (pounds/year)	1.85	4.56	1.72
Refueling Hourly (pounds/hour)	7.21E-4	1.75E-3	6.61E-4
Spillage Annual (pounds/year)	6.85	16.85	6.35
Spillage Hourly (pounds/hour)	2.64E-3	6.48E-3	2.44E-3
Hose Permeation Annual (pounds/year)	0.26	0.63	0.24
Hose Permeation Hourly (pounds/hour)	9.88E-5	2.43E-4	9.16E-5

Source: CARB 2022, CARB 2013

3.3 DISPERSION MODELING

Localized concentrations of benzene were modeled using Lakes AERMOD View version 10.2.1. The Lakes program utilizes the USEPA's AERMOD gaussian air dispersion model version 21112.

3.3.1 Source Parameters

In accordance with the CARB technical guidance, the loading and breathing sources were modeled as point sources with emissions emanating from the USTs vent stack at 12 feet (3.7 meters) above the ground. The location of the USTs vent stack was not known at the time of this analysis. The USTs vent stack was modeled at the default location of the center of the gas pump canopy, the stack diameter was set at 2 inches (0.05 meters), and the exhaust gas temperature was set to 64 degrees Fahrenheit (°F; 291 Kelvin [K]) for the loading source and 60 degrees °F (289 K) for the breathing source. The USTs vent stack was assumed to have a rain cap resulting in a near-zero initial vertical gas velocity (CARB 2022).

The refueling, spillage, and hose permeation sources were modeled as volume sources corresponding to the approximate volume beneath the gas pump canopy. The release height for the refueling and hose permeation was set to the recommended height of 4.9 feet (1.5 meter). The release height for the spillage source was set the recommended height of 3.3 feet (1 meter). The source parameters are summarized in Table 5, *Source Modeling Parameters* (CARB 2022).

Table 5
SOURCE MODELING PARAMETERS

Source	Release Height (m)	Stack Diameter (m)	Gas Temperature (K)	Gas Velocity (m/s)	Volume Side (m)	Volume Height (m)
Loading	3.66	0.0508	291	0.001	NA	NA
Breathing	3.66	0.0508	289	0.001	NA	NA
Refueling	1.5	NA	NA	NA	23.2	4.0
Spillage	1.0	NA	NA	NA	23.2	4.0
Hose Permeation	1.5	NA	NA	NA	23.2	4.0

Source: CARB 2022

m = meters; K = degrees Kelvin; m/s = meters per second; NA = not applicable

Emissions of gasoline vapor for gas stations are not constant throughout the day. Refueling and spillage sources vary by the quantity dispensed each hour. Loading sources only occur during fuel deliveries, typically one hour in a day on several days per week. Breathing and permeation sources may vary depending on environmental conditions and on gasoline dispensing activity. Based on recommendations in the CARB technical guidance, refueling, spillage and hose permeation sources were assumed to emit variably with 85 percent of gasoline dispensed between 6 a.m. and 8 p.m. (1.46 variable emission rate factor) and 15 percent of gasoline dispensed between 8 p.m. and 6 a.m. (0.36 variable emission rate factor; CARB 2022). Because fuel delivery schedules for the loading source are unknown, deliveries were assumed to occur at any time between 8 a.m. and 5 p.m. throughout the year (2.67 variable emission rate factor). The breathing source was assumed to occur at a steady rate throughout the year.

Downwash from the project's buildings was modeled using the Building Profile Input Program (BPIP), a building preprocessing program for AERMOD. The project building sizes and locations were estimated from the project site plan.

3.3.2 Meteorological Data

The Sacramento Metropolitan Air Quality Management District (SMAQMD) provides pre-processed meteorological data suitable for use with AERMOD for projects within the SVAB. The available data set most representative of conditions in the project vicinity was from the Sacramento International Airport

station, approximately 22 miles southwest of the project site. The Sacramento International Airport set includes 5 years of data collected between 2014 to 2018 (SMAQMD 2022). Because the project site is near the western edge of developed areas in Roseville, rural dispersion coefficients were selected in the model. Using rural dispersion coefficients is generally conservative (health protective) compared to using urban dispersion coefficients which account for urban heat island effects. A wind rose for the Sacramento International Airport shows an average speed of 7.7 miles per hour from the south-southeast (Iowa Environmental Mesonet 2019). The wind rose graphics are included in Appendix A to this report.

3.3.3 Terrain Data

United States Geological Survey (USGS) National Elevation Dataset (NED) files with a 10-meter resolution covering an area approximately one kilometer around the project site were used in the model to cover the analysis area. Terrain data was imported to the model using AERMAP (a terrain preprocessing program for AERMOD).

3.3.4 Receptor Modeling

To develop risk isopleths (linear contours showing equal level of risk) and ensure that the area of maximum impact was captured, receptors were placed in a cartesian grid 780 meters by 780 meters (approximately 2,560 feet by 2,560 feet), centered on the project site with a grid spacing of 10 meters (33 feet) and a receptor height (flagpole height) of 1.2 meters (4 feet) above the ground. Additional discrete receptors were placed at 10-meter intervals along the project property line and at the residential property line of the 17 closest identified sensitive receptors, the 2 closest existing off-site worker buildings, and the 3 future non-gas station on-site worker buildings on the project site (all project building except for the gas station kiosk). See Figure 3 for the discrete receptor locations relative to the project site and gas pumps.

3.4 RISK DETERMINATION

Adverse health effects resulting from localized concentrations of TACs were calculated using CARB's Hotspots Analysis and Reporting Program (HARP), Air Dispersion Modeling and Risk Tool (ADMRT) version 22118. Plot files from AERMOD using unitized emissions (one gram per second) for each TAC source were imported into the ADMRT. The ADMRT calculated ground-level concentrations of each TAC utilizing the imported plot files and the annual and hourly emissions inventories shown in Table 3 and Table 4. The latest cancer potency factors, non-cancer chronic Reference Exposure Limits (RELs), acute RELs, exposure paths, and target organ or system for all TACs designated by CARB are included in the ADMRT. For the residential cancer risk, an exposure duration of 30 years was selected in accordance with the OEHHA guidelines (OEHHA 2015). The model conservatively assumes that residents would be standing and breathing outdoors at the location of the property line closest to the gas station every day between 17 and 21 hours per day (depending on the age group, starting with infants in utero in the third trimester of pregnancy) for 30 years. Because there are no schools near the project site, fraction of time at home adjustments were applied to all age bins. Tier 1 fractions were used for each age bin: 0.85 for less than 2 years old, 0.72 for 2 to 16 years old, and 0.73 for 16 years and older. For off-site worker cancer risk, an exposure duration of 25 years was selected with an assumption of 8 hours per day, 5 days per week of exposure while standing outside with moderate intensity breathing rates, in accordance with the OEHHA guidelines. The Risk Management Policy (RMP) derived intake rate percentile method

was selected for residential cancer and non-cancer chronic scenarios. The modeling input and output is included in Appendix A to this report.

3.5 SIGNIFICANCE CRITERIA

For a Type A project (siting a new source of emissions), the PCAPCD recommends the following thresholds for the project's incremental contribution to community health risks (PCAPCD 2017):

Cancer Risk – An increased risk of 10 in 1 million for the maximally exposed individual to project emissions.

Chronic and Acute Health Risk – A Hazard Index of 1 for the maximally exposed individual to project emissions.

4.0 HEALTH RISK IMPACT ANALYSIS

The incremental excess cancer risk is an estimate of the chance a person exposed to a specific source of a TAC may have of developing cancer from that exposure beyond the individual's risk of developing cancer from existing background levels of TACs in the ambient air. For context, the average cancer risk from TACs in the ambient air for an individual living in an urban area of California is 830 in 1 million (CARB 2015). Cancer risk estimates do not mean, and should not be interpreted to mean, that a person will develop cancer from estimated exposures to toxic air pollutants.

The maximum estimated community incremental health effects due to exposure to the project TAC emissions from long term operation of the proposed retail gasoline dispensing facility for the Maximally Exposed Individual Resident (MEIR) and Maximally Exposed Individual Worker (MEIW) are presented in Table 6, *Maximum Incremental Health Effect*. These estimates are conservative (health protective) and assume that the resident or worker is outdoors for the entire exposure period. Note – the methodology for calculating acute health effect is the same for residents and workers, only the highest acute hazard index is shown in Table 6 (for the MEIW).

Table 6
MAXIMUM INCREMENTAL HEALTH EFFECT

	MEIR Cancer Risk (chances per million)	MEIR Non-Cancer Chronic Hazard Index	MEIW Cancer Risk (chances per million)	MEIW Non-Cancer Chronic Hazard Index	MEIW Acute Hazard Index
Results	0.5	0.003	0.2	0.009	0.89
Threshold	10	1	10	1	1
<i>Exceed Threshold?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

Source: Lakes AERMOD View and ADMRT

MEIR = Maximally Exposed Individual Resident; MEIW = Maximally Exposed Individual Worker

The estimated incremental excess cancer risk, chronic hazard index, and acute hazard index due to exposure to the project's TAC emissions for each receptor location shown in Figure 3 are presented in Table 7, *Discrete Receptor Incremental Cancer, Chronic, and Acute Health Effects*. The model inputs, outputs, and risk isopleth figures are available in Appendix A to this report.

Table 7
DISCRETE RECEPTOR INCREMENTAL CANCER, CHRONIC, AND ACUTE HEALTH EFFECTS

Receptor ID	Description	Cancer Risk (chances per million)	Non-Cancer Chronic Hazard Index	Acute Hazard Index
R1	Single Family Residential	0.1	0.001	0.32
R2	Single Family Residential	0.1	<0.000	0.15
R3	Single Family Residential	0.1	0.001	0.12
R4	Single Family Residential	0.1	0.001	0.13
R5	Single Family Residential	0.1	0.001	0.14
R6	Single Family Residential	0.2	0.001	0.16
R7	Single Family Residential	0.2	0.001	0.18
R8	Senior Multi-Family Residential	0.3	0.002	0.17
R9	Senior Multi-Family Residential	0.3	0.002	0.18
R10	Senior Multi-Family Residential	0.4	0.002	0.19
R11	Single Family Residential	0.3	0.002	0.17
R12	Single Family Residential	0.4	0.002	0.28
R13	Single Family Residential	0.4	0.002	0.39
R14	Single Family Residential	0.4	0.003	0.50
R15	Single Family Residential	0.5	0.003	0.51
R16	Single Family Residential	0.4	0.003	0.52
R17	Single Family Residential	0.3	0.002	0.38
C1	Off-Site Worker Building	0.1	0.006	0.59
C2	Off-Site Worker Building	<0.0	<0.000	0.15
C3	Future Project Worker Building	<0.0	0.002	0.89
C4	Future Project Worker Building	0.1	0.005	0.49
C5	Future Project Worker Building	0.2	0.009	0.50

Source: Lakes AERMOD View and ADMRT

The point of maximum off-site impact for residential cancer and non-cancer chronic health effect would be on the project's west boundary at approximately Universal Transverse Mercator (UTM) coordinates Zone 10, 642661 meters East, 4292132 meters North, on the shoulder of Pleasant Grove Boulevard. No residents or workers are anticipated to be at the point of maximum impact for prolonged periods. If residents were to be located at the point of maximum impact for 30 years, the estimated incremental excess cancer risk would be 6.0 in 1 million. The point of maximum impact is shown in Figure 3.

As shown in Table 6 and Table 7, the incremental increased cancer risks would not exceed the PCAPCD threshold of 10 in 1 million and the chronic and acute hazard indices would not exceed the PCAPCD threshold of 1. Therefore, community health effects due to exposure to TAC emissions from long term operation of the proposed retail gasoline dispensing facility would not exceed the PCAPCD thresholds at the maximum proposed permitted throughput of 5.2 million gallons per year, and long-term operation of the proposed gas station would not result in a significant impact related to the exposure of sensitive receptors to substantial TAC concentrations.

5.0 LIST OF PREPARERS

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Appendix A

HRA Modeling Input/Output

Gasoline Dispensing Facility TAC Emissions

Gasoline TAC Content (% Weight in Vapor)

Substance	Chronic Health ¹	Acute Health ²
Benzene	0.457%	0.549%
Ethyl Benzene	0.107%	-
n-Hexane	1.82%	-
Naphthalene	0.000445%	-
Propylene (propene)	0.003594%	-
Toluene	1.100%	1.35%
Xylenes	0.409%	0.509%

ORVR Vehicles and Gasoline Throughput

Percent ORVR Vehicles (2023) ³	89.0%	
Project Throughput (gal/year)	5,200,000	
Throughput (gal/hour) Loading ⁴	8,800	
Throughput (gal/hour) Breathing ⁵	593	
Throughput (gal/hour) Refueling ⁶	2,000	
Throughput (gal/hour) Spillage ⁶	2,000	
Throughput (gal/hour) Permeation ⁶	2,000	

TAC Inventory Chronic Health Effects (Combined Summer and Winter Gasoline Formulation)

Source	TOG	Benzene		Ethyl Benzene		n-Hexane		Naphthalene		Propylene (propene)		Toluene		Xylenes	
	lb/1000 gal	lb/year	lb/hr	lb/year	lb/hr	lb/year	lb/hr	lb/year	lb/hr	lb/year	lb/hr	lb/year	lb/hr	lb/year	lb/hr
Loading	0.150	3.5646	6.0324E-03	0.8346	1.4124E-03	14.1960	2.4024E-02	0.0035	5.8740E-06	0.0280	4.7441E-05	8.5800	1.4520E-02	3.1902	5.3988E-03
Breathing	0.024	0.5703	6.5062E-05	0.1335	1.5233E-05	2.2714	2.5911E-04	0.0006	6.3354E-08	0.0045	5.1167E-07	1.3728	1.5661E-04	0.5104	5.8229E-05
Refueling Non-ORVR	0.420	1.0979	4.2227E-04	0.2571	9.8868E-05	4.3724	1.6817E-03	0.0011	4.1118E-07	0.0086	3.3209E-06	2.6426	1.0164E-03	0.9826	3.7792E-04
Refueling ORVR	0.021	0.4441	1.7083E-04	0.1040	3.9997E-05	1.7688	6.8032E-04	0.0004	1.6634E-07	0.0035	1.3434E-06	1.0691	4.1118E-04	0.3975	1.5288E-04
Refueling Total	0.065	1.5420	5.9309E-04	0.3610	1.3886E-04	6.1412	2.3620E-03	0.0015	5.7752E-07	0.0121	4.6643E-06	3.7117	1.4276E-03	1.3801	5.3080E-04
Spillage	0.240	5.7034	2.1936E-03	1.3354	5.1360E-04	22.7136	8.7360E-03	0.0056	2.1360E-06	0.0449	1.7251E-05	13.7280	5.2800E-03	5.1043	1.9632E-03
Hose Permeation	0.009	0.2139	8.2260E-05	0.0501	1.9260E-05	0.8518	3.2760E-04	0.0002	8.0100E-08	0.0017	6.4692E-07	0.5148	1.9800E-04	0.1914	7.3620E-05

TAC Inventory Acute Health Effects (Summer Gasoline Formulation)

Source	TOG	Benzene		Toluene		Xylenes	
	lb/1000 gal	lb/year	lb/hr	lb/year	lb/hr	lb/year	lb/hr
Loading	0.150	4.2822	7.2468E-03	10.5300	1.7820E-02	3.9702	6.7188E-03
Breathing	0.024	0.6852	7.8160E-05	1.6848	1.9220E-04	0.6352	7.2465E-05
Refueling Non-ORVR	0.420	1.3189	5.0728E-04	3.2432	1.2474E-03	1.2228	4.7032E-04
Refueling ORVR	0.021	0.5336	2.0522E-04	1.3120	5.0463E-04	0.4947	1.9026E-04
Refueling Total	-	1.8525	7.1249E-04	4.5553	1.7520E-03	1.7175	6.6058E-04
Spillage	0.240	6.8515	2.6352E-03	16.8480	6.4800E-03	6.3523	2.4432E-03
Hose Permeation	0.009	0.2569	9.8820E-05	0.6318	2.4300E-04	0.2382	9.1620E-05

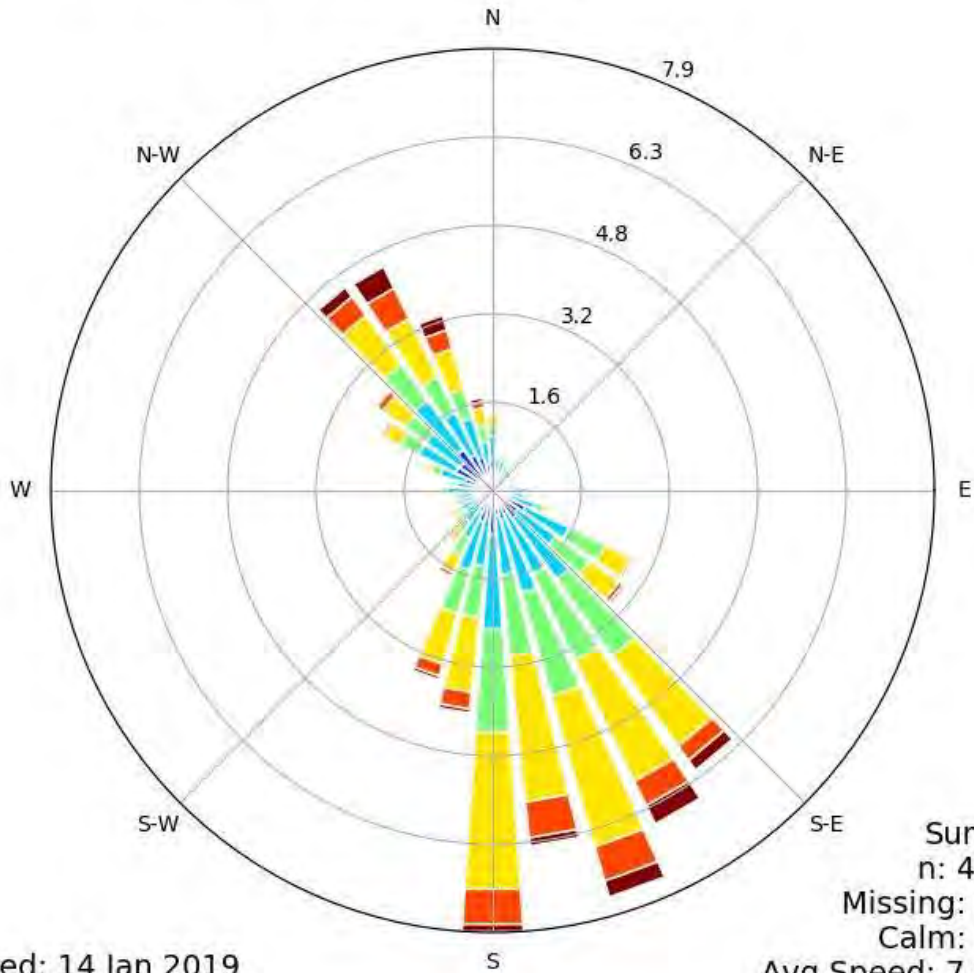
Source: Unless another source is indicated, all methods and data are from the California Air Resource Board (CARB) Gasoline Service Station Industrywide Risk Assessment Technical Guidance (2022).

Notes:

- Chronic health effects (cancer and non-cancer) are determined assuming TAC content for combined summer and winter gasoline formulations.
- Acute health effect are determined assuming TAC content for summer gasoline formulation only. Only benzene, toluene, and xylenes have Acute RELs.
- Percent gasoline dispensed to ORVR vehicles from CARB Revised Emission Factors for Phase II Vehicle Fueling at California Gasoline Dispensing Facilities, Attachment 1 (2013). For 2023 operational year - 89% ORVR vehicles.
- Maximum hourly throughput for Phase I loading operations based on delivery of 8,800 gallons (one maximum gross weight truckload) in one hour.
- Maximum hourly throughput for underground storage tank breathing based on annual average throughput (8,766 hours per year).

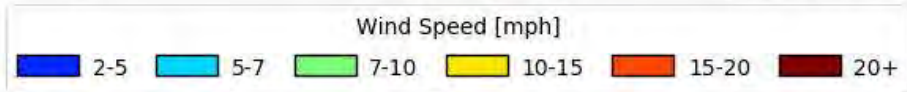


[SMF] SACRAMENTO METRO
Windrose Plot [All Year]
Period of Record: 01 Jan 1973 - 14 Jan 2019



Summary
n: 407288
Missing: 12686
Calm: 15.7%
Avg Speed: 7.7 mph

Generated: 14 Jan 2019



Control Pathway

AERMOD

Dispersion Options

Titles C:\Users\martinr\Desktop\West Roseville Marketplace HRA\West Rosevil	
Dispersion Options <input checked="" type="checkbox"/> Regulatory Default <input type="checkbox"/> Non-Default Options	Dispersion Coefficient Rural
	Output Type <input checked="" type="checkbox"/> Concentration <input type="checkbox"/> Total Deposition (Dry & Wet) <input type="checkbox"/> Dry Deposition <input type="checkbox"/> Wet Deposition
	Plume Depletion <input type="checkbox"/> Dry Removal <input type="checkbox"/> Wet Removal
	Output Warnings <input type="checkbox"/> No Output Warnings <input type="checkbox"/> Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type OTHER - TOG	Exponential Decay Option not available
Averaging Time Options Hours <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 6 <input type="checkbox"/> 8 <input type="checkbox"/> 12 <input type="checkbox"/> 24 <input type="checkbox"/> Month <input checked="" type="checkbox"/> Period <input type="checkbox"/> Annual	Terrain Height Options <input type="checkbox"/> Flat <input checked="" type="checkbox"/> Elevated SO: Meters RE: Meters TG: Meters
Flagpole Receptors <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Default Height = 1.20 m	

Optional Files



Re-Start File



Init File



Multi-Year Analyses



Event Input File



Error Listing File

Detailed Error Listing File

Filename: West Roseville Dispersion.err

Source Pathway - Source Inputs

AERMOD

Point Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Gas Exit Temp. [K]	Gas Exit Velocity [m/s]	Stack Inside Diameter [m]
POINT	LOAD	642655.00	4292160.00	39.06	3.66	1.00000	291.00	0.00	0.05
		Loading							
POINT	BREATH	642655.00	4292160.00	39.06	3.66	1.00000	289.00	0.00	0.05
		Breathing							

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	FUEL	642655.00	4292160.00	39.06	1.50	1.00000	23.20	Surface-Based	5.40	1.86
		Fueling								
VOLUME	SPILL	642655.00	4292160.00	39.06	1.00	1.00000	23.20	Surface-Based	5.40	1.86
		Spillage								
VOLUME	PERM	642655.00	4292160.00	39.06	1.50	1.00000	23.20	Surface-Based	5.40	1.86
		Hose Permeation								

Source Pathway

AERMOD

Building Downwash Information

Source ID: _____		LOAD				
Heights [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	4.57	4.57	4.57	4.57	4.57
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00
Widths [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	14.68	14.10	14.81	15.06	14.86
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00
Lengths [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	7.67	5.70	8.03	10.11	11.89
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00
Along Flow [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	-24.31	-24.30	-25.79	-26.49	-26.39
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00
Across Flow [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	7.42	3.75	-0.03	-3.81	-7.48
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00

Source ID: _____		BREATH				
Heights [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00

Source Pathway

AERMOD

70-120 deg	0.00	4.57	4.57	4.57	4.57	4.57
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00
Widths [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	14.68	14.10	14.81	15.06	14.86
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00
Lengths [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	7.67	5.70	8.03	10.11	11.89
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00
Along Flow [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	-24.31	-24.30	-25.79	-26.49	-26.39
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00
Across Flow [m] (10 to 360 deg)						
10-60 deg	0.00	0.00	0.00	0.00	0.00	0.00
70-120 deg	0.00	7.42	3.75	-0.03	-3.81	-7.48
130-180 deg	0.00	0.00	0.00	0.00	0.00	0.00
190-240 deg	0.00	0.00	0.00	0.00	0.00	0.00
250-300 deg	0.00	0.00	0.00	0.00	0.00	0.00
310-360 deg	0.00	0.00	0.00	0.00	0.00	0.00

Emission Rate Units for Output

For Concentration

Unit Factor: 1E6
 Emission Unit Label: GRAMS/SEC
 Concentration Unit Label: MICROGRAMS/M**3

Source Pathway

AERMOD

Variable Emissions

Hourly Emission Rate Variation

Scenario: Scenario 1

Source ID:	FUEL						
1 to 6		0.36	0.36	0.36	0.36	0.36	0.36
7 to 12		1.46	1.46	1.46	1.46	1.46	1.46
13 to 18		1.46	1.46	1.46	1.46	1.46	1.46
19 to 24		1.46	1.46	0.36	0.36	0.36	0.36
Source ID:	PERM						
1 to 6		0.36	0.36	0.36	0.36	0.36	0.36
7 to 12		1.46	1.46	1.46	1.46	1.46	1.46
13 to 18		1.46	1.46	1.46	1.46	1.46	1.46
19 to 24		1.46	1.46	0.36	0.36	0.36	0.36
Source ID:	SPILL						
1 to 6		0.36	0.36	0.36	0.36	0.36	0.36
7 to 12		1.46	1.46	1.46	1.46	1.46	1.46
13 to 18		1.46	1.46	1.46	1.46	1.46	1.46
19 to 24		1.46	1.46	0.36	0.36	0.36	0.36

Scenario: Scenario 2

Source ID:	LOAD						
1 to 6		0.00	0.00	0.00	0.00	0.00	0.00
7 to 12		0.00	0.00	2.67	2.67	2.67	2.67
13 to 18		2.67	2.67	2.67	2.67	2.67	0.00
19 to 24		0.00	0.00	0.00	0.00	0.00	0.00

Receptor Pathway

AERMOD

Receptor Networks

Note: Terrain Elevations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Uniform Cartesian Grid

Receptor Network ID	Grid Origin X Coordinate [m]	Grid Origin Y Coordinate [m]	No. of X-Axis Receptors	No. of Y-Axis Receptors	Spacing for X-Axis [m]	Spacing for Y-Axis [m]
UCART1	642265.00	4291770.00	40	40	20.00	20.00

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	642852.61	4292100.74		38.89	
2	642884.07	4292243.95		37.89	
3	642797.24	4292328.89		38.00	
4	642783.61	4292328.77		38.08	
5	642771.96	4292328.13		38.14	
6	642753.78	4292327.42		38.20	
7	642731.47	4292333.78		38.12	
8	642697.70	4292337.91		38.47	
9	642673.64	4292338.15		38.64	
10	642649.05	4292333.50		38.62	
11	642580.44	4292318.15		38.24	
12	642573.33	4292270.18		38.33	
13	642569.29	4292220.85		38.61	
14	642569.63	4292207.46		38.63	
15	642571.00	4292192.54		38.81	
16	642564.31	4292168.86		39.07	
17	642539.56	4292148.79		38.71	
18	642675.11	4292079.83		39.68	
19	642894.32	4292190.61		38.61	
20	642748.80	4292164.27		38.52	
21	642689.47	4292237.15		38.75	
22	642660.36	4292240.63		38.77	

Plant Boundary Receptors

Receptor Pathway

AERMOD

Cartesian Plant Boundary

Primary

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	642791.34	4292327.39	FENCEPRI	38.07	
2	642611.75	4292322.59	FENCEPRI	38.56	
3	642615.12	4292223.41	FENCEPRI	38.67	
4	642618.86	4292202.34	FENCEPRI	38.71	
5	642619.64	4292168.78	FENCEPRI	38.83	
6	642616.82	4292147.81	FENCEPRI	38.95	
7	642618.29	4292139.87	FENCEPRI	38.91	
8	642625.50	4292133.03	FENCEPRI	38.84	
9	642632.09	4292131.08	FENCEPRI	38.79	
10	642700.00	4292132.91	FENCEPRI	38.58	
11	642736.04	4292130.35	FENCEPRI	38.41	
12	642808.50	4292131.32	FENCEPRI	38.10	
13	642807.01	4292248.70	FENCEPRI	37.74	
14	642791.86	4292248.83	FENCEPRI	37.83	

Intermediate

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	642781.36	4292327.12	FENCEINT	38.14	
2	642771.39	4292326.86	FENCEINT	38.18	
3	642761.41	4292326.59	FENCEINT	38.20	
4	642751.43	4292326.32	FENCEINT	38.23	
5	642741.45	4292326.06	FENCEINT	38.28	
6	642731.48	4292325.79	FENCEINT	38.35	
7	642721.50	4292325.52	FENCEINT	38.49	
8	642711.52	4292325.26	FENCEINT	38.59	
9	642701.55	4292324.99	FENCEINT	38.57	
10	642691.57	4292324.72	FENCEINT	38.56	
11	642681.59	4292324.46	FENCEINT	38.57	
12	642671.61	4292324.19	FENCEINT	38.57	
13	642661.64	4292323.92	FENCEINT	38.61	
14	642651.66	4292323.66	FENCEINT	38.70	
15	642641.68	4292323.39	FENCEINT	38.76	
16	642631.70	4292323.12	FENCEINT	38.73	
17	642621.73	4292322.86	FENCEINT	38.67	
18	642612.09	4292312.67	FENCEINT	38.58	
19	642612.42	4292302.75	FENCEINT	38.59	
20	642612.76	4292292.84	FENCEINT	38.58	

Receptor Pathway

AERMOD

21	642613.10	4292282.92	FENCEINT	38.56	
22	642613.44	4292273.00	FENCEINT	38.58	
23	642613.77	4292263.08	FENCEINT	38.60	
24	642614.11	4292253.16	FENCEINT	38.62	
25	642614.45	4292243.25	FENCEINT	38.65	
26	642614.78	4292233.33	FENCEINT	38.67	
27	642616.37	4292216.39	FENCEINT	38.68	
28	642617.61	4292209.36	FENCEINT	38.70	
29	642619.06	4292193.95	FENCEINT	38.74	
30	642619.25	4292185.56	FENCEINT	38.77	
31	642619.45	4292177.17	FENCEINT	38.80	
32	642618.70	4292161.79	FENCEINT	38.87	
33	642617.76	4292154.80	FENCEINT	38.91	
34	642641.79	4292131.34	FENCEINT	38.77	
35	642651.49	4292131.60	FENCEINT	38.74	
36	642661.19	4292131.86	FENCEINT	38.70	
37	642670.90	4292132.13	FENCEINT	38.68	
38	642680.60	4292132.39	FENCEINT	38.65	
39	642690.30	4292132.65	FENCEINT	38.61	
40	642709.01	4292132.27	FENCEINT	38.54	
41	642718.02	4292131.63	FENCEINT	38.50	
42	642727.03	4292130.99	FENCEINT	38.45	
43	642745.10	4292130.47	FENCEINT	38.39	
44	642754.16	4292130.59	FENCEINT	38.35	
45	642763.21	4292130.71	FENCEINT	38.31	
46	642772.27	4292130.84	FENCEINT	38.28	
47	642781.33	4292130.96	FENCEINT	38.26	
48	642790.39	4292131.08	FENCEINT	38.20	
49	642799.44	4292131.20	FENCEINT	38.12	
50	642808.38	4292141.10	FENCEINT	38.19	
51	642808.25	4292150.88	FENCEINT	37.93	
52	642808.13	4292160.67	FENCEINT	38.02	
53	642808.00	4292170.45	FENCEINT	38.01	
54	642807.88	4292180.23	FENCEINT	38.01	
55	642807.76	4292190.01	FENCEINT	38.04	
56	642807.63	4292199.79	FENCEINT	38.07	
57	642807.51	4292209.57	FENCEINT	38.02	
58	642807.38	4292219.36	FENCEINT	37.97	
59	642807.26	4292229.14	FENCEINT	37.88	
60	642807.13	4292238.92	FENCEINT	37.80	
61	642799.44	4292248.77	FENCEINT	37.78	

Receptor Pathway

AERMOD

62	642791.80	4292258.65	FENCEINT	37.78	
63	642791.73	4292268.47	FENCEINT	37.75	
64	642791.67	4292278.29	FENCEINT	37.69	
65	642791.60	4292288.11	FENCEINT	37.60	
66	642791.54	4292297.93	FENCEINT	37.51	
67	642791.47	4292307.75	FENCEINT	37.63	
68	642791.41	4292317.57	FENCEINT	38.02	

Receptor Groups

Record Number	Group ID	Group Description
1	FENCEPRI	Cartesian plant boundary Primary Receptors
2	FENCEINT	Cartesian plant boundary Intermediate Receptors

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: 14-18.SFC
Format Type: Default AERMET format

Profile Met Data

Filename: 14-18.PFL
Format Type: Default AERMET format

Wind Speed



Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 7.00 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2014			OAKLAND/WSO AP
Upper Air		2014			

Data Period

Data Period to Process

Start Date: 1/1/2014 Start Hour: 1 End Date: 12/25/2018 End Hour: 24











Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

Output Pathway

AERMOD

Tabular Printed Outputs

Short Term Averaging Period	RECTABLE Highest Values Table										MAXTABLE Maximum Values Table	DAYTABLE Daily Values Table
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th		
1												No

Contour Plot Files (PLOTFILE)

Path for PLOTFILES: West Roseville Dispersion.AD

Averaging Period	Source Group ID	High Value	File Name
1	ALL	1st	01H1GALL.PLT
Period	ALL	N/A	PE00GALL.PLT

PROJECT TITLE:
**West Roseville Marketplace Gas Station
 Residential Cancer Risk**



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL ug/m³

Max: 14.1 [ug/m³] at (642665.00, 4292150.00)



COMMENTS: Risk in chances per million	
SOURCES: 5	
RECEPTORS: 1704	
OUTPUT TYPE: Concentration	
MAX: 14.1 ug/m³	
COMPANY NAME: HELIX Environmental Planning	
DATE: 5/23/2022	
SCALE: 1:5,587	
PROJECT NO.:	

PROJECT TITLE:

**West Roseville Marketplace Gas Station
Worker Cancer Risk**

COMMENTS:

Risk in chances per million



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

Max: 1.47 [ug/m³] at (642665.00, 4292150.00)

SOURCES:

5

RECEPTORS:

1704

OUTPUT TYPE:

Concentration

MAX:

1.47 ug/m³

COMPANY NAME:

**HELIX Environmental
Planning**

DATE:

5/23/2022

SCALE:

1:5,588

0 0.1 km

PROJECT NO.:

PROJECT TITLE:

**West Roseville Marketplace Gas Station
Residential Non-Cancer Chronic Hazard Index**

COMMENTS:

SOURCES:

5

RECEPTORS:

1704

OUTPUT TYPE:

Concentration

MAX:

8.5E-02 ug/m³

COMPANY NAME:

**HELIX Environmental
Planning**

DATE:

5/23/2022

SCALE:

1:5,772

0 0.1 km

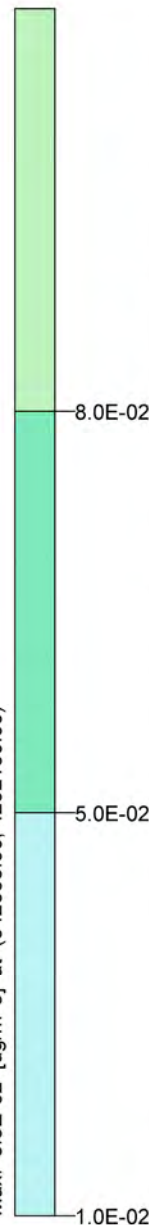
PROJECT NO.:



ug/m³

PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

Max: 8.5E-02 [ug/m³] at (642665.00, 4292150.00)



PROJECT TITLE:

**West Roseville Marketplace Gas Station
Worker Non-Cancer Chronic Hazard Index**

COMMENTS:

SOURCES:

5

RECEPTORS:

1704

OUTPUT TYPE:

Concentration

MAX:

8.5E-02 ug/m³

COMPANY NAME:

**HELIX Environmental
Planning**

DATE:

5/23/2022

SCALE:

1:5,772

0  0.1 km

PROJECT NO.:



ug/m³

PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

Max: 8.5E-02 [ug/m³] at (642665.00, 4292150.00)

8.5E-02

5.0E-02

1.0E-02

PROJECT TITLE:

**West Roseville Marketplace Gas Station
Acute Hazard Index**

COMMENTS:

SOURCES:

5

RECEPTORS:

1704

OUTPUT TYPE:

Concentration

MAX:

3.00 ug/m³

COMPANY NAME:

**HELIX Environmental
Planning**

DATE:

