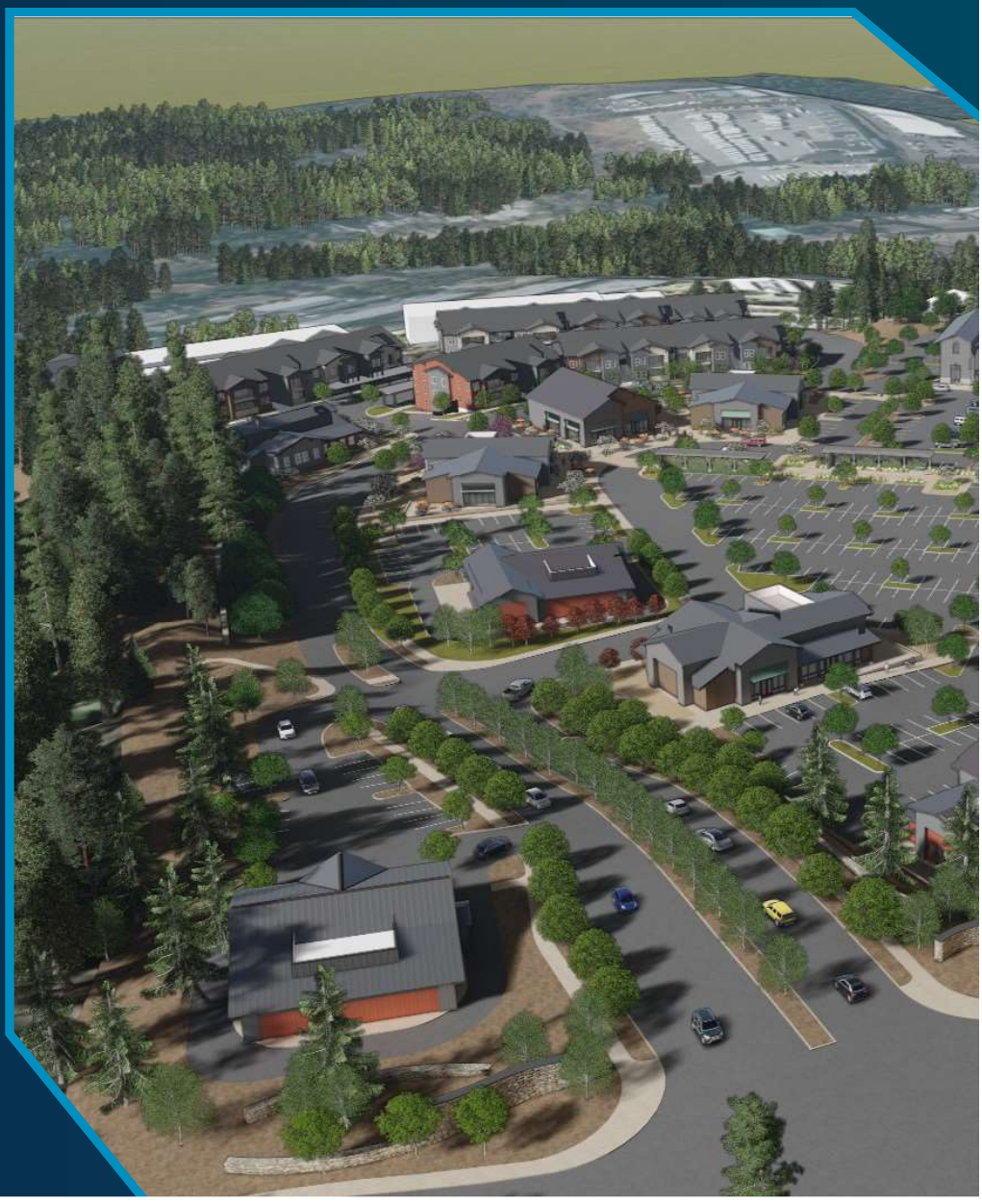
DORSEY MARKETPLACE

SUPPLEMENT TO THE FINAL ENVIROMENTAL IMPACT REPORT

SCH# 2016022053
February 2024



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Supplement to the Final Environmental Impact Report

Dorsey Marketplace Project

FEBRUARY 2024

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APPENDICES

1 Introduction

In April 2020, the City of Grass Valley (City) certified an Environmental Impact Report (EIR; State Clearinghouse Number 2016022053) and approved the Dorsey Marketplace Project. The Project proposes a mixed-use development including commercial, office, and residential uses on the site of the former Spring Hill Mine along State Route (SR) 20/49, bounded by SR 20/49 to the west, Dorsey Drive to the north, commercial property to the south, and residential property to the east. Refer to Section 1.3 for additional details of the Project Description.

The City's certification of the EIR for this Project was challenged in court, and the Court of Appeal found that the EIR did not adequately address potential human health effects associated with mobile source air pollution emanating from SR 20/49. Accordingly, on October 19, 2023, the Nevada County Superior Court issued a judgment and peremptory writ of mandate directing the City to correct the deficiencies in the EIR's analysis of SR 20/49 as a contributor of mobile source emissions, the associated health risks for future Project residents and occupants, and the degree to which the Project's contribution of vehicle trips on SR 20/49 may exacerbate these risks. The judgment and writ also ordered that the City and Project applicant suspend any Project activity or activities that could result in an adverse change or alteration to the physical environment until the City has taken the necessary actions to comply with the California Environmental Quality Act (CEQA, Public Resources Code (PRC) Section 21000 et seq). The Superior Court did not require the City Council to set aside the resolutions by which, in April 2020, the City Council certified the original EIR and approved the Project. Those resolutions stand, although the Project cannot proceed until the City completes the environmental analysis ordered by the two courts.

Consistent with the Superior Court judgment, this Supplement to the Final EIR (SFEIR) has been prepared to present analysis of the potential human health effects due to exposure to mobile source air pollution generated by vehicle traffic on State Route 20/49 for residents within 500 feet of the freeway.

1.1 Background and Purpose of the Supplement to the Final EIR

As noted above, this SFEIR has been prepared to comply with the October 19, 2023, Nevada Superior Court Judgment and Peremptory Writ of Mandate in Case No. CU20-084791, Community Environmental Advocates, Community Environmental Advocates Foundation, Protect Grass Valley and Ralph A. Silberstein (collectively, "Petitioners") v. City of Grass Valley. For ease of reference, these two documents will hereinafter be referred to together as the "Ruling" of the Superior Court; they are included in this SFEIR as Appendix M. This Ruling was the result of litigation that began in the summer of 2020.

On April 28, 2020, the City of Grass Valley certified a Final EIR for the Dorsey Marketplace Project ("Project" or "Dorsey Marketplace") and approved the Project. The Project entitlements include a General Plan Amendment, a Zone Change, a Development Review Permit and a Use Permit for drive-through facilities and a Lot Line Adjustment. The Final EIR consisted of the Draft EIR published in March 2019 and the Final EIR published in November 2019. In August 2020, the adequacy of the Final EIR was challenged by a Petition for Writ of Mandate. The trial court found in favor of the City and the Petitioners appealed that decision.

The Court of Appeal, however, found one problem with the Final EIR – its failure to analyze the potential health effects to Project residents and occupants in the year 2035 due to traffic using SR 20/49. Ruling in early 2023, the Court of Appeal rejected all other arguments made by the Petitioners on appeal. Citing the California Air Resources Board's (CARB) Air Quality and Land Use Handbook: A Community Health Perspective (CARB Handbook, which is included in this SFEIR as Appendix N), the Court of Appeal explained its reasoning on the air quality/health impact issue as follows:

> "The City argues that the EIR did analyze whether the project's contribution to traffic to SR 20/49 could exacerbate existing hazards associated with mobile source pollution. Relying on the CARB Handbook, the City argues the EIR concluded there was no evidence that the project would create a new health risk or substantially exacerbate any existing significant health risks to existing or future residents. We take no issue with the City's reliance on the CARB Handbook as a threshold of significance, but we conclude it was misapplied here.
>
> According to the CARB Handbook, air pollution studies indicate that living close to high traffic roadways may lead to adverse health effects, including asthma and reduced lung function. A key observation in the studies is that proximity to the roadway, truck traffic densities, and local meteorology (wind patterns) were key factors affecting the strength of association with adverse health effects. The studies reported an association of adverse health effects with proximity to traffic-related emissions within 1,000 feet, with the strongest association within 300 feet, and a 70 percent drop off in particulate pollution levels at 500 feet. Based on these studies, the CARB Handbook recommends against siting new residences and other sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
>
> Under Alternative B [i.e., the project as approved], the nearest residences in the proposed project would be sited about 170 feet from the SR 20/49 travel lanes, well within the 500-foot recommended buffer. The City nevertheless determined that a detailed health risk assessment was not required. Because total traffic volume on SR 20/49 was below the rural significance threshold of 50,000 vehicles per day, the City concluded "there [was] no significant health risk that the project could exacerbate."
>
> Other information in the EIR, however, shows that the average daily traffic volume for SR 20/49 is expected to increase to 56,000 vehicles by 2035, and that the proposed project would add an additional 1,000 daily vehicle trips to that total. Thus, the total traffic volume would exceed the 50,000-daily-vehicles threshold described in the CARB Handbook under existing-plus-project future conditions. Future residents of the project would be exposed to substantial concentrations of toxic air contaminants associated with SR 20/49.
>
> It follows that SR 20/49 is a potentially significant source of hazardous automobile emissions that the proposed project risks exacerbating. As a result, the project's potentially significant exacerbating effects should have been evaluated in the EIR.
>
> Since the EIR failed to evaluate the potential impact of such emissions on future residents and users, the EIR did not contain sufficient analysis to enable those who did not participate in its preparation to understand and meaningfully consider the extent to which the project could adversely affect the health of the project's occupants [citations omitted].
>
> The fact that the project design incorporates certain strategies to minimize exposure to toxic air contaminants does not alter this conclusion. The EIR does not give any sense of the nature or magnitude of the potential health risks posed by the project's proximity to SR

> 20/49, or the relative effectiveness of the pollution reduction strategies. The draft EIR did not even mention SR 20/49 as a potential emission source, let alone quantify the emissions and correlate them to potential health risks. Thus, even if the strategies help minimize exposure to toxic air contaminants, it is impossible on this record to conclude that they reduced the project's potentially significant exacerbating effects to less than significant. We therefore agree with plaintiffs that the EIR failed to evaluate adequately the human health effects of project residents' exposure to mobile source air pollution" (Appendix M).

