November 2019

AIR QUALITY MITIGATION PLAN

West Broadway Specific Plan

PREPARED FOR:

City of SACRAMENTO

Draft Technical Report

for the City of Sacramento

West Broadway Specific Plan Air Quality Mitigation Plan

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1 INTRODUCTION

The West Broadway Specific Plan (WBSP or project) is located on approximately 240 acres within the City of Sacramento. Adoption of the plan would qualify as a project under the California Environmental Quality Act (CEQA), and an environmental impact report (EIR) has been prepared to assess the potential impacts of development pursuant to the WBSP. Development of the project would result in emissions of criteria air pollutants and ozone precursors during both the construction and operational phases. Construction-related impacts would be short-term and associated with the use of heavy-duty equipment. Construction-related emissions are evaluated in Chapter 2, "Air Quality" of the project's EIR. Operational emissions would be associated with vehicle trip generation, area sources (e.g., landscaping equipment, consumer products, architectural coatings), and energy use (e.g., natural gas for area heating, electricity for cooling and appliances). This Air Quality Mitigation Plan (AQMP) addresses the operational impacts by proposing mitigation measures to be applied to the project. The measures contained herein are considered necessary for the project to meet the requirements of CEQA and to meet regional air quality goals.

The WBSP is subject to CEQA review and, as a commenting agency, the Sacramento Metropolitan Air Quality Management District (SMAQMD) assesses whether this project has significant air pollutant impacts. If impacts are significant, then in accordance with SMAQMD guidance, an AQMP is required by SMAQMD to address these significant impacts. This AQMP has been prepared to supplement the CEQA analysis and serves as mitigation, as referenced in the EIR, for emissions of long-term criteria air pollutants and ozone precursors. The AQMP specifies the measures that will be applied to address the potentially significant impact of regional ozone precursor emissions of oxides of nitrogen (NO_X), reactive organic gases (ROG). The AQMP also addresses emissions from respirable particulate matter (PM_{10}). However, SMAQMD does not have specific targets for PM_{10} reduction as part of an AQMP but expects project proponents to demonstrate effort to reduce particulate matter emissions as part of the AQMP, if the project exceeds the SMAQMD daily emissions threshold for PM_{10}.

1.1 PURPOSE OF THE AIR QUALITY MITIGATION PLAN

CEQA requires that EIRs identify and evaluate any significant environmental impacts of a proposed project. A project is determined to have potentially significant air quality impacts under CEQA if construction and/or operational emissions would exceed SMAQMD's established mass emission thresholds for ROG and NO_X. SMAQMD has established construction thresholds of 85 pounds per day (lb/day) for ROG and NO_X, and operational thresholds of 65 lb/day for ROG and NO_X. Operational emissions are evaluated for the full build-out year of the project. Projects that exceed daily operational thresholds of 65 lb/day for ROG or NO_X are considered operationally significant and required to prepare an AQMP (SMAQMD 2016). The analysis of significant effects shall quantify project-generated emissions of ozone precursors and then describe feasible measures that could minimize any significant adverse impacts. To assist in the evaluation of air quality impacts, SMAQMD developed its Recommended Guidance for Land Use Emission Reductions Version 4.0 (AQMP Guidance) dated November 30, 2017 (SMAQMD 2017). The AQMP Guidance outlines methods for estimating project-related operational emissions, establishing an emissions reduction target for the project, and quantifying emission reductions associated with SMAQMD-approved reduction measures.

An emissions reduction target of 15 percent of the project's mobile source emissions is required of projects that have been included in the most current State Implementation Plan (SIP), and a reduction target of 35 percent is required of projects that have not been included in the current SIP. The project area was included in the current SIP; thus, the project would be required to achieve (at a minimum) a 15 percent reduction in operational mobile source emissions of ozone precursor emissions. Measures included in this AQMP are incorporated by reference into the DEIR prepared for the project. This AQMP includes a description of the WBSP and the methodology used to establish both an unmitigated and a mitigated emissions scenario. These scenarios are based on project-specific data, traffic study, and available mitigation measures. The emissions scenarios are then compared to emission reduction targets and include an explanation of how the 15 percent reduction target for ROG and NO_X is achieved.