5/23/2022

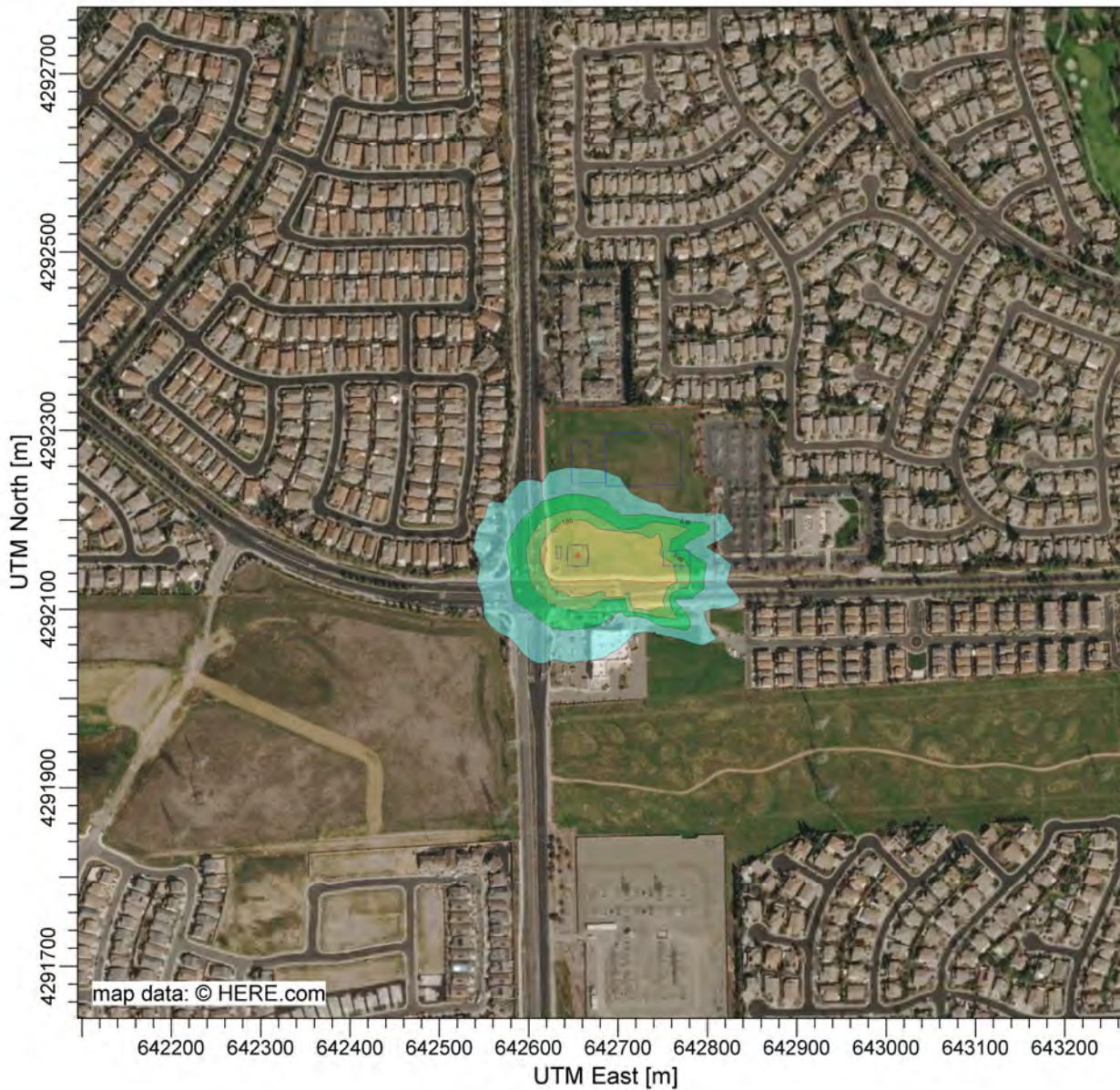
SCALE:

1:7,707

0

0.2 km

PROJECT NO.:



ug/m³

PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL
Max: 3.00 [ug/m³] at (642685.00, 4292170.00)

1.00

0.80

0.60

0.40

PROJECT INFORMATION

HARP Version: 22118
 Project Name: WEST ROSEVILLE CHRONIC RISK
 HARP Database: NA

EMISSION INVENTORY

No. of Pollutants:35
 No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
LOAD	0	0	71432	Benzene	1	3.5646	0.0060324	1
LOAD	0	0	100414	Ethyl Benzene	1	0.8346	0.0014124	1
LOAD	0	0	110543	Hexane	1	14.196	0.024024	1
LOAD	0	0	91203	Naphthalene	1	0.003471	5.87E-06	1
LOAD	0	0	115071	Propylene	1	0.0280332	4.74E-05	1
LOAD	0	0	108883	Toluene	1	8.58	0.01452	1
LOAD	0	0	1330207	Xylenes	1	3.1902	0.0053988	1
BREATH	0	0	71432	Benzene	1	0.570336	6.51E-05	1
BREATH	0	0	100414	Ethyl Benzene	1	0.133536	1.52E-05	1
BREATH	0	0	110543	Hexane	1	2.27136	0.00025911	1
BREATH	0	0	91203	Naphthalene	1	0.00055536	0.00025911	1
BREATH	0	0	115071	Propylene	1	0.004485312	5.12E-07	1
BREATH	0	0	108883	Toluene	1	1.3728	0.000156605	1
BREATH	0	0	1330207	Xylenes	1	0.510432	5.82E-05	1
FUEL	0	0	71432	Benzene	1	1.54204596	0.000593095	1
FUEL	0	0	100414	Ethyl Benzene	1	0.36104796	0.000138865	1
FUEL	0	0	110543	Hexane	1	6.1411896	0.002361996	1
FUEL	0	0	91203	Naphthalene	1	0.001501555	5.78E-07	1
FUEL	0	0	115071	Propylene	1	0.012127162	4.66E-06	1
FUEL	0	0	108883	Toluene	1	3.711708	0.00142758	1
FUEL	0	0	1330207	Xylenes	1	1.38008052	0.0005308	1
SPILL	0	0	71432	Benzene	1	5.70336	0.0021936	1
SPILL	0	0	100414	Ethyl Benzene	1	1.33536	0.0005136	1
SPILL	0	0	110543	Hexane	1	22.7136	0.008736	1
SPILL	0	0	91203	Naphthalene	1	0.0055536	2.14E-06	1
SPILL	0	0	115071	Propylene	1	0.004485312	1.73E-05	1
SPILL	0	0	108883	Toluene	1	13.728	0.00528	1
SPILL	0	0	1330207	Xylenes	1	5.10432	0.0019632	1
PERM	0	0	71432	Benzene	1	0.213876	8.23E-05	1
PERM	0	0	100414	Ethyl Benzene	1	0.050076	1.93E-05	1
PERM	0	0	110543	Hexane	1	0.85176	1.93E-05	1
PERM	0	0	91203	Naphthalene	1	0.00020826	8.01E-08	1
PERM	0	0	115071	Propylene	1	0.001681992	6.47E-07	1
PERM	0	0	108883	Toluene	1	0.5148	0.000198	1
PERM	0	0	1330207	Xylenes	1	0.191412	7.36E-05	1

Ground level concentration files

- 100414MAXHR.txt
- 100414PER.txt
- 108883MAXHR.txt
- 108883PER.txt
- 110543MAXHR.txt
- 110543PER.txt
- 115071MAXHR.txt
- 115071PER.txt
- 1330207MAXHR.txt
- 1330207PER.txt
- 71432MAXHR.txt
- 71432PER.txt
- 91203MAXHR.txt
- 91203PER.txt

POLLUTANT HEALTH INFORMATION

Health Database: C:\HARP2\Table: TH17320. mdb
 Health Table Version: HEALTH22013
 Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronic REL	OralChronicREL	InhChronic8HR REL
71432	Benzene	0.01		27		3	3
100414	Ethyl Benzene	0.00087				2000	
110543	Hexane					7000	
91203	Naphthalene	0.012				9	
115071	Propylene					3000	
108883	Toluene			5000		420	830
1330207	Xylenes			22000		700	

Residential Cancer Risk

*HARP - HRACalc v22118 5/23/2022 11:03:29 AM - Cancer Risk

REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO
1601	ALL	R1	642852.61	4292100.74	9.97E-08	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1602	ALL	R2	642884.07	4292243.95	6.15E-08	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1603	ALL	R3	642797.24	4292328.89	9.40E-08	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1604	ALL	R4	642783.61	4292328.77	1.07E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1605	ALL	R5	642771.96	4292328.13	1.22E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1606	ALL	R6	642753.78	4292327.42	1.52E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1607	ALL	R7	642731.47	4292333.78	1.95E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1608	ALL	R8	642697.7	4292337.91	2.70E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1609	ALL	R9	642673.64	4292338.15	3.22E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1610	ALL	R10	642649.05	4292333.5	3.73E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1611	ALL	R11	642580.44	4292318.15	3.06E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1612	ALL	R12	642573.33	4292270.18	3.76E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1613	ALL	R13	642569.29	4292220.85	3.99E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1614	ALL	R14	642569.63	4292207.46	4.19E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1615	ALL	R15	642571	4292192.54	4.66E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1616	ALL	R16	642564.31	4292168.86	4.22E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70
1617	ALL	R17	642539.56	4292148.79	2.65E-07	30YrCancerRMP_InhSoilDermMMilk_FAH3to70

Residential Non-Cancer Chronic Health Effect

*HARP - HRACalc v22118 5/23/2022 11:06:37 AM - Chronic Risk

REC	GRP	NETID	X	Y	SCENARIO	MAXHI
1601	ALL	R1	642852.6	4292101	NonCancerChronicDerived_InhSoilDermMMilk	0.00060
1602	ALL	R2	642884.1	4292244	NonCancerChronicDerived_InhSoilDermMMilk	0.00037
1603	ALL	R3	642797.2	4292329	NonCancerChronicDerived_InhSoilDermMMilk	0.00057
1604	ALL	R4	642783.6	4292329	NonCancerChronicDerived_InhSoilDermMMilk	0.00065
1605	ALL	R5	642772	4292328	NonCancerChronicDerived_InhSoilDermMMilk	0.00074
1606	ALL	R6	642753.8	4292327	NonCancerChronicDerived_InhSoilDermMMilk	0.00092
1607	ALL	R7	642731.5	4292334	NonCancerChronicDerived_InhSoilDermMMilk	0.00118
1608	ALL	R8	642697.7	4292338	NonCancerChronicDerived_InhSoilDermMMilk	0.00164
1609	ALL	R9	642673.6	4292338	NonCancerChronicDerived_InhSoilDermMMilk	0.00195
1610	ALL	R10	642649.1	4292334	NonCancerChronicDerived_InhSoilDermMMilk	0.00226
1611	ALL	R11	642580.4	4292318	NonCancerChronicDerived_InhSoilDermMMilk	0.00186
1612	ALL	R12	642573.3	4292270	NonCancerChronicDerived_InhSoilDermMMilk	0.00228
1613	ALL	R13	642569.3	4292221	NonCancerChronicDerived_InhSoilDermMMilk	0.00242
1614	ALL	R14	642569.6	4292207	NonCancerChronicDerived_InhSoilDermMMilk	0.00254
1615	ALL	R15	642571	4292193	NonCancerChronicDerived_InhSoilDermMMilk	0.00282
1616	ALL	R16	642564.3	4292169	NonCancerChronicDerived_InhSoilDermMMilk	0.00256
1617	ALL	R17	642539.6	4292149	NonCancerChronicDerived_InhSoilDermMMilk	0.00161

Worker Cancer Risk

*HARP - HRACalc v22118 5/23/2022 11:04:40 AM - Cancer Risk

REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO
1618	ALL	C1	642675.11	4292079.83	1.08E-07	25YrCancerDerived_InhSoilDerm
1619	ALL	C2	642894.32	4292190.61	6.10E-09	25YrCancerDerived_InhSoilDerm
1620	ALL	C3	642748.8	4292164.27	3.66E-08	25YrCancerDerived_InhSoilDerm
1621	ALL	C4	642689.47	4292237.15	9.45E-08	25YrCancerDerived_InhSoilDerm
1622	ALL	C5	642660.36	4292240.63	1.53E-07	25YrCancerDerived_InhSoilDerm

Worker Non-Cancer Chronic

*HARP - HRACalc v22118 5/23/2022 11:07:36 AM - Chronic Risk

REC	GRP	NETID	X	Y	SCENARIO	MAXHI
1618	ALL	C1	642675.11	4292079.83	NonCancerChronicDerived_InhSoilDerm	0.006
1619	ALL	C2	642894.32	4292190.61	NonCancerChronicDerived_InhSoilDerm	0.000
1620	ALL	C3	642748.8	4292164.27	NonCancerChronicDerived_InhSoilDerm	0.002
1621	ALL	C4	642689.47	4292237.15	NonCancerChronicDerived_InhSoilDerm	0.005
1622	ALL	C5	642660.36	4292240.63	NonCancerChronicDerived_InhSoilDerm	0.009

HARP Project Summary Report 5/23/2022

PROJECT INFORMATION

HARP Version: 22118
 Project Name: WEST ROSEVILLE ACUTE RISK
 HARP Database: NA

EMISSION INVENTORY

No. of Pollutants:15
 No. of Background Pollutants:0

Emissions

SrcID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
LOAD	0	0	71432	Benzene	1	4.2822	0.0072468	1
LOAD	0	0	108883	Toluene	1	10.53	0.01782	1
LOAD	0	0	1330207	Xylenes	1	3.9702	0.0067188	1
BREATH	0	0	71432	Benzene	1	0.685152	7.82E-05	1
BREATH	0	0	108883	Toluene	1	1.6848	0.000192197	1
BREATH	0	0	1330207	Xylenes	1	0.635232	7.25E-05	1
FUEL	0	0	71432	Benzene	1	1.85247972	0.000712492	1
FUEL	0	0	108883	Toluene	1	4.555278	0.00175203	1
FUEL	0	0	1330207	Xylenes	1	1.71750852	0.00066058	1
SPILL	0	0	71432	Benzene	1	6.85152	0.0026352	1
SPILL	0	0	108883	Toluene	1	16.848	0.00648	1
SPILL	0	0	1330207	Xylenes	1	6.35232	0.0024432	1
PERM	0	0	71432	Benzene	1	0.256932	9.88E-05	1
PERM	0	0	108883	Toluene	1	0.6318	0.000243	1
PERM	0	0	1330207	Xylenes	1	0.238212	9.16E-05	1

- 100414MAXHR.txt
- 100414PER.txt
- 108883MAXHR.txt
- 108883PER.txt
- 110543MAXHR.txt
- 110543PER.txt
- 115071MAXHR.txt
- 115071PER.txt
- 1330207MAXHR.txt
- 1330207PER.txt
- 71432MAXHR.txt
- 71432PER.txt
- 91203MAXHR.txt
- 91203PER.txt

POLLUTANT HEALTH INFORMATION

Health Database: C:\HARP; TH17320. mdb
 Health Table Version: HEALTH22013
 Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HR REL
71432	Benzene	0.1		27	3		3
108883	Toluene			5000	420		830
1330207	Xylenes			22000	700		

Acute Hazard Index

*HARP - HRACalc v22118 5/23/2022 11:11:25 AM - Acute Risk

REC	GRP	NETID	X	Y	SCENARIO	MAXHI
1601	ALL	R1	642852.61	4292100.74	NonCancerAcute	0.32
1602	ALL	R2	642884.07	4292243.95	NonCancerAcute	0.15
1603	ALL	R3	642797.24	4292328.89	NonCancerAcute	0.12
1604	ALL	R4	642783.61	4292328.77	NonCancerAcute	0.13
1605	ALL	R5	642771.96	4292328.13	NonCancerAcute	0.14
1606	ALL	R6	642753.78	4292327.42	NonCancerAcute	0.16
1607	ALL	R7	642731.47	4292333.78	NonCancerAcute	0.18
1608	ALL	R8	642697.7	4292337.91	NonCancerAcute	0.17
1609	ALL	R9	642673.64	4292338.15	NonCancerAcute	0.18
1610	ALL	R10	642649.05	4292333.5	NonCancerAcute	0.19
1611	ALL	R11	642580.44	4292318.15	NonCancerAcute	0.17
1612	ALL	R12	642573.33	4292270.18	NonCancerAcute	0.28
1613	ALL	R13	642569.29	4292220.85	NonCancerAcute	0.39
1614	ALL	R14	642569.63	4292207.46	NonCancerAcute	0.50
1615	ALL	R15	642571	4292192.54	NonCancerAcute	0.51
1616	ALL	R16	642564.31	4292168.86	NonCancerAcute	0.52
1617	ALL	R17	642539.56	4292148.79	NonCancerAcute	0.38
1618	ALL	C1	642675.11	4292079.83	NonCancerAcute	0.59
1619	ALL	C2	642894.32	4292190.61	NonCancerAcute	0.15
1620	ALL	C3	642748.8	4292164.27	NonCancerAcute	0.89
1621	ALL	C4	642689.47	4292237.15	NonCancerAcute	0.49
1622	ALL	C5	642660.36	4292240.63	NonCancerAcute	0.50



California Tree and Landscape Consulting, Inc.

March 31, 2022

RSC Engineering
 1420 Rocky Ridge Drive, Suite 150
 Roseville, CA 95661
 Via Email: t.wilson@rsc-engr.com

PRELIMINARY ARBORIST REPORT & TREE INVENTORY

RE: Fiddymment Safeway, 1798 Pleasant Grove Blvd., APN #017-162-049-000; City of Roseville, CA jurisdiction

Executive Summary

Tiffany Wilson of RSC Engineering, Inc., on behalf of the property owner, contacted California Tree and Landscape Consulting, Inc. to inventory and evaluate the trees protected by the City of Roseville Tree Preservation code, chapter 19.66, and offsite trees which may be impacted by the development of the site for purposes of providing documentation of the tree species and sizes for planning the development of the site. The property is located at 1798 Pleasant Grove Blvd. at the northeast corner of Fiddymment Drive and Pleasant Grove Blvd. in the City of Roseville, California. The property is currently vacant land. See Supporting Information Appendix 1 –Tree Location Map.

Ed Stirtz, ISA Certified Arborist #WE-0510A, and/or Nicole Harrison, ISA Certified Arborist #WE-6500AM, were on site at various times between March 21st, and March 24th, 2022. A total of 17 trees were evaluated, of which NONE are protected by size and species according to the City of Roseville Tree Preservation ordinance. 2 offsite trees, #15 and #16, may require pruning and/or have root impacts.

Tree Species		Trees Inventoried	Trees on the	Trees Protected according to the Roseville code	Trees proposed for Removal
Fremont Cottonwood	Populus fremontii	8	8	0	8
Pacific Willow	Salix sp.	1	1	0	1
Unidentified		1	0	0	0
Plum	Prunus sp.	1	0	0	0
Ornamental Pear	Pyrus calleryana	2	0	0	0
American Sweetgum	Liquidambar styraciflua	1	0	0	0
Aleppo pine	Pinus halepensis	2	0	0	0
London Planetree	Platanus x hispanica	1	0	0	0
Totals		17	9	0	9

See Appendices for specific information on each tree

Methods

Appendix 2 in this report is the detailed inventory of the trees. The following terms will further explain our methods and findings.

A Level 2 – Basic Visual Assessment was performed in accordance with the International Society of Arboriculture’s best management practices. This assessment level is limited to the observation of conditions and defects which are readily visible. Additional limiting factors, such as blackberries, poison oak, and/or debris piled at the base of a tree can inhibit the visual assessment.

Tree Location: The GPS location of each tree was collected using the ESRI’s ArcGIS collector application on an Apple iPhone or Samsung. The data was then processed in ESRI’s ArcMap by Julie McNamara, M.S. GISci, to produce the tree location map.

Tree Measurements: DBH (diameter breast high) is normally measured at 4’6” (above the average ground height for “Urban Forestry”), but if that varies then the location where it is measured is noted in the ‘Measured at’ column. A steel diameter tape was used to measure all of the trees. A laser distance meter was used to measure distances. Canopy radius measurements may also have been estimated due to obstructions, such as steep slopes or other trees.

Terms

Tree #	The number assigned to the tree on the Tree Location Map.
Species	The species of a tree is listed by our local and correct common name and botanical name by genus (capitalized) and species (lower case).
DBH	Diameter breast high' is normally measured at 4’6” (above the average ground height for “Urban Forestry”), but if that varies then the location where it is measured is noted in the next column “measured at”
Measured at	Height above average ground level where the measurement of DBH was measured.
Canopy radius	The farthest extent of the crown composed of leaves and small twigs. Most trees are not evenly balanced. This measurement represents the longest extension from the trunk to the outer canopy. The dripline measurement is from the center point of the tree and is shown on the Tree Location Map as a circle.
Arborist Rating	Subjective to condition and is based on both the health and structure of the tree. All of the trees were rated for condition, per the recognized national standard as set up by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture (ISA) on a numeric scale of 5 (being the highest) to 0 (the worst condition, dead) as in Chart A. The rating was done in the field at the time of the measuring and inspection.

Arborist	Rating	
Excellent	5	No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect
Good	4	The tree is in good condition and there are no apparent problems that can be seen from a visual ground inspection.
Fair	3	The tree is in fair condition. There are some minor structural or health problems that pose no immediate risk of death or failure. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated and/or health can be improved.

Poor	2	The tree has major problems. If the option is taken to preserve the tree, additional evaluation to identify if health or structure can be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. Additionally, risk should be evaluated as a tree rated 2 may have structural conditions which indicate there is a high likelihood of failure. Trees rated 2 should be removed if these additional evaluations will not be performed.
Very Poor	1	The problems are extreme. This rating is assigned to a tree that has structural and/or health problems that no amount of work or effort can change. The issues may or may not be considered a high risk.
Dead	0	This indicates the tree has no significant sign of life.

Notes: Provide notable details about each tree which are factors considered in the determination of the tree rating including: (a) condition of root crown and/or roots; (b) condition of trunk; (c) condition of limbs and structure; (d) growth history and twig condition; (e) leaf appearance; and (f) dripline environment. Notes also indicate if the standard tree evaluation procedure was not followed (for example - why dbh may have been measured at a location other than the standard 54"). Additionally, notes will list any evaluation limiting factors such as debris at the base of a tree.

Development Status Projected development impacts are based solely on distance relationships between tree location and grading. Field inspections and findings during the project at the time of grading and trenching can change relative impacts. Closely followed guidelines and requirements can result in a higher chance of survival, while requirements that are overlooked can result in a dramatically lower chance of survival. Impacts are measured as follows:

Discussion

Trees need to be protected from normal construction practices if they are to remain on the site and are expected to survive long term. While construction damage in the root zone is often the death of a tree, the time from when the damage occurs to when the symptoms begin and/or the tree dies can be years. Our recommendations are based on experience and the local ordinance requirements to enhance tree longevity. It requires the calculated root zone must remain intact as an underground ecosystem despite the use of heavy equipment to install foundations, driveways, underground utilities, and landscape irrigation systems. Simply walking and driving on soil can have serious consequences to tree health. The Tree Preservation Requirements and General Development Guidelines should be incorporated into the site plans and enforced onsite. The project arborist should be included in the development team during construction to provide expertise and make additional recommendations if additional impacts occur or tree response is poor.

Root Structure

The majority of a tree's roots are contained in a radius from the main trunk outward approximately two to three times the canopy of the tree. These roots are located in the top 6" to 3' of soil. It is a common misconception that a tree underground resembles the canopy. The correct root structure of a tree is in the drawing below. All plants' roots need both water and air for survival. Poor canopy development or canopy decline in mature trees after development is often the result of inadequate root space and/or soil compaction.



The reality of where roots are generally located (Menzer, 2008)

Pruning Mature Trees for Risk Reduction and/or Development Clearance

There are few good reasons to prune mature trees. Removal of deadwood, directional pruning, removal of decayed or damaged wood, and end-weight reduction as a method of mitigation for structural faults are the only reasons a mature tree should be pruned. Live wood over 3" should not be pruned unless absolutely necessary. Pruning cuts should be clean and correctly placed. Pruning should be done in accordance with the American National Standards Institute (ANSI) A300 standards.

Pruning causes an open wound in the tree. Trees do not "heal" they compartmentalize. It is far better to use more small cuts than a few large cuts as small pruning wounds reduce risk while large wounds increase risk. Any wound made today will always remain, but a healthy tree, in the absence of decay in the wound, will 'cover it' with callus tissue. Large, old pruning wounds which did not close with callous tissue often have advanced decay. These wounds are a likely failure point. Mature trees with large wounds have a high risk of failure.

Overweight limbs are a common structural fault in suppressed trees. There are two remedial actions for over-weight limbs (1) prune the limb to reduce the extension of the canopy, or (2) cable the limb to reduce movement. Cables do not hold weight they only stabilize the limb and additionally require annual inspection.

Arborist Classifications

There are different types of Arborists:

Tree Removal and/or Pruning Companies: These companies may be licensed by the State of California to do business as a tree removal company, but they do not necessarily know anything about trees biology.

Arborists: Arborist is a broad term intended to mean someone with specialized knowledge of trees, but it is often used to imply knowledge that is not there.

ISA Certified Arborist: An International Society of Arboriculture Certified Arborist is someone who has trained, met the qualifications for application, and been tested to have specialized knowledge of trees. You can look up certified arborists at the International Society of Arboriculture website: isa-arbor.org.

Consulting Arborist: An American Society of Consulting Arborists Registered Consulting Arborist is someone who has been trained and then tested to have specialized knowledge of trees; and trained and tested to provide high quality reports and documentation. You can look up registered consulting arborists at the American Society of Consulting Arborists website: ASCA-consultants.org.

RECOMMENDATIONS: SUMMARY OF TREE PROTECTION MEASURES

The Owner and/or Developer should ensure the project arborist's protection measures are incorporated into the site plans and followed. Tree specific protection measures can be developed when we have received a copy of the grading plans for the site.

For Project Submittal to the City:

- Identify each tree on the final construction drawings and show the root protection zones for each tree as shown in the arborist recommendations. Note – These areas are not for use during construction unless under direct supervision of the project arborist.
- List the name and telephone number of the project arborist on the final construction drawings (grading plans) and a monitoring schedule a minimum of once per month during development.

Prior to Onsite Activity:

- The project arborist should inspect the installed tree protection fencing prior to grading and/or grubbing for compliance with the recommended protection zones.
- The project arborist should directly supervise the irrigation, fertilization, placement of mulch and chemical treatments.
- Prior to any grading, or other work on the site that will come within 20' of a tree, irrigation will be required from April through October and placement of a 4-6" layer of chip mulch over the protected root zone. Chips should be obtained from onsite trees to be removed. (They are expensive to buy and bark and/or redwood and cedar will not be accepted)
- Clearance pruning should include removal of all the lower foliage that may interfere with equipment PRIOR to having grading or other equipment on site. The Project Arborist should approve the extent of foliage elevation and directly oversee the pruning to be performed by a contractor who is an ISA Certified Arborist.

During Construction:

- Any and all work to be performed inside the protected root zone fencing shall be supervised by the project arborist.
- Grading for the retaining wall and pool cabana entry and northwest foundation shall be supervised by project arborist.
- The project arborist shall monitor the site a minimum of once per month during development and may require additional measures as a result of changing tree response.

Report Prepared by:



Nicole Harrison

Registered Consulting Arborist #719

ISA Certified Arborist #WC-6500AM, TRAQ

American Society of Consulting Arborists

Attachments

Appendix 1 – Tree Location Map

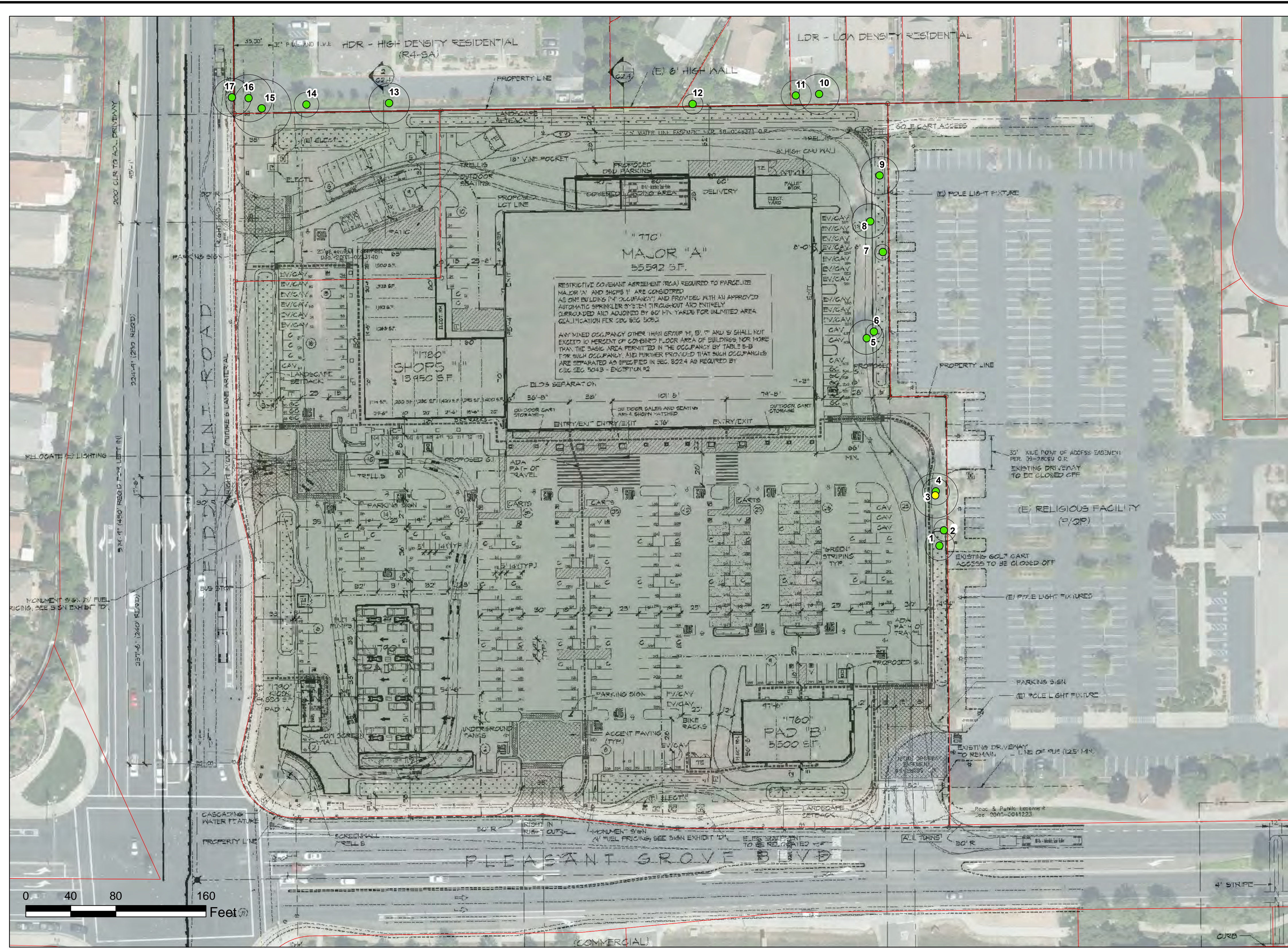
Appendix 2 – Tree Data

Appendix 3 – General Development Guidelines

Appendix 4 – Site Photos

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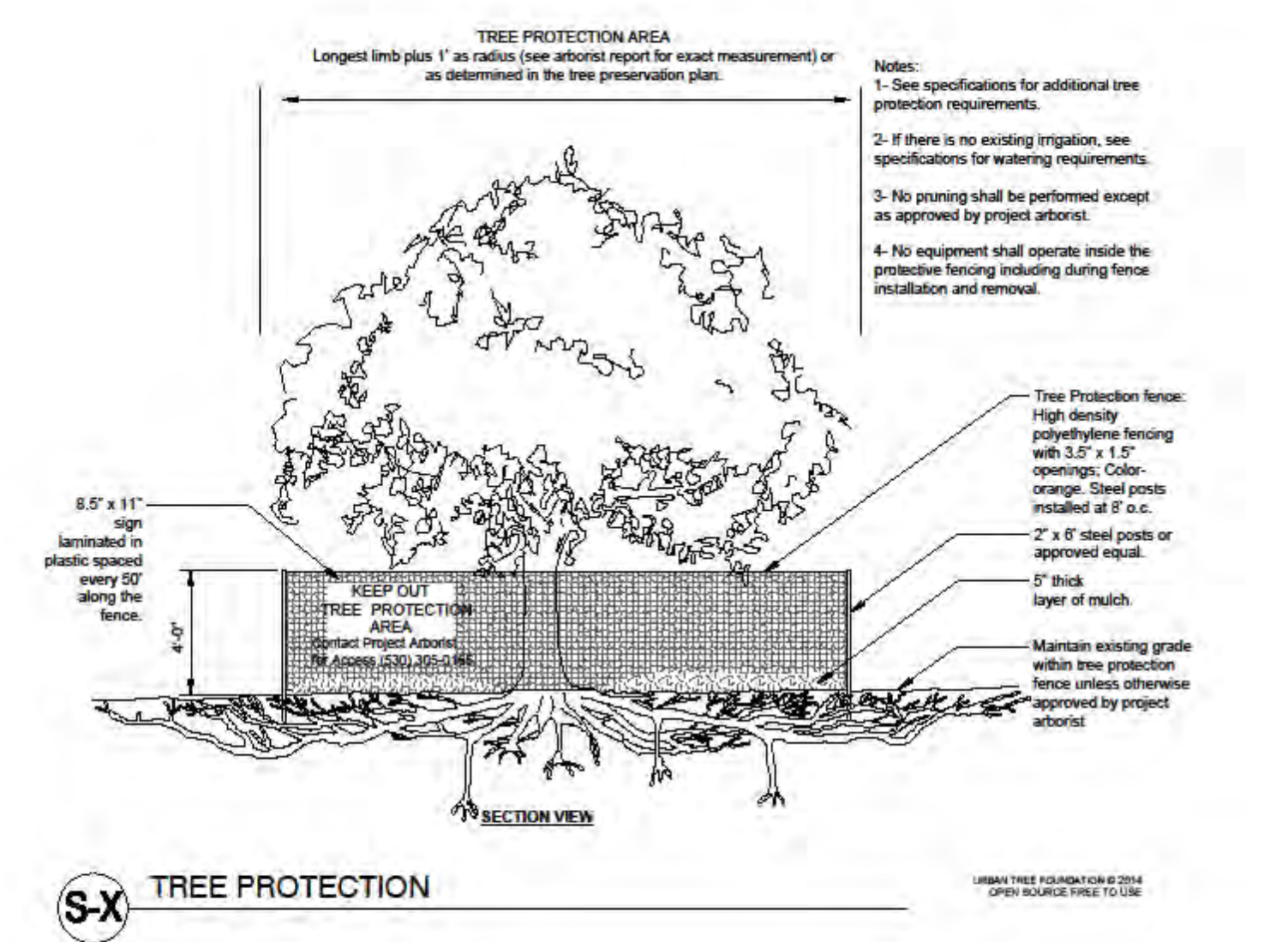
California Tree & Landscape Consulting, Inc.

359 Nevada Street, Suite 201
Auburn, CA 95603

TREE PROTECTION GENERAL REQUIREMENTS

- The project arborist for this project is California Tree & Landscape Consulting. The primary contact information is Nicole Harrison (530) 305-0165. The project arborist may continue to provide expertise and make additional recommendations during the construction process if and when additional impacts occur or tree response is poor. Monitoring and construction oversight by the project arborist is recommended for all projects and required when a final letter of assessment is required by the jurisdiction.
- The project arborist should inspect the exclusionary root protection fencing installed by the contractors prior to any grading and/or grubbing for compliance with the recommended protection zones. Additionally, the project arborist shall inspect the fencing at the onset of each phase of construction. The root protection zone for trees is specified as the 'canopy radius' in Appendix 2 in the arborist report unless otherwise specified by the arborist. Note 'dripline' is not an acceptable location for installation of tree protection fencing.
- The project arborist should directly supervise any clearance pruning, irrigation, fertilization, placement of mulch and/or chemical treatments. If clearance pruning is required, the Project Arborist should approve the extent of foliage elevation and oversee the pruning to be performed by a contractor who is an ISA Certified Arborist. Clearance pruning should include removal of all the lower foliage that may interfere with equipment PRIOR to having grading or other equipment on site.
- No trunk within the root protection zone of any trees shall be removed using a backhoe or other piece of grading equipment.
- Clearly designate an area on the site that is outside of the protection area of all trees where construction materials may be stored, and parking can take place. No materials or parking shall take place within the protection zones of any trees on or off the site.
- Any and all work to be performed inside the protected root zone fencing, including all grading and utility trenching, shall be approved and/or supervised by the project arborist.
- Trenching, if required, inside the protected root zone shall be approved and/or supervised by the project arborist and may be required to be performed by hand, by a hydraulic or air spade, or other method which will place pipes underneath the roots without damage to the roots.
- The root protection zone for trees is specified as the 'canopy radius' in Appendix 2 in the arborist report unless otherwise specified by the arborist. Note 'dripline' is not an acceptable location for installation of tree protection fencing.

Document Path: C:\Users\User\Desktop\Personal-net\CalTLC\Maps 2022\Pleasant Grove Blvd\PleasantGrove.mxd



TREE INVENTORY MAP

>Tree locations are approximate and were collected using apple iOS products.
>Property line information was downloaded from Placer County on 03/26/2022.
>Development plans provided by Nadel Studio One, Inc. dated 03/15/2022.