On October 19, 2023, on remand from the Court of Appeal, the Nevada Superior Court issued its Ruling, which modified the original Superior Court judgment to be consistent with the Court of Appeal opinion and addressed the issue of remedy. The Ruling rejected all but one of the contentions made by the Petitioners regarding the City's compliance with CEQA. The Ruling did determine, however, that the Final EIR did not comply with the requirements of CEQA because "it does not evaluate adequately State Route (SR) 20/49 as a contributor of mobile source pollution and the associated health risks for future project occupants." The Court directed the City to remedy the air quality analysis in the EIR by providing an assessment of the human health effects associated with exposure to mobile source air pollution generated by vehicle traffic on State Route 20/49 for Project residents and occupants, particularly to address whether the Project could exacerbate an environmental hazard because the Final EIR noted that in the year 2035, SR 20/49 was projected to support daily traffic volumes of 56,000 vehicles, which exceeds the 50,000 vehicles per day threshold recommended in the CARB Handbook (Appendix N) regarding the proximity of residential land uses to air pollutant sources (CARB 2005).

1.2 Scope of the Partially Recirculated Draft EIR

Under Public Resources Code Section 21168.9(b), CEQA requires that a court's order include only those mandates that are necessary to achieve compliance with CEQA. Because the Court of Appeal found the Dorsey Marketplace EIR to be deficient only in respect to the lack of a Health Risk Assessment (HRA) and rejected numerous other challenges made to the 2020 Final EIR, that Final EIR is considered to be legally adequate in all other respects. Therefore, this Supplement to the Final EIR (SFEIR) addresses only the issue of potential health effects to future project residents and occupants due to exposure to mobile source air pollution from traffic on SR 20/49, including the Project's potential to exacerbate health effects by contributing traffic to SR 20/49. No other portion of the 2019 EIR is revised or supplemented.

The reasons why the City is treating this environmental document as a Supplement to the April 2020 Final EIR are explained in detail in section 1.4 below. The rules governing the preparation of supplements to EIRs are found in CEQA Guidelines section 15162. (The CEQA Guidelines are found in California Code of Regulations (CCR) Title 14, Division 6, Chapter 3.) Subdivision (b) provides that "[t]he supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised." Subdivision (c) adds that "[a] supplement to an EIR shall be given the same kind of notice and public review as is given to a draft EIR under Section 15087." Subdivision (d) states that "[a] supplement to an EIR may be circulated by itself without recirculating the previous draft or final EIR."

Consistent with these rules, this SFEIR will be circulated for a 45-day public review without the existing Final EIR. This SFEIR includes a new Air Quality technical section that evaluates the significance of potential health risk impacts based on the findings of the HRA. This document will become part of an updated Final EIR, as will any timely comments received on the SFEIR and written responses to any significant environmental issues raised in those timely comments.

Approach to the Analysis

The environmental analysis contained within this SFEIR augments the previous evaluation of environmental impacts contained in the 2019 EIR to provide a more detailed analysis of potential human health effects due to proximity to SR 20/49. The analysis in this SFEIR relies on information from the 2019 EIR (which includes both the Draft and Final EIRs), as well as the new HRA provided in Appendix O. A detailed discussion of the methodology used to conduct the HRA is presented in Section 2.3.2 of this document. In summary:

- the analysis considers existing residents in the vicinity of the Dorsey Marketplace Project site as well as future Dorsey Marketplace residents and occupants;
- the analysis considers potential effects under the 'no Project' and 'with Project' scenarios in the year 2023 (existing) and year 2035 (cumulative) conditions;
- the analysis considers the potential health effects to receptors at various distances within 1,000 feet of the SR 20/49 travel lanes;
- the analysis focuses on the effects of diesel particulate matter and total organic gases from on-road vehicles, reflecting the total average daily trips and vehicle fleet mix (i.e., percentages of various types of vehicles, such as passenger cars and trucks, light duty trucks, and heavy duty trucks);
- the analysis relies on the results of air dispersion models that calculate how pollutants are transported from the emission source to particular points at various distances from the pollutant source to calculate the concentration of pollutants that are expected to reach existing and future sensitive receptors in the Project vicinity; and
- the conclusions regarding health risk are based on the cancer risk and chronic health effect risks associated with the identified exposure rates.

1.3 Summary Project Description

The 2019 Draft EIR discusses two Alternatives in the Project Description, labeled Alternative A and Alternative B. The City approved Alternative B, which is planned to include development of approximately 172 residential apartments 104,350 square feet of commercial land uses, and 8,500 square feet of office space. A summary of the Alternative B Project components is presented in this section and, for purposes of this document, the terms "Alternative B" and "Project" are used interchangeably. A detailed description of Alternative B is presented in Section 2.5 of the 2019 Draft EIR, beginning on page 2-10; the 2019 Draft EIR is available at the City's website:

https://www.cityofgrassvalley.com/pod/active-projects

The Project site consists of 26.8 acres within three parcels located on the south side of Dorsey Drive. Land uses surrounding the site include multi-family residential to the north and east, SR 20/49 to the west, and commercial property to the south.

In approving Alternative B, the City Council approved a General Plan Amendment and rezone changing the land use designation on the site from Business Park (26.8 acres) to Commercial (14.5 acres) and Residential Urban High Density (12.3 acres). Alternative B also required a rezone from Corporate Business Park to 14.5 acres of Commercial (C-2) and 12.3 acres of Multiple Dwelling Residential (R-3).

As shown in Figure 1, Site Plan, Alternative B would develop 104,350 square feet of commercial uses, including two major shops (35,000 and 21,500 square feet), five smaller shops (with sizes between 4,000 and 8,500 square feet), three pads for drive-through services such as fast-food and financial institutions (sizes between 3,200 and 4,200 square feet) and one 6,000-sqare-foot pad that would support food service without a drive-through. The commercial uses would be placed throughout the northern portion of the Project site, with the major shops and two of the small shops along the western boundary, the restaurant pads in the northeastern portion of the site near the Project site entrance on Dorsey Drive, and the additional three small shops completing the southwestern portion of the commercial area perimeter. Parking would be provided central to all of the commercial uses, and would include electric vehicle charging stations.

The 172 residential apartments included in Alternative B would be constructed as two-story and three-story buildings in the southern portion of the Project site. The apartments would be market-rate rental units and are expected to include 95 two-bedroom units and 38 each of the one- and three-bedroom layouts. The units would range in size from 1,013 to 1,600 square feet. One of the buildings would include approximately 50% apartment space and 50% office space, providing 8,500 square feet of office space near the center of the Project site. The Project would also include an apartment complex clubhouse, pool, tot lot, and dog park.

Vehicles would circulate through the Project site using a north-south central spine road connecting to Dorsey Drive on the north and Spring Hill Drive on the south. Bicycle lanes would be striped on each side of the street and bus stop shelters would be provided near the center of the site. A network of landscaped walkways and pedestrian plazas would be provided throughout the Project site.

Several Project elements would serve to reduce potential air quality effects on residents and occupants at the project site. These include:

- Under Mitigation Measure 9a, a 6-foot-tall sound wall will be constructed in the southwestern portion of the project site, between the residences proposed in that portion of the site and SR 20/49. Findings of CARB's Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways indicate that these sound walls would provide vertical dispersion of pollutants which would reduce the concentration of toxic air contaminants within the Project site (CARB 2017).
- Under Mitigation Measure 5a, landscaping meeting specific performance standards regarding the density and height of vegetation would be installed within the minimum 50-foot-wide buffer between the SR 20/49 Dorsey Drive off-ramp and the onsite parking lots. Findings of CARB's Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways indicate that particulate matter can be deposited on vegetation, which would reduce the concentration of toxic air contaminants within the Project site (CARB 2017).
- The proposed buildings nearest SR 20/49 under Alternative B are comprised of two apartment buildings separated by a drive aisle and parking spaces. This creates an open area between the

buildings that allows for air flow to disperse pollutants as indicted by the findings of CARB's Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways Technical Advisory that features such as "building articulations (street frontage design elements like edges and corners that help break up building mass), and spaces that encourage air flow (e.g., parks)" reduce individuals' exposure to air pollution and associated health effects (CARB 2017).

1.4 Public Review of the Supplement to Final EIR

Because the court directed the City to suspend all Project activities that could result in an adverse change or alteration to the physical environment until the City has taken the necessary actions to comply with CEQA, the status of the City's environmental review process for the Project is akin to that of a lead agency that has certified an EIR, but determined that "some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred," As stated in CEQA Guidelines Section 15164. Thus, the legal principles applicable in such a situation are relevant.

PRC Section 21166 provides that no subsequent or supplemental EIR will be required unless "substantial changes" to the project or circumstances require "major revisions" to the EIR, or "new information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available." CEQA Guidelines Section 15162(a)(3), provides further guidance on the types of "new information" that trigger the need for a subsequent EIR. Specifically, the new information must be of "substantial importance" and show:

"a) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

b) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

c) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative."

CEQA Guidelines Section 15163 addresses the circumstances in which a supplement to an EIR, rather than a full subsequent EIR, should be prepared. Subdivision (a) of that section provides that "The Lead or Responsible Agency may choose to prepare a supplement to an EIR rather than a subsequent EIR if: (1) Any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and (2) Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation."

In the absence of circumstances triggering either a subsequent EIR or a supplement to an EIR under PRC Section 21166 and CEQA Guidelines Sections 15162 and 15163, CEQA Guidelines Section 15164 permits the agency to prepare an addendum with any necessary "changes or additions" to the previously certified EIR. Section 15164 further provides that an addendum need not be circulated for public comment but can be included with the final EIR and "shall" be considered by the decision-making body along with the final EIR "prior to making a decision on the project." Here, the Court's Ruling requires the City to consider this

document in determining whether the deficiencies identified in the Ruling have been adequately addressed before "choos[ing] to permit the implementation of any and all previously suspended Project activities and Project Approvals."

As established by the analysis included in this document, none of the conditions in CEQA Guidelines Section 15162 have occurred. Nor is there any need to prepare a supplement to the prior EIR pursuant to Section 15163. Nevertheless, because the deficiency in the Final EIR identified by the Ruling was the failure "to analyze SR 20/49 as a contributor of mobile source emissions and the associated health risks for future Project residents and occupants" and because the public has not had an opportunity to comment on this "analysis of SR 20/49 as a contributor of mobile source emissions and the associated health risks for future Project residents and occupants," the City has elected to circulate this document for public comment and has decided to call it a Supplement to the November 2019 Final EIR.[1] After this SFEIR is circulated for public review and the City has responded in writing to all public comments raising "significant environmental issues" related to the revised air quality analysis included in this document, this SFEIR, together with those responses, will be added to the original November 2019 Final EIR in order to create a new Final EIR. Once that document is ready, it will be submitted to the City Council for possible certification. If the City Council certifies the new Final EIR, the previously suspended Project activities will be able to proceed.