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2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The Specific Plan Area is located in the City, and is centrally located within the greater Sacramento region, including the cities of West Sacramento, Davis, and Woodland to the west; Elk Grove to the south; Rancho Cordova and Citrus Heights to the east; and Marysville, Roseville, Rocklin, and Lincoln to the north. At the local community scale, the Specific Plan Area is located within the Upper Land Park neighborhood of Sacramento, south of the Central City, and across the Sacramento River from the Pioneer Bluffs and Stone Locks areas of West Sacramento. The Specific Plan Area encompasses approximately 240 acres, bounded by the Sacramento River on the west; Broadway and Business 80/U.S. 50 to the north; Muir Way and 5th Street to the east; and 4th Avenue and Merkley Way to the south. I-5 travels north-south through the western portion of the Specific Plan Area and separates Miller Regional Park and the industrial lands east of it from the rest of the Specific Plan Area.

2.2 PROJECT SUMMARY

The WBSP includes land use regulations and policies designed to streamline the housing development process within the WBSP area, consistent with the Sacramento General Plan. The WBSP would provide a mix of traditional and urban-scale housing with neighborhood commercial uses, as well as a new vision for Miller Regional Park and the Sacramento Marina. The WBSP focuses on reintegrating the western portion of Broadway and the Upper Land Park area into the fabric and activity of the City. The WBSP is intended to build upon the existing assets and opportunities of the Specific Plan Area and guide future development in a manner consistent with adjacent development and the General Plan's goals and policies. The plan includes policies and implementing actions that would enhance circulation (primarily transit, bicycle, and pedestrian) within and through the Specific Plan Area, including connections to the Central City grid and surrounding neighborhood roadways and enhance and build upon existing amenities, including Miller Regional Park. The WBSP is also designed to reflect and dovetail with current and recently adopted City plans and planning and design efforts nearby, including the Mill at Broadway development, the Broadway Bridge, the Broadway Complete Streets Plan, and the Central City Specific Plan. Table 1 identifies the overall development assumptions and likely buildout conditions of the specific plan area, while Table 2 identifies the net development (by land use type) that could occur as a result of WBSP implementation. Figure 1 illustrates the conceptual land use plan for the WBSP.

Table 1 Land Use and Development Assumptions Summary

Subareas	Area (gross acres)	DEVELOPMENT ASSUMPTIONS					SPECIFIC PLAN DETAILS			
		Residential Density (units/gross acre)	Non-Residential FAR	Percent Residential	Percent Commercial	Percent Other Non-Residential	Dwelling Units	Commercial/Industrial Building Area (sq. ft.)	Public/Park/ Recreation Building Area (sq. ft.)	Park/Open Space (acres)
West Broadway Gateway	25.4	85	0.5	60%	24%	36%	1,300 [3]	132,670	10,000	9.3
Marina/Miller Regional Park Special Study Area Scenario A	62.7	85	0.2	3%	7.8%	89.2%	150	40,000	20,000	59.3
Marina/Miller Regional Park Special Study Area Scenario B	62.7	85	0.2	3%	0	97.0%	150	0	5,000	59.3
Industrial Subarea	23.5	40	0.6	70%	30%	0%	660	185,200	0	0.0
Mill at Broadway	37.3	-	-	-	-	-	1,125 [4]	37,350	11,000	3.4
Alder Grove	35.2	29	0.4	90.5%	1%	8.5%	930	34,000	6,000	3.0
Marina Vista	38.8	18.5	-	95%	0%	5%	680	0	12,500	2.5
Land Park Woods	4.1	-	-	100%	-	-	55	0	3,800	0.0
School Sites	17.0	-	-	-	-	-	0	0	99,500	2.0
Project Total (Miller Regional Park Scenario A)	**244.0**						**4,900**	**429,220**	**162,800**	**79.5**
Totals with Option (Miller Regional Park Scenario B)	**244.0**						**4,900**	**389,220**	**147,800**	**79.5**

Notes: sq. ft. = square feet

[1] Other non-residential uses include parks and open space, public, and recreational buildings, and 300 boat slips in the Sacramento Marina.