Property Line	Arborist Rating
Measured Tree Canopy	0 Dead
	1 Extreme Structure or Health Problems
	2 Major Structure or Health Problems
	3 Fair - Minor Problems
	4 Good - No Apparent Problems
	5 Excellent

N

Sheet No.
TPP 1.0

WEST ROSEVILLE MARKETPLACE

Fiddlyment Road
Roseville, Placer County, CA

Date: 3/26/2022

APPENDIX 2 – TREE INFORMATION DATA

Tree #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	DBH	Measured at	Canopy Radius	Arborist Rating	Dvlpmt Status	Field Notes
1	No	No	Fremont Cottonwood	Populus fremontii	11	54	13	3 Fair - Minor Problems	Proposed for Removal	multi 6,11. Forks at grade, weak attachment.
2	No	No	Pacific Willow	Salix sp.	5	54	5	3 Fair - Minor Problems	Proposed for Removal	Multi 4", 5".
3	No	No	Fremont Cottonwood	Populus fremontii	11	54	15	2 Major Structure or Health Problems	Proposed for Removal	Multi 11"
4	No	No	Fremont Cottonwood	Populus fremontii	9	54	12	3 Fair - Minor Problems	Proposed for Removal	Multi 6", 8", 9".
5	No	No	Fremont Cottonwood	Populus fremontii	10	54	3	3 Fair - Minor Problems	Proposed for Removal	Multi 8", 10".
6	No	No	Fremont Cottonwood	Populus fremontii	6	54	7	3 Fair - Minor Problems	Proposed for Removal	Multi 5", 6"
7	No	No	Fremont Cottonwood	Populus fremontii	5	54	12	3 Fair - Minor Problems	Proposed for Removal	Multi 5", 5"
8	No	No	Fremont Cottonwood	Populus fremontii	10	54	13	3 Fair - Minor Problems	Proposed for Removal	
9	No	No	Fremont Cottonwood	Populus fremontii	14	54	17	3 Fair - Minor Problems	Proposed for Removal	Multi 6", 14".
10	No	Yes	Ornamental Pear	Pyrus calleryana		54	18	3 Fair - Minor Problems		~5' of over hang. Minor branch & root conflicts.
11	No	Yes	Unidentified		-	54	-	3 Fair - Minor Problems		
12	No	Yes	Plum	Prunus sp.	8	54	9	3 Fair - Minor Problems		~5' of overhang.

Tree #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	DBH	Measured at	Canopy Radius	Arborist Rating	Dvlpmt Status	Field Notes
13	No	Yes	Ornamental Pear	Pyrus calleryana	15	54	18	3 Fair - Minor Problems		~ 5' of overhang.
14	No	Yes	American Sweetgum	Liquidambar styraciflua	15	54	11	3 Fair - Minor Problems		<5' of overhang.
15	No	Yes	Aleppo pine	Pinus halepensis	17	54	26	3 Fair - Minor Problems		Suppressed, leans south east over project. Moderate root conflicts, possible significant branch/limb conflicts.
16	No	Yes	Aleppo pine	Pinus halepensis	19	54	21	3 Fair - Minor Problems		Minor to moderate root impacts.
17	Yes	Yes	London Planetree	Platanus x hispanica	16	54	17	3 Fair - Minor Problems		Street tree.

APPENDIX 3 GENERAL DEVELOPMENT GUIDELINES

Definitions

Root zone: The roots of trees grow fairly close to the surface of the soil, and spread out in a radial direction from the trunk of tree. A general rule of thumb is that they spread 2 to 3 times the radius of the canopy, or 1 to 1 ½ times the height of the tree. It is generally accepted that disturbance to root zones should be kept as far as possible from the trunk of a tree.

Inner Bark: The bark on most large trees is quite thick, usually 1" to 2". If the bark is knocked off a tree, the inner bark, or cambial region, is exposed and/or removed. The cambial zone is the area where tissues responsible for adding new layers to the tree each year are located. Removing or damaging this tissue results in a tree that can only grow new tissue from the edges of the wound. In addition, the interior wood of the tree is exposed to decay fungi and becomes susceptible to decay. Tree protection measures require that no activities occur which can knock the bark off the trees.

Methods Used in Tree Protection:

No matter how detailed Tree Protection Measures are in the initial Arborist Report, they will not accomplish their stated purpose unless they are applied correctly and a Project Arborist oversees the construction. The Project Arborist should have the ability to enforce the Protection Measures. It is advisable for the Project Arborist to be present at the Pre-Construction meeting to answer questions the contractors may have about Tree Protection Measures. This also lets the contractors know how important tree preservation is to the developer.

Root Protection Zone (RPZ): Since in most construction projects it is not possible to protect the entire root zone of a tree, a Root Protection Zone is established for each tree to be preserved. The minimum Root Protection Zone is the area calculated as 1 to 1.25' for every inch of trunk diameter (ie. A 10" diameter tree will have an RPZ of 10') or the dripline, whichever is greater. The Project Arborist must approve work within the RPZ.

Irrigate, Fertilize, Mulch: Prior to grading on the site near any tree, the area within the Tree Protection fence should be fertilized with 4 pounds of nitrogen per 1000 square feet, and the fertilizer irrigated in. The irrigation should percolate at least 24 inches into the soil. This should be done no less than 2 weeks prior to grading or other root disturbing activities. After irrigating, cover the RPZ with at least 12" of leaf and twig mulch. Such mulch can be obtained from chipping or grinding the limbs of any trees removed on the site. Acceptable mulches can be obtained from nurseries or other commercial sources. Fibrous or shredded redwood or cedar bark mulch shall not be used anywhere on site.

Fence: Fence around the Root Protection Zone and restrict activity therein to prevent soil compaction by vehicles, foot traffic or material storage. The fenced area shall be off limits to all construction equipment, unless there is express written notification provided by the Project Arborist, and impacts are discussed and mitigated prior to work commencing.



No storage or cleaning of equipment or materials, or parking of any equipment can take place within the fenced off area, known as the RPZ.

The fence should be highly visible, and stout enough to keep vehicles and other equipment out. I recommend the fence be made of orange plastic protective fencing, kept in place by t-posts set no farther apart than 6’.

In areas of intense impact, a 6’ chain link fence is preferred.

In areas with many trees, the RPZ can be fenced as one unit, rather than separately for each tree.

Where tree trunks are within 3’ of the construction area, place 2” by 4” boards vertically against the tree trunks, even if fenced off. Hold the boards in place with wire. Do not nail them directly to the tree. The purpose of the boards is to protect the trunk, should any equipment stray into the RPZ.

Elevate Foliage: Where indicated, remove lower foliage from a tree to prevent limb breakage by equipment. Low foliage can usually be removed without harming the tree, unless more than 25% of the foliage is removed. Branches need to be removed at the anatomically correct location in order to prevent decay organisms from entering the trunk. For this reason, a contractor who is an ISA Certified Arborist should perform all pruning on protected trees.¹

Expose and Cut Roots: Breaking roots with a backhoe, or crushing them with a grader, causes significant injury, which may subject the roots to decay. Ripping roots may cause them to splinter toward the base of the tree, creating much more injury than a clean cut would make. At any location where the root zone of a tree will be impacted by a trench or a cut (including a cut required for a fill and compaction), the roots shall be exposed with either a backhoe digging radially to the trunk, by hand digging, or by a hydraulic air spade, and then cut cleanly with a sharp instrument, such as chainsaw with a carbide chain. Once the roots are severed, the area behind the cut should be moistened and mulched. A root protection fence should also be erected to protect the remaining roots, if it is not already in place. Further grading or backhoe work required outside the established RPZ can then continue without further protection measures.

Protect Roots in Deeper Trenches: The location of utilities on the site can be very detrimental to trees. Design the project to use as few trenches as possible, and to keep them away from the major trees to be protected. Wherever possible, in areas where trenches will be very deep, consider boring under the roots of the trees, rather than digging the trench through the roots. This technique can be quite useful for utility trenches and pipelines.

Protect Roots in Small Trenches: After all construction is complete on a site, it is not unusual for the landscape contractor to come in and sever a large number of “preserved” roots during the installation of irrigation systems. The Project Arborist must therefore approve the landscape and irrigation plans. The irrigation system needs to be designed so the main lines are located outside the root zone of major trees, and the secondary lines are either laid on the surface (drip systems), or carefully dug with a hydraulic or air spade, and the flexible pipe fed underneath the major roots.

¹ International Society of Arboriculture (ISA), maintains a program of Certifying individuals. Each Certified Arborist has a number and must maintain continuing education credits to remain Certified.

Design the irrigation system so it can slowly apply water (no more than ¼" to ½" of water per hour) over a longer period of time. This allows deep soaking of root zones. The system also needs to accommodate infrequent irrigation settings of once or twice a month, rather than several times a week.

Monitoring Tree Health During and After Construction: The Project Arborist should visit the site at least twice a month during construction to be certain the tree protection measures are being followed, to monitor the health of impacted trees, and make recommendations as to irrigation or other needs. After construction is complete, the arborist should monitor the site monthly for one year and make recommendations for care where needed.

Chemical Treatments: The owner or developer shall be responsible to contact an arborist with a pesticide applicators license to arrange for an application of a root enhancing hormone, such as Paclobutrazol, to mitigate the stress produced by the development. Additionally, at the discretion of the project arborist, an insect infestation preventative for both boring insects and leaf feeding insects and/or fungal preventative for leaf surfaces may be required. Roots pruned during the course of performing a cut may be required to be treated with a biofungicide such as Bio-Tam.

APPENDIX 4 – SITE PHOTOS



Trees off the site along the north boundary



Looking South. Cottonwood Trees on the right along the east property line.

Environmental Noise Assessment

West Roseville Marketplace

Roseville, California

BAC Job # 2022-012

Prepared For:

Driftwood Investments, Inc.

Attn: Jeff Wood
567 San Nicolas Drive, Suite 170
Newport Beach, CA 92660

Prepared By:

Bollard Acoustical Consultants, Inc.



Dario Gotchet, Principal Consultant

May 13, 2022



Introduction

The West Roseville Marketplace (project) is located on the northeast corner of Pleasant Grove Boulevard and Fiddyment Road in Roseville, California. The project consists of a Safeway shopping center with retail, restaurant drive-through, and gas station uses. Existing land uses in the immediate project vicinity include single- and multi-family residential to the north, church to the east, and single-family residential to the west. The project area with aerial imagery is shown in Figure 1. The project site plan is presented as Figure 2.

Due to the proximity of the project to adjacent noise-sensitive uses, Bollard Acoustical Consultants, Inc. (BAC) was retained to prepare an assessment of potential noise impacts associated with the project. Specifically, the purposes of this assessment are to quantify noise levels associated with project on-site operations, to assess the state of compliance of those noise levels with applicable City of Roseville noise criteria, and if necessary, to recommend measures to reduce those noise levels to acceptable limits at the nearest existing noise-sensitive uses.

Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard, and thus are called sound. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. Appendix A contains definitions of Acoustical Terminology. Figure 3 shows common noise levels associated with various sources.

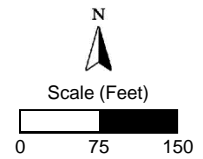
The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels in decibels.

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor, DNL or L_{dn} , and shows very good correlation with community response to noise.



Legend

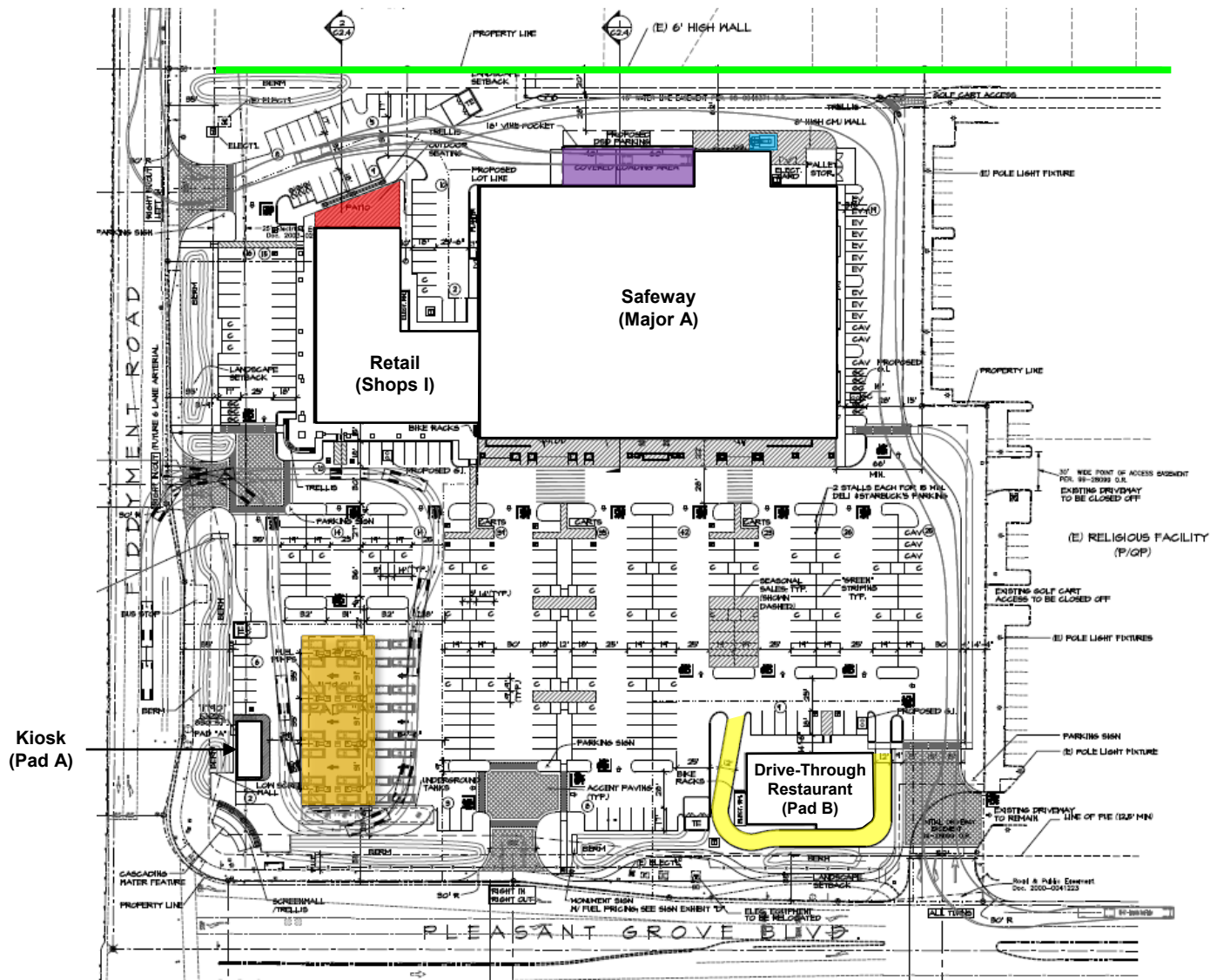
- Project Boundary (Approximate)
- Existing 6' Masonry Walls (Noise Barriers)
- Long-Term Noise Measurement Locations
- ▲ Representative Residential Receivers



West Roseville Marketplace
Roseville, California
Project Area

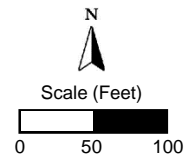
Figure 1





Legend

- Existing 6' Masonry Wall (Noise Barrier)
- Safeway Loading Dock Area
- Gas Station Fueling Area
- Restaurant Drive-Through Lane
- Outdoor Patio Area
- Trash Compactor

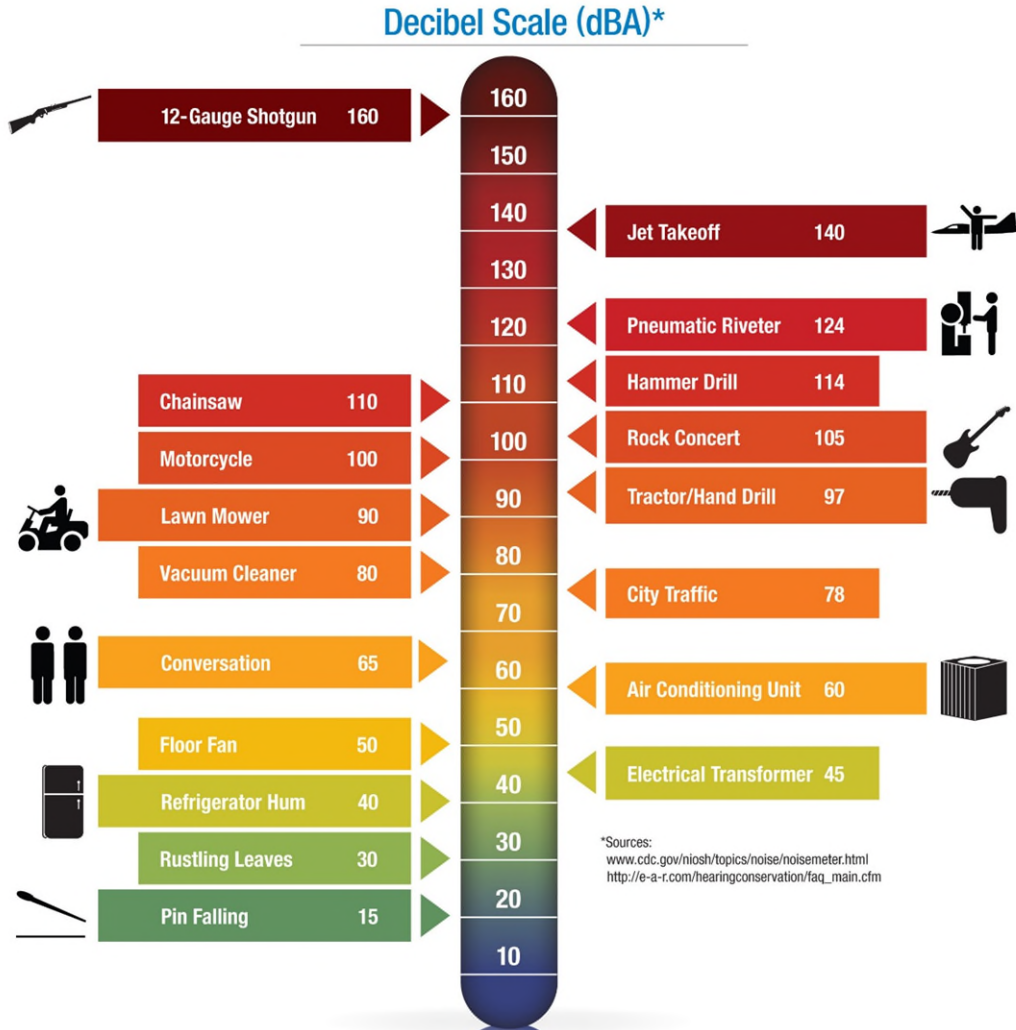


West Roseville Marketplace
Roseville, California
Project Site Plan

Figure 2



Figure 3
Typical A-Weighted Sound Levels of Common Noise Sources



The Day-Night Average Level (DNL or L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because DNL represents a 24-hour average, it tends to disguise short-term variations in the noise environment. DNL-based noise standards are commonly used to assess noise impacts associated with traffic, railroad, and aircraft noise sources.

Existing Ambient Noise Environment within Project Vicinity

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic on Pleasant Grove Boulevard and Fiddymont Road. To generally quantify the existing ambient noise level environment within the project vicinity, BAC conducted long-term (96-hour) noise level measurements at four (4) locations February 25-28, 2022. The noise survey locations are shown on Figure 1, identified as sites LT-1 through LT-4. Photographs of the noise level survey locations are provided in Appendix B.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the ambient noise level survey. The meters were calibrated immediately before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). The results of the long-term ambient noise level survey are shown numerically and graphically in Appendices C and D (respectively) and are summarized below in Table 1.

Table 1
Summary of Long-Term Ambient Noise Measurement Results – February 25-28, 2022¹

Site Description ²	Date	DNL (dB)	Average Measured Hourly Noise Levels (dB) ³			
			Daytime ⁴		Nighttime ⁵	
			Leq	L _{max}	Leq	L _{max}
LT-1: North project boundary at multi-family residential uses	2/25/22	60	57 (55-59)	73 (68-84)	53 (46-59)	68 (63-83)
	2/26/22	58	54 (52-57)	73 (67-87)	51 (48-54)	69 (64-74)
	2/27/22	58	54 (52-57)	73 (68-83)	51 (45-55)	71 (63-83)
	2/28/22	59	56 (54-59)	73 (68-81)	52 (45-57)	66 (59-69)
LT-2: North project boundary at single-family residential uses	2/25/22	59	54 (46-58)	68 (60-76)	52 (44-57)	66 (58-74)
	2/26/22	56	49 (46-52)	65 (58-77)	50 (47-52)	65 (59-74)
	2/27/22	57	51 (44-56)	67 (57-77)	51 (41-57)	66 (56-81)
	2/28/22	59	54 (47-58)	70 (57-78)	52 (45-57)	65 (59-77)
LT-3: West of project site at single-family residential uses	2/25/22	72	68 (66-70)	85 (81-96)	64 (60-69)	80 (75-86)
	2/26/22	70	66 (65-68)	84 (80-89)	63 (61-65)	80 (78-87)
	2/27/22	70	66 (65-72)	83 (78-99)	62 (60-64)	83 (76-94)
	2/28/22	71	68 (65-70)	86 (82-99)	64 (59-69)	80 (78-83)
LT-4: Eastern project boundary at church use	2/25/22	59	58 (50-67)	68 (62-85)	50 (44-56)	64 (60-69)
	2/26/22	55	53 (51-56)	69 (63-81)	48 (43-52)	63 (56-77)
	2/27/22	56	53 (49-56)	70 (63-83)	49 (41-54)	63 (54-73)
	2/28/22	58	55 (51-60)	71 (61-87)	50 (43-55)	62 (55-71)

¹ Detailed summaries of the noise monitoring results are provided in Appendices C and D.
² Long-term ambient noise monitoring locations are identified on Figure 1.
³ Data presented in terms of: Average (Low-High).
⁴ Daytime: 7:00 a.m. to 10:00 p.m.
⁵ Nighttime: 10:00 p.m. to 7:00 a.m.
Source: Bollard Acoustical Consultants, Inc. (2022)

As indicated in Table 1, average measured hourly noise levels were generally consistent at each site throughout the monitoring period (i.e., small range in measured levels). The Table 1 data also indicate that average measured hourly noise levels were highest at site LT-4, which is believed to be due to the proximity of the site relative to Fiddymont Road.

Criteria for Acceptable Noise Exposure

Roseville General Plan 2035

The Noise Element of the Roseville General Plan 2035 establishes non-transportation noise exposure limits as summarized below in Table 1 (Table IX-3 of the Noise Element). These limits are applicable to non-transportation noise sources, such as those proposed by project on-site operations. The General Plan noise level criteria is presented in Table 2.

Table 2
Performance Standards for Non-Transportation Sources
(As Measured at the Property Line of Noise-Sensitive Uses)

Noise Level Descriptor (dBA)	Noise Level (dBA)	
	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}	55	45
Maximum Level L_{max}	75	65
Notes: -Each of the noise level standards specified above shall be reduced by 5 dB for pure tone noises, noise consisting primarily of speech or music, or for recurring impulsive noises. Such noises are generally considered by residents to be particularly annoying and are a primary source of noise complaints. -These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings). -No standards have been included for interior noise levels. Standard construction practices should, with exterior noise levels identified, result in acceptable interior noise levels. Source: <i>Roseville General Plan 2035, Noise Element, Table IX-3</i>		

Noise Standards Applicable to the Project

The primary noise sources associated with the project have been identified as delivery truck loading dock activities, on-site truck circulation, restaurant drive-through operations, parking lot movements, rooftop mechanical equipment (HVAC), outdoor patio conversation, and trash compactor operation.

For the purposes of this assessment, it was conservatively assumed that normal hours of operation for the businesses within the development could occur during both daytime and nighttime hours. However, it is the understanding of BAC that all delivery truck activities within the development will be restricted to daytime hours only (7:00 a.m. to 10:00 p.m.). Finally, the footnote in Table 2 states that each of the noise level limits shall be reduced by 5 dB for noises consisting of speech or music, which would be applicable to the drive-through restaurant’s menu speaker post and outdoor patio (i.e., patron conversation) noise sources. Based on the

information above, the Roseville General Plan noise level standards applied to the project are provided in Table 3.

Table 3
Noise Level Standards Applied to the Project

Noise Source	Applicable Noise Level Standard (dBA)			
	Daytime (7:00 a.m. to 10:00 p.m.)		Nighttime (10:00 p.m. to 7:00 a.m.)	
	L _{eq}	L _{max}	L _{eq}	L _{max}
Loading Dock Activities	55	75	--	--
On-Site Truck Circulation	55	75	--	--
Drive-Through Menu Speaker	50	70	40	60
Drive-Through Vehicle Passbys	55	75	45	65
Parking Lot Movements	55	75	45	65
Rooftop HVAC Equipment	55	75	45	65
Trash Compaction Operations	55	75	45	65
Outdoor Patio Conversation	50	70	40	60

Source: Roseville General Plan 2035, Noise Element, Table IX-3

The General Plan noise level standards are to be applied at the property lines of noise-sensitive uses. Pursuant to the General Plan Noise Element, noise-sensitive uses generally include residential, schools, and hospitals. As a result, the noise level limits shown in Table 3 above were applied at the property lines of the nearest residential uses to the project. The nearest residential uses are represented as receivers R-1 through R-3 on Figure 1. Satisfaction with the General Plan noise level standards at the closest residential uses would ensure compliance with the noise level criteria at residential uses located farther away.

Evaluation of Project-Generated Noise Levels

As mentioned previously, the primary noise sources associated with the project have been identified as delivery truck loading dock activities, on-site truck circulation, restaurant drive-through operations, parking lot movements, rooftop mechanical equipment (HVAC), outdoor patio conversation, and trash compactor operation. Predicted noise levels resulting from each of these sources at the nearest residential uses are evaluated in the following sections.

Predicted project-generated noise levels at the nearest existing residential uses include consideration of the screening that would be provided by existing 6' masonry walls. The locations of the existing 6' noise barriers are illustrated on Figures 1 and 2. It is estimated that the existing sound walls would provide approximately 5 dB of project-generated noise level reduction at the nearest existing residential uses.

Loading Dock Activities

The project proposes a 2-bay loading dock area at the rear (north side) of the Safeway grocery store (Major A). The location of the grocery store loading dock area is shown on Figure 2. The

primary noise sources associated with the loading dock area have been identified as heavy and medium-duty trucks stopping (air brakes), backing into the loading bays (back-up alarms), and pulling away from the dock area (revving engines).

To quantify the noise generated by Safeway loading dock operations, BAC utilized noise level data obtained from BAC field measurements of a commercial warehouse facility. According to BAC measurement data, loading dock hourly average (L_{eq}) and maximum (L_{max}) noise levels are approximately 60 dB L_{eq} and 75-80 dB L_{max} at a reference distance of 50 feet. The BAC noise level measurements captured 3 heavy truck arrivals and departures (with unloading activities), and 4 medium-duty truck deliveries.

Based on reference noise levels of 60 dB L_{eq} and 80 dB L_{max} , and assuming standard spherical spreading loss (-6 dB per doubling of distance), loading dock noise exposure at the property lines of the nearest residential uses (receivers R-1 through R-3) was predicted and the results of those predictions are presented in Table 4.

**Table 4
Predicted Loading Dock Activity Noise Levels at Nearest Residential Uses**

Receiver ¹	Land Use	Distance from Loading Dock Area (ft) ²	Predicted Noise Levels (dB)	
			L_{eq}	L_{max}
R-1	Multi-Family Res.	100	49	69
R-2	Single-Family Res.	75	51	71
R-3	Single-Family Res.	450	36	56
General Plan Daytime Noise Standards (dB)			55	75
¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1.				
² Distances scaled from loading dock area to residential property lines using provided site plans.				
Source: Bollard Acoustical Consultants, Inc. (2022)				

As indicated in Table 4, loading dock noise levels are predicted to satisfy the applicable Roseville General Plan daytime hourly average (L_{eq}) and maximum (L_{max}) noise level standards at the property lines of the nearest residential uses. The predicted compliance includes consideration of attenuation that would be provided by existing 6' sound walls, as discussed in this report. Further, the predicted loading dock noise levels in Table 4 are below or within the range of measured daytime hourly average and maximum noise levels within the vicinity of those nearest residential uses (Table 1). As a result, no further consideration of loading dock noise mitigation measures would be warranted for this aspect of the project.

On-Site Delivery Truck Circulation

The project site will receive deliveries of product from both heavy and medium duty trucks. The on-site truck circulation routes are shown on the project site plan.

Based on the experience of BAC in similar commercial projects, it is estimated that the project could receive daily deliveries from to 5 heavy trucks (3 Safeway grocery store trucks, 2 Safeway gas station fuel tankers) and 14 medium trucks (combination of all project tenants). Based on

these estimations, the following conservative assumptions were made regarding deliveries at the businesses of the development:

- Safeway (Major A): 2 heavy trucks / 2 medium trucks during worst-case hour
- Retail (Shops I): 3 medium trucks during worst-case hour
- Gas Station and Kiosk (Pad A): 1 heavy truck / 1 medium truck during worst-case hour
- Drive-Through Restaurant (Pad B): 1 medium truck during worst-case hour

Truck passbys are expected to be relatively brief and will occur at low speeds. To predict noise levels generated by truck passbys, BAC utilized file data obtained from measurements conducted by BAC of heavy and medium duty truck passbys. According to BAC file data, single-event heavy truck passby noise levels are approximately 74 dB L_{max} and 83 dB SEL at a reference distance of 50 feet. BAC file data also indicate that single-event medium truck passby noise levels are approximately 66 dB L_{max} and 76 SEL at a reference distance of 50 feet.

Based on the worst-case hour truck delivery assumptions discussed above, the following delivery truck hourly average (L_{eq}) and maximum (L_{max}) reference noise levels at a distance of 50 feet from the truck passby routes were computed:

- Safeway (Major A): 51 dB L_{eq} (maximum of 74 dB L_{max})
- Retail (Shops I): 45 dB L_{eq} (maximum of 66 dB L_{max})
- Gas Station and Kiosk (Pad A): 49 dB L_{eq} (maximum of 74 dB L_{max})
- Drive-Through Restaurant (Pad B): 40 dB L_{eq} (maximum of 66 dB L_{max})

Based the reference noise levels above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), on-site delivery truck circulation noise exposure at the property lines of the nearest residential uses (receivers R-1 through R-3) was predicted and the results of those predictions are presented in Tables 5-8.

**Table 5
Predicted On-Site Delivery Truck Circulation Noise Levels at Residential Uses – Safeway**

Receiver ¹	Land Use	Distance from Truck Route (ft) ²	Predicted Noise Levels (dBA)	
			L_{eq}	L_{max}
R-1	Multi-Family Res.	30	51	73
R-2	Single-Family Res.	30	51	73
R-3	Single-Family Res.	180	35	58
Applicable General Plan Daytime Noise Standards (dB)			55	75

¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1.
² Distances scaled from proposed on-site truck circulation lane to residential property lines using site plan.
 Source: Bollard Acoustical Consultants, Inc. (2022)

Table 6
Predicted On-Site Delivery Truck Circulation Noise Levels at Residential Uses – Retail

Receiver ¹	Land Use	Distance from Truck Route (ft) ²	Predicted Noise Levels (dBA)	
			L _{eq}	L _{max}
R-1	Multi-Family Res.	125	32	53
R-2	Single-Family Res.	320	24	45
R-3	Single-Family Res.	200	28	49
Applicable General Plan Daytime Noise Standard (dB)			55	75

¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1.
² Distances scaled from proposed on-site truck circulation lane to residential property lines using site plan.
Source: Bollard Acoustical Consultants, Inc. (2022)

Table 7
Predicted On-Site Delivery Truck Circulation Noise Levels at Residential Uses – Gas Station

Receiver ¹	Land Use	Distance from Truck Route (ft) ²	Predicted Noise Levels (dBA)	
			L _{eq}	L _{max}
R-1	Multi-Family Res.	320	28	53
R-2	Single-Family Res.	430	25	50
R-3	Single-Family Res.	200	32	57
Applicable General Plan Daytime Noise Standard (dB)			55	75

¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1.
² Distances scaled from on-site truck circulation lane to residential property lines using provided site plans.
Source: Bollard Acoustical Consultants, Inc. (2022)

Table 8
Predicted On-Site Delivery Truck Circulation Noise Levels at Residential Uses – Restaurant

Receiver ¹	Land Use	Distance from Truck Route (ft) ²	Predicted Noise Levels (dBA)	
			L _{eq}	L _{max}
R-1	Multi-Family Res.	480	16	41
R-2	Single-Family Res.	470	16	42
R-3	Single-Family Res.	580	14	40
Applicable General Plan Daytime Noise Standard (dB)			55	75

¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1.
² Distances scaled from proposed on-site truck circulation lane to residential property lines using site plan.
Source: Bollard Acoustical Consultants, Inc. (2022)

As shown in Tables 5-8, on-site delivery truck circulation noise levels are predicted to satisfy the applicable Roseville General Plan daytime hourly average (L_{eq}) and maximum (L_{max}) noise level standards at the property lines of the nearest residential uses. The predicted compliance includes consideration of attenuation that would be provided by existing 6' sound walls, as discussed in this report. Additionally, the predicted truck circulation noise levels in Tables 5-8 are below or within the range of measured daytime hourly average and maximum noise levels within the vicinity

of those nearest residential uses (Table 1). As a result, no further consideration of on-site truck circulation noise mitigation measures would be warranted for this aspect of the project.

Restaurant Drive-Through Operations

According to the project site plan, the restaurant proposed on Pad B will have a wrap-around drive-through lane. The location of the drive-through lane is shown on Figure 2.

At the time of writing this report, it is unknown whether the proposed drive-through will have an amplified speaker menu board/post. For the purposes of this analysis, it was conservatively assumed that the drive-through would have an amplified drive-through speaker menu board. To quantify the noise emissions of project drive-through speaker usage and vehicle passages, noise level measurement data from similar drive-thru facilities collected by BAC in the greater Sacramento region in recent years were utilized. Table 9 contains the reference sound levels used to assess compliance with Roseville General Plan noise standards for this project.

**Table 9
Reference Drive-Through Noise Levels**

Noise Source	Measured Noise Levels (dB)	
	Average (L _{eq})	Maximum (L _{max})
Speaker ¹	63 dB at 10 feet	67 dB at 10 feet
Vehicles ²	60 dB at 5 feet	70 dB at 5 feet
¹ Speaker noise level data obtained from measurements conducted at a drive-through restaurant located at 2845 Bell Road in Auburn, California in 2018. ² Vehicle noise level data obtained from previous BAC drive-through noise studies.		

Using the BAC drive-through vehicle passby data and speaker noise level data presented in Table 9, and assuming standard spherical spreading loss (-6 dB per doubling of distance), data were projected to the property lines of the nearest residential uses (receivers R-1 through R-3). The results of those projections are provided in Table 10.

**Table 10
Predicted Restaurant Drive-Through Noise Levels at Nearest Residential Uses**

Receiver ¹	Distance from Source (ft) ²		Predicted Noise Levels (dB) ³			
			Speaker		Vehicles	
	Speaker	Vehicles	L _{eq}	L _{max}	L _{eq}	L _{max}
R-1	535	520	23	27	15	25
R-2	520	510	24	28	15	25
R-3	630	615	22	26	13	23
Applicable General Plan Daytime Noise Standard (dB)			50	70	55	75
Applicable General Plan Nighttime Noise Standard (dB)			40	60	45	65
¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1. ² Distances scaled from drive-through lane and speaker area to residential property lines using site plan. ³ Predicted noise levels include consideration of screening that would be provided by proposed intervening on-site structures, where applicable. Source: Bollard Acoustical Consultants, Inc. (2022)						

The Table 10 data indicate that restaurant drive-through operations noise levels are predicted to satisfy the applicable Roseville General Plan daytime and nighttime hourly average (L_{eq}) and maximum (L_{max}) noise level standards at the property lines of the nearest residential uses. The predicted compliance includes consideration of attenuation that would be provided by existing 6' sound walls, as discussed in this report. In addition, the predicted drive-through noise levels in Table 10 are below the range of measured daytime and nighttime hourly average and maximum noise levels within the vicinity of those nearest residential uses (Table 1). As a result, no further consideration of drive-through operations noise mitigation measures would be warranted for this aspect of the project.

Parking Area Movements

As a means of determining potential noise exposure due to project parking area activities, BAC utilized specific parking lot noise level measurements conducted by BAC. Specifically, a series of individual noise measurements were conducted of multiple vehicle types arriving and departing a parking area, including engines starting and stopping, car doors opening and closing, and persons conversing as they entered and exited the vehicles. The results of those measurements revealed that individual parking lot movements generated mean noise levels of approximately 70 dB SEL at a reference distance of 50 feet. The maximum noise level associated with parking lot activity typically did not exceed 65 dB L_{max} at the same reference distance.