In light of the foregoing, the City directs that public comments submitted in response to the SFEIR address only the new information presented herein, specifically Draft EIR Impact 10-4 (which is addressed in this SFEIR as Impact 2.4.1) and the HRA (Appendix O), and shall not address all other impacts and analysis presented in the remainder of the 2019 Final EIR which are not being recirculated. Because the Final EIR was upheld in all other respects, the portions of that document other than those that are being changed and/or updated are not in contention. In other words, the recirculation of the SFEIR is not an opportunity to re-submit comments on previously published topics or to add additional comments on previously published topics. Readers are therefore requested not to make comments on issues not directly implicated by this SFEIR and the City will not respond to any new comments that are directed to other portions of the November 2019 Final EIR.

The SFEIR will be subject to review and comment by the public, as well as all responsible agencies and other interested parties, agencies and organizations for a period of no less than 45 days. The SFEIR will be available for public review and comments during the period from February 3, 2023, through March 19, 2023. Comments should be sent to the City at the following address:

[1] The City's decision to undertake formal public review is done on a voluntary basis. Where a court has found flaws in an EIR and remands the matter back to the lead agency for further work, the process required on remand is a function of whether the changes to be made to the EIR would constitute "significant new information" triggering full or partial recirculation or, as here, a subsequent EIR or supplement to an EIR. (*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1112; *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 658.) Here, neither the Court of Appeal nor the Superior Court ordered public review. The City has opted to do so, with the applicant's agreement, out of a desire to maximize transparency and to facilitate additional public input.

Ms. Amy Wolfson
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125 E. Main Street
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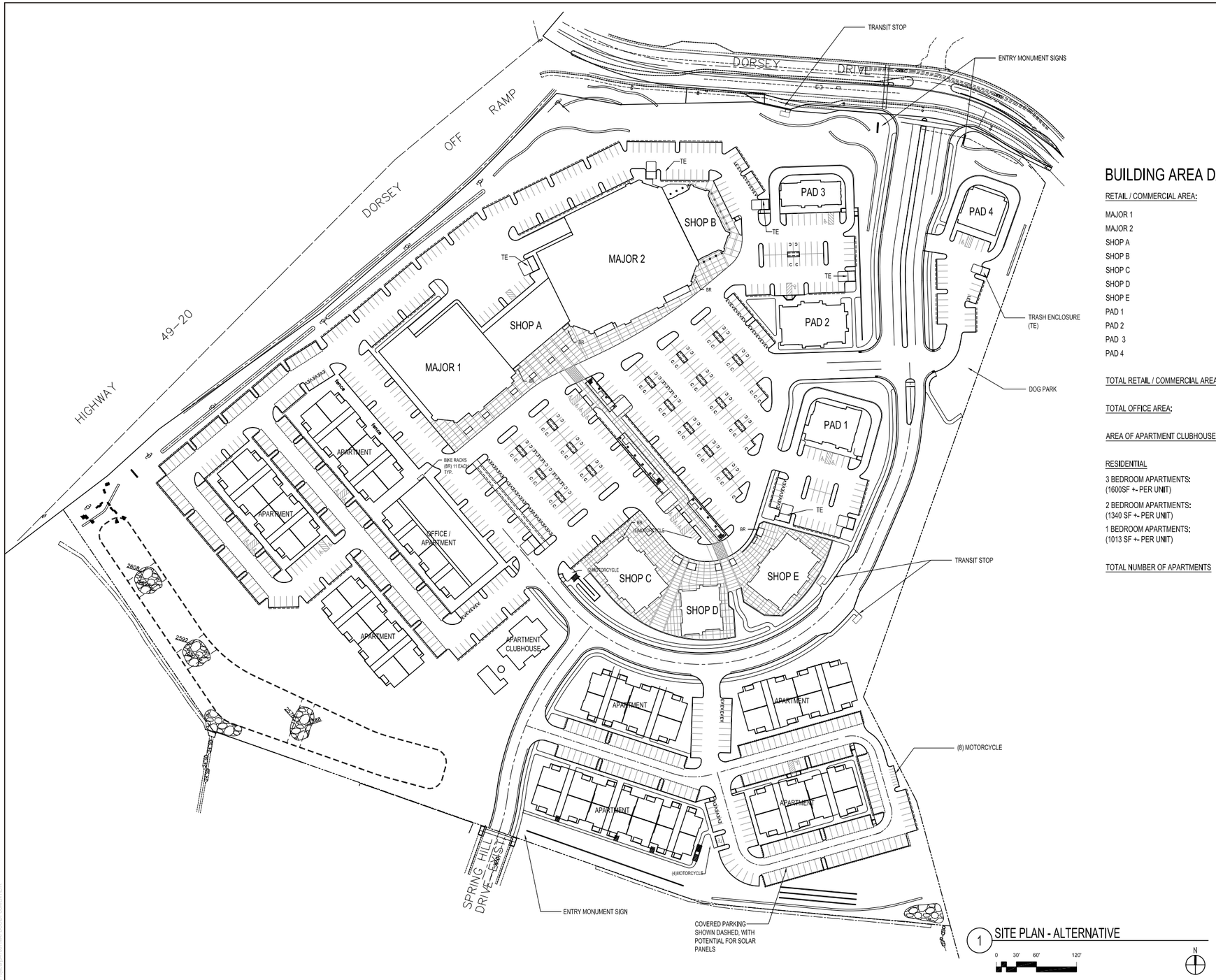
or by email directed to Ms. Wolfson at: awolfson@cityofgrassvalley.com.

Following the close of the comment period, the City will prepare written responses to any significant environmental issues raised in timely comments on the SFEIR. These responses will be folded into a new Final EIR that will consist of the original (November 2019) Final EIR, the SFEIR, and the new responses to comments (and any Errata that might be generated during review of comments on the SFEIR). These documents, taken together, will comprise the modified and expanded Final EIR for the Project.

Once they are complete, the new responses to comments will be published and made available to commenting agencies (if any) a minimum of ten days prior to a hearing by the Grass Valley City Council to consider whether to certify the new Final EIR. As stated above, the City will consider this SFEIR document, along with any public comments raising "significant environmental issues" related to the revised air quality analysis included in this document, and any written responses to comments in determining whether the deficiencies identified in the Ruling and Modified Opinion have been adequately addressed before "choos[ing] to permit the implementation of any and all previously suspended Project activities and Project Approvals." Once the City Council is satisfied that the deficiencies identified in the Ruling have been adequately addressed, the City will file a Return to the Writ, as directed by the trial court in paragraph 2 of the Peremptory Writ of Mandate.

1.5 References Cited

California Air Resources Board (CARB). 2017. Technical Advisory *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways.* April 2017.



1 SITE PLAN - ALTERNATIVE

0 30' 60' 120'

N

BUILDING AREA DATA:

RETAIL / COMMERCIAL AREA:

MAJOR 1	21,500 SF
MAJOR 2	35,000 SF
SHOP A	8,500 SF
SHOP B	5,650 SF
SHOP C	6,400 SF
SHOP D	4,000 SF
SHOP E	6,400 SF
PAD 1	4,200 SF
PAD 2	6,000 SF
PAD 3	3,200 SF
PAD 4	3,500 SF
TOTAL RETAIL / COMMERCIAL AREA:	104,350 SF
TOTAL OFFICE AREA:	8,500 SF
AREA OF APARTMENT CLUBHOUSE:	3,260 SF +-

RESIDENTIAL

3 BEDROOM APARTMENTS: (1600SF +- PER UNIT)	38 UNITS
2 BEDROOM APARTMENTS: (1340 SF +- PER UNIT)	95 UNITS
1 BEDROOM APARTMENTS: (1013 SF +- PER UNIT)	38 UNITS
TOTAL NUMBER OF APARTMENTS	171 UNITS

PARKING DATA:

PARKING REQUIRED :

REQUIRED PARKING COMMERCIAL BEFORE BICYCLE SUBSTITUTION (4/1000) :	417 STALLS
** REQUIRED PARKING COMMERCIAL AFTER BICYCLE SUBSTITUTION :	412 STALLS
***REQUIRED PARKING COMMERCIAL AFTER MOTORCYCLE SUBSTITUTION :	410 STALLS
REQUIRED ACCESSIBLE PARKING (2% OF TOTAL PARKING PROVIDED)	12 STALLS
REQUIRED BIKE PARKING (10% OF TOTAL PARKING PROVIDED)	0.1 * 568 = 57 BIKE RACKS
REQ. CLEAN AIR / VAN POOL / EV : (AS REQUIRED BY CAL GREEN)	0.08 * 568 = 46 STALLS
REQ. FUTURE ELECTRIC VEHICLE CHARGING STATION: (AS REQ. BY CAL GREEN)	0.06 * 568 = 35 STALLS
REQUIRED OFFICE PARKING (1:400)	22 STALLS

RETAIL / COMMERCIAL PARKING PROVIDED :

- STANDARD STALLS PROVIDED:	447 STALLS
- COMPACT STALLS PROVIDED:	77 STALLS (13% < 20% ALLOWED, THUS OK)
- ACCESSIBLE PARKING:	14 STALLS (12 > 15 STALLS, THUS OK)
- MOTORCYCLE ***	5 SPACES
- BIKE RACKS	57 BIKE RACKS
- CLEAN AIR / VAN POOL / EV : (STRIPED AND INDICATED ON SITE PLAN AS 'LE'. PART OF TOTAL STANDARD STALLS)	46 STALLS
- FUTURE ELECTRIC VEHICLE CHARGING: (INDICATED ON SITE PLAN AS 'EV' PART OF 'LE' STALL COUNT)	35 STALLS

RESIDENTIAL PARKING PROVIDED:

- STANDARD STALLS (COVERED) PROVIDED:	304 STALLS
- STANDARD STALLS (UNCOVERED) PROVIDED:	74 STALLS
- ACCESSIBLE PARKING PROVIDED:	10 STALLS (REQ. IS 2% OF TOTAL = 8 STALLS)
- MOTORCYCLE	7 SPACES
- FUTURE ELECTRIC VEHICLE CHARGING (INDICATED ON SITE PLAN AS 'EV' PART OF STANDARD STALL COUNT)	12 STALLS (3% OF PARKING PROVIDED)

OFFICE PARKING PROVIDED:

- STANDARD STALLS	28 STALLS
- ACCESSIBLE PARKING PROVIDED:	1 STALL

OTHER PARKING:

** SUBSTITUTION FOR AUTOMOBILE PARKING IS (1) STALL PER 8 BICYCLE RACKS, UP TO 10% MAXIMUM OF REQUIRED VEHICLE SPACES	** 417 X 10% = 41 / 8 = 5 STALL REDUCTION
MOTORCYCLE SPACES ALLOWED:	1/25, UP TO 10% MAX. OF REQUIRED VEHICLES
***SUBSTITUTION FOR AUTOMOBILE PARKING IS (1) SPACE PER 25 MOTORCYCLE SPACES, UP TO 10% MAXIMUM OF REQUIRED VEHICLE SPACE	***417 X 10% = 41 SPACES 41/ 25 = 2 SPACE REDUCTION (5 MOTORCYCLE SPACES PROVIDED , 41 ALLOWED, THUS "OK")

SOURCE: Williams + Paddon 2017

FIGURE 1

Site Plan

Dorsey Marketplace SFEIR

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2 Air Quality

This section describes the existing air quality conditions present within and around the Dorsey Marketplace (Project) site and vicinity, identifies associated regulatory requirements, and evaluates potential human health impacts related to air pollution emissions resulting from operation of the Project. Emissions from construction activities are not addressed because neither the Court of Appeal nor the Superior Court found any inadequacy in the existing analysis of construction emissions. As discussed in Chapter 1, Introduction, this analysis is focused on the potential human health effects associated with mobile source air pollution (from trucks and cars) due to the Project site's proximity to State Route 20/49 and the Project's contribution to SR 20/49 traffic volumes.