[2] Other non-residential uses include parks and open space, public, and recreational buildings, and 475 boat slips in the Sacramento Marina.

[3] Assumes 1,300 residential dwelling units or a mix of residential homes and hotel rooms.

[4] Note development assumptions for The Mill include 300 units planned in Phase 5 of the project on lands located adjacent to the Industrial Subarea, east of 5th Street.

Source: City of Sacramento Parcel Data, assembled by Ascent Environmental, Inc., 2019

Table 2 Comparison of the Potential Land Uses under the Proposed West Broadway Specific Plan to Existing and Planned Land Uses

Subareas	Area (gross acres)	Existing Development Context				Planned and Approved but not Developed				Net Change With Specific Plan			
		Dwelling Units	Commercia/ Industrial Building Area (sq. ft.)	Public/Park/ Recreation Building Area (sq. ft.)	Park/ Open Space (acres)	Dwelling Units	Commercial/ Industrial Building Area (sq. ft.)	Public/Park/ Recreation Building Area (sq. ft.)	Park/ Open Space (acres)	Dwelling Units	Commercial/ Industrial Building Area (sq. ft.)	Public/Park/ Recreation Building Area (sq. ft.)	Park/ Open Space (acres)
West Broadway Gateway [1]	25.4	0	26,045 [1]	0	0	0	0	0	0.0	1,300	106,625	10,000	9.3
Marina/Miller Regional Park Special Study Area Scenario A	62.7	0	0	5,000	62.7 [3]	0	0	0	0.0	150	40,000	15,000	-3.4
Marina/Miller Regional Park Special Study Area Scenario B	62.7	0	0	5,000	62.7 [3]	0	0	0	0.0	150	0	0	-3.4
Industrial Subarea	23.5	0	413,950	0	0.0	0	0	0	0.0	660	-228,750	0	0
Mill at Broadway [4]	37.3	307	0	0	0.0	518	37,350	11,000	3.4	818	37,350	11,000	3.4
Alder Grove	35.2	360	0	6,000	0.0	0	0	0	0.0	570	34,000	0	3.0
Marina Vista	38.8	391	0	6,000	0.0	0	0	0	0.0	289	0	6,500	2.5
Land Park Woods	4.1	55	0	3,800	0.0	0	0	0	0.0	0	0	0	0
School Sites	17.0	0	0	99,500	0.0	0	0	0	2.0	0	0	0	2.0
Total with Miller Regional Park Scenario A	**244.0**	**1,113**	**439,995**	**120,300**	**62.7**	**518**	**37,350**	**11,000**	**5.4**	**3,787**	**-10,775**	**42,500**	**16.8**
Total with Miller Regional Park Scenario B	**244.0**	**1,113**	**439,995**	**120,300**	**62.7**	**518**	**37,350**	**11,000**	**5.4**	**3,787**	**-50,776**	**27,500**	**16.8**