To compute hourly average (L_{eq}) noise levels generated by parking activities, the approximate number of hourly operations in any given area and distance to the effective noise center of those activities is required. Based on the provided site plan, the nearest proposed parking stalls to receiver R-1 are located adjacent to the retail uses (Shops I) of the project (approximately 65 spaces). The closest parking stalls to receiver R-2 are associated with the retail uses and the eastside of the Safeway grocery store building (combined 53 spaces). Finally, the nearest parking stalls to the residential uses to the west of the project, represented by receiver R-3, are associated with the retail uses, gas station, and a portion of the Safeway grocery store (combined 100 spaces). However, receiver R-3 would also receive noise exposure from parking movements at the gas station fuel pumps. Assuming each vehicle spends five minutes at a fuel dispenser (of which there are 16), this would calculate to approximately 192 vehicle movements per hour at maximum capacity. Parking activity noise exposure was determined using the following equation:

$$\text{Peak Hour } L_{eq} = 70 + 10 \cdot \log(N) - 35.6$$

Where 70 is the SEL for a single automobile parking operation, N is the number of parking operations in a peak hour, and 35.6 is 10 times the logarithm of the number of seconds in an hour. Using the information provided above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), worst-case parking activity noise exposure at the property lines of the nearest residential uses (receivers R-1 through R-3) was predicted and the results of those predictions are presented in Table 11.

Table 11
Predicted Worst-Case Parking Area Noise Levels at Nearest Residential Uses

Receiver ¹	Land Use	Predicted Combined Parking Area Noise Levels (dB) ²	
		L _{eq}	L _{max}
R-1	Multi-Family Residential	39	62
R-2	Single-Family Residential	35	56
R-3	Single-Family Residential	40	52
Applicable General Plan Daytime Noise Standards (dB)		55	75
Applicable General Plan Nighttime Noise Standards (dB)		45	65
¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1. ² Predicted noise levels based on distances from nearest parking stalls to receivers and peak hour movement assumptions and calculations, as discussed in this report. <i>Source: Bollard Acoustical Consultants, Inc. (2022)</i>			

As indicated in Table 11, worst-case parking area noise levels are predicted to satisfy the applicable Roseville General Plan daytime and nighttime hourly average (L_{eq}) and maximum (L_{max}) noise level standards at the property lines of the nearest residential uses. The predicted compliance includes consideration of attenuation that would be provided by existing 6' sound walls, as discussed in this report. Additionally, the predicted worst-case parking area noise levels in Table 11 are below the range of measured daytime and nighttime hourly average and maximum noise levels within the vicinity of those nearest residential uses (Table 1). It should be noted that parking lot activity at the project site is expected to be significantly less during nighttime hours. Nonetheless, based on the analysis and results presented above, no further consideration of parking area noise mitigation measures would be warranted for this aspect of the project.

Rooftop Mechanical Equipment (HVAC)

Heating, ventilating, and air conditioning (HVAC) requirements for the proposed Safeway grocery store will most likely be met using a packaged roof-mounted systems. Such mechanical equipment would be shielded from view of nearby existing residential uses by the building's rooftop parapets. Noise from rooftop mechanical equipment has been measured by BAC to be approximately 45 dB at a reference distance of 100 feet from the building rooftops of similar grocery store buildings, including shielding provided by the building parapets.

Assuming standard spherical spreading loss (-6 dB per doubling of distance), project HVAC equipment noise exposure at the property lines of the nearest residential uses (receivers R-1 through R-3) was predicted and the results of those predictions are presented in Table 12. Because mechanical equipment operation typically generates sustained, steady-state, noise levels, impacts of rooftop mechanical equipment are assessed in this study relative to the Roseville General Plan hourly average (L_{eq}) noise level standards.

Table 12
Predicted Rooftop HVAC Equipment Noise Levels at Nearest Residential Uses

Receiver ¹	Land Use	Distance from Building Rooftop (ft) ²	Predicted Noise Levels, L _{eq} (dB)
R-1	Multi-Family Res.	100	40
R-2	Single-Family Res.	100	40
R-3	Single-Family Res.	390	28
Applicable General Plan Daytime Noise Standard (dB)			55
Applicable General Plan Nighttime Noise Standard (dB)			45
¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1.			
² Distances scaled from building rooftop to residential property lines using provided site plan.			
Source: Bollard Acoustical Consultants, Inc. (2022)			

The Table 12 data indicate that rooftop HVAC equipment noise levels are predicted to satisfy the applicable Roseville General Plan daytime and nighttime hourly average (L_{eq}) noise level standards at the property lines of the nearest residential uses. The predicted compliance includes consideration of attenuation that would be provided by existing 6' sound walls, as discussed in this report. In addition, the predicted HVAC equipment noise levels in Table 12 are below the range of measured daytime and nighttime hourly average noise levels within the vicinity of those nearest residential uses (Table 1). It should be noted that HVAC equipment usage at the project site is expected to be reduced during nighttime hours. Nonetheless, based on the analysis and results presented above, no further consideration of HVAC equipment noise mitigation measures would be warranted for this aspect of the project.

Trash Compactor Operations

According to the project site plans, a trash compactor is proposed to be located at the rear (north side) of the Safeway grocery store. The proposed location of the grocery store trash compactor is shown on Figure 2.

Information for proposed trash compactor (i.e., make and model) was not available at the time of writing this report. To quantify the noise emissions of project's trash compactor, BAC utilized sound level data for a trash compactor model analyzed by BAC in 2016 for a similar-sized shopping center developed in San Jose, California (North Park Plaza). Specifically, sound level data from a Three Marathon Mini-MAC Model 3A trash compactor was utilized in this analysis. According to the manufacturer's specification sheet, this specific commercial trash compactor model has a reference sound level of 70 dB L_{max} or less at a distance of 5 feet (dependent upon orientation to equipment). Based on the reference sound level above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), trash compactor noise levels at the property lines of the nearest residential uses (receivers R-1 through R-3) was predicted and the results of those predictions are presented in Table 13.

It is reasonably assumed that trash compactor operations will be relatively brief and would occur no more than approximately 10 minutes of a given hour. Based on this assumption, impacts of

project trash compactor operations are assessed in this study relative to the Roseville General Plan hourly average (L_{max}) noise level standards.

Table 13
Predicted Trash Compactor Noise Levels at Nearest Residential Uses

Receiver ¹	Land Use	Distance from Equipment (ft) ²	Predicted Noise Levels, L_{max} (dB)
R-1	Multi-Family Res.	140	36
R-2	Single-Family Res.	60	43
R-3	Single-Family Res.	600	23
Applicable General Plan Daytime Noise Standards (dB)			75
Applicable General Plan Nighttime Noise Standards (dB)			65
¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1. ² Distances scaled from proposed trash compactor to residential property lines using provided site plan. Source: Bollard Acoustical Consultants, Inc. (2022)			

Based on the results provided in Table 13, project trash compactor noise levels are expected to satisfy the applicable Roseville General Plan daytime and nighttime maximum (L_{max}) noise level standards at the property lines of the nearest residential uses. The results in Table 13 include consideration of attenuation that would be provided by existing 6' sound walls, as discussed in this report. Additionally, the trash compactor noise levels in Table 13 are well below the range of measured daytime and nighttime maximum noise levels within the vicinity of those nearest residential uses (Table 1). As a result, no further consideration of trash compactor mitigation measures would be warranted for this aspect of the project.

Outdoor Patio Conversation

The project proposes an outdoor patio area for patrons on the north side of the retail uses (Shops I). The location of the patio area is shown on Figure 2. The primary noise source associated with the proposed outdoor patio has been identified as patron speech/conversation.

Based on the proposed size of the area, it was assumed for the purposes of this analysis that the outdoor patio could accommodate approximately 30 people. To quantify outdoor patio area noise levels at the nearest uses, BAC utilized reference file data for persons speaking in normal and raised voices (normal voice = 57 dB per person at 3 feet and raised voice = 64 dB per person at 3 feet). Based on an outdoor patio of 30 people, the cited BAC file data above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), outdoor patio noise exposure at the property lines of the nearest residential uses (receivers R-1 through R-3) was predicted and the results of those predictions are presented in Table 14.

Table 14
Predicted Outdoor Patio Conversation Noise Levels at Nearest Residential Uses

Receiver ¹	Land Use	Distance from Outdoor Patio (ft) ²	Predicted Noise Levels (dBA)	
			L _{eq}	L _{max}
R-1	Multi-Family Res.	110	35	42
R-2	Single-Family Res.	220	29	36
R-3	Single-Family Res.	290	27	34
Applicable General Plan Daytime Noise Standards (dB)			50	70
Applicable General Plan Nighttime Noise Standards (dB)			40	60
¹ Nearest residential uses are represented as receivers R-1 through R-3 on Figure 1. ² Distances scaled from outdoor patio area to residential property lines using provided site plan. Source: Bollard Acoustical Consultants, Inc. (2022)				

The Table 14 data indicate that outdoor patio conversation noise levels are predicted to satisfy the applicable Roseville General Plan daytime and nighttime hourly average (L_{eq}) and maximum (L_{max}) noise level standards at the property lines of the nearest residential uses. The predicted compliance includes consideration of attenuation that would be provided by existing 6' sound walls, as discussed in this report. In addition, the predicted patio conversation noise levels in Table 14 are below the range of measured daytime and nighttime hourly average and maximum noise levels within the vicinity of those nearest residential uses (Table 1). As a result, no further consideration of outdoor patio conversation noise mitigation measures would be warranted for this aspect of the project.

Conclusions & Recommendations

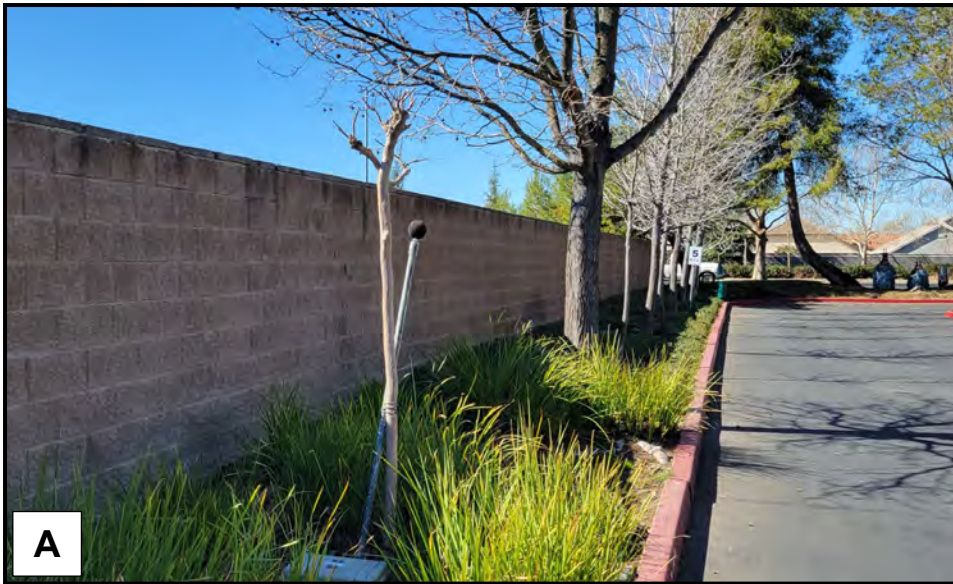
Based on the analysis and results presented in this assessment, noise levels associated with operations at the proposed West Roseville Marketplace are predicted to comply with the applicable Roseville General Plan noise level standards at the property lines of the nearest residential uses. The predicted compliance includes consideration of attenuation that would be provided by existing 6' sound walls, as discussed in this report. It should be noted that to ensure compliance of the General Plan's noise level criteria, all on-site operations associated with delivery trucks (e.g., loading dock activities, truck circulation, etc.) should be limited to daytime hours only (7:00 a.m. to 10:00 p.m.), as proposed.

These conclusions are based on the site plan shown on Figure 2, BAC measurement data and operations assumptions, and equipment manufacturer sound level data. Deviations from the above-mentioned resources could cause actual noise levels to differ from those predicted in this assessment.

This concludes BAC's environmental noise assessment of operations at the West Roseville Marketplace located in Roseville, California. Please contact BAC at (530) 537-2328 or darioq@bacnoise.com with any questions regarding this assessment.

Appendix A Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
IIC	Impact Insulation Class (IIC): A single-number representation of a floor/ceiling partition's impact generated noise insulation performance. The field-measured version of this number is the FIIC.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
RT₆₀	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
STC	Sound Transmission Class (STC): A single-number representation of a partition's noise insulation performance. This number is based on laboratory-measured, 16-band (1/3-octave) transmission loss (TL) data of the subject partition. The field-measured version of this number is the FSTC.



A



B



C



D

Legend

- A: LT-1: Facing west along residential property line and sound wall
- B: LT-2: Facing west along residential property line
- C: LT-3: Facing northeast along sound wall towards Fiddymnt Road and project site
- D: LT-4: Facing south along property line of church use

 Noise monitoring equipment

West Roseville Marketplace
 Roseville, California
 Noise Survey Photographs

Appendix C-1
Long-Term Ambient Noise Monitoring Results - Site LT-1
West Roseville Marketplace - Roseville, California
Friday, February 25, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	48	65	45	40
1:00 AM	47	67	43	38
2:00 AM	47	63	42	38
3:00 AM	46	63	41	37
4:00 AM	50	65	46	41
5:00 AM	55	71	52	46
6:00 AM	59	83	55	51
7:00 AM	59	73	56	52
8:00 AM	57	69	54	49
9:00 AM	59	75	55	53
10:00 AM	58	75	55	45
11:00 AM	55	74	51	44
12:00 PM	55	74	51	44
1:00 PM	57	84	51	43
2:00 PM	55	72	51	43
3:00 PM	55	74	52	45
4:00 PM	55	71	52	44
5:00 PM	55	68	52	46
6:00 PM	57	70	55	51
7:00 PM	56	71	55	52
8:00 PM	58	78	56	52
9:00 PM	55	71	53	50
10:00 PM	54	71	52	48
11:00 PM	52	69	50	45

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	59	55	57	59	46	53
Lmax (Maximum)	84	68	73	83	63	68
L50 (Median)	56	51	53	55	41	47
L90 (Background)	53	43	47	51	37	43

Computed DNL, dB	60
% Daytime Energy	80%
% Nighttime Energy	20%

GPS Coordinates	38°46'5.24"N
	121°21'28.40"W

Appendix C-2
Long-Term Ambient Noise Monitoring Results - Site LT-1
West Roseville Marketplace - Roseville, California
Saturday, February 26, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	52	74	48	44
1:00 AM	49	64	44	39
2:00 AM	49	70	44	38
3:00 AM	48	67	43	38
4:00 AM	48	64	44	38
5:00 AM	50	71	47	41
6:00 AM	54	71	50	46
7:00 AM	54	68	51	46
8:00 AM	54	71	50	44
9:00 AM	54	80	49	44
10:00 AM	54	70	51	45
11:00 AM	54	69	51	44
12:00 PM	54	70	51	44
1:00 PM	55	78	50	44
2:00 PM	54	70	50	43
3:00 PM	55	82	49	42
4:00 PM	57	87	50	44
5:00 PM	54	76	50	44
6:00 PM	54	74	50	45
7:00 PM	53	68	49	44
8:00 PM	52	67	48	44
9:00 PM	53	72	49	44
10:00 PM	52	68	49	44
11:00 PM	51	72	48	43

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	57	52	54	54	48	51
Lmax (Maximum)	87	67	73	74	64	69
L50 (Median)	51	48	50	50	43	46
L90 (Background)	46	42	44	46	38	41

Computed DNL, dB	58
% Daytime Energy	79%
% Nighttime Energy	21%

GPS Coordinates	38°46'5.24"N
	121°21'28.40"W

Appendix C-3
Long-Term Ambient Noise Monitoring Results - Site LT-1
West Roseville Marketplace - Roseville, California
Sunday, February 27, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	51	70	46	41
1:00 AM	51	73	44	37
2:00 AM	51	83	39	35
3:00 AM	45	63	39	34
4:00 AM	46	63	41	35
5:00 AM	50	74	46	40
6:00 AM	51	70	48	44
7:00 AM	53	78	49	45
8:00 AM	52	70	48	42
9:00 AM	52	68	48	41
10:00 AM	52	71	48	40
11:00 AM	54	74	50	43
12:00 PM	53	76	50	42
1:00 PM	57	83	50	45
2:00 PM	53	68	50	44
3:00 PM	55	81	51	45
4:00 PM	53	70	50	44
5:00 PM	53	75	49	42
6:00 PM	54	69	51	46
7:00 PM	55	74	53	49
8:00 PM	55	70	54	49
9:00 PM	55	73	52	48
10:00 PM	55	80	50	43
11:00 PM	50	67	48	42

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	57	52	54	55	45	51
Lmax (Maximum)	83	68	73	83	63	71
L50 (Median)	54	48	50	50	39	44
L90 (Background)	49	40	44	44	34	39

Computed DNL, dB	58
% Daytime Energy	78%
% Nighttime Energy	22%

GPS Coordinates	38°46'5.24"N
	121°21'28.40"W

Appendix C-4
Long-Term Ambient Noise Monitoring Results - Site LT-1
West Roseville Marketplace - Roseville, California
Monday, February 28, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	49	65	46	39
1:00 AM	47	66	43	36
2:00 AM	45	59	41	35
3:00 AM	49	64	45	37
4:00 AM	51	67	47	42
5:00 AM	54	69	52	48
6:00 AM	57	69	55	51
7:00 AM	59	69	57	53
8:00 AM	56	68	53	47
9:00 AM	55	70	51	45
10:00 AM	55	76	50	43
11:00 AM	56	81	50	44
12:00 PM	54	75	51	44
1:00 PM	55	72	51	44
2:00 PM	56	81	52	45
3:00 PM	55	70	52	45
4:00 PM	56	81	52	45
5:00 PM	55	75	52	47
6:00 PM	56	70	53	49
7:00 PM	56	68	55	51
8:00 PM	58	76	55	51
9:00 PM	55	71	52	48
10:00 PM	52	65	49	45
11:00 PM	51	66	48	43

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	59	54	56	57	45	52
Lmax (Maximum)	81	68	73	69	59	66
L50 (Median)	57	50	52	55	41	47
L90 (Background)	53	43	47	51	35	42

Computed DNL, dB	59
% Daytime Energy	80%
% Nighttime Energy	20%

GPS Coordinates	38°46'5.24"N
	121°21'28.40"W

Appendix C-5
Long-Term Ambient Noise Monitoring Results - Site LT-2
West Roseville Marketplace - Roseville, California
Friday, February 25, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	47	58	45	39
1:00 AM	46	66	43	35
2:00 AM	46	61	42	35
3:00 AM	44	60	41	35
4:00 AM	48	64	46	40
5:00 AM	54	68	53	47
6:00 AM	57	74	56	53
7:00 AM	58	67	57	53
8:00 AM	54	69	54	48
9:00 AM	51	61	48	45
10:00 AM	48	76	45	42
11:00 AM	46	60	45	42
12:00 PM	48	74	45	42
1:00 PM	47	72	44	40
2:00 PM	46	66	44	41
3:00 PM	47	61	45	42
4:00 PM	48	61	46	43
5:00 PM	52	67	51	46
6:00 PM	56	72	55	52
7:00 PM	57	71	56	53
8:00 PM	58	74	57	54
9:00 PM	55	71	54	52
10:00 PM	54	67	53	50
11:00 PM	52	74	51	47

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	58	46	54	57	44	52
Lmax (Maximum)	76	60	68	74	58	66
L50 (Median)	57	44	50	56	41	48
L90 (Background)	54	40	46	53	35	42

Computed DNL, dB	59
% Daytime Energy	70%
% Nighttime Energy	30%

GPS Coordinates	38°46'5.17"N
	121°21'25.70"W

Appendix C-6
Long-Term Ambient Noise Monitoring Results - Site LT-2
West Roseville Marketplace - Roseville, California
Saturday, February 26, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	50	61	49	45
1:00 AM	47	60	44	38
2:00 AM	47	59	44	37
3:00 AM	47	68	44	37
4:00 AM	48	61	45	37
5:00 AM	50	64	47	41
6:00 AM	52	70	51	47
7:00 AM	50	63	48	45
8:00 AM	50	74	45	43
9:00 AM	49	69	47	44
10:00 AM	49	66	47	44
11:00 AM	49	63	47	44
12:00 PM	48	58	46	42
1:00 PM	47	59	45	42
2:00 PM	46	58	45	42
3:00 PM	47	66	45	42
4:00 PM	52	77	47	44
5:00 PM	49	64	48	44
6:00 PM	51	63	49	46
7:00 PM	51	66	49	45
8:00 PM	50	69	48	45
9:00 PM	50	65	49	45
10:00 PM	51	71	49	45
11:00 PM	51	74	49	44

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	52	46	49	52	47	50
Lmax (Maximum)	77	58	65	74	59	65
L50 (Median)	49	45	47	51	44	47
L90 (Background)	46	42	44	47	37	41

Computed DNL, dB	56
% Daytime Energy	61%
% Nighttime Energy	39%

GPS Coordinates	38°46'5.17"N
	121°21'25.70"W

Appendix C-7
Long-Term Ambient Noise Monitoring Results - Site LT-2
West Roseville Marketplace - Roseville, California
Sunday, February 27, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	50	67	47	42
1:00 AM	51	74	45	37
2:00 AM	43	69	36	30
3:00 AM	41	56	37	30
4:00 AM	46	59	41	31
5:00 AM	50	69	47	40
6:00 AM	49	59	48	43
7:00 AM	48	65	46	42
8:00 AM	46	66	44	40
9:00 AM	44	57	42	39
10:00 AM	44	64	42	39
11:00 AM	46	66	43	41
12:00 PM	49	77	44	41
1:00 PM	48	67	44	41
2:00 PM	46	58	44	41
3:00 PM	48	68	45	41
4:00 PM	48	64	46	42
5:00 PM	49	63	47	44
6:00 PM	54	73	52	47
7:00 PM	56	70	55	52
8:00 PM	56	72	55	51
9:00 PM	55	74	53	50
10:00 PM	57	81	51	44
11:00 PM	51	64	49	44

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	56	44	51	57	41	51
Lmax (Maximum)	77	57	67	81	56	66
L50 (Median)	55	42	47	51	36	45
L90 (Background)	52	39	43	44	30	38

Computed DNL, dB	57
% Daytime Energy	65%
% Nighttime Energy	35%

GPS Coordinates	38°46'5.17"N
	121°21'25.70"W

Appendix C-8
Long-Term Ambient Noise Monitoring Results - Site LT-2
West Roseville Marketplace - Roseville, California
Monday, February 28, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	50	62	48	39
1:00 AM	47	64	44	36
2:00 AM	45	59	42	32
3:00 AM	49	63	46	36
4:00 AM	51	70	49	44
5:00 AM	54	63	54	51
6:00 AM	57	77	56	53
7:00 AM	58	64	57	53
8:00 AM	49	57	49	45
9:00 AM	49	71	47	43
10:00 AM	47	64	45	42
11:00 AM	51	73	46	43
12:00 PM	48	61	46	42
1:00 PM	47	66	45	42
2:00 PM	50	75	46	42
3:00 PM	50	69	48	44
4:00 PM	51	73	49	45
5:00 PM	54	75	51	48
6:00 PM	56	71	55	51
7:00 PM	58	76	57	53
8:00 PM	57	78	56	53
9:00 PM	55	74	54	51
10:00 PM	52	63	51	47
11:00 PM	51	63	49	45

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	58	47	54	57	45	52
Lmax (Maximum)	78	57	70	77	59	65
L50 (Median)	57	45	50	56	42	49
L90 (Background)	53	42	46	53	32	43

Computed DNL, dB	59
% Daytime Energy	70%
% Nighttime Energy	30%

GPS Coordinates	38°46'5.17"N
	121°21'25.70"W

Appendix C-9
Long-Term Ambient Noise Monitoring Results - Site LT-3
West Roseville Marketplace - Roseville, California
Friday, February 25, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	62	75	54	45
1:00 AM	61	80	52	41
2:00 AM	60	76	50	40
3:00 AM	61	84	48	36
4:00 AM	64	85	57	47
5:00 AM	67	86	62	56
6:00 AM	69	82	66	59
7:00 AM	70	84	68	60
8:00 AM	69	83	66	57
9:00 AM	68	81	65	55
10:00 AM	68	85	65	53
11:00 AM	67	85	64	52
12:00 PM	67	85	63	50
1:00 PM	69	96	64	52
2:00 PM	69	90	65	52
3:00 PM	68	87	65	55
4:00 PM	68	82	65	54
5:00 PM	68	84	65	56
6:00 PM	67	82	65	58
7:00 PM	66	82	64	58
8:00 PM	67	86	64	59
9:00 PM	66	87	63	57
10:00 PM	65	77	62	56
11:00 PM	64	79	60	54

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	70	66	68	69	60	64
Lmax (Maximum)	96	81	85	86	75	80
L50 (Median)	68	63	65	66	48	57
L90 (Background)	60	50	55	59	36	48

Computed DNL, dB	72
% Daytime Energy	78%
% Nighttime Energy	22%

GPS Coordinates	38°46'2.70"N
	121°21'32.12"W

Appendix C-10
Long-Term Ambient Noise Monitoring Results - Site LT-3
West Roseville Marketplace - Roseville, California
Saturday, February 26, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	63	82	58	51
1:00 AM	62	87	53	43
2:00 AM	62	83	53	42
3:00 AM	61	78	52	41
4:00 AM	61	79	53	41
5:00 AM	62	79	57	48
6:00 AM	65	78	60	54
7:00 AM	67	87	62	52
8:00 AM	67	83	63	52
9:00 AM	68	89	63	52
10:00 AM	67	84	63	53
11:00 AM	66	86	63	50
12:00 PM	66	81	63	51
1:00 PM	66	80	63	52
2:00 PM	66	83	63	52
3:00 PM	67	89	64	53
4:00 PM	67	88	64	53
5:00 PM	66	81	64	55
6:00 PM	66	82	62	55
7:00 PM	65	84	62	54
8:00 PM	65	83	61	53
9:00 PM	65	82	61	54
10:00 PM	64	78	61	54
11:00 PM	63	79	59	51

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	68	65	66	65	61	63
Lmax (Maximum)	89	80	84	87	78	80
L50 (Median)	64	61	63	61	52	56
L90 (Background)	55	50	53	54	41	47

Computed DNL, dB	70
% Daytime Energy	79%
% Nighttime Energy	21%

GPS Coordinates	38°46'2.70"N
	121°21'32.12"W

Appendix C-11
Long-Term Ambient Noise Monitoring Results - Site LT-3
West Roseville Marketplace - Roseville, California
Sunday, February 27, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	64	94	56	47
1:00 AM	64	89	55	42
2:00 AM	62	89	48	35
3:00 AM	60	76	49	35
4:00 AM	60	79	51	37
5:00 AM	61	81	55	45
6:00 AM	63	78	58	51
7:00 AM	65	87	59	50
8:00 AM	65	82	59	49
9:00 AM	66	81	62	50
10:00 AM	66	82	62	49
11:00 AM	66	86	62	49
12:00 PM	65	83	62	48
1:00 PM	72	99	62	49
2:00 PM	66	80	62	50
3:00 PM	66	87	62	50
4:00 PM	66	82	63	51
5:00 PM	65	81	63	52
6:00 PM	66	84	63	56
7:00 PM	65	78	63	57
8:00 PM	65	79	62	57
9:00 PM	65	79	61	55
10:00 PM	64	80	59	50
11:00 PM	62	83	57	50

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	72	65	66	64	60	62
Lmax (Maximum)	99	78	83	94	76	83
L50 (Median)	63	59	62	59	48	54
L90 (Background)	57	48	51	51	35	44

Computed DNL, dB	70
% Daytime Energy	80%
% Nighttime Energy	20%

GPS Coordinates	38°46'2.70"N
	121°21'32.12"W

Appendix C-12
Long-Term Ambient Noise Monitoring Results - Site LT-3
West Roseville Marketplace - Roseville, California
Monday, February 28, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	62	79	56	46
1:00 AM	59	78	50	40
2:00 AM	59	80	49	37
3:00 AM	62	80	53	42
4:00 AM	64	83	57	50
5:00 AM	66	81	62	56
6:00 AM	69	81	66	60
7:00 AM	70	86	68	61
8:00 AM	70	86	67	58
9:00 AM	69	86	65	55
10:00 AM	68	90	64	53
11:00 AM	69	95	64	53
12:00 PM	67	82	63	52
1:00 PM	70	100	64	52
2:00 PM	68	86	65	52
3:00 PM	69	82	65	53
4:00 PM	68	86	66	55
5:00 PM	68	87	65	57
6:00 PM	67	82	64	57
7:00 PM	66	83	63	58
8:00 PM	65	82	62	57
9:00 PM	66	82	62	56
10:00 PM	63	83	59	53
11:00 PM	63	79	58	50

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	70	65	68	69	59	64
Lmax (Maximum)	100	82	86	83	78	80
L50 (Median)	68	62	64	66	49	57
L90 (Background)	61	52	55	60	37	48

Computed DNL, dB	71
% Daytime Energy	81%
% Nighttime Energy	19%

GPS Coordinates	38°46'2.70"N
	121°21'32.12"W

Appendix C-13
Long-Term Ambient Noise Monitoring Results - Site LT-4
West Roseville Marketplace - Roseville, California
Friday, February 25, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	45	65	42	38
1:00 AM	44	63	40	36
2:00 AM	46	62	42	37
3:00 AM	45	62	42	36
4:00 AM	48	67	45	40
5:00 AM	51	60	50	45
6:00 AM	56	69	55	52
7:00 AM	58	66	57	53
8:00 AM	67	85	60	51
9:00 AM	53	67	51	47
10:00 AM	51	63	50	46
11:00 AM	50	65	49	44
12:00 PM	51	64	50	46
1:00 PM	51	72	49	45
2:00 PM	50	67	49	45
3:00 PM	52	65	51	47
4:00 PM	53	67	52	48
5:00 PM	54	69	54	49
6:00 PM	55	71	54	51
7:00 PM	56	68	55	52
8:00 PM	55	71	55	51
9:00 PM	53	62	52	49
10:00 PM	51	63	51	47
11:00 PM	49	69	48	44

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	67	50	58	56	44	50
Lmax (Maximum)	85	62	68	69	60	64
L50 (Median)	60	49	52	55	40	46
L90 (Background)	53	44	48	52	36	41

Computed DNL, dB	59
% Daytime Energy	90%
% Nighttime Energy	10%

GPS Coordinates	38°46'1.57"N
	121°21'22.43"W

Appendix C-14
Long-Term Ambient Noise Monitoring Results - Site LT-4
West Roseville Marketplace - Roseville, California
Saturday, February 26, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	47	57	46	41
1:00 AM	44	56	42	38
2:00 AM	44	64	40	36
3:00 AM	43	58	40	35
4:00 AM	44	60	42	36
5:00 AM	47	59	44	39
6:00 AM	52	69	51	47
7:00 AM	52	65	51	48
8:00 AM	52	81	50	46
9:00 AM	51	70	50	45
10:00 AM	52	68	51	47
11:00 AM	53	72	52	48
12:00 PM	52	67	51	47
1:00 PM	52	70	50	46
2:00 PM	51	63	50	47
3:00 PM	52	68	51	46
4:00 PM	56	77	53	49
5:00 PM	53	64	52	47
6:00 PM	53	66	53	49
7:00 PM	53	66	52	49
8:00 PM	53	67	52	48
9:00 PM	51	65	50	45
10:00 PM	51	77	48	44
11:00 PM	48	65	47	42

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	56	51	53	52	43	48
Lmax (Maximum)	81	63	69	77	56	63
L50 (Median)	53	50	51	51	40	44
L90 (Background)	49	45	47	47	35	40

Computed DNL, dB	55
% Daytime Energy	84%
% Nighttime Energy	16%

GPS Coordinates	38°46'1.57"N
	121°21'22.43"W

Appendix C-15
Long-Term Ambient Noise Monitoring Results - Site LT-4
West Roseville Marketplace - Roseville, California
Sunday, February 27, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	50	64	47	42
1:00 AM	50	73	45	39
2:00 AM	43	64	39	34
3:00 AM	41	54	39	34
4:00 AM	44	57	41	35
5:00 AM	49	65	47	40
6:00 AM	50	59	49	45
7:00 AM	50	64	49	46
8:00 AM	51	70	49	45
9:00 AM	49	63	48	44
10:00 AM	49	73	47	43
11:00 AM	50	65	49	46
12:00 PM	51	69	49	46
1:00 PM	56	83	50	47
2:00 PM	51	67	50	45
3:00 PM	52	69	50	46
4:00 PM	53	67	52	48
5:00 PM	54	69	53	49
6:00 PM	54	73	53	49
7:00 PM	55	69	54	51
8:00 PM	55	76	53	50
9:00 PM	54	73	52	48
10:00 PM	54	73	50	45
11:00 PM	48	58	47	42

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	56	49	53	54	41	49
Lmax (Maximum)	83	63	70	73	54	63
L50 (Median)	54	47	50	50	39	45
L90 (Background)	51	43	47	45	34	40

Computed DNL, dB	56
% Daytime Energy	80%
% Nighttime Energy	20%

GPS Coordinates	38°46'1.57"N
	121°21'22.43"W

Appendix C-16
Long-Term Ambient Noise Monitoring Results - Site LT-4
West Roseville Marketplace - Roseville, California
Monday, February 28, 2022

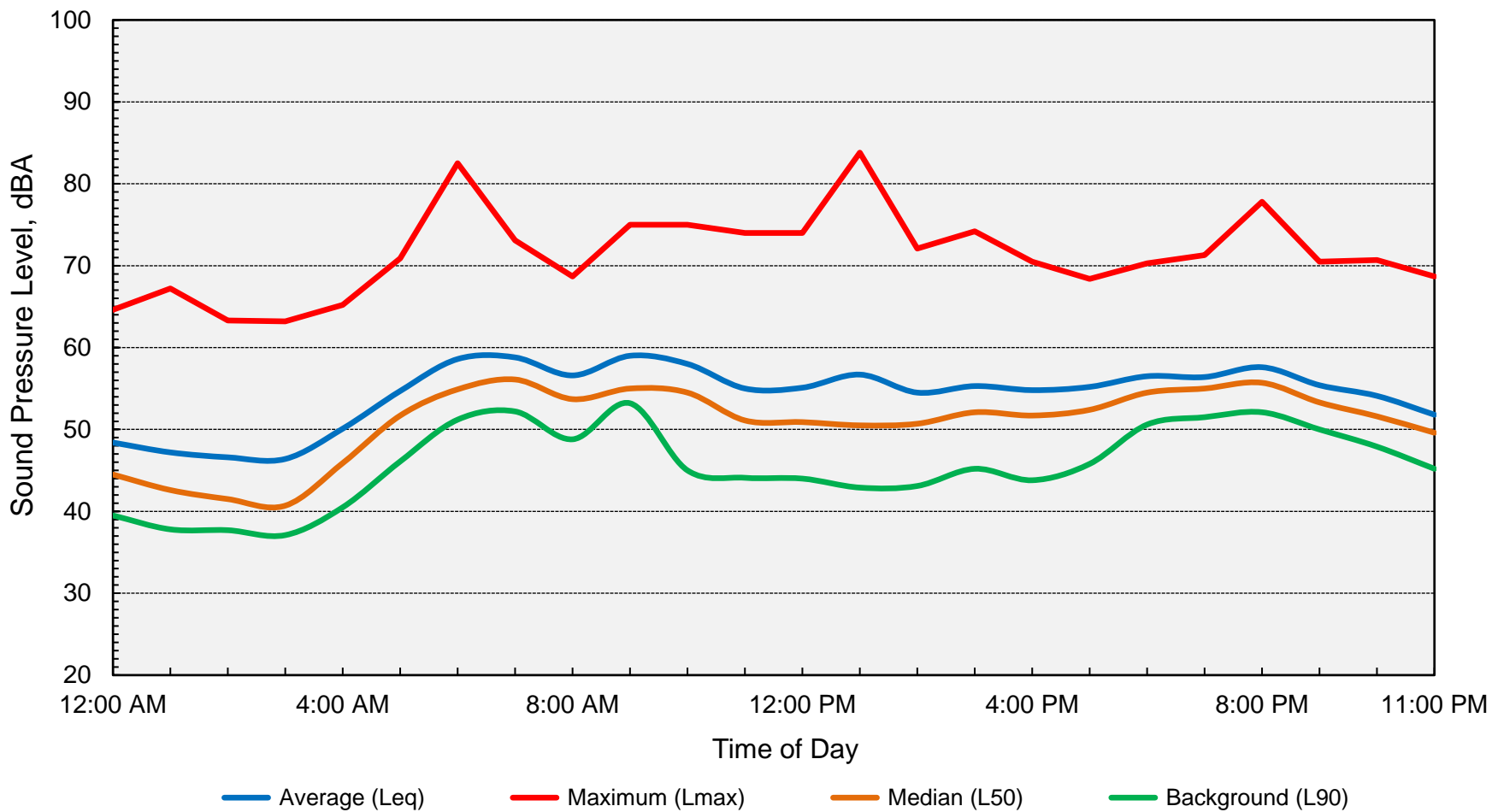
Hour	Leq	Lmax	L50	L90
12:00 AM	47	61	45	38
1:00 AM	44	55	41	37
2:00 AM	43	58	40	35
3:00 AM	48	66	45	37
4:00 AM	51	71	49	43
5:00 AM	52	59	52	49
6:00 AM	55	64	54	51
7:00 AM	57	64	56	53
8:00 AM	53	61	53	49
9:00 AM	53	72	51	46
10:00 AM	53	76	50	46
11:00 AM	52	75	50	45
12:00 PM	52	69	50	46
1:00 PM	51	66	50	46
2:00 PM	54	75	51	47
3:00 PM	53	67	52	49
4:00 PM	55	71	54	50
5:00 PM	60	87	54	50
6:00 PM	55	67	55	51
7:00 PM	56	70	56	53
8:00 PM	55	68	54	51
9:00 PM	53	70	52	48
10:00 PM	50	57	49	45
11:00 PM	48	64	47	42