The Project is located adjacent to SR 20/49, which currently has an average daily traffic (ADT) volume of over 30,000 vehicles (Caltrans 2023). This section of the Supplement to the Final Environmental Impact Report (SFEIR) for the Project presents the findings of a Health Risk Assessment (HRA) analysis that estimates health risk impacts from roadway toxic air contaminants (TACs) at new residences, visitors, and employees at the commercial uses proposed by the Project as well as health risks associated with existing sensitive receptors within 1,000 feet of SR 20/49. The analysis in this HRA is based on dispersion modeling completed using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) Version 21112 and the Hotspots Analysis and Reporting Program Version 2 (HARP2) to evaluate potential health risks associated with the Project. The Bay Area Air Quality Management District (BAAQMD) thresholds of significance were used to address health impacts because the Northern Sierra Air Quality Management District (NSAQMD) has not established an equivalent approach, particularly for fine particulate matter ($PM_{2.5}$) risk. For the relevant data, refer to Appendix N, Health Risk Assessment Data (prepared by Dudek in October 2023).

Additional sources reviewed to prepare this section include the BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines and the Office of Environmental Health Hazards Assessment's (OEHHA) 2015 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Other sources consulted are listed in Section 2.5, References Cited.

2.1 Environmental Setting

Ambient air quality is generally affected by climatological conditions, the topography of the air basin, and the type and amounts of pollutants emitted. The Project site is located within the Mountain Counties Air Basin (MCAB). The MCAB includes portions of Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, Plumas, Sierra, and Tuolumne counties and is comprised of seven air districts. Nevada, Plumas, and Sierra counties are under the jurisdiction of the NSAQMD. This section describes relevant characteristics of the air basin, types of air pollutants, health effects, and existing air quality levels.

2.1.1 Climate and Topography

Mild, wet winters and hot, dry summers characterize the climate of central and western Nevada County. Precipitation generally occurs between November and April. Prevailing winds are from the south and southwest, and local air quality is influenced by the transportation of emissions from upwind mobile and stationary pollution sources in Placer County, the Sacramento metropolitan area, and the San Francisco Bay area.

Air quality in western Nevada County is also affected by inversion layers, which occur when a layer of warm air traps a layer of cold air beneath it, preventing vertical dispersion of air contaminants. Calm atmospheric conditions that contribute to the creation of these inversion layers frequently occur in the region during late fall and early spring. The presence of an inversion layer results in higher concentrations of pollutants near ground level.

2.1.2 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The national and California standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include ozone (O_3), nitrogen dioxide (NO_2), CO, sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. These pollutants, as well as TACs, are discussed in the following paragraphs.[1]

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly oxides of Nitrogen (NO_x) and Reactive Organic Gasses (ROGs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere ozone layer (stratospheric O_3) and at the Earth's surface in the troposphere (ground-level O_3).[2] The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013).

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in, thereby causing shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies on the effects of O_3 on children, the available studies show that

[1] The descriptions of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's "Criteria Air Pollutants" (EPA 2022a), as well as the California Air Resources Board's "Glossary" (CARB 2019a) and CARB's "Common Air Pollutants" (CARB 2022a).

[2] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents, and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2019b).

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with ROGs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016).

A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence, and the health basis for the ambient air quality standards for NO_2, results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their faster breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher levels of exposure compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB 2019c).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the Project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental

effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2019d).

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure, compared with the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of SO_2 (above 1 part per million [ppm]) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. Older people and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2019e).

SO_2 is of concern both because it is a direct respiratory irritant and because it contributes to the formation of sulfate and sulfuric acid in particulate matter (NRC 2005). People with asthma are of particular concern, both because they have increased baseline airflow resistance and because their SO_2-induced increase in airflow resistance is greater than in healthy people, and it increases with the severity of their asthma (NRC 2005). SO_2 is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. PM_{10} consists of particulate matter that is 10 microns or less in diameter, which is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. $PM_{2.5}$ consists of particulate matter that is 2.5 microns or less in diameter, which is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_x, NO_x, and ROG.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

A number of adverse health effects have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures (up to 24-hour duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide, based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2017).

Long-term exposure (months to years) to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB 2017a).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur and typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere and can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$.

Reactive Organic Gases. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as ROGs or VOCs. Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry-cleaning solutions, and paint.

The primary health effects of ROGs result from the formation of O_3 and its related health effects. High levels of ROGs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate ambient air quality standards for ROGs as a group.

2.1.3 Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of (1) risk identification and (2) risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles, including tailpipe emissions, braking, and tire wear; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70 the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2019f). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2019f). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines, including trucks, buses, and cars, and off-road diesel engines, including locomotives, marine vessels, and heavy-

duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same noncancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2019f). Those most vulnerable to noncancer health effects are children, whose lungs are still developing, and older people, who often have chronic health problems.

2.1.4 Nevada County Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the National Ambient Air Quality Standards (NAAQS) have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as in attainment for that pollutant. If an area exceeds the standard, the area is classified as in nonattainment for that pollutant. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated as unclassified or unclassifiable. The designation of *unclassifiable/attainment* means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as in attainment or nonattainment, but based on California Ambient Air Quality Standards (CAAQS) rather than the NAAQS. Table 2-1 depicts the current attainment status of Nevada County with respect to the NAAQS and CAAQS.

Table 2-1. Nevada County Attainment Classification

Pollutant	Designation/Classification	
	NAAQS	CAAQS
Ozone (O_3), 1-hour	No NAAQS	**Nonattainment**
Ozone (O_3), 8-hour	**Nonattainment–serious**	**Nonattainment**
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Unclassifiable/attainment	Unclassified
Sulfur dioxide (SO_2)	Unclassifiable/attainment	Attainment
Coarse particulate matter (PM_{10})	Unclassifiable/attainment	**Nonattainment**
Fine particulate matter ($PM_{2.5}$)	Unclassifiable/attainment	Unclassified
Lead	Unclassifiable/attainment	Attainment
Hydrogen sulfide	No NAAQS	Unclassified
Sulfates	No NAAQS	Attainment
Visibility-reducing particles	No NAAQS	Unclassified
Vinyl chloride	No NAAQS	No designation

Sources: EPA 2022b (NAAQS); CARB 2022b (CAAQS).
Notes: NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; bold text = not in attainment; attainment = meets the standards; attainment/maintenance = achieves the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

In summary, Nevada County is designated as a nonattainment area for federal and state O_3 standards and state PM_{10} standards. Nevada County is designated as unclassified or in attainment for all other criteria air pollutants.

2.1.5 Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2020 to 2022 within the MCAB are presented in Table 2-2. The closest air quality monitoring station to the Project site is located at 200 Litton Drive, Suite 230, Grass Valley, California, 95945, located approximately 0.75 miles northwest of the Project site. The data collected at this station for O_3 and $PM_{2.5}$ are considered representative of the air quality experienced in the Project vicinity. The closest air quality monitoring stations for NO_2 and PM_{10} is the Placer County station. Air quality data and the number of days exceeding the ambient air quality standards for O_3, NO_2, PM_{10}, and $PM_{2.5}$, the pollutants monitored at the Grass Valley and Placer County stations, are provided in Table 2-2.

Table 2-2. Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2020	2021	2022	2020	2021	2022
Ozone (O_3)									
Maximum 1-hour concentration	ppm	California	0.12	0.128	0.102	0.275	2	6	1
Maximum 8-hour concentration	ppm	California	0.070	0.123	0.097	0.093	20	40	17
		National	0.070	0.122	0.096	0.093	16	38	13
Nitrogen Dioxide (NO_2)									
Maximum 1-hour concentration	ppm	California	0.18	0.041	0.046	0.036	0	0	0
		National	0.100	0.0411	0.0469	0.036	0	0	0
Annual concentration	ppm	California	0.030	ND	0.006	0.006	—	—	—
		National	0.053	0.006	0.006	0.006	—	—	—
Coarse Particulate Matter (PM_{10})[a]									
Maximum 24-hour concentration	µg/m³	California	50	652.0	116.1	135.8	43.0 (42)	8.0 (9)	25.5 (25)
		National	150	722.9	121.4	156.6	14.1 (14)	0.0 (0)	1.0 (1)
Annual concentration	µg/m³	California	20	29.2	19.8	21.2	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]									
Maximum 24-hour concentration	µg/m³	National	35	202.2	176.4	13.4	ND (27)	16.7 (16)	ND (0)
Annual concentration	µg/m³	California	12	ND	8.7	ND	—	—	—
		National	12.0	14.1	8.7	ND	—	—	—

Sources: CARB 2023a; EPA 2022c.
Notes: ppm = parts per million by volume; — = not available; µg/m^3 = micrograms per cubic meter; ND = mean does not satisfy minimum data completeness criteria/insufficient data available to determine the value.
Data taken from CARB iADAM (CARB 2023a) and EPA AirData (EPA 2022c) represent the highest concentrations experienced over a given year.
No NO_2 values are available for Nevada County because NO_2 concentrations are historically low and not commonly monitored, therefore, data was obtained from Placer County.
Exceedances of national and California standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a California 24-hour standard for $PM_{2.5}$.
[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

2.1.6 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). To the north and east of the Project site, separated by open space, are the Grass Valley Terrace Apartments. To the north of the Project, on the other side of Dorsey Drive, are the Springhill Garden Apartments. Additionally, across SR 20/49 there are sensitive populations in the Golden Empire Nursing and Rehab Center and the Sierra Nevada Memorial Hospital. In addition to the existing proximate sensitive receptors described previously, the Project would also introduce new sensitive residential receptors.

2.2 Regulatory Framework

2.2.1 Federal Regulations

Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. EPA is responsible for implementing most aspects of the Clean Air Act, including setting NAAQS for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public

health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required EPA to identify national emission standards for hazardous air pollutants to protect public health and welfare. HAPs include certain VOCs, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

2.2.2 State Regulations

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established CAAQS, which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered in attainment if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 2-3.

Table 2-3. Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
O_3	1 hour	0.09 ppm (180 µg/m³)	—	Same as primary standard[f]
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—

Table 2-3. Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as primary standard
	Annual arithmetic mean	20 µg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 µg/m³	Same as primary standard
	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day average	1.5 µg/m³	—	—
	Calendar quarter	—	1.5 µg/m³ (for certain areas)[k]	Same as primary standard
	Rolling 3-month average	—	0.15 µg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m³)	—	—
Sulfates	24 hours	25 µg/m³	—	—
Visibility reducing particles	8 hours (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016.

Notes: CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; O_3 = ozone; ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m³= milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; PST = Pacific Standard Time.

a CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b NAAQS (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference

temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m³ to 12.0 μg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, for a subset of which carcinogenic and noncarcinogenic toxicity criteria have been established pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the California State Legislature (Legislature) enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. High-priority facilities are required to perform a health risk assessment (HRA), and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

As described previously, in 2000, CARB approved a comprehensive diesel risk reduction plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines, which was anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment Program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

This section of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

CARB Land Use Handbook

CARB is the state agency with jurisdiction over and expertise in issues relating to air quality and public health. CARB provides guidance that helps inform local agencies in establishing local guidance, thresholds, standards, and methodologies for assessing potential air quality and related human health effects. In 2005, CARB released an informational guide entitled, CARB Air Quality and Land Use Handbook: A Community Health Perspective (2005; hereafter referred to as the CARB Handbook, which is provided as Appendix N to this SFEIR). The purpose of this guide is to provide information to aid local jurisdictions in addressing issues and concerns related to the siting of sensitive land uses near major sources of air pollution, including freeways and high traffic roadways. The CARB Handbook is an industry-standard reference guide for considering the potential for exposure to TACs from roadways. It includes recommended separation distances for various land uses, which are summarized in Table 2-4. These recommendations were based on studies suggesting that health risks to sensitive receptors associated with mobile sources, particularly DPM, are highest within 300 feet of a major freeway, and that a 70% reduction in ambient particulate levels occurs at 500 feet from the source (Appendix N).

The CARB Handbook currently recommends that new sensitive land uses not be located within 500 feet of a freeway, urban roadways with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. However, these recommendations are not site-specific and should not be interpreted as defined "buffer zones." The recommendations of the CARB Handbook are advisory and need to be balanced with other state and local policies (Appendix N). As previously discussed, the nearest major roadway in relation to the Project site is SR 20/49, which is located north of the Project site, with some residences located within 170 feet of SR 20/49. Table 9-5 of the 2019 EIR presents traffic volume of 41,000 ADT and a cumulative 2035 traffic volume of 56,000. As discussed in Section 2.4.1, however, based on more recent estimates obtained from the Caltrans, the adjacent segments of SR 20/49 currently average only approximately 30,928 ADT (Caltrans 2023). Although the current SR 20/49 traffic volumes would be less than the 50,000 ADT threshold established by the CARB Handbook, this SFEIR evaluates the potential health risks associated with traffic on SR 20/49, with and without the Project as required by the Court of Appeal Opinion and Nevada County Superior Court Ruling. The SFEIR considers Project effects on both an "existing conditions" baseline and a 2035 cumulative baseline, as directed by those courts.

Table 2-4. Recommendations on Siting New Sensitive Land Uses Near Air Pollutant Sources

Source Category	Advisory Recommendations
Freeways and High Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.

Table 2-4. Recommendations on Siting New Sensitive Land Uses Near Air Pollutant Sources

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

Source: Appendix N.

2.2.3 Local Regulations

Northern Sierra Air Quality Management District

The NSAQMD is the primary agency responsible for planning to meet federal and state ambient air quality standards in Nevada, Plumas, and Sierra counties. The NSAQMD develops rules and regulations for stationary sources and equipment, prepares emissions inventories and air quality management planning documents, and conducts source testing and inspections. NSAQMD rules and regulations applicable to the Project include the following:

Rule 205 Nuisance: This rule prohibits discharge of air contaminants or other material from any source which cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health, or safety of any such persons, or the public, or which cause to have natural tendency to cause injury or damage to business or property.

Rule 207 Particulate Matter: This rule prohibits the release or discharge of particulate matter emissions in excess of 0.1 grains per cubic foot of dry exhaust gas as standards conditions into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only.

Rule 226 Dust Control: This rule requires the submittal of a Dust Control Plan to the NSAQMD for approval prior to any surface disturbance, including clearing of vegetation.

Rule 227 Cutback and Emulsified Asphalt Paving Materials: This rule restricts the discharge of VOCs caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction or road maintenance, unless such manufacture or use complies with the provisions of the rule.

Rule 904 Asbestos Airborne Toxic Control Measure Asbestos-Containing-Serpentine: This rule incorporates by reference Title 17, Section 93106, of the California Code of Regulations in its entirety.

Grass Valley General Plan

The Land Use (LU) element, Circulation (C) element, and Conservation and Open Space (COS) element contain goals (G), objectives (O), policies (P) and implementation measures (I) to reduce emissions and improve air quality. Most of these goals, objectives, policies and implementation measures focus on promoting infill development, mixed use developments, and alternative means of transportation to reduce the number of vehicles on the road and the distance required to access goods and services. The following goals, objectives, policies, and implementation measures are applicable to the Project:

2-LUG: Promote infill as an alternative to peripheral expansion where feasible.

3-LUG: In areas of new development, plan for diversity of land uses and housing types, including mixed use developments.

6-LUG: Promote a jobs/housing balance within the Grass Valley region in order to facilitate pleasant, convenient and enjoyable working conditions for residents, including opportunities for short home to work journeys.

4-LUO: Reduction in environmental impacts associated with peripheral growth.

15-LUO: Reduction in the number of vehicle miles driven.

5-LUP: Actively market infill and available parcels during contracts with developers and community members.

6-LUP: Develop a more specific development strategy for identified infill parcels following General Plan adoption.

7-LUP: Utilize California Redevelopment Law to provide incentives to infill development.

8-LUP: Encourage and facilitate mixed-use developments on infill sites.

9-LUP: Provide for higher residential densities on infill site and in the Downtown area.

23-LUP: Encourage mixed use developments incorporating a variety of densities on infill sites and in areas proposed for annexation.

1-CG: Provide a circulation system that utilizes a variety of transportation modes, including alternative means of transportation.

2-CG: Ensure that streets and roadway improvements complement and support land use goals, objectives, policies, and plans.

5-CO: Convenient, safe and functional facilities for pedestrians, bicyclists and equestrians.

6-CP: Locate transit stops and park and ride facilities near freeway interchanges and in conjunction with higher density residential and mixed-use developments.

8-CP: Incorporate separated, non-motorized paths in street cross-section designs whenever feasible.

6-COSG: Assure compliance with and understanding of air and water quality regulations and standards.

16-COSO: Inclusion of air and water quality considerations in land use decisions rendered by the Planning Commission and City Council.

22-COSP: Implement circulation/transportation measures designed to reduce reliance on the automobile.

2.3 Significance Criteria and Methodology

2.3.1 Thresholds of Significance

With respect to potential adverse health effects due to exposure to mobile source air pollutants, the significance threshold used to evaluate this impact is derived from Appendix G of the CEQA Guidelines. Under this threshold, a significant impact would occur if the Project would:

- Expose sensitive receptors to substantial pollutant concentrations.

Project-related impacts under this threshold were determined to be less than significant in the 2019 EIR. However, as previously discussed, this SFEIR includes an additional evaluation of health risk impacts from mobile source emissions at new residences, visitors, and employees at the commercial uses proposed by the Project. In addition, health risks associated with existing sensitive receptors within 1,000 feet of SR 20/49 was also assessed.

Notably, in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377 ("CBIA"), the California Supreme Court held that "agencies subject to CEQA generally are *not* required to analyze the impact of existing environmental conditions on a project's future users or residents" (italics added).

The court did not hold, however, that CEQA never requires consideration of the effects of existing environmental conditions on the future occupants or users of a project. But the circumstances in which such conditions may be considered are narrow: "when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment—and not the environment's impact on the project—that compels an evaluation of how future residents or users could be affected by exacerbated conditions."

(*Id*. at pp. 377-378, italics added.) Furthermore, as stated by the Court of Appeal on remand following the Supreme Court's decision in CBIA, a lead agency may rely on BAAQMD's receptor thresholds to analyze the impact of the project on the environment, including a project's potential to exacerbate existing conditions. (See California Building Industry Assn. v. Bay Area Air Quality Management Dist. (2016) 2 Cal.App.5th 1067, 1082-1084.) Consistent with this authority and the decision of the Court of Appeal, the City has chosen to apply the BAAQMD project-level significance thresholds in the HRA, as discussed below.

Accordingly, based on direction from the Court of Appeal, the Nevada County Superior Court found that because the Project would increase traffic volumes on SR 20/49, the Project could exacerbate health risks for future Project residents and occupants associated with SR 20/49 as a contributor of mobile source emissions and that the 2019 EIR did not adequately evaluate this potential effect (Appendix M).

As stated previously, in order to evaluate health risks associated with the proposed scenarios (baseline, baseline + Project, cumulative 2035, and cumulative 2035 + Project), the BAAQMD thresholds were used as the NSAQMD has not established an equivalent approach, particularly for increased $PM_{2.5}$ concentrations. The most recent BAAQMD *CEQA Air Quality Guidelines* were adopted in April 2023 and include guidelines for the project analysis and thresholds for criteria air pollutants, TACs, and GHG emissions (BAAQMD 2023). Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The BAAQMD recommends an incremental cancer risk threshold of 10 in 1 million. For context, the National Cancer Institute estimates that approximately 39.5% of people will be diagnosed with cancer during their lifetimes (National Cancer Institute 2020). A cancer risk of 10 in a million indicates that a person has an additional risk of 10 chances in a million (0.001%) of developing cancer during their lifetime as a result of the air pollution scenario being evaluated, which is minimal and defined as the "No Significant Risk Level" for carcinogens in Proposition 65. In addition, some TACs have noncarcinogenic effects. The BAAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) effects.[3] BAAQMD significance thresholds applied for the HRA assessment are summarized in Table 2-5.