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	60	51	55	55	43	50
Lmax (Maximum)	87	61	71	71	55	62
L50 (Median)	56	50	52	54	40	47
L90 (Background)	53	45	49	51	35	42

Computed DNL, dB	58
% Daytime Energy	83%
% Nighttime Energy	17%

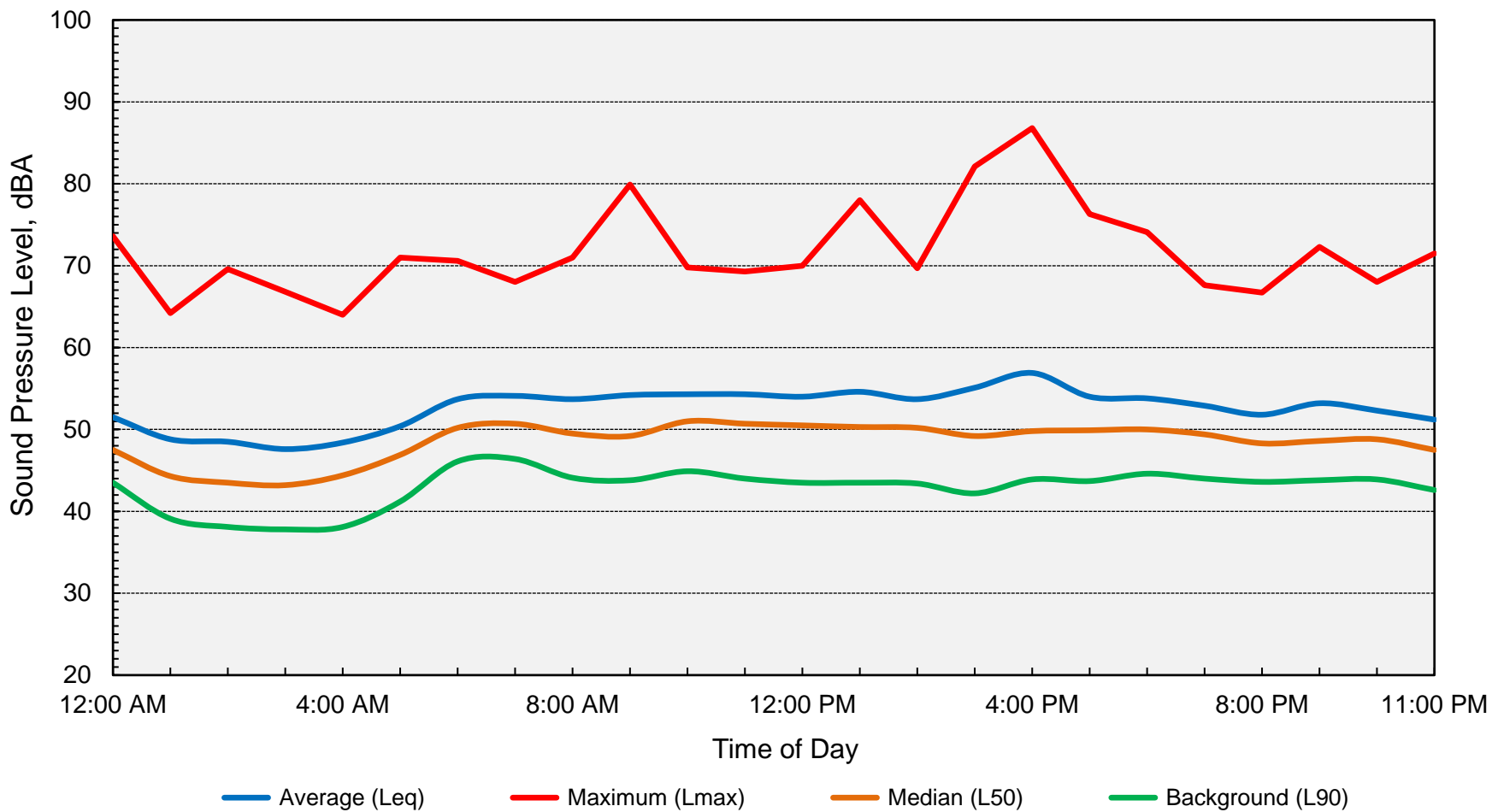
GPS Coordinates	38°46'1.57"N
	121°21'22.43"W

Appendix D-1
Long-Term Ambient Noise Monitoring Results - Site LT-1
West Roseville Marketplace - Roseville, California
Friday, February 25, 2022



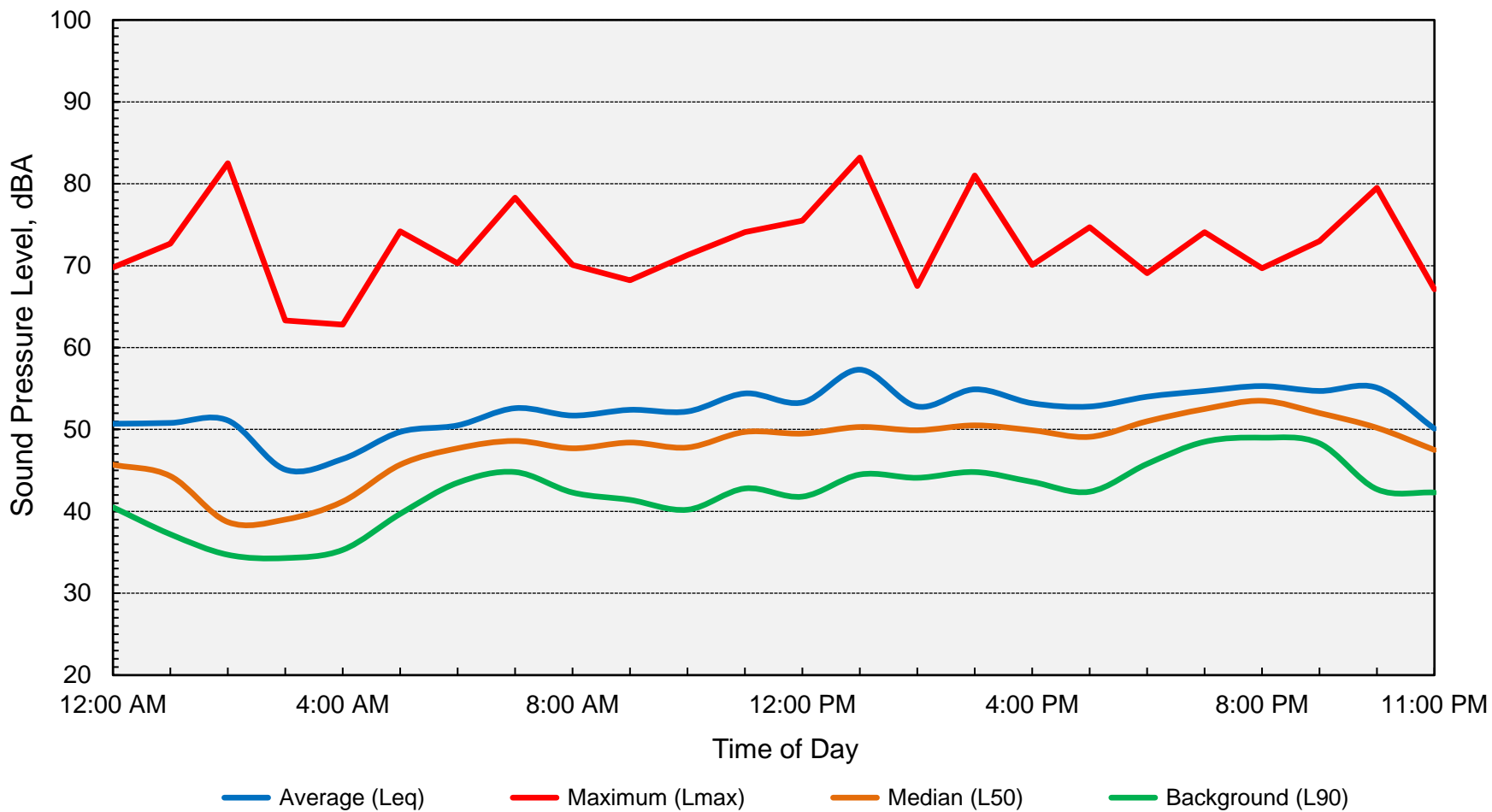
Computed DNL = 60 dB

Appendix D-2
Long-Term Ambient Noise Monitoring Results - Site LT-1
West Roseville Marketplace - Roseville, California
Saturday, February 26, 2022



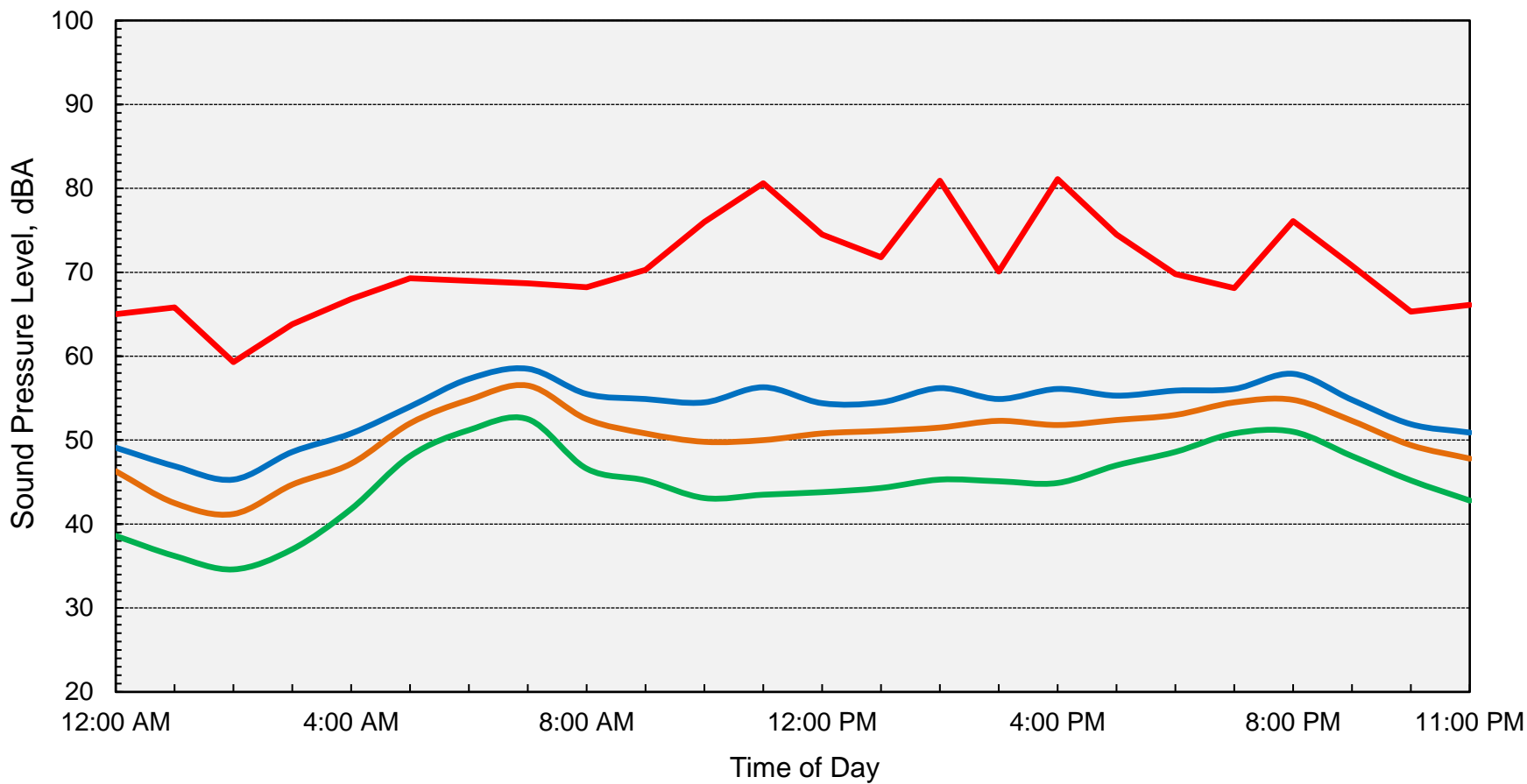
Computed DNL = 58 dB

Appendix D-3
Long-Term Ambient Noise Monitoring Results - Site LT-1
West Roseville Marketplace - Roseville, California
Sunday, February 27, 2022



Computed DNL = 58 dB

Appendix D-4
Long-Term Ambient Noise Monitoring Results - Site LT-1
West Roseville Marketplace - Roseville, California
Monday, February 28, 2022

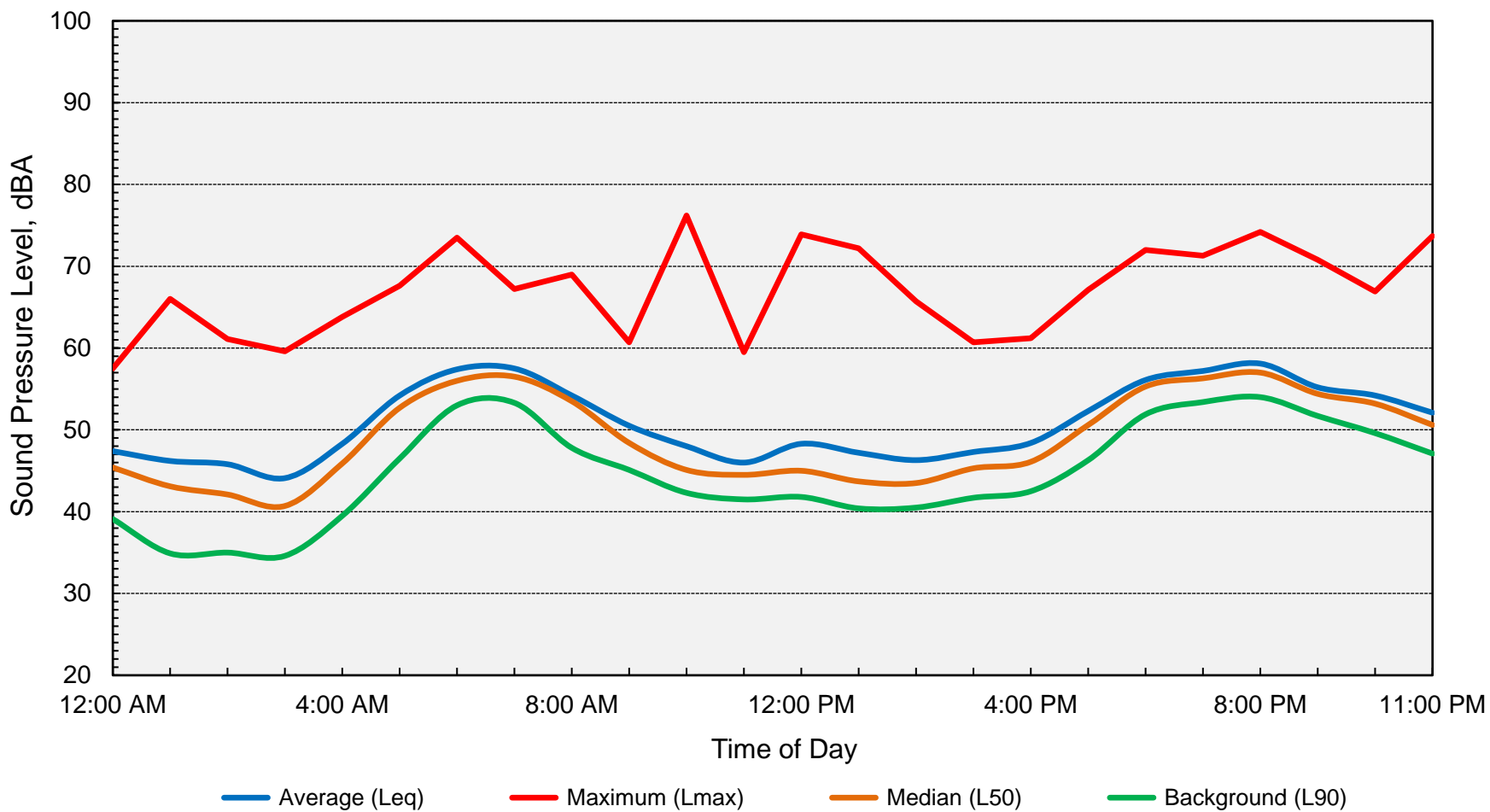


— Average (Leq) — Maximum (Lmax) — Median (L50) — Background (L90)

Computed DNL = 59 dB

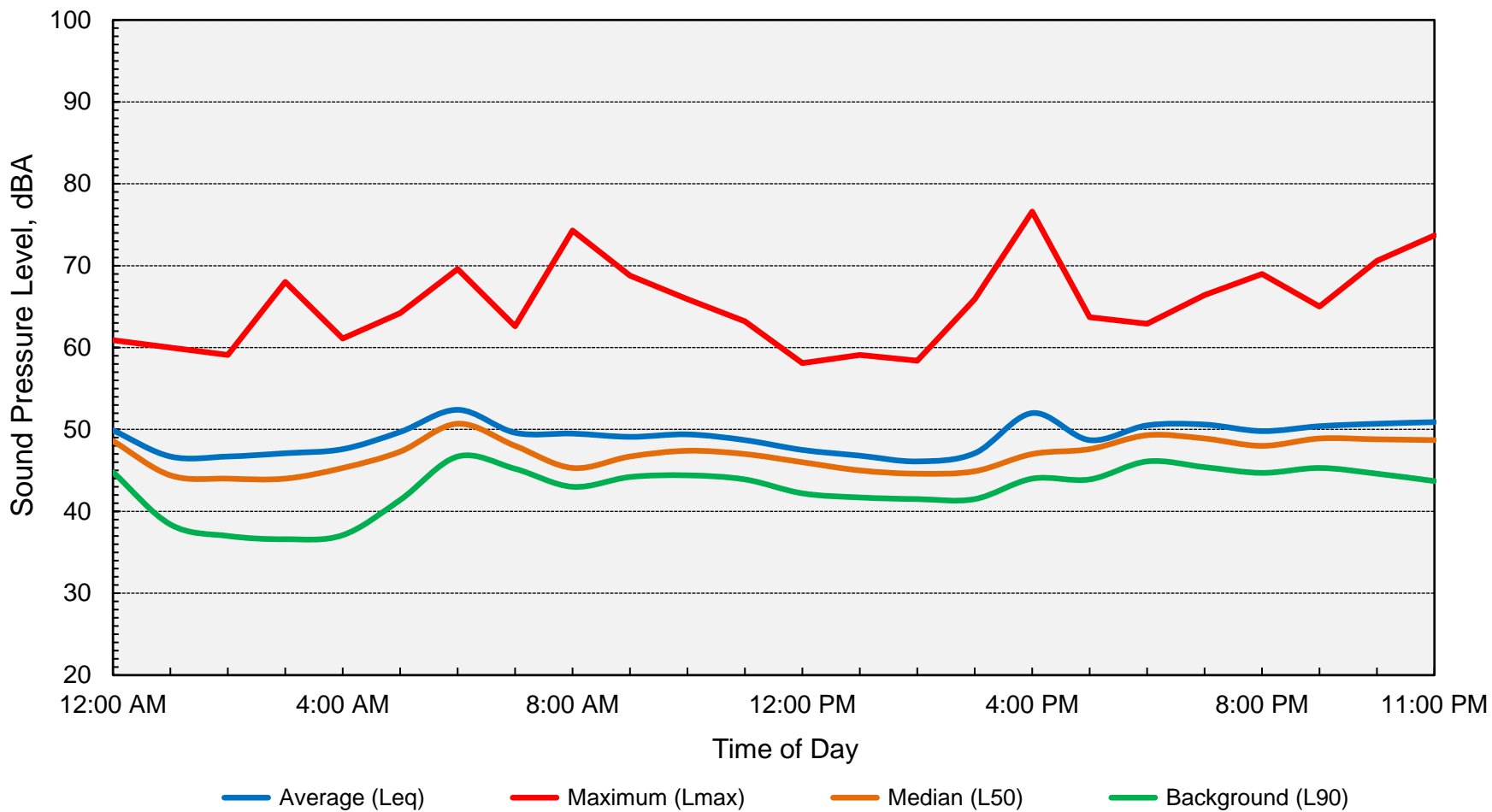


Appendix D-5
Long-Term Ambient Noise Monitoring Results - Site LT-2
West Roseville Marketplace - Roseville, California
Friday, February 25, 2022



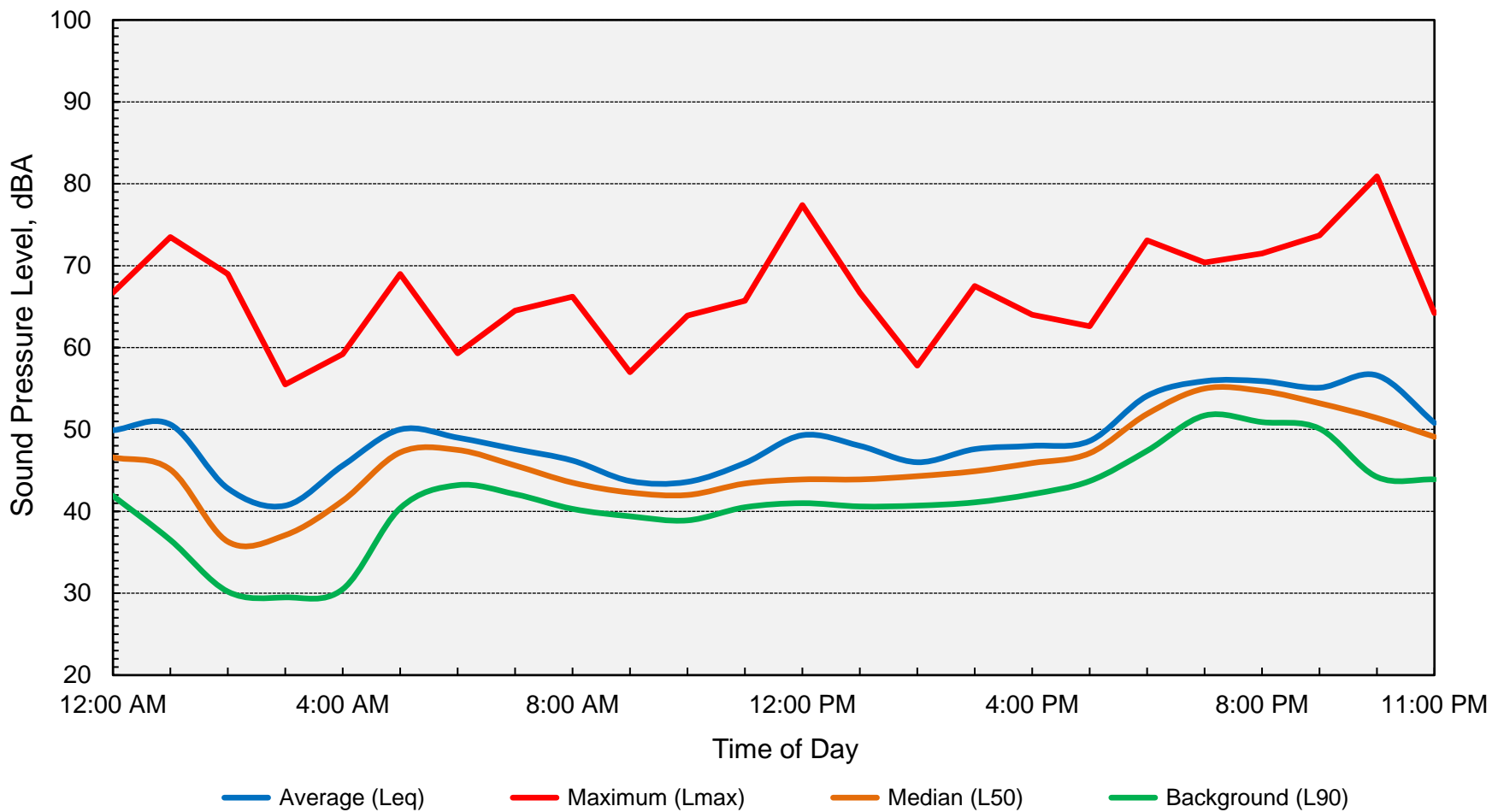
Computed DNL = 59 dB

Appendix D-6
Long-Term Ambient Noise Monitoring Results - Site LT-2
West Roseville Marketplace - Roseville, California
Saturday, February 26, 2022



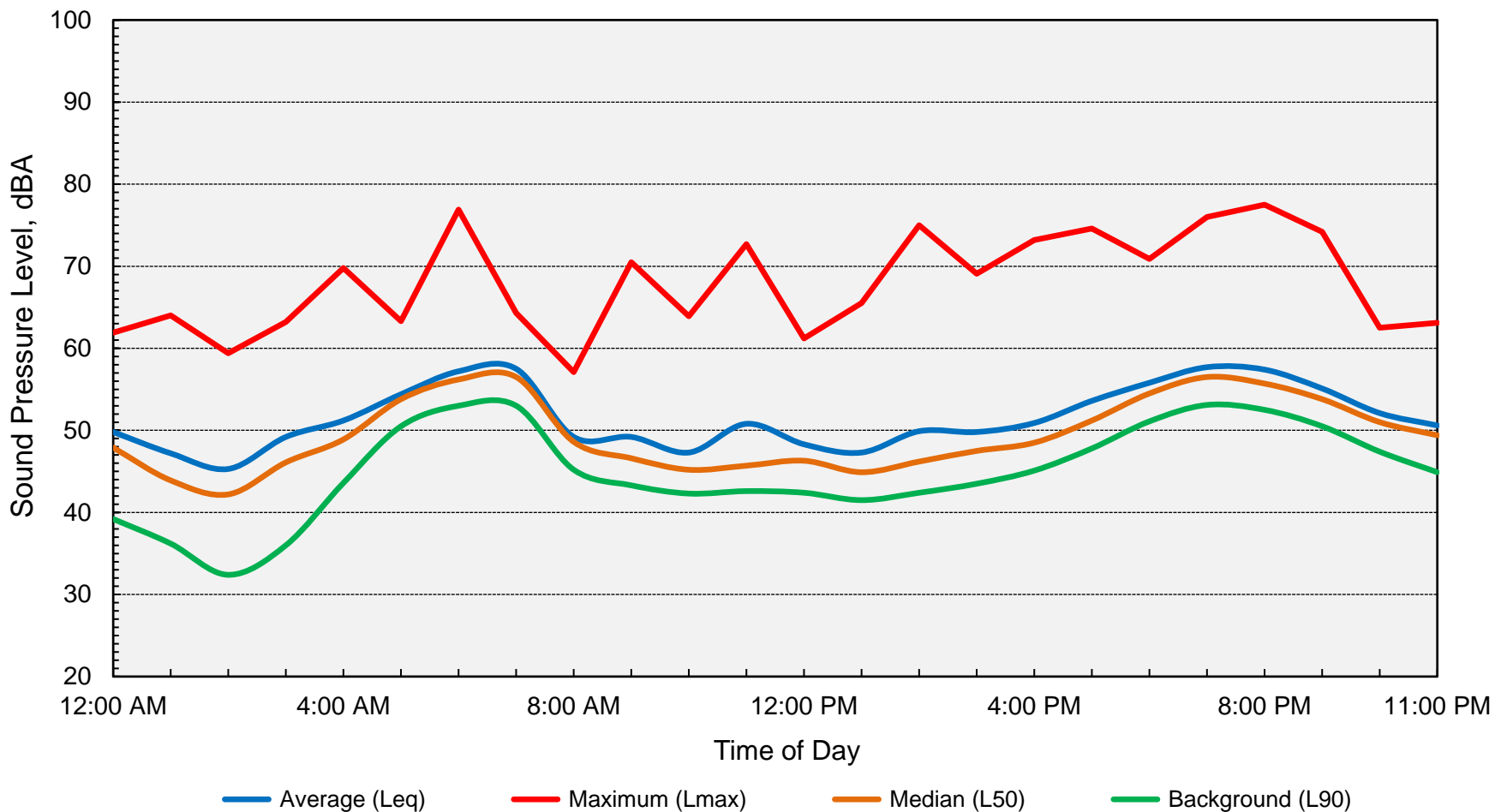
Computed DNL = 56 dB

Appendix D-7
Long-Term Ambient Noise Monitoring Results - Site LT-2
West Roseville Marketplace - Roseville, California
Sunday, February 27, 2022



Computed DNL = 57 dB

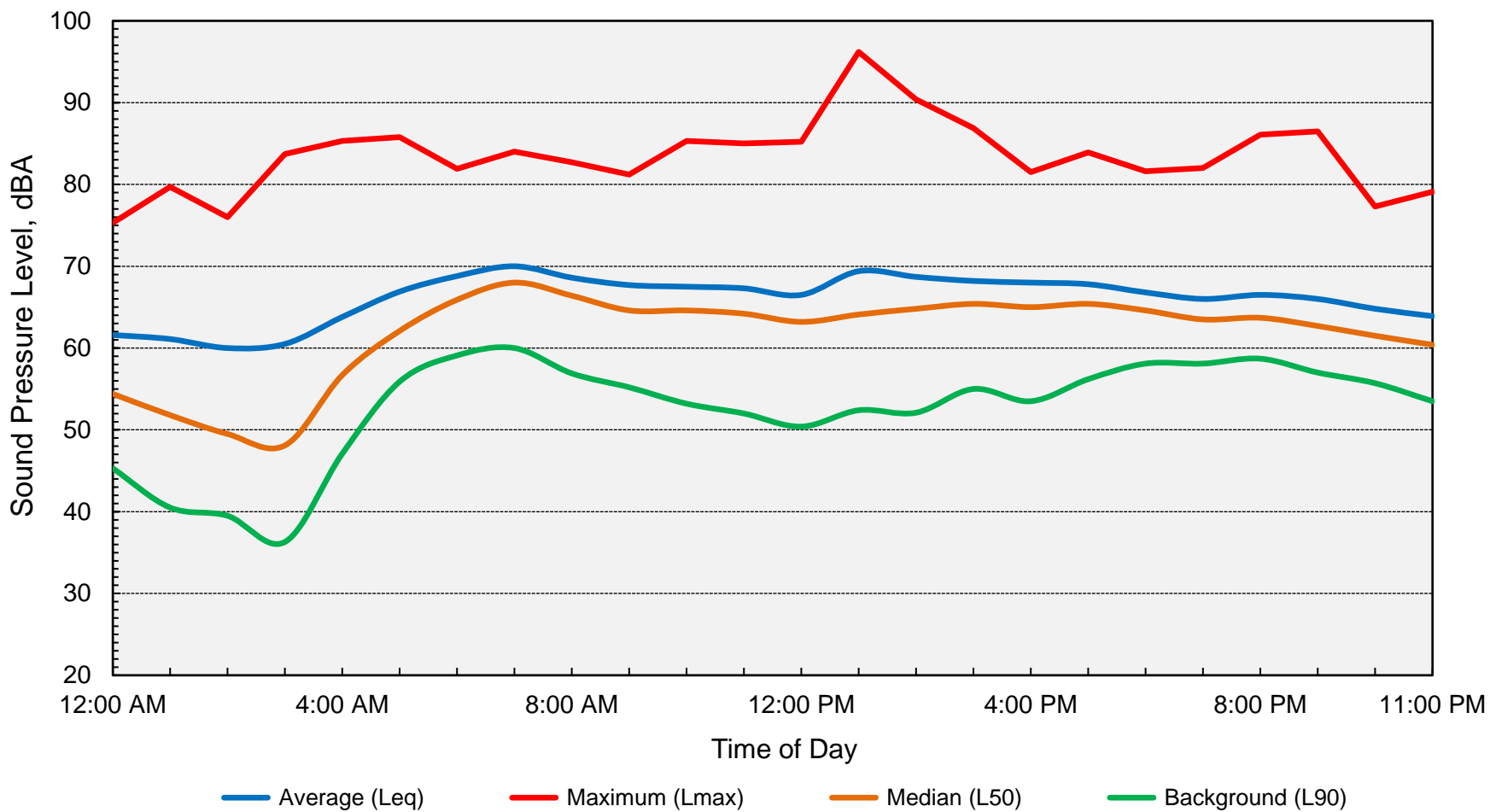
Appendix D-8
Long-Term Ambient Noise Monitoring Results - Site LT-2
West Roseville Marketplace - Roseville, California
Monday, February 28, 2022



Computed DNL = 59 dB

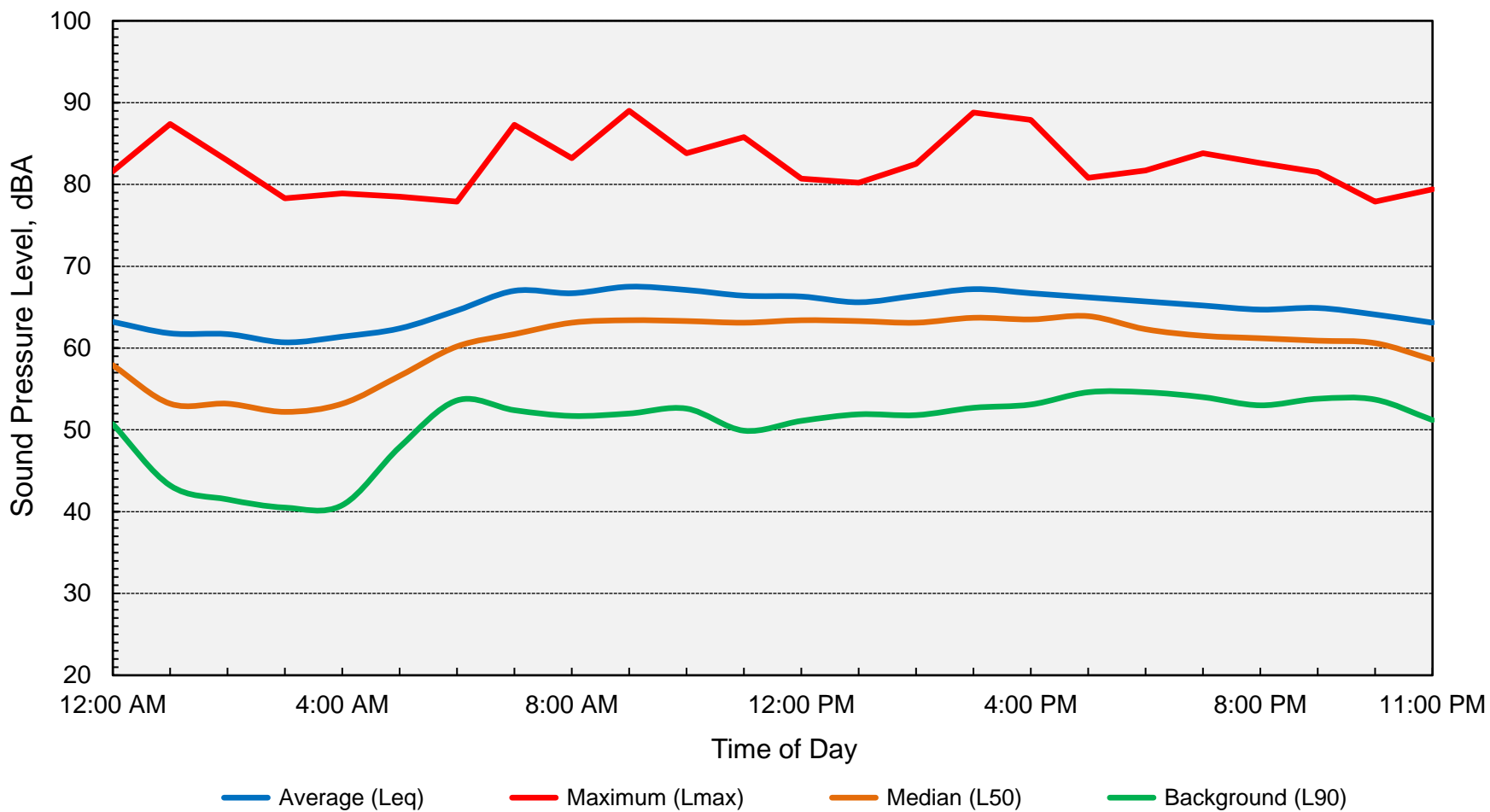


Appendix D-9
Long-Term Ambient Noise Monitoring Results - Site LT-3
West Roseville Marketplace - Roseville, California
Friday, February 25, 2022



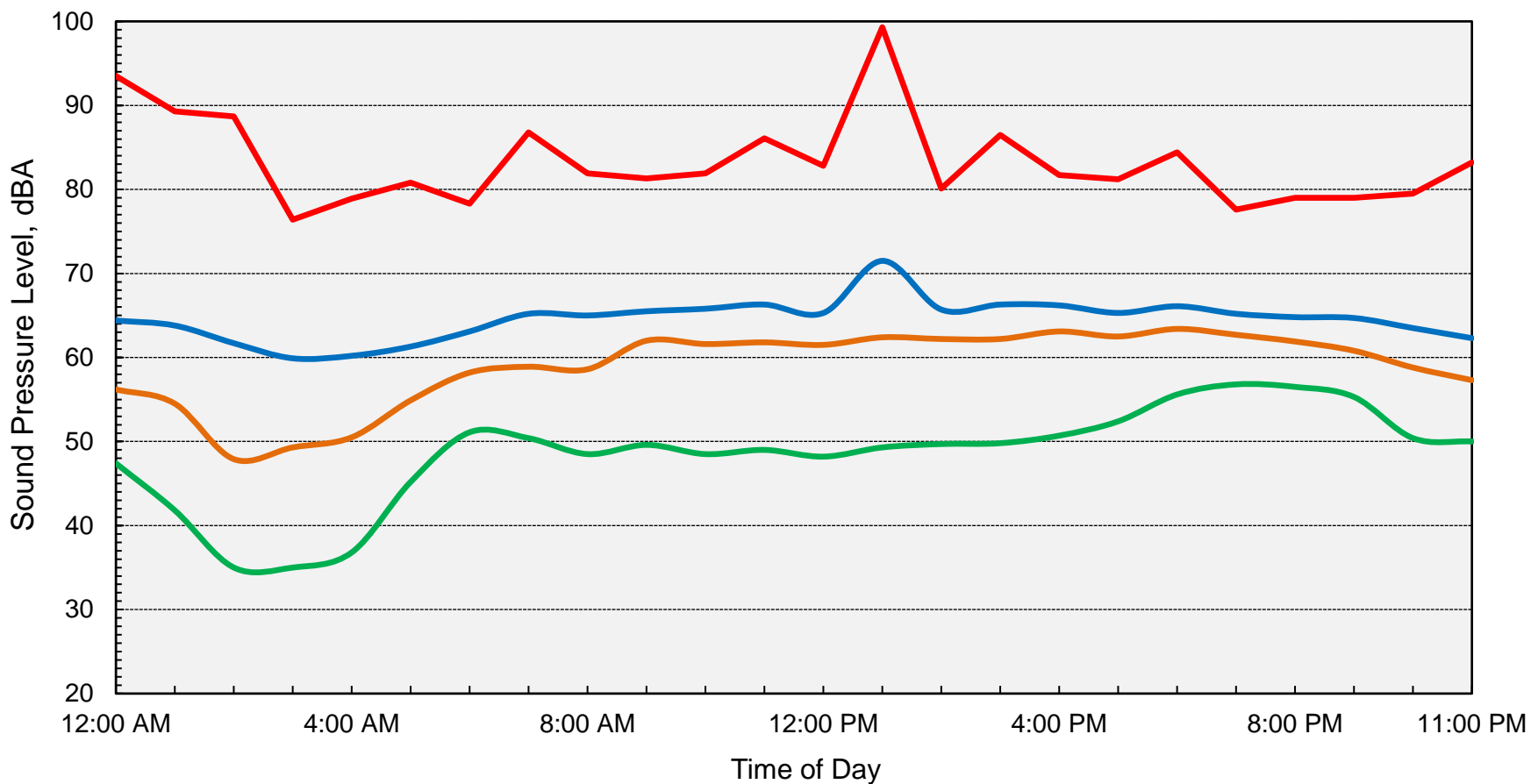
Computed DNL = 72 dB

Appendix D-10
Long-Term Ambient Noise Monitoring Results - Site LT-3
West Roseville Marketplace - Roseville, California
Saturday, February 26, 2022



Computed DNL = 70 dB

Appendix D-11
Long-Term Ambient Noise Monitoring Results - Site LT-3
West Roseville Marketplace - Roseville, California
Sunday, February 27, 2022

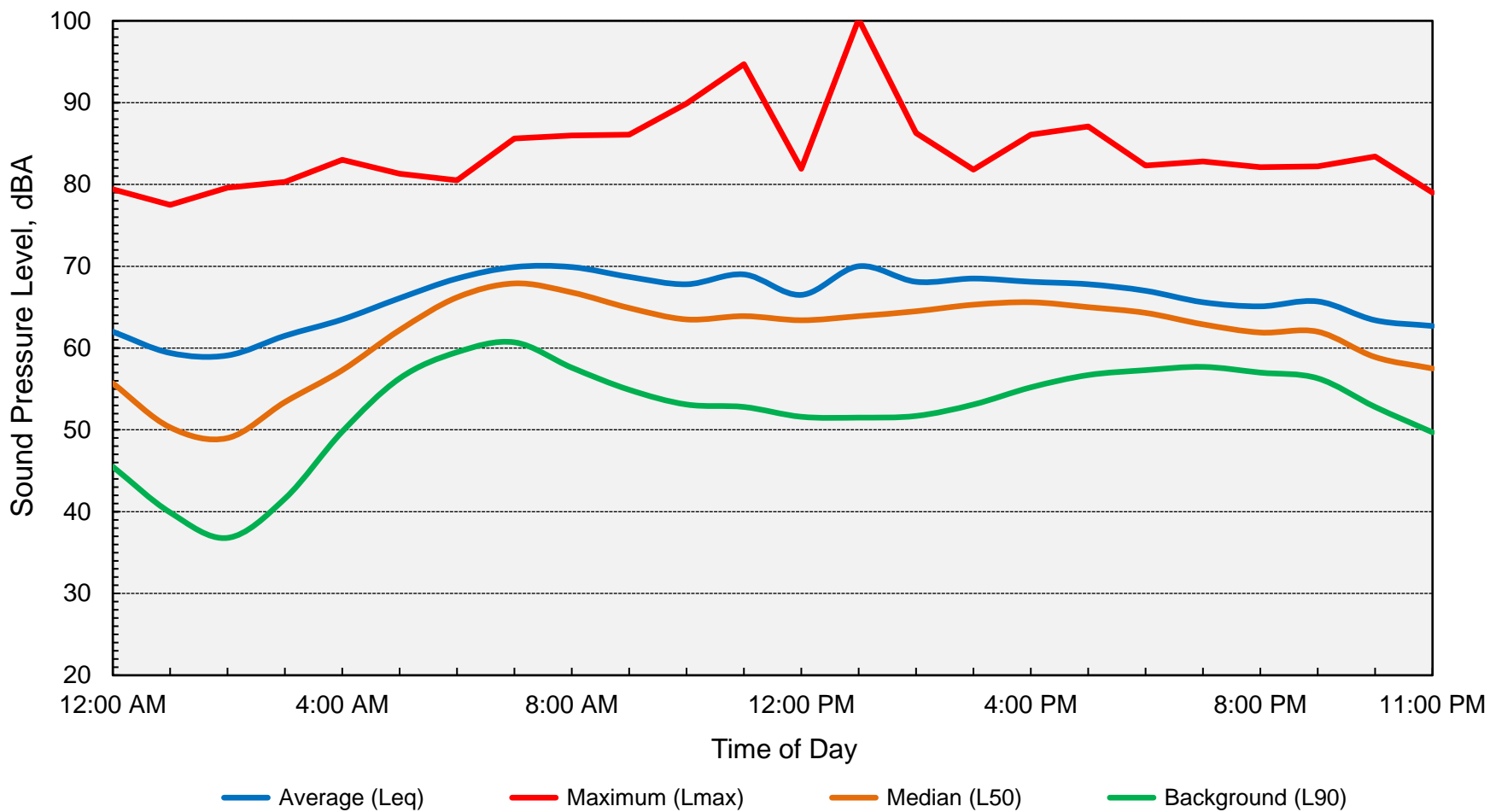


Average (Leq) Maximum (Lmax) Median (L50) Background (L90)

Computed DNL = 70 dB

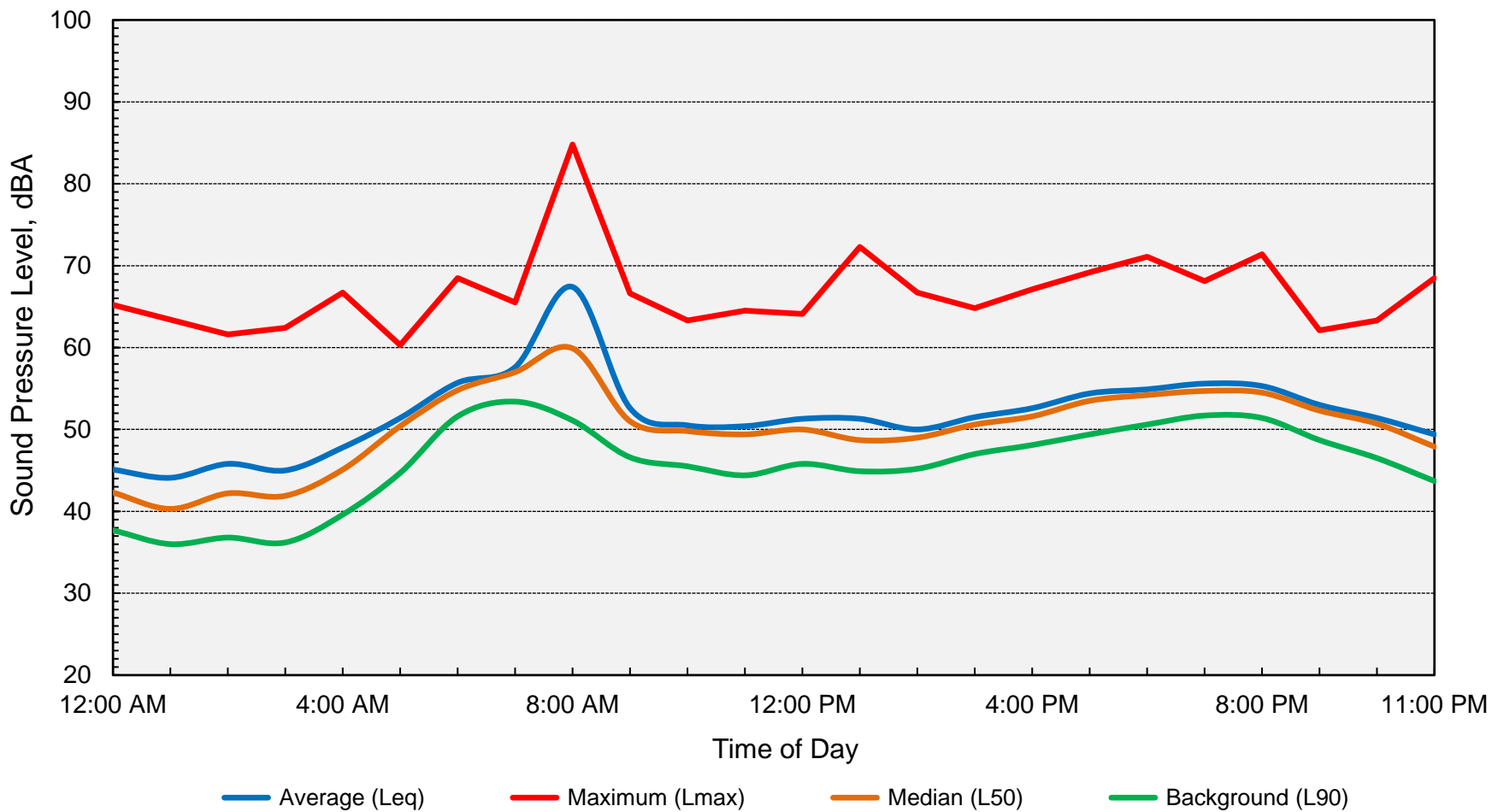


Appendix D-12
Long-Term Ambient Noise Monitoring Results - Site LT-3
West Roseville Marketplace - Roseville, California
Monday, February 28, 2022



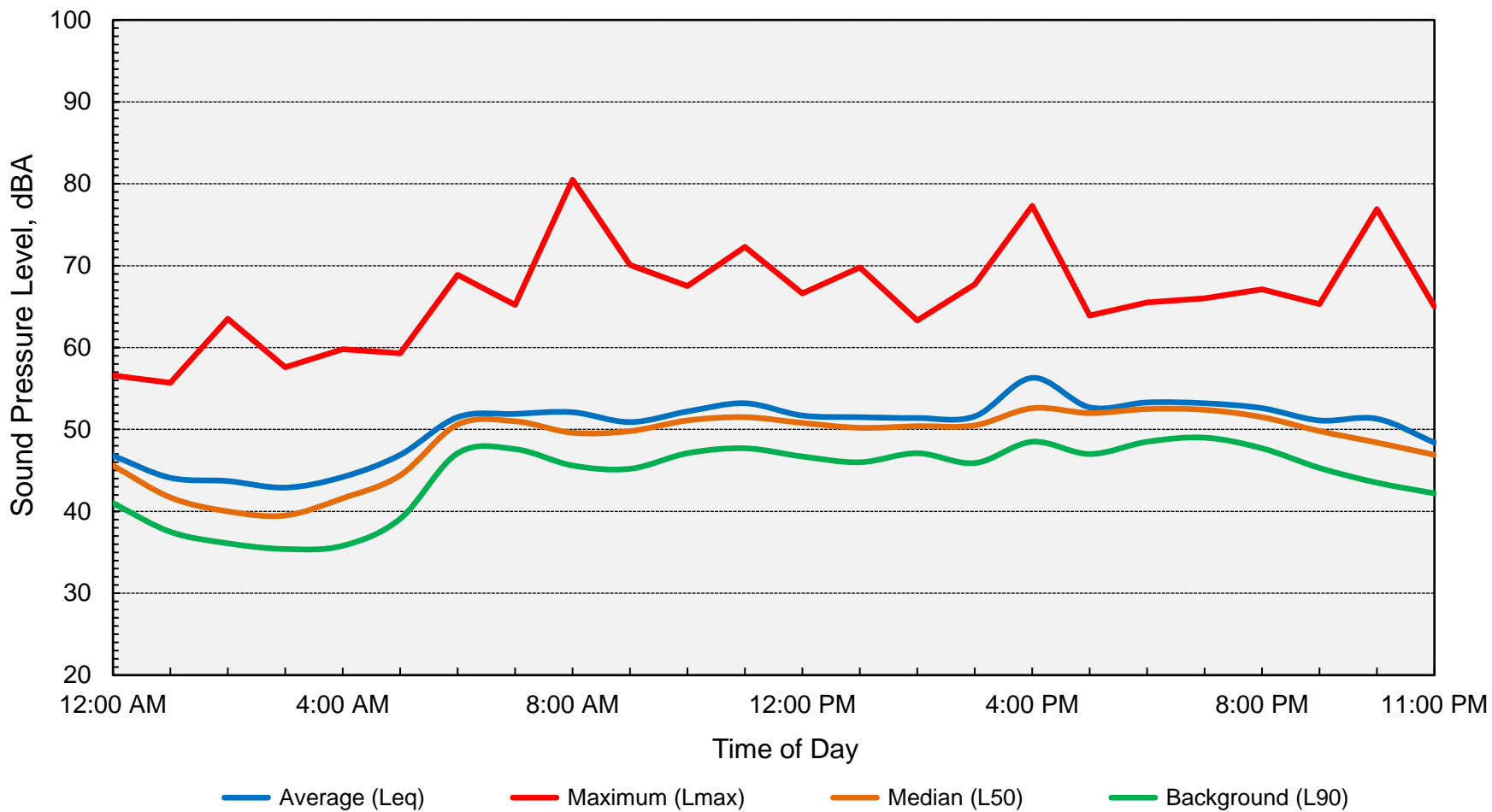
Computed DNL = 71 dB

Appendix D-13
Long-Term Ambient Noise Monitoring Results - Site LT-4
West Roseville Marketplace - Roseville, California
Friday, February 25, 2022



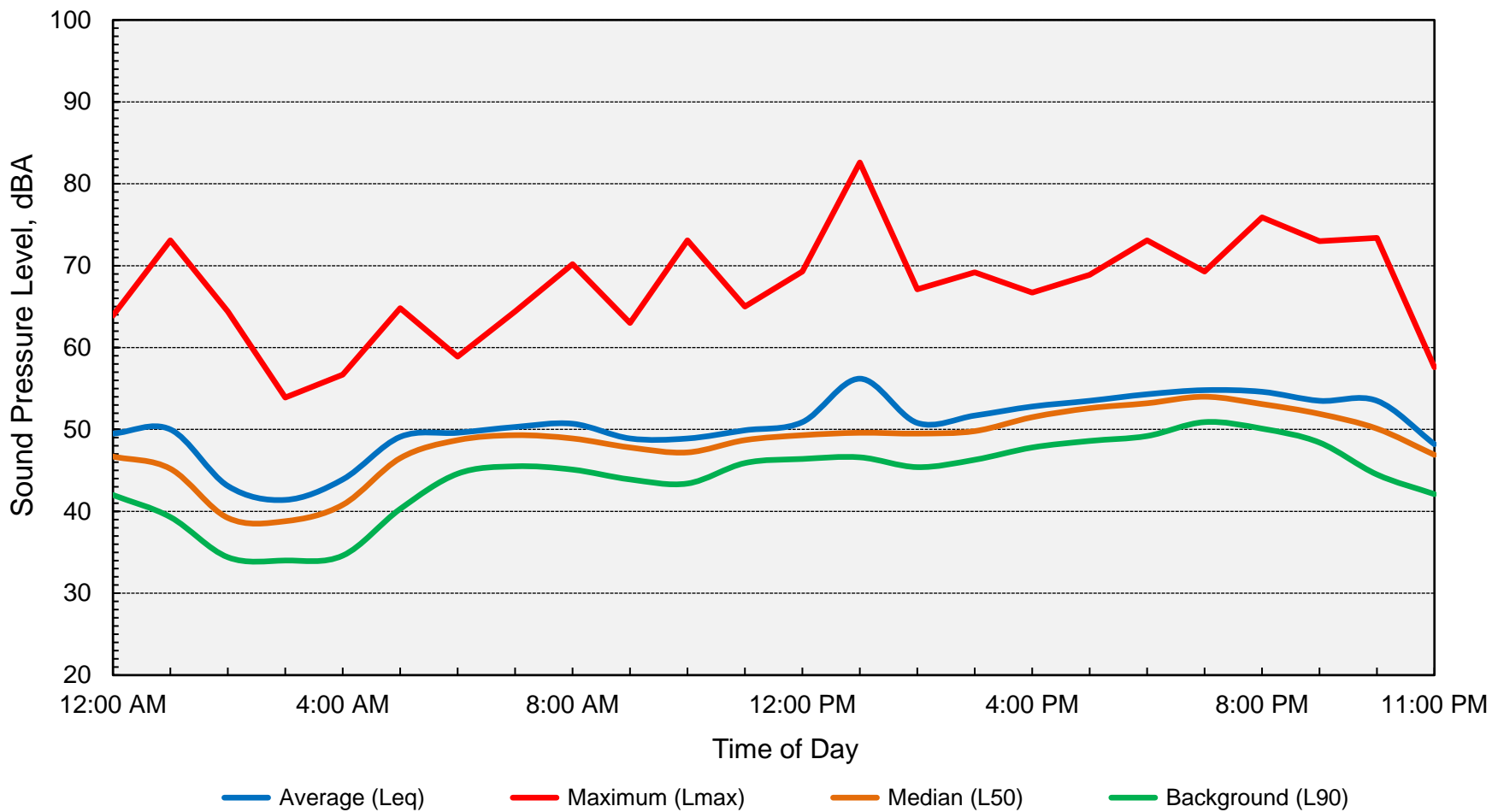
Computed DNL = 59 dB

Appendix D-14
Long-Term Ambient Noise Monitoring Results - Site LT-4
West Roseville Marketplace - Roseville, California
Saturday, February 26, 2022



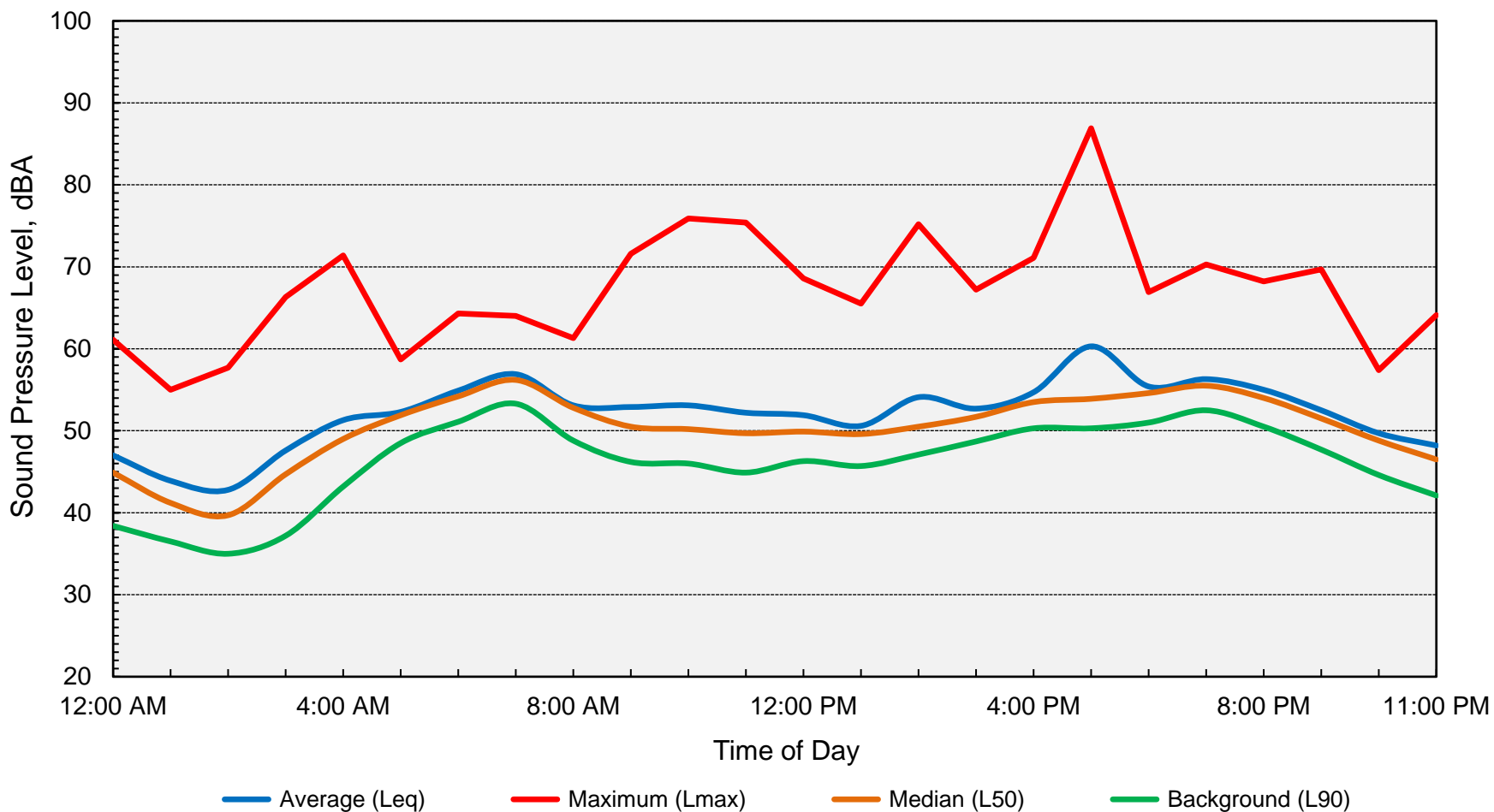
Computed DNL = 55 dB

Appendix D-15
Long-Term Ambient Noise Monitoring Results - Site LT-4
West Roseville Marketplace - Roseville, California
Sunday, February 27, 2022



Computed DNL = 56 dB

Appendix D-16
Long-Term Ambient Noise Monitoring Results - Site LT-4
West Roseville Marketplace - Roseville, California
Monday, February 28, 2022



Computed DNL = 58 dB



FINAL TECHNICAL MEMORANDUM

Date: April 11, 2022
 To: Jack Varozza, City of Roseville
 From: John Gard & Madeline Harriott, Fehr & Peers
 Subject: ***Evaluation of Access and On-Site Circulation for West Roseville Marketplace***

RS22-4156

This memorandum presents the analysis and conclusions of our access and on-site circulation study for the proposed West Roseville Marketplace project to be located in the northeast quadrant of the Pleasant Grove Boulevard/Fiddymont Road intersection in Roseville, CA. The proposed project would consist of the following land uses:

- General commercial including grocery store – 68,772 square feet
- Sit down restaurant – 6,100 square feet
- Gas station – 16 vehicle fueling positions
- Coffee shop with drive-through window – 1,000 square feet

The analysis focuses on the following two time periods:

- Weekday PM Peak Hour: peak 60-minute period between 4 and 6 PM. Normally, this is the busiest hour of travel on City roadways.
- Sunday AM Peak Hour: The project would share a driveway with the Pleasant Grove Community Church located directly to the east. This time period reflects conditions during a Sunday service at the church.

Project Site Plan

The project location is shown on **Figure 1** and the project site plan (*West Roseville Marketplace*, Nadel, February 2022) is shown on **Figure 2**. Access to the project site would be provided via four total driveways along Pleasant Grove Boulevard and Fiddymont Road. The following turning movements were assumed to be permitted (for analysis purposes) at each driveway (see Figure 2 for driveway locations):

- Driveway 1 – Left In & Right In/Right Out
- Driveway 2 – Right In/Right Out
- Driveway 3 – Right In/Right Out
- Driveway 4 – Full Access

Note that the project also includes a golf cart connection in its northeast corner to enable travel via this mode between the project site and the Sun City Roseville community located to the northeast.

Existing Conditions

Traffic counts were collected at the Pleasant Grove Boulevard/Driveway 4 intersection on the dates below. This driveway currently provides vehicular access to the Pleasant Grove Community Church. On Sundays, the church offers in-person religious services that begin at 10 AM.¹

- Sunday, February 4, 2022 from 9:30 to noon. The peak hour occurred from 10:30 – 11:30 AM.
- Wednesday, February 9, 2022 from 4 to 6 PM. The peak hour occurred from 4:45 – 5:45 PM.

Weather was dry and no unusual traffic conditions were observed on each count day. During the Sunday count, church services concluded shortly after 11 AM, which led to a surge in outbound traffic that lasted for about 15 minutes. The driveway's peak hour factor (PHF) was 0.33², which is indicative of a highly-peaked event.

Figure 3 shows the existing peak hour traffic volumes, lane configurations, and traffic control at this intersection. As shown, it is a four-way side-street stop-controlled intersection, which permits all movements. The south leg provides access to a drug store and small residential area.

Driveway 4 was recently modified (not by the City, but apparently by the church) to prohibit outbound left-turn movements onto Pleasant Grove Boulevard. This was accomplished by pavement markings and signage (see photo on following page). City staff directed that project impacts on existing traffic conditions should be evaluated for a condition that assumes the permitted operation at this driveway, which is to allow outbound left- and right-turns.

Weekday PM peak hour traffic volumes collected on February 9, 2022 were compared against volumes collected in February 2020 (i.e., prior to the COVID-19 pandemic). It was found that the new counts were greater than the 2020 counts. The increased traffic is attributable to substantial growth in residential on the west side of the City of Roseville.

As part of the traffic counts, maximum vehicle queues were observed at this intersection. Maximum observed queues and available storage are shown in **Table 1**. As shown, Driveway 4 experienced a maximum queue of 9 vehicles soon after church services concluded. The westbound left/u-turn lane experienced a maximum queue of 7 vehicles, which nearly filled up its 200 feet of storage. Much of this traffic was associated with church members who were performing u-turns (after turning right from a more easterly driveway) to head east on Pleasant Grove Boulevard.

¹ [Pleasant Grove Community Church - Home \(pgcc.church\)](https://www.pgcc.church)

² The PHF measures the degree of peaking within the peak hour. A PHF of 1.0 represents uniform flow across all four 15-minute periods, while a PHF of 0.25 indicates all travel occurred during a single 15-minute window. The PHF is an input into the traffic operations model described later.



Photo of Driveway 4 exit onto Pleasant Grove Boulevard. Note signage prohibiting outbound left-turns.

TABLE 1: MAXIMUM VEHICLE QUEUES AT PLEASANT GROVE BOULEVARD/DRIVEWAY 4 INTERSECTION					
Movement	Available Storage ¹	Sunday AM Peak Hour ²		Weekday PM Peak Hour ²	
		Traffic Volume	Maximum Vehicle Queue ³	Traffic Volume	Maximum Vehicle Queue ³
Eastbound Left/U-Turn	150 feet	Left: 2 U-Turn: 16	25 feet	Left: 3 U-Turn: 15	50 feet
Westbound Left/U-Turn	200 feet	Left: 28 U-Turn: 30 ^{4,5}	175 feet	Left: 36 U-Turn: 8	100 feet
Southbound Right	125 feet	59 ⁵	225 feet	4	25 feet

Notes:

¹ Based on review of aerial imagery.

² Based on traffic counts collected on Sunday, February 4, 2022 and Wednesday, February 9, 2022.

³ 25 feet assumed per queued vehicle.

⁴ The heavy amount of u-turning traffic is primarily church-related. Motorists exited the easterly church driveway after services conclude and perform this u-turn (due to outbound left-turns being prohibited at Driveway 4).

⁵ These traffic volumes are highly peaked with nearly all trips occurring between 11:05 and 11:20 AM.

Source: Fehr & Peers, 2022.



Photo of queued vehicles exiting Driveway 4 after church services conclude.

Project Travel Characteristics

Trip Generation

Trip generation estimates for the proposed uses were calculated using trip rates published in the *Trip Generation Manual, 11th Edition* (Institute of Transportation Engineers, 2021). **Tables 2** and **3** present the project trip generation for weekday PM peak hour and Sunday AM peak hour conditions, respectively. The 11th Edition contains a new land use category (821) called "Shopping Plaza" that is applicable for retail uses between 40,000 and 150,000 square feet. Notably, it includes a subcategory whereby the user specifies if a supermarket is present. Refer to **Appendix A** for screenshot from the ITE Trip Gen webapp. The trip generation estimate in Table 2 follows this recommended approach.

Some trips to the gasoline station will be made by grocery store customers already present on-site. In 2005, Fehr & Peers measured this internal trip-making at a Safeway Grocery Store / Fueling Center in Chico. That observation found almost 40% of gas station trips were made by Safeway customers. However, given the age of that count and its single data point, a reasonably conservative estimate of 25 percent of gas station trips being internal has been assumed in this study.

TABLE 2 PROPOSED PROJECT TRIP GENERATION – WEEKDAY PM PEAK HOUR								
Land Use	ITE Land Use Code	Quantity	Trip Rates ¹			Vehicle Trips		
			In	Out	Total	In	Out	Total
General Retail	821	68.8 ksf	4.3	4.7	9.0	298	323	621
Gas Station	944	16 vfp	7.0	7.0	14.0	112	112	224
High-Turnover (Sit Down) Restaurant	932	6.1 ksf	5.6	3.4	9.0	34	21	55
Coffee/Donut Shop with Drive through Window	937	1 ksf	20.0	20.0	40.0	20	20	40
Gross Trips						464	476	940
Internal Trips ²						-28	-28	-56
Pass-By Trips ³						-222	-222	-444
New Vehicle Trips						214	226	440
Notes:								
¹ Trip rates from the <i>Trip Generation Manual, 11th Edition</i> (Institute of Transportation Engineers, 2021).								
² Assumes 25% of gas station trips are made by grocery store customers.								
³ The following pass-by percentages were applied based on data in the <i>Trip Generation Manual, 11th Edition</i> (Institute of Transportation Engineers, 2021):								
- General Retail: 40%								
- Gas Station: 70%								
- Sit-Down Restaurant: 40%								
- Coffee/Donut Shop with Drive through Window: 57%								
ksf = thousand square feet. vfp = vehicle fueling positions.								
Source: Fehr & Peers, 2022.								

These tables also display the percentage of trips that are new versus ‘pass-by’. A pass-by trip is made by a motorist who enters the site to shop or receive services, while en-route to a different primary destination. These trips are already present on the adjacent street. However, they do add trips to the project driveways. It is important that the traffic assignments consider new and pass-by trips separately because they have different origins/destinations and travel patterns.

After accounting for internal trips, the project would generate approximately 880 new and pass-by trips during the weekday PM peak hour. Half of those trips would be pass-by with the other half being new.

TABLE 3 PROPOSED PROJECT TRIP GENERATION – SUNDAY AM PEAK HOUR								
Land Use	ITE Land Use Code	Quantity	Trip Rates ¹			Vehicle Trips		
			In	Out	Total	In	Out	Total
General Retail	821	68.8 ksf	3.3	2.6	5.9	225	182	407
Gas Station	944	16 vfp ²	9.3	9.3	18.6	102	102	204
High-Turnover (Sit Down) Restaurant	932	6.1 ksf	12.9	10.0	22.9	79	61	140
Coffee/Donut Shop with Drive through Window	937	1 ksf	35.2	33.6	68.8	35	34	69
Gross Trips						441	379	820
Internal Trips ³						-25	-25	-50
Pass-By Trips ³						-106	-106	-212
New Vehicle Trips						310	248	558
Notes:								
¹ Trip rates derived from the <i>Trip Generation Manual, 11th Edition</i> (Institute of Transportation Engineers, 2021). Sunday AM peak hour occurs from 10:30 – 11:30 AM. Note that trip generation rates are not provided for all categories for this time period. In some instances, “Sunday peak hour of generator” is provided, which was used. In other instances, no Sunday data was provided, and thus it was necessary to apply ratios of the percent of average weekday/Sunday daily traffic during this study period.								
² Assumes 25% of gas station trips are made by grocery store customers.								
³ The following pass-by percentages were applied based on conditions specific to weekends (i.e., no commute travel and less adjacent street traffic to draw pass-by from):								
<ul style="list-style-type: none"> - General Retail: 15% - Gas Station: 40% - Sit-Down Restaurant: 25% - Coffee/Donut Shop with Drive through Window: 33% 								
ksf = thousand square feet. vfp = vehicle fueling positions.								
Source: Fehr & Peers, 2022.								

During the Sunday AM peak hour, the project would generate approximately 770 new and pass-by trips, which is 13% lower than the project’s weekday PM peak hour trip generation. A greater percentage of Sunday AM peak hour trips would be new trips.

Trip Distribution/Assignment

The distribution of project trips is expected to be proportional to the distribution of residences within a certain distance of the project site. Restaurants and grocery stores are generally lacking in West Roseville (i.e., west of Fiddymment Road), though a retail center (anchored by a Raleys) is currently being constructed at the Blue Oaks Boulevard/Fiddymment Road intersection. The closest established retail centers are along Woodcreek Oaks Boulevard at Blue Oaks Boulevard (including the nearest Safeway) and Pleasant Grove Boulevard. Thus, the proposed retail center would be the closest site to a large number of new residences situated west of Fiddymment Road. Studies by the United States Department of Agriculture (USDA)³ found that retail shoppers typically drive an average of four miles to reach their preferred shopping location. The research also found that not all shoppers choose to visit the closest store to their residence.

To further inform the expected trip distribution, the following two evaluations were conducted:

1. The project was added to the City’s base year (2020) travel demand model and a select zone traffic assignment was performed. An estimated 26% of project trips would be distributed to/from the east along Pleasant Grove Boulevard.
2. Travel behavior during the Sunday traffic count at Pleasant Grove Community Church was reviewed. Among motorists departing the church after services concluded, about 30% headed eastbound on Pleasant Grove Boulevard. A fair percentage of these trips are likely destined for residences (i.e., similar destination as retail).

Table 4 displays the project’s estimated trip distribution under near-term conditions. These percentages consider the above trip distribution aspects.

TABLE 4 PROPOSED PROJECT TRIP DISTRIBUTION	
Trip Distribution	Percentage
Fiddymment Road North of Pleasant Grove Boulevard	20%
Fiddymment Road South of Pleasant Grove Boulevard	30%
Pleasant Grove Boulevard West of Fiddymment Road	25%
Pleasant Grove Boulevard East of Project Site	25%
Total	100%
Notes: Source: Fehr & Peers, 2022.	