Table 2-5. BAAQMD Thresholds of Significance

Factor	CEQA Threshold
Risks and hazards (individual project)	• Compliance with qualified community risk reduction plan, or: • Increased cancer risk of >10.0 in a million • Increased noncancer risk of >1.0 Hazard Index (chronic or acute) • Ambient $PM_{2.5}$ increase >0.3 µg/m³ annual average

Source: BAAQMD 2023.
Notes: BAAQMD = Bay Area Air Quality Management District; CEQA = California Environmental Quality Act; $PM_{2.5}$ = fine particulate matter; µg/m³ = micrograms per cubic meter.

[3] Non-cancer adverse health risks are measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentrations of the various noncarcinogens from the Project to published reference exposure levels that can cause adverse health effects.

2.3.2 Approach and Methodology

Roadway Health Risk Assessment

As previously discussed, the Project is located adjacent to SR 20/49, which currently has approximately 30,000 average daily traffic (Caltrans 2023). As such, four roadway HRA scenarios are analyzed: baseline, baseline + Project, cumulative 2035, and cumulative 2035 + Project, in order to estimate the change between the baseline and cumulative scenarios with and without the Project-generated vehicle travel.

The baseline and baseline + Project scenarios applied an operational year of 2022, which is consistent with the most recent Caltrans data available. The cumulative 2035 and cumulative 2035 + Project scenarios applied an operational year of 2035. These operational years were assumed as the starting year for the HRA's 30-year exposure for residents, visitors, and employees, on the project site and within 1,000 feet of SR 20/49. Notably, assuming an earlier year results in a more conservative analysis as vehicle emission factors and the percent of diesel vehicles on the roadway generally decreases over time due to more stringent vehicle standards, as well as fleet turnover replacing older vehicles in later years.

The SR 20/49 traffic volumes provided by Caltrans were collected at Dorsey Drive. The annual vehicle miles traveled (VMT) for the northbound and southbound portions of SR 20/49 was calculated based on the segment length and traffic count volumes. To account for changes in vehicle volumes, 2022 Caltrans Performance Measurement System (PeMS) data (January 1, 2021, to December 31, 2022) was obtained to estimate the annual growth on each segment, northbound and southbound separately, between 2021 and 2022. Based on the 2022 PeMS data, annual traffic volume on SR 20/49 was estimated to decline. Therefore, the estimated annual growth of 0.5% was conservatively assumed instead of a negative growth rate. The existing traffic volume, as provided by Caltrans, on SR 20/49, which was incorporated into the HRA, was 30,928 ADT. Furthermore, the baseline + Project scenario SR 20/49 traffic volume was estimated to be 39,801 ADT, the cumulative 2035 scenario traffic volume was estimated to be 33,093 ADT, and the cumulative 2035 + Project scenario traffic volume was estimated to be 40,619 ADT. The ADTs for each of these scenarios represents a worst-case scenario in which it was assumed that all the Project's ADT would travel on SR 20/49. The HRA assessment also estimated the potential health risks associated with a 20% trip distribution on SR 20/49, which is consistent with the 2019 transportation assessment. Assuming a 20% trip distribution on SR 20/49 resulted an estimated 32,703 ADT for the baseline + Project scenario and 34,868 ADT for the cumulative 2035 + Project scenario.

Notably, the existing and cumulative conditions of SR 20/49 presented in Table 9-5 of the 2019 EIR reflected higher ADT than are currently projected; the volumes in the 2019 EIR were based on the Caltrans ADT projections developed in 2016. Specifically, the 2019 EIR assumed traffic volumes of 41,000 ADT for the baseline scenario, 42,000 ADT for the baseline + Project scenario, 56,000 ADT for the cumulative 2035 scenario, and 57,000 ADT for the cumulative 2035 + Project scenario. As noted in Table 2-4, the CARB Handbook defines a High Traffic Roadway as one that carries at least 50,000 ADT in rural settings (Appendix N). Based on the 2016 ADT projections, SR 20/49 would have met this standard for the cumulative condition. However, this SFEIR and the associated HRA are based on the most recent Caltrans data from 2021 and 2022 because the 2021 and 2022 traffic volume data represent the most current traffic conditions. Overall, current traffic volumes on SR 20/49 are substantially less than what was assumed in the 2019 EIR. Thus, based on the best available data and using the threshold adopted by the City and upheld by the Court of Appeal, SR 20/49 is no longer projected to meet the CARB Handbook definition of a High Traffic Roadway. Despite this change in projected ADT and its relation to the CARB Handbook threshold, however, the City, based on the direction of the Court of Appeal and the trial court's Ruling, is treating SR 20/49 as a pollution source and analyzing the associated health risk.

Per the BAAQMD guidance, the TACs included in this HRA are DPM and total organic gases (TOG, both exhaust and evaporative) from on-road vehicles (cars and trucks) traveling on SR 20/49. For risk assessment purposes, particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}) in diesel exhaust originating from diesel vehicles traveling on SR 20/49 is considered DPM (BAAQMD 2023). As explained previously, diesel exhaust, which is a complex mixture of gases and fine particles emitted by diesel-fueled combustion engines, is identified by the State of California as a known carcinogen. Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole.

Although TACs in brake and tire wear dust were also topics of concern in public comment, neither were evaluated herein. While brakes and tires may include toxic components that may become airborne during vehicle travel, the speciation of potential toxics within particulate matter generated by brake and tire wear is highly speculative given current science and methods. Until additional research is conducted and HRA guidance is developed, non-exhaust vehicle emission sources cannot be accurately and meaningfully evaluated separately from vehicle exhaust sources. However, $PM_{2.5}$ concentrations were included in the evaluation, which account for brake and tire wear fine particulate dust.

The Project would be required to comply with the Building Code applicable when construction permit applications are submitted (the 2022 Building Code went into effect on January 1, 2023). In general, later building codes are more stringent than earlier building codes with respect to the protection of occupants from outdoor air pollution. The Building Code requires installation of Minimum Efficiency Reporting Value 13 (MERV 13) air filtration systems on return vents in the proposed residential units. EPA reported that the MERV 13 filters remove 80% to 90% of particles ranging from 1 to 10 microns (EPA 2020). To account for exposure of DPM $PM_{2.5}$ inside and outside the buildings, the emissions at the new residential units to be developed under the Project incorporated an 87% time spent inside factor,[4] which accounts for the amount of time that particulate exposure would be reduced by the MERV 13 filters. MERV 13 filters were not assumed for existing uses since these filters are not common in buildings constructed prior to January 2023. This HRA also incorporates the time spent away from home as recommended by OEHHA (OEHHA 2015). Accounting for the actual time spent indoors and exposure related to the residents within the Project provides a more realistic exposure scenario from particulate emissions from SR 20/49. Detailed emissions data are provided in Appendix O.

Per the BAAQMD *CEQA Air Quality Guidelines* (BAAQMD 2023), the TACs included in this HRA are DPM and total organic gases (TOG, both exhaust and evaporative) from on-road vehicles (cars and trucks). DPM and TOG emission factors were calculated using the latest version of CARB's mobile source emission inventory, EMFAC2021. Speciation profiles for TOG was then used to determine the emissions of gaseous TACs (BAAQMD 2023). To estimate the emissions from vehicles traveling on SR 20/49, EMFAC2021 was run for all vehicle classes in Nevada County. EMFAC2021 can generate emission factors (also referred to as emission rates) in grams per mile for the fleet in a class of motor vehicles within a region for a particular geographical study year. For this analysis, Nevada County and calendar years 2022 and 2035 were selected for the existing and the cumulative scenarios. Of the total ADT for each of the modeled scenarios, approximately 12% was assumed to be trucks and the remaining were assumed to be non-trucks (all other vehicle types including passenger vehicles, buses, motorcycles, etc.), which was based on the fleet mix (percentage of vehicles by class) contained in the EMFAC2021 model. For trucks and non-trucks on SR 20/49, the proportion of diesel and gasoline fueled vehicles was also estimated based on data from CARB's EMFAC2021 model for the overall vehicle fleet for Nevada County.

[4] Based on a study conducted by CARB and University of California, Berkeley, *Activity Patterns of California Residents* (CARB 1991).

A VMT weighted average emission factor was estimated for trucks (light-heavy duty truck, light-heavy duty truck 2, medium-heavy duty truck, and heavy-heavy duty truck) and non-trucks, which includes all other vehicle types, (light-duty automobiles, light-duty truck class 1, light-duty truck class 2, medium-duty vehicle, motorhome, other bus, school bus, urban bus, and motorcycle). The amount of vehicle traffic present on the roadway segments evaluated in this HRA is measured in terms of VMT per segment. This was calculated by taking the average daily traffic and multiplying it by the distance of the roadway segment evaluated. The total emissions of DPM and TOG (in pounds per hour and pounds per year) were then calculated for each roadway segment by multiplying the emission factor and the VMT. Notably, in addition to exhaust PM_{10} (which is used as a surrogate for DPM), non-TAC $PM_{2.5}$ emissions associated with tire-wear and brake-wear and resuspended road dust were included in the emissions inventory to estimate total $PM_{2.5}$ concentrations. The calculated emissions of DPM, TOG, and $PM_{2.5}$ are depicted in Appendix O.

Air dispersion models calculate the atmospheric transport and fate of pollutants from the emission source. The models calculate the concentration of selected pollutants at specific downwind ground-level points, such as residential or school receptors. The transformation (fate) of an airborne pollutant, its movement with the prevailing winds (transport), its crosswind and vertical movement due to atmospheric turbulence (dispersion), and its removal due to dry and wet deposition are influenced by the pollutant's physical and chemical properties and by meteorological and environmental conditions. Factors such as distance from the source to the receptor, meteorological conditions, intervening land use and terrain, pollutant release characteristics, and background pollutant concentrations affect the predicted air concentration of an air pollutant. Air dispersion models have the capability to take all of these factors into consideration when calculating downwind ground-level pollutant concentrations.

Dudek conducted a dispersion modeling analysis of DPM, TOG, and $PM_{2.5}$ emitted from vehicles traveling on SR 20/49 proximate to the project site for the HRA. The dispersion modeling was performed using AERMOD Version 21112, which is the model EPA approved and BAAQMD recommends for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain.

Principal parameters of AERMOD for the Project operations included the following:

- **Dispersion Model:** The air dispersion model used was AERMOD, Version 21112, with the Lakes Environmental Software implementation/user interface, AERMOD View, Version 10.2.1. A unit emission rate (1 gram per second (g/s)) was normalized over the line of adjacent volume sources and area sources for the AERMOD run to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength, and is used as a way to simplify the representation of emissions from many sources. The maximum concentrations were determined for the 1-hour and Period averaging periods.
- **Meteorological Data:** The most recent available 5-year meteorological data (years 2014-2016, 2018 and 2019) for the Blue Canyon - Nyack Airport station (KBLU) was downloaded from CARB, and then input to AERMOD.
- **Urban and Rural Options:** Typically, urban areas have more surface roughness and structures and low-albedo surfaces that absorb more sunlight, and thus, more heat, relative to rural areas. The urban dispersion option was selected and the Nevada County population for year 2022 (102,293 persons) input into AERMOD.

- **Terrain Characteristics:** Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. The National Elevation Dataset (NED) dataset with resolution of 1/3 arc-second was used.
- **Sensitive Receptors:** This HRA evaluates the risk to existing residential receptors located in proximity to the Project. A uniform fine 1-kilometer by 1-kilometer Cartesian grid with 20-meter spacing was centered over the project site and converted into discrete receptors to capture the maximum risk.
- **Source Release Scenario:** Vehicles traveling on SR 20/49 were modeled as a line of adjacent volume sources for the roadway segment nearby the project site. The length of each line volume source was based on the modeled length in AERMOD. The AERMOD-modeled roadway segments total up to 1,884 meters. Trucks and non-trucks were modeled as separate line volume sources to account for different plume and release characteristics resulting in a total of eight separate line volume sources. Plume height was assumed to be 6.1 meters for trucks and 0.91 meters for non-trucks. A release height was estimated for each source assuming 1/2 of the plume height, which equals 3.05 meters for trucks and 0.46 meters for non-trucks. The plume width was estimated for each segment based on the width of the traveling lanes plus 6 meters (or approximately 3 meters on each side) to account for vehicle wake (EPA 2021).

Dispersion model plot files from AERMOD were then imported into CARB's HARP2 to determine health risk, which requires peak one-hour emission rates and annual emission rates for all pollutants for each modeling source. OEHHA recommends that an exposure duration (residency time) of 30 years be used to estimate individual cancer risk for the maximally exposed individual receptor (MEIR) starting in the third trimester of pregnancy to accommodate the increased susceptibility of exposures in early life (OEHHA 2015).

2.3.3 Modeling Uncertainties

Dispersion Modeling

Source parameters used in the AERMOD emissions modeling add uncertainty to the analysis. For all emission sources, Dudek used source parameters that are recommended as defaults by the EPA (EPA 2021) or the BAAQMD CEQA Air Quality Guidelines (released April 2023), which are expected to produce more conservative (i.e., overestimation of) results. Although differences may exist between the actual emissions characteristics of a source and its representation in the modeling, exposure concentrations used in this HRA represent approximate exposure concentrations. Furthermore, the analysis of cumulative 2035 conditions does not include yet-to-be realized emissions reductions from future regulations for trucks and passenger vehicles and based on the negative growth rate reflected in Caltrans traffic data. Instead, this analysis conservatively assumes a 0.5% growth rate of traffic volumes on SR 20/49.

Exposure Concentrations

When estimating pollutant exposures using the AERMOD dispersion mode, there is uncertainty embodied in the modeling. AERMOD's limitations provide a source of uncertainty in the estimation of exposure concentrations. According to the EPA, errors of 10 to 40% are typical for the highest estimated concentrations due to the limitation of the AERMOD algorithms (EPA 2017). The methods employed by Dudek consistently produce conservative results, and therefore estimated exposure concentrations are likely to be at or above actual exposure concentrations.

Exposure Assumptions

A number of assumptions must be made in order to estimate human exposure to chemicals. These assumptions include parameters such as breathing rates, exposure time and frequency, exposure duration, and human activity patterns. Although the best way to estimate the weighted arithmetic mean, is to use average values derived from scientifically defensible studies, many of the exposure variables used in this HRA per the 2015 OEHHA guidelines and BAAQMD CEQA Air Quality Guidelines are high end (i.e., more conservative) estimates. For example, although the OEHHA guidance recommends assuming a period of time spent out of the home each day for residential sensitive receptors, this analysis conservatively assumes that children are exposed 24 hours per day, and assumes adult residents are home 73% of the time. These assumptions are conservative, since most residents do not remain in their homes for these periods of time throughout the year. This analysis follows OEHHA and BAAQMD guidance in evaluating outdoor air; however, indoor air concentrations may be different due to filtration or other reductions resulting from the building shell or heating, ventilation, and air conditioning (HVAC) systems. The combination of several high-end and conservative estimates used as exposure parameters may substantially overestimate chemical intake. The excess lifetime cancer risks calculated in this HRA are therefore likely to be overestimated.

Toxicity Assessment

The standard cancer potency factor (CPF) established by OEHHA for DPM was used to estimate potential carcinogenic health effects from exposures to DPM emitted from vehicles on SR 20/49. The CPF for DPM is derived by applying conservative assumptions that are intended to protect the most sensitive individuals in the potentially exposed populations. To derive the CPF toxicity value for DPM, OEHHA makes several assumptions that tend to overestimate the actual hazard or risk to human health. CPFs used to estimate carcinogenic risk are also typically derived based on data from animal studies. These studies often administer high doses of a test chemical to laboratory animals, and the reported response is extrapolated to the much lower doses typical of human exposure. Very little experimental data are available on the nature of the dose-response relationship at low doses (e.g. whether a threshold exists or if the dose-response curve passes through the origin). Because of this uncertainty, a conservative model is used to estimate the low-dose relationship, and uses an upper bound estimate (the 95 upper confidence limit of the slope predicted by the extrapolation model) as the CPF. With this factor, an upper-bound estimate of potential cancer risks is calculated.

The CPF for DPM (1.1 milligrams/kilograms-day) was used to estimate cancer risks associated with exposure to DPM from Project operation. However, the CPF is highly uncertain in both the estimation of response and dose. Due to inadequate animal test data and epidemiology data on diesel exhaust, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization (WHO), had previously classified DPM as Probably Carcinogenic to Humans (Group 2). The IARC currently classifies diesel engine exhaust as “carcinogenic to humans,” based on sufficient evidence that it is linked to an increased risk of lung cancer. IARC also notes that there is “some evidence of a positive association” between diesel exhaust and bladder cancer. Notably, the EPA classifies diesel exhaust as “likely to be carcinogenic to humans.” This determination by the IARC may provide additional impetus for the EPA to identify a quantitative dose-response relationship between exposure to DPM and cancer.

Risk Calculations

Estimated risks in the HRA are based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions tends to produce upper-bound estimates of risk. The use of conservative assumptions is likely to result in overestimated

exposure and therefore health risk, although it is difficult to quantify the uncertainties associated with all the assumptions made in the HRA.

2.4 Impact Analysis

Impact 2.4.1 Would the project expose sensitive receptors to substantial pollutant concentrations?

Health Impacts of Operational Toxic Air Contaminants

Based on the 30-year exposure scenario, the MEIR for cancer risk would be at the Golden Empire Nursing and Rehab Center which is adjacent to SR 20/49, located north of the Project site. The results of the HRA for each of the proposed scenarios (baseline, baseline + Project with 100% ADT added to SR 20/49, baseline + Project with 20% of ADT added to SR 20/49,cumulative 2035, cumulative 2035 + Project with 100% ADT added to SR 20/49, and cumulative + Project with 20% of ADT added to SR 20/49) are summarized in Tables 2-6 and 2-7, below. The results based on the assumption that 100% of the project-generated ADT (approximately 8,873 vehicle trips) would be added to SR 20/49 represents a worst-case scenario while the results based on the assumption that 20% of the project-generated ADT (approximately 1,775 vehicle trips) reflects the trip distribution analysis presented in the Transportation Impact Analysis Report prepared for the project, which was provided in Appendix G of the 2019 Draft EIR.

Table 2-6. Summary of Maximum Cancer and Chronic Health Risks and $PM_{2.5}$ Concentrations (Baseline Scenario)

Impact Parameter	Units	Risk	CEQA Threshold	Level of Significance
Baseline				
Cancer Risk	Per Million	22.02	10	**Potentially Significant**
Chronic Hazard Index	Index Value	0.01	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.16	0.3	Less than Significant
Baseline + Project with 100% ADT added to SR 20/49				
Cancer Risk	Per Million	27.38	10	**Potentially Significant**
Chronic Hazard Index	Index Value	0.02	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.20	0.3	Less than Significant
Project with 100% ADT added to SR 20/49 Impact (Baseline + 100% Project ADT minus Baseline)				
Cancer Risk	Per Million	5.36	10	Less than Significant
Chronic Hazard Index	Index Value	0.01	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.04	0.3	Less than Significant
Baseline + Project with 20% ADT added to SR 20/49				
Cancer Risk	Per Million	22.19	10	**Potentially Significant**
Chronic Hazard Index	Index Value	0.01	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.23	0.3	Less than Significant

Project with 20 % ADT added to SR 20/49 Impact (Baseline + 20% Project ADT minus Baseline)				
Cancer Risk	Per Million	0.17	10	Less than Significant
Chronic Hazard Index	Index Value	<0.01	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.01	0.3	Less than Significant

Source: Appendix O.
Notes: CEQA = California Environmental Quality Act; HRA = Health Risk Assessment
[1] The Golden Empire Nursing and Rehab Center which is located adjacent to SR 20/49 was conservatively assumed to be the MEIR, though patients would not be considered residents with a 30-year exposure duration. Furthermore, this facility for seniors specifically, would not have the 3rd trimester start of exposure. Furthermore, the nursing facility would install MERV-14 filters per the American Society of Heating, Refrigeration, and Air-Conditioning Engineers or the filter with the highest compatible filtering efficiency depending on the existing HVAC system. Use of such filters was not included in the assessment and would serve to lower the indoor exposure to particulate matter and associated health risks.