³ [5 Things the USDA Learned From Its First National Survey of Food Access – Streetsblog USA](#)

New trips were assigned to project driveways based on the trip distribution percentages in Table 4 and permitted driveway movements. Pass-by trip assignments considered the relative volume of traffic on each public street, and ease of performing pass-by movements. It should be noted that u-turns are permitted on the westbound approach of the Pleasant Grove Boulevard/Fiddymment Road intersection.

Figure 4 displays the Sunday AM peak hour and weekday PM peak hour traffic volumes at the four project driveways under existing plus project conditions. During the PM peak hour, 185 vehicles would turn left or right from Driveway 4 onto Pleasant Grove Boulevard, which is a four-lane arterial with a posted speed limit of 45 miles per hour carrying 2,325 vehicles. This volume would far exceed the applicable traffic volumes to satisfy the Peak Hour Volume warrant for consideration of a traffic signal.

Traffic Operations at Driveway 4/Pleasant Grove Blvd. Driveway

The Pleasant Grove Boulevard/Driveway 4 intersection was analyzed using a SimTraffic micro-simulation model, which employs procedures from the *Highway Capacity Manual, 6th Edition* (Transportation Research Board, 2016). SimTraffic is a more appropriate analysis method than a deterministic model (such as synchro) because it considers the effects of platooned arrivals and provides more accurate estimates of vehicle queuing.

In addition to including the subject intersection, the SimTraffic model also includes the signalized Pleasant Grove Boulevard/Fiddymment Road and Pleasant Grove Boulevard/Sun City Lane intersections, which are situated 650 feet to the west and 3,000 feet to the east, respectively, from the subject intersection⁴. These two intersections create gaps in traffic due to their signal operations, but also result in large platoons of vehicles during which it is not possible to turn out of the project driveway. Per City standards, a 1.0 peak hour factor (PHF, see footnote on page 2 for definition) was utilized to analyze weekday PM peak hour conditions. During the Sunday AM peak hour, Driveway 4 was measured to have a 0.33 PHF, while Pleasant Grove Boulevard had an approximate 0.85 PHF. SimTraffic models must utilize a single PHF. Through iterative testing, it was determined that use of a 0.75 system PHF would best replicate conditions exiting the driveway while also properly modeling through travel on Pleasant Grove Boulevard. Note that it was necessary to reassign some existing church trips to reflect outbound left-turns at Driveway 4 being permitted.

Table 5 shows traffic operations results at the Pleasant Grove Boulevard/Driveway 4 intersection under existing and existing plus project conditions (see **Appendix B** for technical calculations). This table indicates that under existing plus project conditions, Driveway 4 would operate at LOS F and have maximum queues that would far exceed the available storage (see screen capture on following page).

⁴ Measured from the centerline of each intersection.

TABLE 5 PLEASANT GROVE BOULEVARD/DRIVEWAY 4 TRAFFIC OPERATIONS ¹							
Scenario	Time Period	Eastbound Left-Turn		Southbound Left-Turn		Southbound Right-Turn	
		Delay / LOS ²	Maximum Queue	Delay / LOS ²	Maximum Queue	Delay / LOS ²	Maximum Queue
Existing Conditions	Sunday AM Peak Hour	8 / A	25 feet	19 / C	75 feet ³	8 / A	75 feet ³
	Weekday PM Peak Hour	20 / C	25 feet	93 / F	25 feet	13 / B	25 feet
Existing Plus Project Conditions	Sunday AM Peak Hour	8 / A	100 feet	39 / E	150 feet	11 / B	100 feet
	Weekday PM Peak Hour	20 / C	100 feet	209 / F	175 feet	67 / F	450 feet ⁴

Notes:

1. Intersection analyzed using SimTraffic micro-simulation model.
2. For side-street stop-controlled intersections, LOS C/D cusp is 25 seconds, LOS D/E cusp is 35 seconds, and LOS E/F cusp is 50 seconds.
3. This is an underestimate of the actual maximum queue due to limitations in modeling different PHFs (see previous page). Queues during the Sunday AM peak hour under existing plus project conditions would be greater than shown here.
4. The lengthier right-turn queue represents the most distant wait location for a right-turning vehicle. This is caused in part by left-turning vehicles waiting to access the left-turn pocket.

Source: Fehr & Peers, 2022.

Under existing plus project conditions, vehicle queues in the eastbound left-turn lane on Pleasant Grove Boulevard at Driveway 4 would not exceed the 150 feet of available storage.

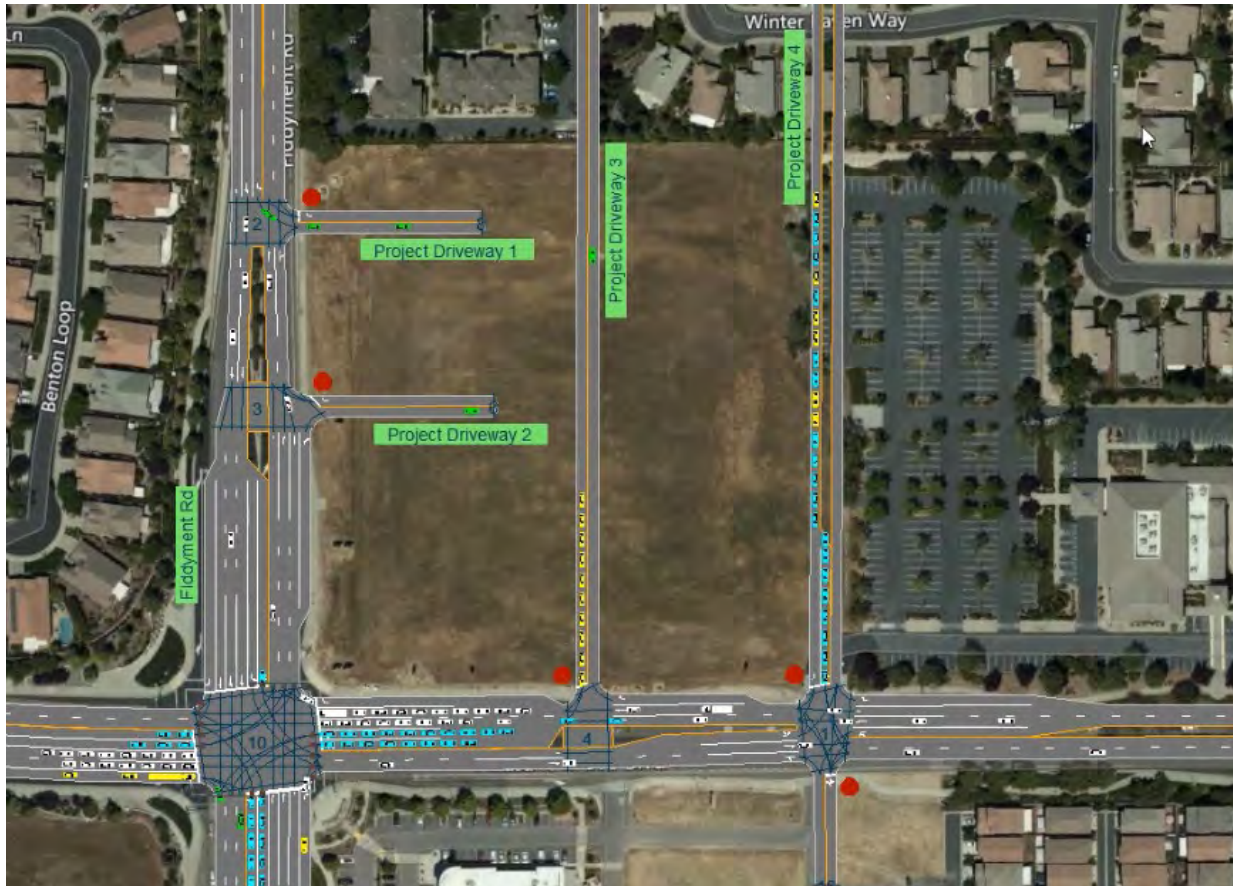
Based on this analysis, the following is recommended:

- Outbound movements at Driveway 4 should be restricted to right-turns by placing a gull-wing in the driveway median.

This recommendation would also prohibit left/through movements from the opposing driveway. SimTraffic was used to analyze how operations would change with the above modification. The southbound approach was found to improve to LOS D conditions with an average delay of 45 seconds per vehicle.

It is further noted that additional analysis and/or discussions are needed regarding the long-term feasibility of maintaining the existing eastbound left-turn lane at Driveway 4. This is being driven by the projected increase in traffic on westbound Pleasant Grove Boulevard and expected worsening of operations at the Fiddymet Road/Pleasant Grove Boulevard intersection. According to the most recent 2035 forecasts and operations analysis from the *Transportation Impact Study for the City of*

Roseville Housing Element Update (Fehr & Peers, May 2021), this intersection is expected to operate at LOS F during the weekday AM peak hour and LOS E during the weekday PM peak hour. The westbound approach is expected to experience a 78% increase in PM peak hour traffic between now and 2035. This could potentially cause westbound traffic to spill back beyond Driveway 4, making eastbound left-turns difficult to perform.



Screen capture of SimTraffic model under existing plus project weekday PM peak hour conditions. Driveway storage lengths have been expanded so to capture all delays and queuing that would occur.

Review of Project Access

We reviewed the project site plan with respect to the following:

1. Evaluation of proposed left-turn ingress lane on Fiddymnt Road at Driveway 1
2. Consistency of project driveway design with applicable City standards
3. Estimation of maximum queue lengths for outbound movements at driveways
4. Review of internal circulation

1. Evaluation of Proposed Left-Turn Ingress Lane on Fiddymment Road at Driveway 1

We analyzed the feasibility of a southbound left-turn ingress lane on Fiddymment Road at Driveway 1. Potential constraints include both the width of the median and sight distance limitations.

Figure 5 shows the sight distance analysis results. As shown, removal of landscaping in a portion of the median from south of the left-turn pocket to the beginning of the southbound left-turn lanes approaching Pleasant Grove Boulevard is required to ensure that a motorist in the left-turn lane would have an adequate line of sight of oncoming traffic.⁵

Figure 5 shows that the left-turn lane would be constructed with a 10-foot lane width and a 1.5-foot raised median. The current median is slightly less than this 11.5-foot width. Thus, minor restriping/narrowing of the southbound travel lanes is required in the turn lane vicinity⁶. Although more detailed engineering studies are required, this evaluation has determined that it appears possible to maintain at least 11-foot through lane widths in this area.

The southbound left-turn lane would have a maximum queue of 100 feet (see **Appendix B**). The City standard 200-foot left-turn lane design is recommended.

2. Consistency of Project Driveway Design with Applicable City standards

The following standards contained in the *City of Roseville Design and Construction Standards (2021)* are applicable to the project site plan review. Each standard is followed by an evaluation of the project's compliance with it and any site access recommendations.

- *No portion of a driveway shall be allowed within a separate bus turnout, including tapers.*
Evaluation: Driveway 2 on Fiddymment Road would be situated 240 feet north of Pleasant Grove Boulevard at the very north end of the transition taper of the existing bus turnout. This driveway placement is consistent with Standard Drawing ST-46 of the City's *Design and Construction Standards*. A continuous pull bus turnout / right-turn deceleration lane is required per Case 1 of Drawing ST-48 of the City's *Design and Construction Standards*.
- *Driveways shall be at least 250 feet apart on arterial streets.*
Evaluation: Driveways 1 and 2 on Fiddymment Road would be spaced 225 feet apart, which is less than the applicable standard. This driveway appears to have been placed in this location to avoid two large electrical vaults that would need to be relocated if Driveway 1 had been placed 25 feet to the north to achieve this standard. It would not be possible to relocate

⁵ Sight distance adequacy determined using a 55 mph design speed and applying the American Association of State Highway Transportation officials (AASHTO, 2018) Case F methodology (see Figure 5).

⁶ Although excess pavement exists on the east side of the median, this needs to remain to accommodate the inside lane drop and transition starting just north of Pleasant Grove Boulevard.

Driveway 2 further south due to the existing bus turnout. The City Engineer will need to decide whether this non-standard driveway spacing is acceptable.

- *Driveways on arterial streets approaching signalized intersections shall be at least 185 feet from the intersection and restricted to right-turns only.*

Evaluation: Driveway 3 on Pleasant Grove Boulevard would be situated 220 feet east of Fiddymment Road and restricted to right-turns only by a raised median. This standard is met.

- *Right-turn deceleration lanes shall be provided at driveways when:*
 - *the driveway is located on an arterial,*
 - *the right-turn ingress volume is expected to exceed 50 vehicles per hour,*
 - *there is ample room to fit a deceleration lane, and*
 - *the travel speed of the roadway equals or exceeds 45 mph.*

A right-turn curb flare shall be provided when these conditions are met but the right-turn volume is between 10 and 50 vehicles per hour. There may be cases where some of the criteria are met, but City staff may still require a deceleration lane in the interest of safety.

Evaluation: According to Figure 4, Driveways 2, 3, and 4 would each serve at least 50 right-turning vehicles per hour, while Driveway 1 would serve between 10 and 50 vehicles. Additionally, they are located on arterial streets with 45 mph posted speed limits. According to the project site plan, a landscape setback would be provided along the project frontage, which implies there would be ample room to fit the deceleration lanes. Accordingly, the following is recommended:

1. Construct a continuous right-turn deceleration/acceleration lane on westbound Pleasant Grove Boulevard beginning 185 feet east of Driveway 4 and connecting to the existing right-turn lane at Fiddymment Road. There is presently a right-turn curb flare at Driveway 4. The project applicant may need to work with the Pleasant Grove Community Church to ensure that the right-turn lane can be constructed.⁷
2. Construct a right-turn curb flare at Driveway 1 on Fiddymment Road.

⁷ While this recommendation is consistent with City standards, consideration should also be given to providing an off-street shared use (bicycle/pedestrian) facility beginning at the start of the deceleration lane, extending along the project frontage and terminating at Fiddymment Road. This would provide an “all ages and abilities” solution for bicycling along this section of Pleasant Grove Boulevard. Confident bicyclists could choose to remain in the Class II bike lane, while more timid riders could choose to use the Shared Use facility.

3. Maximum queue lengths for outbound movements at driveways

Table 6 displays the maximum expected vehicle queues at project driveways and their proposed throat depths according to the project site plan. Results are shown for weekday PM peak hour conditions as this is a more worst-case condition than Sunday AM peak hour due to greater levels of traffic on surrounding roadways. Refer to **Appendix B** for technical calculations.

TABLE 6: DRIVEWAY THROAT DEPTH REQUIREMENTS			
Driveway	Movement	Proposed Throat Depth¹	Maximum Vehicle Queue - Weekday PM Peak Hour
Driveway 1	Outbound Right	60 feet	50 feet
Driveway 2	Outbound Right	60 feet	75 feet
Driveway 3	Outbound Right	60 feet	175 feet
Driveway 4	Outbound Right	160 feet	175 feet

Notes:

1. Per project site plan.
2. Estimated using methodology described in *Estimation of Maximum Queue Lengths at Unsignalized Intersections* (ITE Journal, 2001) assuming outbound left-turns at Driveway 4 are prohibited.

Source: Fehr & Peers, 2022.

The following is recommended based on Table 6:

- Modify the project site plan to provide 175 feet of throat depth at Driveway 3 if possible. Alternatively, a design similar to what exists at the Safeway Shopping Center driveway on Woodcreek Oaks Boulevard (i.e., raised median in driveway with about 125 feet of throat depth along with a right in/out opening to the gas station) would be acceptable.

As part of these modifications, it would also be desirable to provide for more orderly ingress to access the gasoline fueling positions. According to the project site plan, the site exceeds the minimum required parking by 37 spaces. Thus, if several parking spaces near the gas station need to be removed to accomplish this, doing so would not cause the project to be non-compliant with applicable parking requirements.

The provided throat depth at Driveway 2 is 15 feet less than the maximum queue. No modifications to the site plan are recommended at this location given that the first internal intersection is sufficiently

wide to allow an incoming vehicle to navigate around the “last” queued outbound vehicle. Additionally, the northbound approach to this intersection will accommodate fuel delivery trucks.

The throat depth at Driveway 4 is also 15 feet less than the maximum queue. No modifications to the site plan are recommended here given the considerable width (49 feet) of the driveway. In fact, while it makes sense to maintain the 50-foot driveway width at Pleasant Grove Boulevard, the driveway could gradually narrow as it extends into the site.

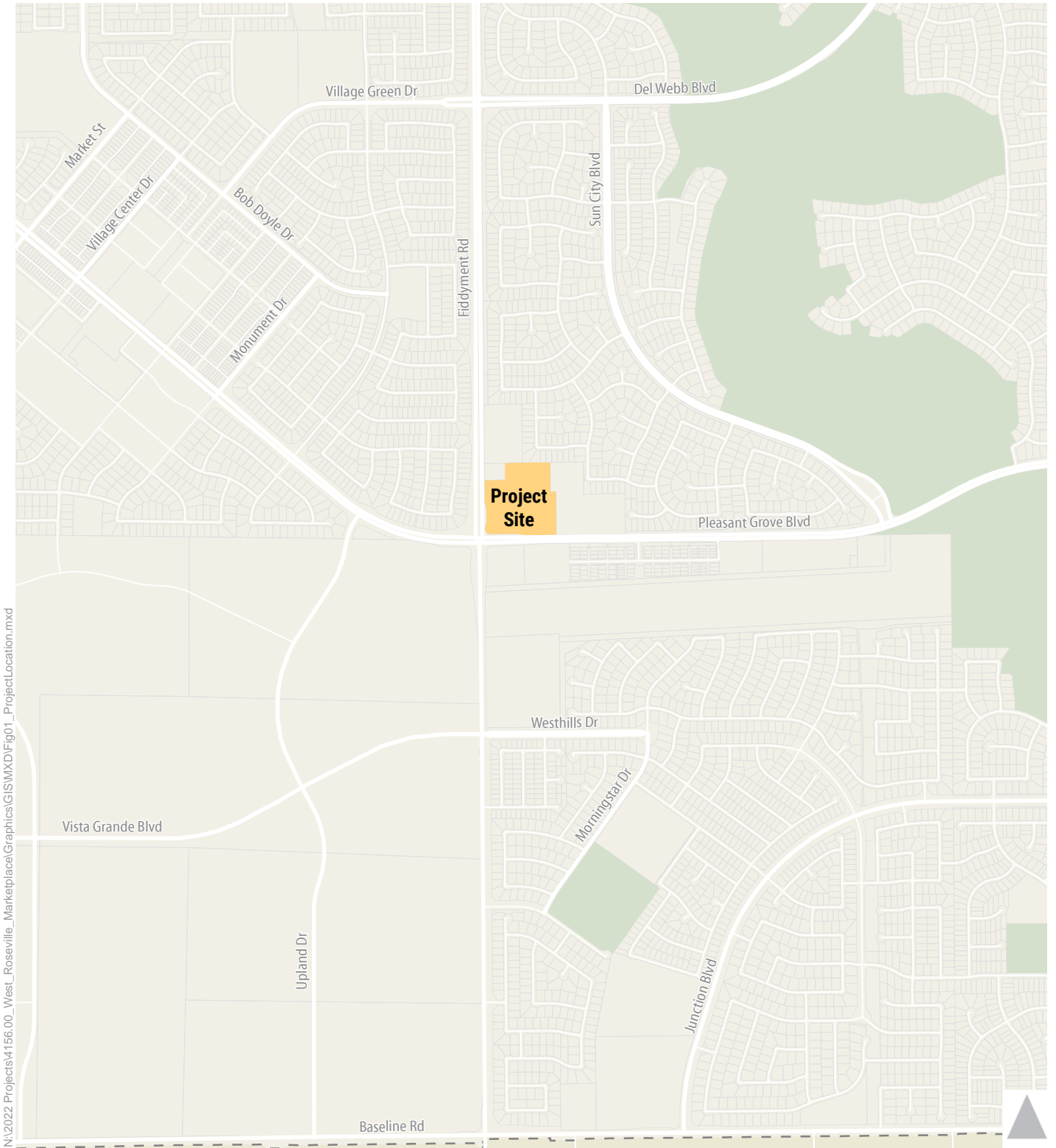
4. Review of Internal Circulation

Our review of the project site plan did not reveal any potential operational concerns. Drive aisles are properly aligned and have adequate widths. Overall circulation is intuitive. The major drive aisles have been designed to accommodate grocery store and gasoline delivery trucks. Trash enclosures are placed in convenient locations for garbage trucks.

However, at the conclusion of Sunday services, excess queuing would occur at Driveway 4. Specifically, motorists exiting the church parking lot would have difficulty entering Driveway 4 (from its side-street driveway) due to queued vehicles waiting to turn right onto Pleasant Grove Boulevard. To reduce the likelihood that exiting church traffic blocks the path of inbound motorists at Driveway 4, the following is recommended:

- Post “Do Not Block Intersection” signs at the Pleasant Grove Community Church Driveway approaching Driveway 4.
- Stripe “Do Not Block Intersection” pavement markings across the inbound lane on Driveway 4 at the Pleasant Grove Community Church Driveway.

Refer to **Figure 6** for study recommendations.

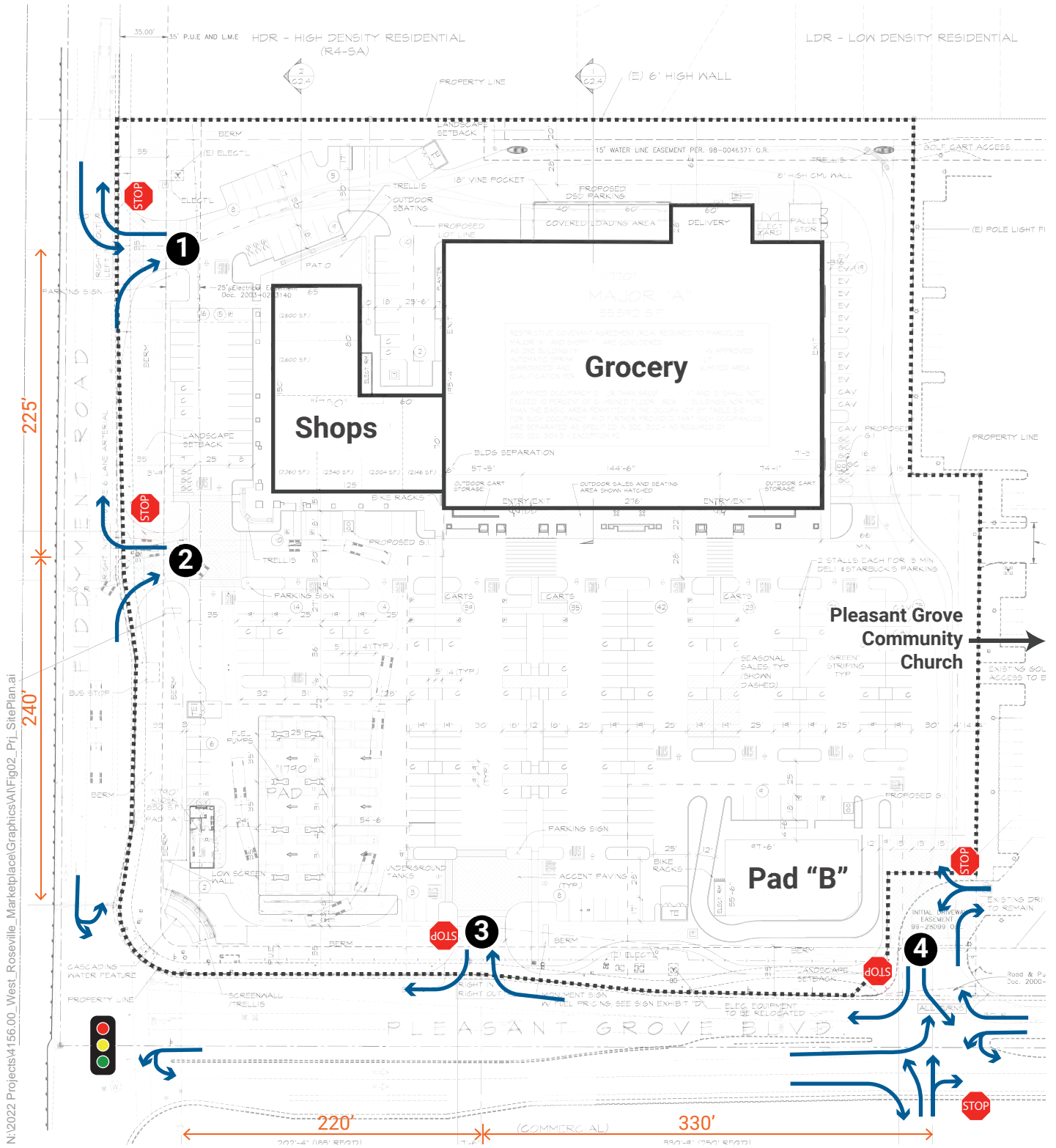


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- Project Site
- City Boundary
- Park/Open Space



Figure 1
Project Location



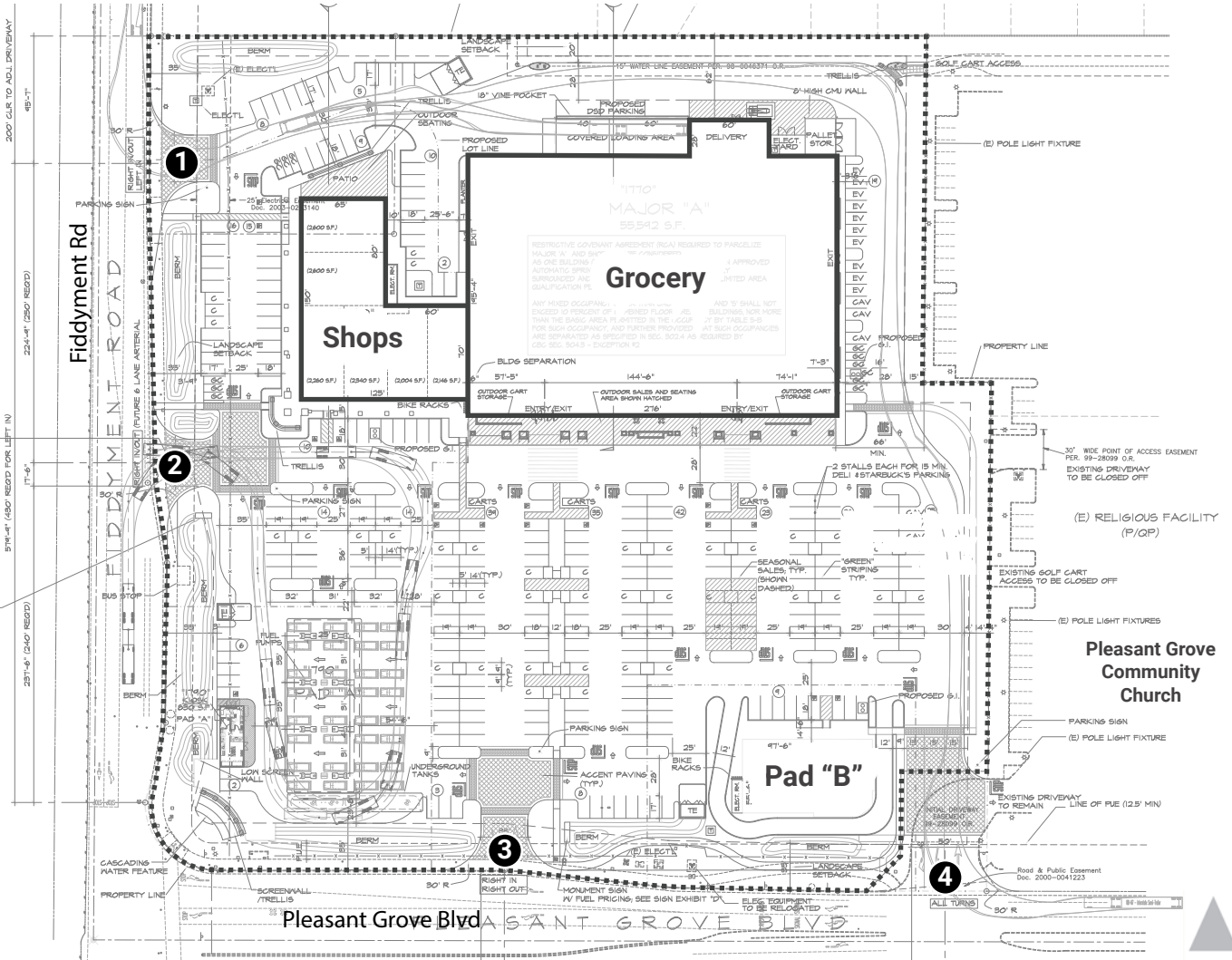
N:\2022 Projects\4156.00_West_Roseville_Marketplace\Graphics\All\Fig02_Prl_SitePlan.at

-  Stop Sign
-  Permitted Turning Movement
-  Traffic Signal
-  Driveway Number

Note: Driveway dimensions referenced from the centerline of the driveway to the near curb return of the adjacent intersection.



Figure 2
Project Site Plan



1. Project Dwy 1/Fiddymt Rd	2. Project Dwy 2/Fiddymt Rd	3. Project Dwy 3/Pleasant Grove Blvd	4. Project Dwy 4/Pleasant Grove Blvd
Does Not Exist Under This Scenario	Does Not Exist Under This Scenario	Does Not Exist Under This Scenario	<p> Pleasant Grove Blvd 58 (4) 21 (2) 16 (15) 2 (3) 1,010 (958) 4 (5) </p> <p> Project Dwy 4 0 (0) 631 (1,217) 28 (36) 10 (6) </p> <p> 4 (10) 0 (0) 3 (13) </p>

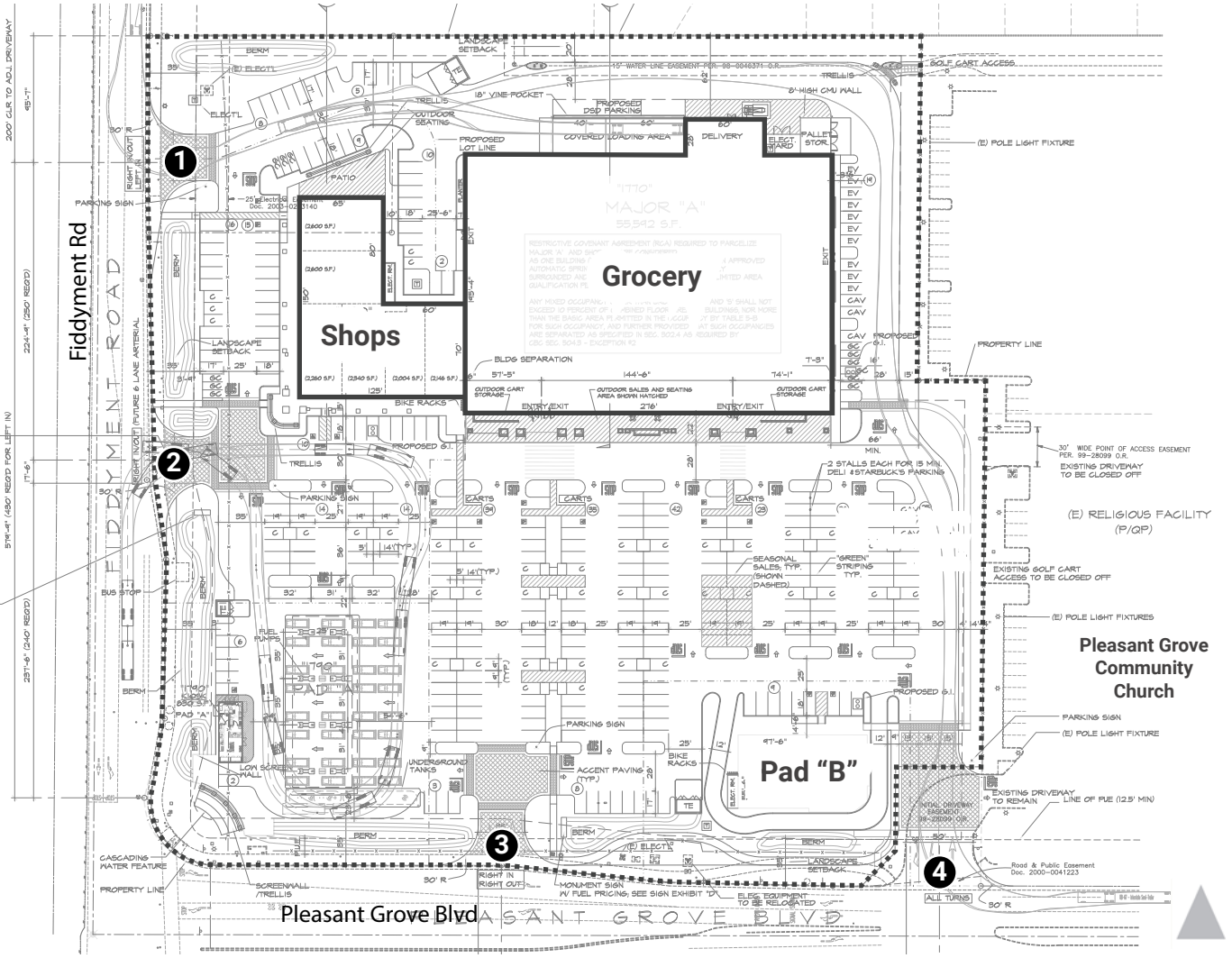
- 1** Project Driveway
- Turn Lane
- AM (PM) Sunday AM Peak Hour (Weekday PM Peak Hour) Traffic Volume
- Stop Sign

Figure 3

Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions



Note: Volumes at Driveway 4 represent conditions assuming the currently permitted full-access on the southbound approach (versus the recent prohibition of southbound left-turns via signed posted by a private party).