Table 2-7. Summary of Maximum Cancer and Chronic Health Risks and $PM_{2.5}$ Concentrations (Cumulative Scenario)

Impact Parameter	Units	Risk	CEQA Threshold	Level of Significance
Cumulative 2035				
Cancer Risk	Per Million	23.56	10	**Potentially Significant**
Chronic Hazard Index	Index Value	0.01	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.18	0.3	Less than Significant
Cumulative 2035 + 100% Project ADT				
Cancer Risk	Per Million	28.92	10	**Potentially Significant**
Chronic Hazard Index	Index Value	0.02	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.22	0.3	Less than Significant
100% ADT Project Impact (Cumulative + 100% Project ADT minus Cumulative)				
Cancer Risk	Per Million	5.36	10	Less than Significant
Chronic Hazard Index	Index Value	0.01	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.04	0.3	Less than Significant
Cumulative 2035 + Project with 20% ADT added to SR 20/49				
Cancer Risk	Per Million	23.73	10	**Potentially Significant**
Chronic Hazard Index	Index Value	0.01	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.25	0.3	Less than Significant
Project with 20 % ADT added to SR 20/49 Impact (Cumulative + 20% Project ADT minus Baseline)				
Cancer Risk	Per Million	0.17	10	Less than Significant
Chronic Hazard Index	Index Value	<0.01	1.0	Less than Significant
$PM_{2.5}$ Concentration ($\mu g/m^3$)	$\mu g/m^3$	0.01	0.3	Less than Significant

Source: Appendix O.
Notes: CEQA = California Environmental Quality Act; HRA = Health Risk Assessment
[1] The Golden Empire Nursing and Rehab Center which is located adjacent to SR 20/49 was conservatively assumed to be the MEIR, though patients would not be considered residents with a 30-year exposure duration. Furthermore, this facility for seniors specifically, would not have the 3rd trimester start of exposure. Furthermore, the nursing facility would install MERV-14 filters per the American Society of Heating, Refrigeration, and Air-Conditioning Engineers or the filter with the highest compatible filtering efficiency depending on the

existing HVAC system. Use of such filters was not included in the assessment and would serve to lower the indoor exposure to particulate matter and associated health risks.

As depicted in Tables 2-6 and 2-7, for the existing scenario, the maximum potential cancer risk within the Project area from on-road vehicle exhaust along SR 20/49 would be approximately 22.02 in a million and in the cumulative 2035 scenario the maximum potential cancer risk within the Project area from on-road vehicle exhaust along SR 20/49 would be approximately 23.56 in a million. These risk levels reflect the baseline conditions that are present or will be present in the area without the addition of Project-generated traffic.

For the existing + 100% Project ADT scenario, the maximum potential cancer risk within the project area from on-road vehicle exhaust along SR 20/49 would be approximately 27.38 in a million and for the cumulative 2035 + 100% Project ADT scenario, the maximum potential cancer risk within the Project area from on-road vehicle exhaust along SR 20/49 would be approximately 28.92 in a million. Therefore, assuming 100% of the Project ADT is added to SR 20/49, the maximum potential increase in cancer risk due to the Project would be approximately 5.36 in a million at the MEIR[5] (or a potential increase of 0.000536%), which represents the estimated delta between the baseline and baseline + Project or the cumulative 2035 and cumulative 2035 + Project scenarios, which includes Project-generated vehicle travel. The maximum chronic hazard and the maximum $PM_{2.5}$ concentration would be below the thresholds for each of the modeled scenarios (baseline, baseline + 100% Project ADT, cumulative 2035, and cumulative 2035 + 100% Project ADT).[6]

The HRA modeling found that when 20% of the Project's total trip generation is added to SR 20/49, under the existing + 20% Project ADT scenario, the maximum potential cancer risk within the Project area from on-road vehicle exhaust along SR 20/49 would be approximately 22.19 in a million and for the cumulative 2035 + 20% Project ADT scenario, the maximum potential cancer risk within the Project area from on-road vehicle exhaust along SR 20/49 would be approximately 23.73 in a million.

Therefore, assuming a 20% trip distribution on SR 20/49, the maximum potential increase in cancer risk due to the Project would be approximately 0.17 in a million at the MEIR (or a potential increase of 0.77%), which represents the estimated the delta between the baseline and baseline + 20% Project ADT or the cumulative 2035 and cumulative 2035 + 20% Project ADT scenarios, which includes Project-generated vehicle travel. The maximum chronic hazard and the maximum $PM_{2.5}$ concentration would be below the thresholds for each of the modeled scenarios (baseline, baseline + Project, cumulative 2035, and cumulative 2035 + Project).

As such, the future residents and occupants at the Project site and sensitive receptors within 1,000 feet of SR 20/49 would be exposed to **less than significant** cancer, chronic, as well as $PM_{2.5}$ concentrations due to traffic generated by the Project. In other words, mobile source emissions from Project generated traffic would not significantly exacerbate an existing or future environmental hazard. While Project generated traffic would increase

[5] The MEIR is a nursing facility located adjacent to SR 20/49. Healthcare settings are recommended to install MERV-14 filters, which can theoretically remove at least 75% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 µm, which would further reduce potential health impacts. Notably, if MERV-14 filters are not compatible with the existing HVAC system, the facility would use filters with the highest compatible filtering efficiency. The recommendation for MERV-14 filtration is based on updated recommendations for healthcare settings from the American Society of Heating, Refrigeration, and Air-Conditioning Engineers.

[6] For context, as mentioned in Section 2.3.1, the National Cancer Institute estimates that approximately 39.5% of people will be diagnosed with cancer during their lifetimes (National Cancer Institute 2020). This equates to a baseline rate of about 39 cancer cases in 100 people. As identified by the American Association for Cancer Research, approximately 40% of all cancers (or about 16 cancer cases in 100 people) are associated with lifestyle behaviors, including smoking tobacco, excess body weight, unhealthy dietary patterns, alcohol intake, and physical activity (American Association for Cancer Research 2023).

emissions and associated health effects from SR 20/49 under current and 2035 conditions, the additional cancer risk of five in one million associated with the 100% Project ADT scenario is not a significant exacerbation of the baseline cancer risk from mobile source emissions on SR 20/49 under current or 2035 conditions. Similarly, the additional cancer risk of 0.17 in one million associated with the 20% Project ADT scenario is not a significant exacerbation of the baseline cancer risk from mobile source emissions on SR 20/49 under current or 2035 conditions. As discussed above, the HRA applies BAAQMD's thresholds to mobile source emissions from Project generated traffic and the associated health effects on future residents and occupants in determining whether the Project would significantly exacerbate health risks from mobile source emissions on SR 20/49. Because the Project's contribution would not exceed BAAQMD's thresholds (ten in one million), the Project does not significantly exacerbate the environmental hazard associated with SR 20/49 now or in 2035.

It should be noted, moreover, that the Project would be consistent with the City's land use and General Plan goals for the area including providing a mixed-use development, including multifamily residential housing and commercial shopping opportunities within the City. Other activities in which the future residents, workers, and visitors could be exposed to health concentrations exceeding the applied thresholds would be due exposure to stationary sources such as dry cleaners, gas stations, and generators. Adverse health effects from these sources could also include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Additionally, although traffic volumes were conservatively assumed to increase with time due to growth, vehicular emission factors are expected to decrease with time due to California's Statewide regulation to increase fuel efficiency (Assembly Bill 1493, the Pavley I standard) and other State and federal regulations aimed at vehicles emissions reduction, including the requirement to gradually phase out the sale of gas-powered vehicles by 2035.

Further, there are several Project Design Features, as included in the 2019 EIR, that implement recommendations discussed in CARB's Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways (2017, hereafter referred to as the CARB Technical Advisory), which would help reduce the potential health effects on future residents, workers, and visitors:

- Mitigation Measure 9a requires that a 6-foot-tall sound wall be constructed in the southwestern portion of the project site, between the residences proposed in that portion of the site and SR 20/49.

  The CARB Technical Advisory notes that vertical dispersion of pollutants, such as occurs when a solid wall is placed between the roadway and residents has been shown to reduce the concentration of TACs. The research cited in the CARB Technical Advisory includes a "field study in Phoenix, AZ—which measured NO_2, CO, UFP [ultrafine particulate matter], and black carbon (BC) using both a mobile platform and fixed sites—found that pollutant concentrations behind the roadside barriers were significantly lower relative to those measured in the absence of barriers. The reductions ranged from 50% within 50 meters (~164 feet) from the barrier to about 30% as far as 300 meters (984 feet) from the barrier" (CARB 2017).

- The proposed site plan includes a minimum 50-foot-wide buffer between the Dorsey Drive off-ramp and the onsite parking lots. This area would be landscaped in accordance with Mitigation Measure 5a, which includes specific performance standards regarding the density and height of vegetation.

  The CARB Technical Advisory also reports on studies showing that landscaping placed between the roadway and residents can reduce exposure to TACs. This includes a study where vegetation screen separating a freeway in Davis, California from a nearby elementary school was modeled. "The modeling showed that—with the tree configurations studied—74% of PM impacted a tree surface. This means that the particles did not merely pass by the tree, but rather impacted and may have deposited on the tree itself (CARB 2017).

Another study found "the combination of vegetation (trees) and soundwalls is associated with a reduction in BC [black carbon], UFP [ultrafine particulate matter], and NO [nitrogen oxide] concentrations, when ideal or perpendicular wind conditions are present. The concentration reductions vary from 4.8% to 28%, depending on the location and wind conditions. The study looked at many wind conditions outside of the simple perpendicular wind pattern and found that the soundwall/tree combination barrier may have little or no effect in very high wind cases and in parallel wind cases" (CARB 2017). This study supports the use of a sound wall and vegetation screening to minimize air pollutant exposures, including exposure to TACs, within the Project site because predominant wind direction in Grass Valley is from the south and from the east, i.e., not blowing emissions from SR 20/49 towards the Project site, which the HRA assessment accounts for per the most recent obtained meteorological data (Weatherspark 2020). In addition, per the CARB Handbook, it is recommended that that the siting of new sensitive land uses should be avoided immediately downwind freeways and high traffic roadways. As discussed above, SR 20/49 is not a high traffic roadway under the CARB Handbook under current or 2035 conditions. The Project, however, complies with CARB's recommendations because the new sensitive land uses will not be immediately downwind of SR 20/49 (Appendix N).

- The proposed buildings nearest SR 20/49 under Alternative B are comprised of two apartment buildings separated by a drive aisle and parking spaces. This creates an open area between the buildings that allows for air flow to disperse pollutants.

  The CARB Technical Advisory finds that site design can encourage further air pollutant dispersion, when features such as "building articulations (street frontage design elements like edges and corners that help break up building mass), and spaces that encourage air flow (e.g., parks)" are incorporated (CARB 2017).

2.4.1 Mitigation Measures

No mitigation measures are required.

2.5 References Cited

13 CCR 2449–2449.3 and Appendix A. General Requirements for In-Use Off-Road Diesel-Fueled Fleets.14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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