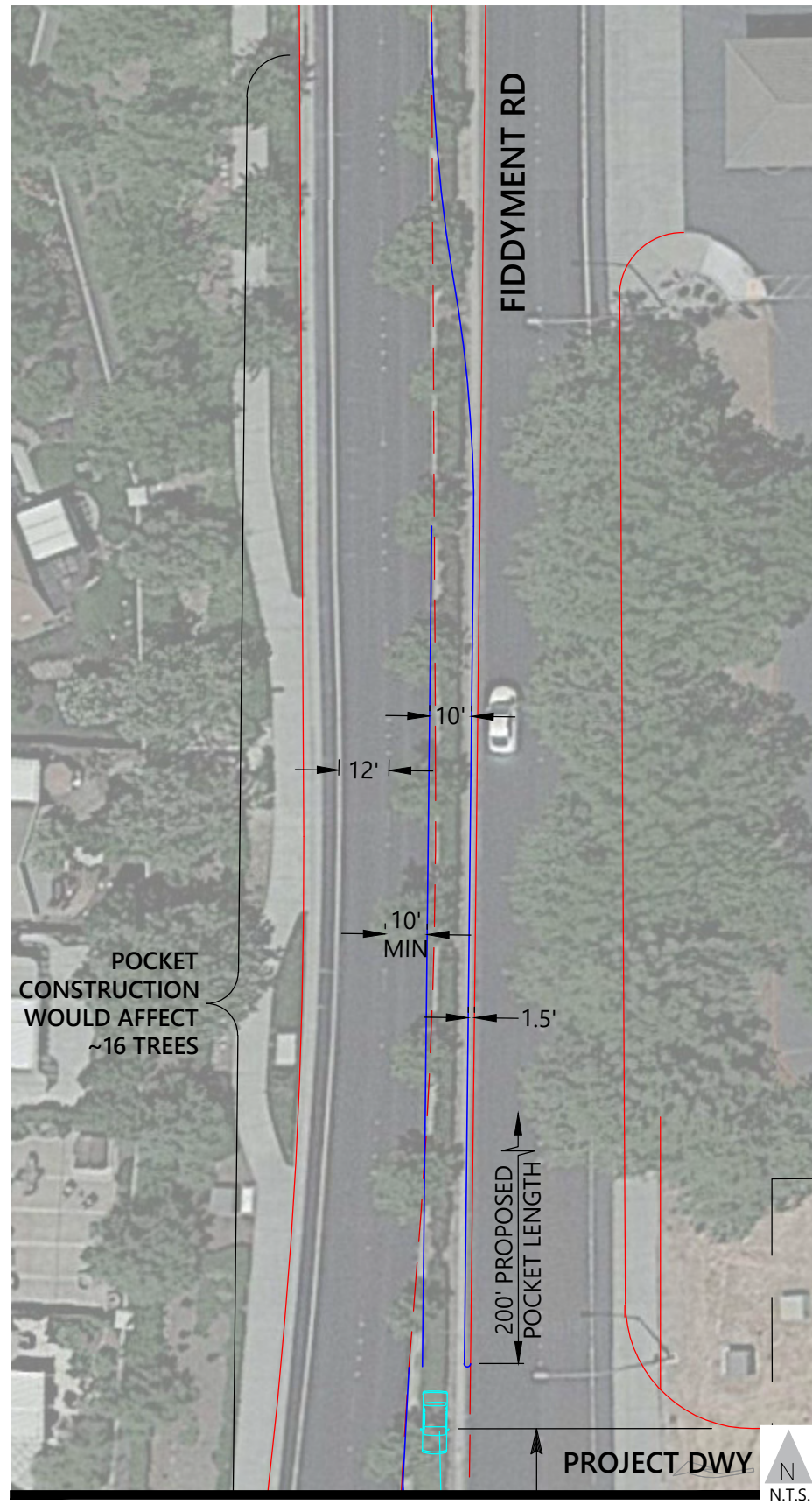
1. Project Dwy 1/Fiddymnt Rd	2. Project Dwy 2/Fiddymnt Rd	3. Project Dwy 3/Pleasant Grove Blvd	4. Project Dwy 4/Pleasant Grove Blvd
<p>800 (844) 87 (85)</p> <p>Fiddymnt Rd</p> <p>24 (27)</p> <p>Project Dwy 1</p> <p>801 (971) 46 (40)</p>	<p>800 (844)</p> <p>Fiddymnt Rd</p> <p>50 (57)</p> <p>Project Dwy 2</p> <p>809 (954) 159 (134)</p>	<p>203 (188)</p> <p>Project Dwy 3</p> <p>74 (78) 720 (1,269)</p> <p>Pleasant Grove Blvd</p> <p>1,079 (1,010)</p>	<p>74 (88) 0 (0) 96 (97)</p> <p>Pleasant Grove Blvd</p> <p>34 (33) 54 (52) 987 (920) 4 (5)</p> <p>Project Dwy 4</p> <p>56 (56) 682 (1,216) 28 (36) 21 (6)</p> <p>4 (10) 0 (0) 3 (13)</p>

- Project Driveway
- Turn Lane
- AM (PM) Sunday AM Peak Hour (Weekday PM Peak Hour) Traffic Volume
- Stop Sign

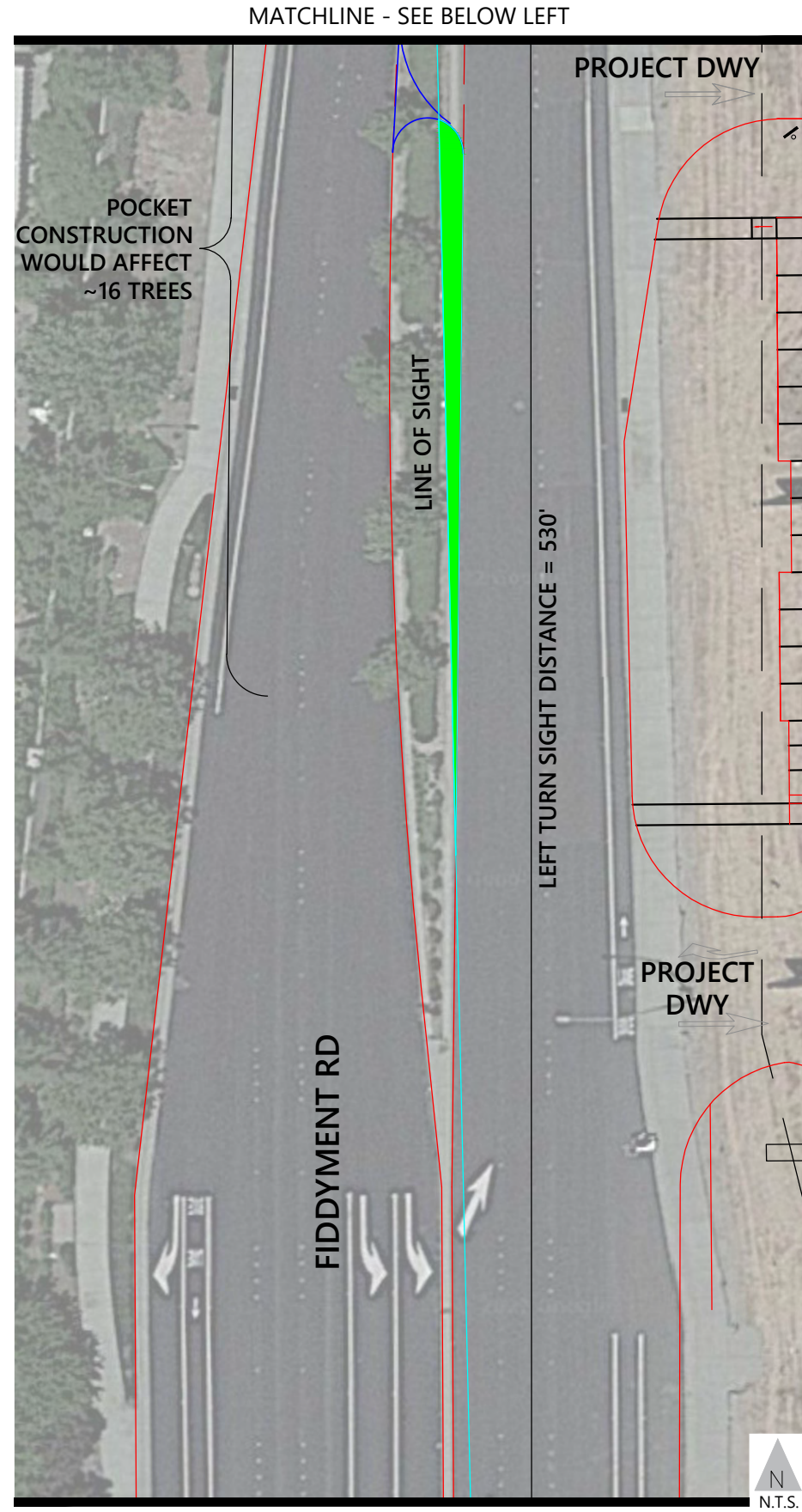


Note: Volumes at Driveway 4 represent conditions assuming the currently permitted full-access on the southbound approach (versus the recent prohibition of southbound left-turns via signed posted by a private party).

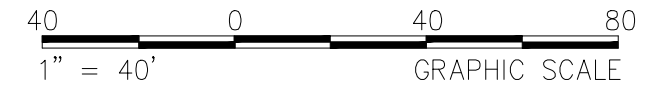
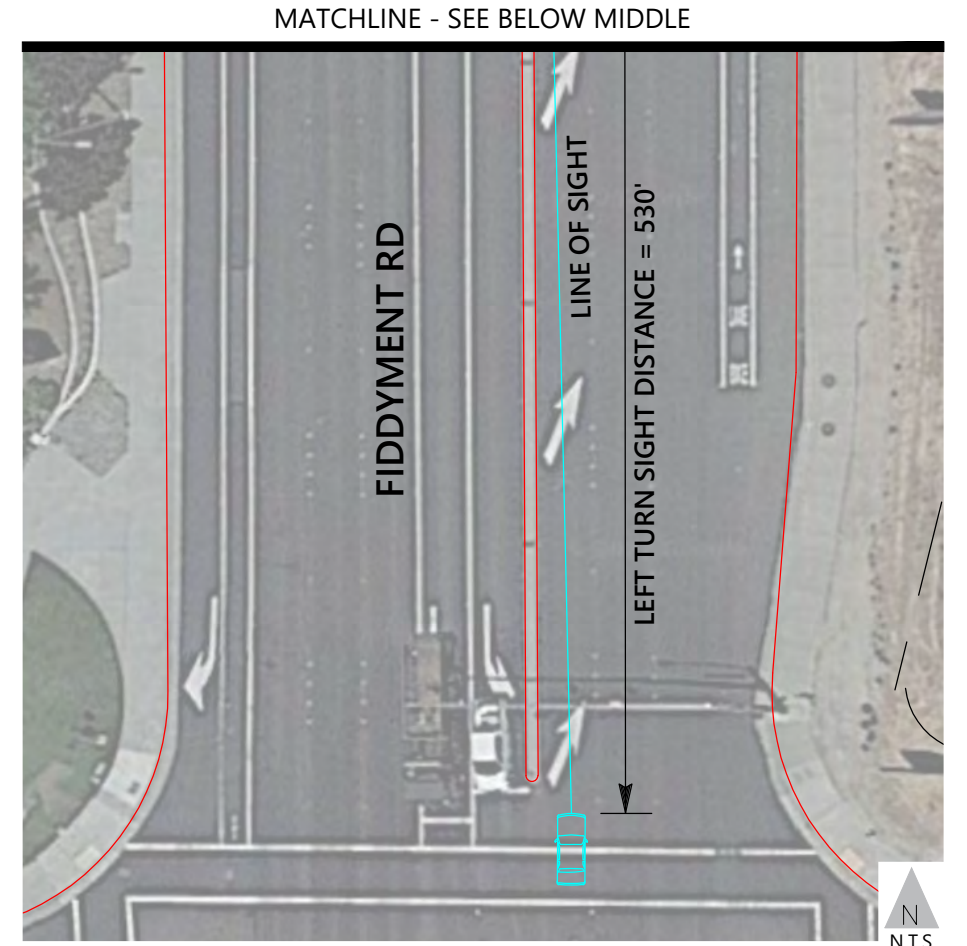
Figure 4
Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions



MATCHLINE - SEE ABOVE MIDDLE



MATCHLINE - SEE ABOVE RIGHT



LEGEND



LEFT TURN SIGHT DISTANCE TRIANGLE - DESIGN OF VERTICAL ELEMENTS IN THIS AREA TO BE CONSISTENT WITH 2018 AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREETS CHAPTER 9.5.3.6 CASE F AND CITY OF ROSEVILLE DESIGN STANDARDS SECTION 7-12 (B)¹.

DESIGN SPEED

FIDDYMENT ROAD - 55 MPH
(BASED ON CITY OF ROSEVILLE DESIGN STANDARDS SECTION 7-12 (A))

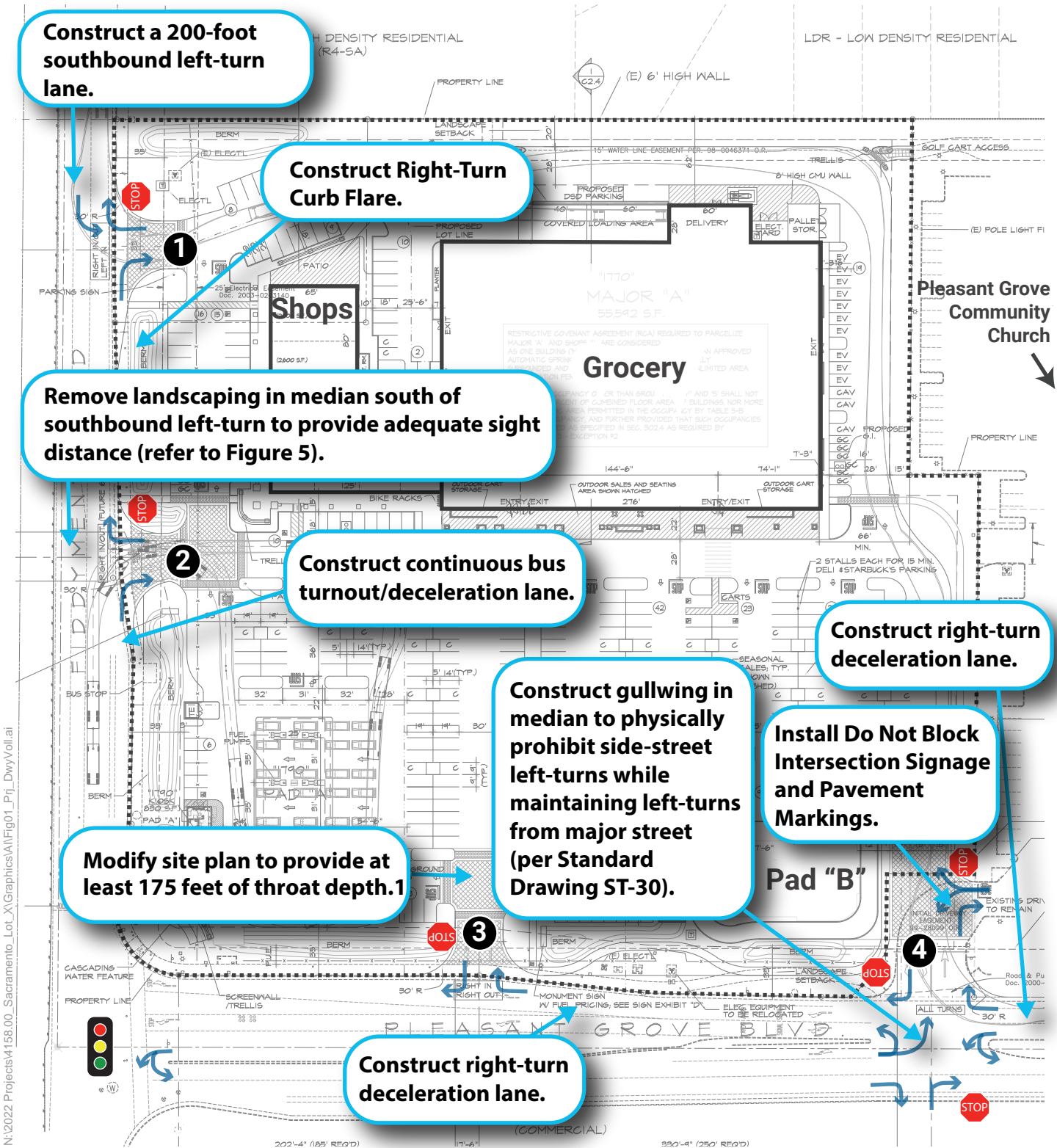
LEFT TURN SIGHT DISTANCE

LEFT TURN SIGHT DISTANCE = 530' CALCULATED PER 2018 AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREETS CHAPTER 9.5.3.6 CASE F.





1: SHADED GREEN AREA REPRESENTS PORTION OF MEDIAN SITUATED BETWEEN THE FACE OF CURB AND THE REQUIRED LINE OF SIGHT.

Figure 5
Left Turn Sight Distance Analysis
Project Driveway at Fiddymment Road North of Pleasant Grove Boulevard



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-  Stop Sign
-  Permitted Turning Movement
-  Traffic Signal
-  Driveway Number

Note: Additional studies/discussion are required to determine whether eastbound left-turn ingress at Driveway 4 can be maintained in the long-term given expected increases in through traffic on Pleasant Grove Blvd and corresponding increases in queuing.

1: Alternatively, a design similar to what exists at the Safeway Shopping Center driveway on Woodcreek Oaks Boulevard (i.e., raised median in driveway with about 125 feet of throat depth along with a right in/out opening to the gas station) would be acceptable.



Figure 6
Recommendations



Appendix A – Trip Generation Manual Outputs

Query Filter

DATA SOURCE:
 Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
 821

LAND USE GROUP:
 (800-899) Retail

LAND USE:
 821 - Shopping Plaza (40-150k)

LAND USE SUBCATEGORY:
 Supermarket - Yes

SETTING/LOCATION:
 General Urban/Suburban

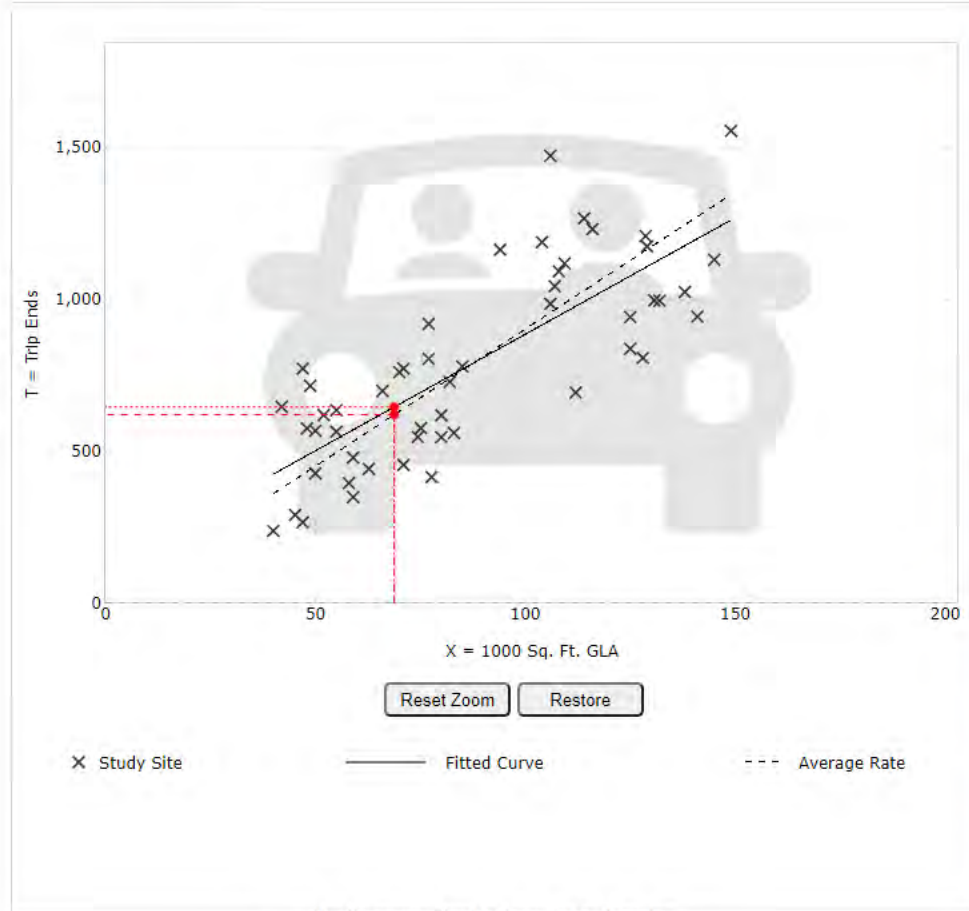
INDEPENDENT VARIABLE (IV):
 1000 Sq. Ft. GLA

TIME PERIOD:
 Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
 Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
 68.8 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
 Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
 Shopping Plaza (40-150k) - Supermarket - Yes (821)
[Click for Description and Data Plots](#)

Independent Variable:
 1000 Sq. Ft. GLA

Time Period:
 Weekday
 Peak Hour of Adjacent Street Traffic
 One Hour Between 4 and 6 p.m.

Setting/Location:
 General Urban/Suburban

Trip Type:
 Vehicle

Number of Studies:
 51

Avg. 1000 Sq. Ft. GLA:
 87

Average Rate:
 9.03

Range of Rates:
 5.35 - 16.45

Standard Deviation:
 2.37

Fitted Curve Equation:
 $T = 7.67(X) + 118.86$

R²:
 0.62

Directional Distribution:
 48% entering, 52% exiting

Calculated Trip Ends:
 Average Rate: 621 (Total), 298 (Entry), 323 (Exit)
 Fitted Curve: 647 (Total), 310 (Entry), 337 (Exit)

Appendix B – Technical Calculations

1: Project Driveway 4 & Pleasant Grove Blvd Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.3	0.2	0.3	0.1	0.1	4.0	0.2	0.1
Total Delay (hr)	0.0	0.0	0.6	0.0	0.0	0.1	0.5	0.0	0.0	0.1	0.1	1.6
Total Del/Veh (s)	6.9	7.7	2.0	1.8	15.2	12.2	3.0	30.6	8.6	19.0	8.2	3.1
Stop Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.4
Stop Del/Veh (s)	2.5	3.0	0.2	0.3	8.5	7.6	0.0	29.3	8.6	15.5	4.8	0.7
Total Stops	7	1	1	0	6	18	0	4	4	20	60	121
Stop/Veh	0.41	0.50	0.00	0.00	0.67	0.64	0.00	1.00	1.00	1.00	1.00	0.07
Travel Dist (mi)	2.0	0.3	123.4	0.5	4.9	15.1	362.5	0.1	0.1	1.5	4.3	514.7
Travel Time (hr)	0.1	0.0	5.2	0.0	0.2	0.6	12.8	0.0	0.0	0.2	0.3	19.4
Avg Speed (mph)	18	19	24	21	24	25	28	3	7	9	15	27
Fuel Used (gal)	0.1	0.0	5.2	0.0	0.1	0.4	9.0	0.0	0.0	0.1	0.1	14.9
Fuel Eff. (mpg)	24.7	26.5	23.9	26.4	39.9	39.6	40.4	11.5	27.6	26.2	41.2	34.5
HC Emissions (g)	1	0	86	0	1	5	120	0	0	0	1	214
CO Emissions (g)	34	4	2667	8	17	89	2107	1	0	10	36	4972
NOx Emissions (g)	3	0	301	1	2	14	326	0	0	1	4	651
Vehicles Entered	16	2	1019	4	9	27	645	4	4	20	60	1810
Vehicles Exited	16	2	1020	4	9	27	647	4	4	20	60	1813
Hourly Exit Rate	16	2	1020	4	9	27	647	4	4	20	60	1813
Input Volume	16	2	1010	4	10	28	631	4	3	21	58	1789
% of Volume	102	89	101	94	90	96	103	94	123	94	103	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0
Density (ft/veh)												598
Occupancy (veh)	0	0	5	0	0	1	13	0	0	0	0	19

Queuing and Blocking Report
Existing Conditions

02/24/2022
Sunday AM Peak Hour

Intersection: 1: Project Driveway 4 & Pleasant Grove Blvd

Movement	EB	EB	WB	NB	SB	SB
Directions Served	UL	TR	UL	LTR	L	R
Maximum Queue (ft)	37	11	60	33	53	77
Average Queue (ft)	7	0	17	9	17	33
95th Queue (ft)	28	4	48	31	45	62
Link Distance (ft)		536		124		383
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	140		195		50	
Storage Blk Time (%)					0	1
Queuing Penalty (veh)					0	0

Movement

Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 76

HCM 6th TWSC
1: Project Driveway 4 & Pleasant Grove Blvd

Existing Conditions
PM Peak Hour

Intersection														
Int Delay, s/veh	1													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕			↕	↕			↕		↕		↕
Traffic Vol, veh/h	15	3	958	5	6	36	1217	0	10	0	13	2	0	4
Future Vol, veh/h	15	3	958	5	6	36	1217	0	10	0	13	2	0	4
Conflicting Peds, #/hr	0	0	0	1	0	0	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	140	-	-	-	195	-	-	-	-	-	50	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	3	958	5	6	36	1217	0	10	0	13	2	0	4

Major/Minor	Major1		Major2		Minor1		Minor2							
Conflicting Flow All	1217	1217	0	0	963	964	0	0	1691	2299	484	1817	-	609
Stage 1	-	-	-	-	-	-	-	-	998	998	-	1301	-	-
Stage 2	-	-	-	-	-	-	-	-	693	1301	-	516	-	-
Critical Hdwy	6.44	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Follow-up Hdwy	2.52	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	241	569	-	-	351	710	-	-	61	38	529	49	0	438
Stage 1	-	-	-	-	-	-	-	-	261	320	-	170	0	-
Stage 2	-	-	-	-	-	-	-	-	400	229	-	510	0	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	265	265	-	-	615	615	-	-	54	33	528	43	-	438
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	54	33	-	43	-	-
Stage 1	-	-	-	-	-	-	-	-	243	298	-	158	-	-
Stage 2	-	-	-	-	-	-	-	-	369	213	-	463	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	46.2	39.8
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	110	265	-	-	615	-	-	43	438
HCM Lane V/C Ratio	0.209	0.068	-	-	0.068	-	-	0.047	0.009
HCM Control Delay (s)	46.2	19.6	-	-	11.3	-	-	92.8	13.3
HCM Lane LOS	E	C	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0.2	-	-	0.1	0

Intersection: 1: Project Driveway 4 & Pleasant Grove Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	UL	T	TR	UL	T	TR	LTR	R
Maximum Queue (ft)	43	14	25	61	17	15	65	32
Average Queue (ft)	13	1	1	19	1	1	18	5
95th Queue (ft)	38	9	15	49	9	8	49	23
Link Distance (ft)		536	536		2960	2960	124	382
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	140			195				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

--

1: Project Driveway 4 & Pleasant Grove Blvd Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	3.9	0.4
Total Delay (hr)	0.1	0.1	0.4	0.0	0.1	0.1	0.8	0.1	0.1	0.0	1.0	0.2
Total Del/Veh (s)	8.3	8.4	1.5	0.1	20.6	14.0	3.9	3.6	51.4	9.9	38.9	10.6
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.9	0.1
Stop Del/Veh (s)	2.8	3.0	0.0	0.0	11.0	9.6	0.1	0.1	50.3	10.0	35.7	6.8
Total Stops	17	28	0	0	14	20	4	0	5	4	90	74
Stop/Veh	0.49	0.48	0.00	0.00	0.70	0.69	0.01	0.00	1.00	1.00	0.99	0.99
Travel Dist (mi)	1.7	2.9	50.4	0.2	11.2	16.0	387.5	31.6	0.1	0.1	17.5	14.5
Travel Time (hr)	0.1	0.2	1.5	0.0	0.4	0.5	9.0	0.7	0.1	0.0	1.7	0.7
Avg Speed (mph)	15	15	34	21	32	33	43	43	1	5	11	20
Fuel Used (gal)	0.0	0.1	1.2	0.0	0.3	0.5	11.9	0.9	0.0	0.0	0.7	0.4
Fuel Eff. (mpg)	40.4	39.9	42.8	79.0	33.3	32.8	32.6	33.9	6.2	20.6	26.1	39.1
HC Emissions (g)	0	1	26	0	3	6	222	20	0	0	6	5
CO Emissions (g)	15	27	956	0	192	289	9111	762	1	0	167	106
NOx Emissions (g)	2	3	76	0	16	25	834	71	0	0	17	13
Vehicles Entered	35	58	996	4	20	28	687	56	5	4	89	74
Vehicles Exited	35	57	996	5	20	28	687	56	5	4	89	74
Hourly Exit Rate	35	57	996	5	20	28	687	56	5	4	89	74
Input Volume	34	54	988	4	21	28	682	56	4	3	96	74
% of Volume	103	105	101	118	94	101	101	100	118	123	93	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0
Density (ft/veh)												
Occupancy (veh)	0	0	2	0	0	0	9	1	0	0	2	1

Intersection: 1: Project Driveway 4 & Pleasant Grove Blvd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	UL	TR	UL	T	LTR	L	R
Maximum Queue (ft)	81	2	70	2	39	136	90
Average Queue (ft)	28	0	22	0	8	57	31
95th Queue (ft)	62	2	54	0	30	114	66
Link Distance (ft)		208		2917	124		1028
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		195			150	
Storage Blk Time (%)						1	
Queuing Penalty (veh)						1	

Intersection: 2: Fiddymnt Rd & Project Driveway 1

Movement	WB	NB	NB	SB
Directions Served	R	T	TR	L
Maximum Queue (ft)	41	9	35	81
Average Queue (ft)	17	0	2	29
95th Queue (ft)	44	7	18	65
Link Distance (ft)	208	153	153	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			250	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fiddymnt Rd & Project Driveway 2

Movement	WB	NB	NB	NB
Directions Served	R	T	T	T
Maximum Queue (ft)	57	20	65	68
Average Queue (ft)	15	1	10	9
95th Queue (ft)	35	13	40	42
Link Distance (ft)	185	286	286	286
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

1: Project Driveway 4 & Pleasant Grove Blvd Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	3.8	0.4
Total Delay (hr)	0.2	0.3	0.4	0.0	0.0	0.2	2.4	0.1	0.2	0.1	5.3	1.6
Total Del/Veh (s)	17.6	20.4	1.4	1.3	16.6	17.9	7.1	4.8	94.7	28.2	208.7	67.0
Stop Delay (hr)	0.2	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	5.3	1.6
Stop Del/Veh (s)	17.5	18.7	0.0	0.0	11.7	6.3	0.1	0.4	92.3	25.9	208.2	65.2
Total Stops	25	44	1	0	4	23	15	2	9	13	95	112
Stop/Veh	0.81	0.80	0.00	0.00	0.67	0.64	0.01	0.03	1.00	1.00	1.03	1.27
Travel Dist (mi)	1.5	2.7	46.7	0.3	3.3	19.8	680.3	34.4	0.2	0.3	17.3	17.0
Travel Time (hr)	0.2	0.4	1.4	0.0	0.1	0.6	16.9	0.9	0.2	0.1	6.0	2.3
Avg Speed (mph)	7	6	34	34	31	33	40	38	1	3	3	7
Fuel Used (gal)	0.1	0.1	1.1	0.0	0.1	0.6	20.2	1.0	0.1	0.0	1.7	0.8
Fuel Eff. (mpg)	22.6	23.6	43.2	36.1	32.0	34.0	33.7	34.3	3.6	10.8	10.1	21.1
HC Emissions (g)	1	1	24	0	1	10	370	15	0	0	8	9
CO Emissions (g)	24	21	900	7	50	397	14971	693	3	2	276	229
NOx Emissions (g)	1	2	69	0	4	38	1382	61	0	0	19	22
Vehicles Entered	31	54	921	6	6	35	1205	61	9	13	89	87
Vehicles Exited	31	54	921	6	6	35	1207	61	9	13	86	86
Hourly Exit Rate	31	54	921	6	6	35	1207	61	9	13	86	86
Input Volume	33	52	920	5	6	36	1216	56	10	13	97	88
% of Volume	94	104	100	120	100	97	99	109	90	100	89	98
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0
Density (ft/veh)												
Occupancy (veh)	0	0	1	0	0	1	17	1	0	0	6	2

Queuing and Blocking Report
Existing Plus Project Conditions

02/28/2022

Intersection: 1: Project Driveway 4 & Pleasant Grove Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	LTR	L	R
Maximum Queue (ft)	105	13	8	60	50	33	24	76	169	448
Average Queue (ft)	47	0	0	20	3	2	1	24	126	164
95th Queue (ft)	90	6	3	48	28	23	8	61	211	459
Link Distance (ft)		208	208		2917	2917		124		1028
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (ft)	150			195			200		150	
Storage Blk Time (%)	0								37	1
Queuing Penalty (veh)	0								33	1

Intersection: 2: Fiddymnt Rd & Project Driveway 1

Movement	WB	NB	SB
Directions Served	R	TR	L
Maximum Queue (ft)	67	12	98
Average Queue (ft)	23	1	37
95th Queue (ft)	54	7	81
Link Distance (ft)	208	153	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Fiddymnt Rd & Project Driveway 2

Movement	WB	NB	NB	NB	SB
Directions Served	R	T	T	T	T
Maximum Queue (ft)	62	39	104	97	7
Average Queue (ft)	18	2	23	22	0
95th Queue (ft)	42	21	73	70	5
Link Distance (ft)	185	286	286	286	153
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

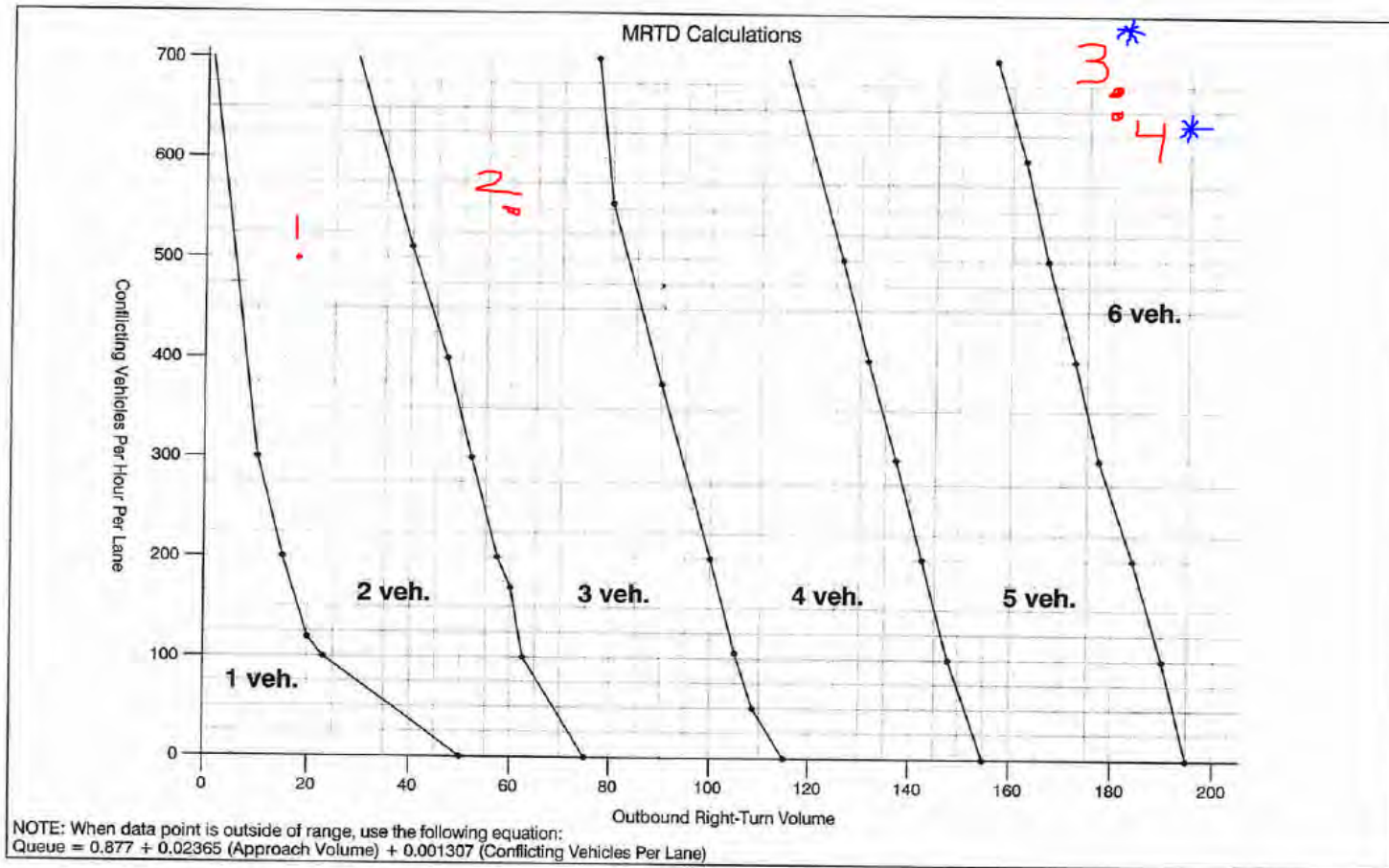
SimTraffic Performance Report Existing Plus Project Conditions
with Proj Dwy 4 Restricted to Right-Turns Only


03/08/2022

1: Project Driveway 4 & Pleasant Grove Blvd Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBR	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0
Total Delay (hr)	0.2	0.2	0.3	0.0	0.0	0.2	2.4	0.1	0.2	0.1	2.3	5.9
Total Del/Veh (s)	20.1	17.5	1.4	1.2	15.2	18.1	7.1	4.0	62.3	20.5	44.5	8.7
Stop Delay (hr)	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	2.3	3.0
Stop Del/Veh (s)	19.9	15.6	0.0	0.0	8.6	6.1	0.2	0.2	59.8	18.1	44.5	4.4
Total Stops	22	36	2	0	4	21	16	1	9	14	183	308
Stop/Veh	0.79	0.78	0.00	0.00	0.67	0.62	0.01	0.02	1.00	1.00	0.99	0.12
Travel Dist (mi)	1.4	2.3	42.8	0.2	3.7	19.3	688.6	32.8	0.2	0.3	35.8	827.4
Travel Time (hr)	0.2	0.3	1.2	0.0	0.1	0.6	17.1	0.8	0.2	0.1	3.7	24.4
Avg Speed (mph)	6	7	34	35	33	33	40	39	1	4	10	34
Fuel Used (gal)	0.1	0.1	0.9	0.0	0.1	0.6	20.5	0.9	0.0	0.0	1.4	24.7
Fuel Eff. (mpg)	21.5	26.2	45.3	42.9	33.2	33.7	33.6	34.7	5.4	14.2	25.5	33.5
HC Emissions (g)	0	1	21	0	1	10	382	20	0	0	12	447
CO Emissions (g)	21	20	791	4	57	387	15193	755	2	2	366	17597
NOx Emissions (g)	1	2	57	0	5	38	1422	69	0	0	33	1628
Vehicles Entered	28	45	841	4	6	34	1218	58	9	14	182	2439
Vehicles Exited	28	46	841	4	6	34	1220	59	9	14	184	2445
Hourly Exit Rate	28	46	841	4	6	34	1220	59	9	14	184	2445
Input Volume	33	52	1001	5	6	36	1216	56	10	13	185	2613
% of Volume	85	88	84	80	100	94	100	105	90	108	99	94
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0
Density (ft/veh)												563
Occupancy (veh)	0	0	1	0	0	1	17	1	0	0	4	24

Estimation of Maximum Queue Lengths at Project Driveways. Existing plus project Weekday PM peak hour conditions



 = Queue expected to be slightly greater due to downstream congestion and increased waiting to access left-turn lanes

Source: *Estimation of Maximum Queue Lengths at Unsignalized Intersections* (ITE Journal, 2001).