Notes: sq. ft. = square feet

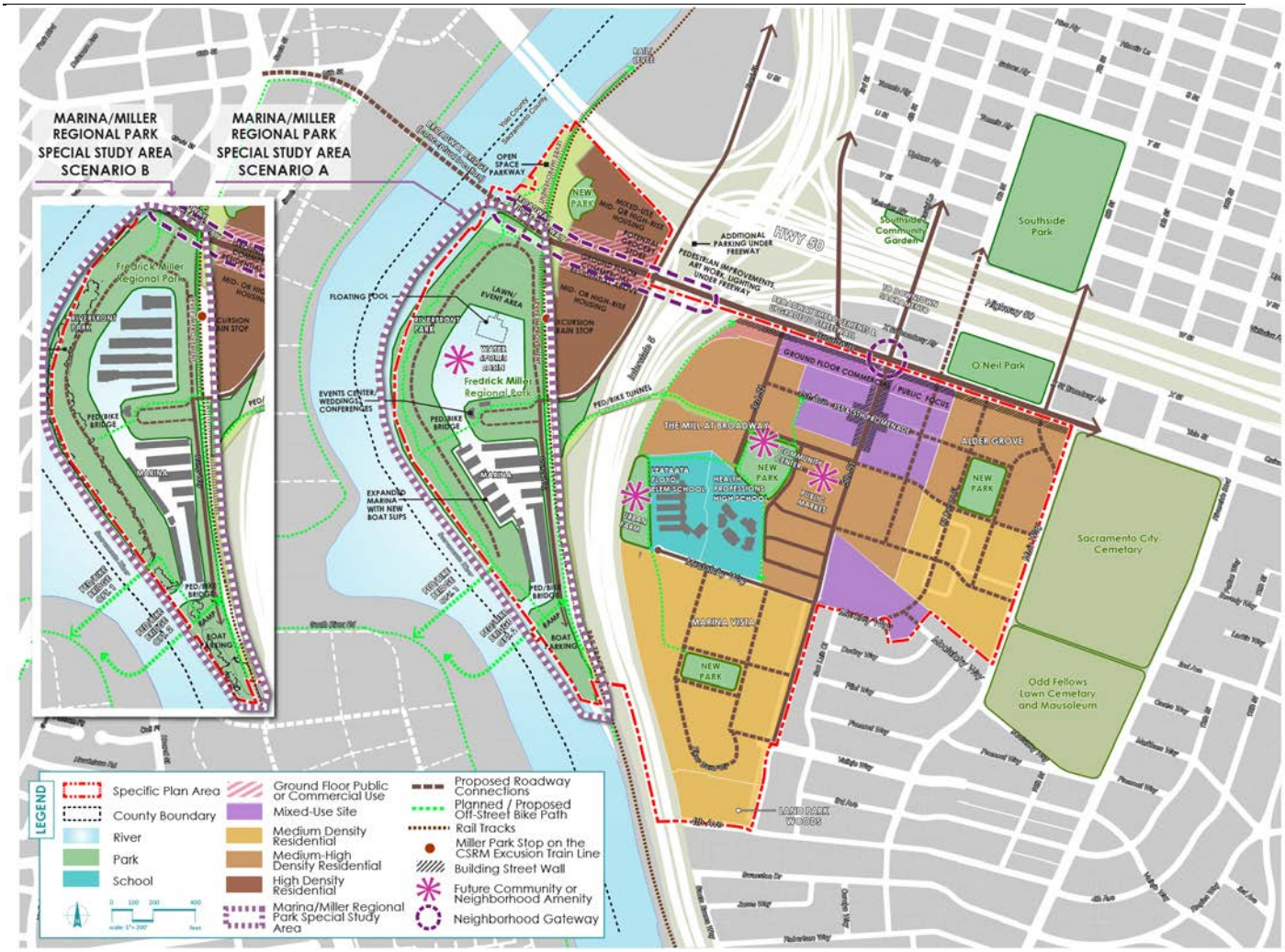
[1] The building area identified includes the existing buildings for Chevron and ConocoPhillips located adjacent to Front Street. The existing fuel storage tanks and other miscellaneous structures are not included in this calculation.

[2] Assumes 1,300 residential dwelling units or a mix of residential homes and hotel rooms.

[3] The parks and open space area for Miller Regional Park includes the tunnel under I-5. The proposed project, Scenario A for Miller Regional Park provides for 300 boat slips within the Sacramento Marina. Scenario B for Miller Regional would maintain the 475 boat slips within the Sacramento Marina.

[4] Note development assumptions for The Mill in the existing context are based on number of existing Phase 1 and Phase 2 units constructed and occupied in 2018 at the time of the release of the Notice of Preparation. The Planned Context encompasses the remainder of the planned development, approved as part of the Northwest Land Park PUD Guidelines (Phase 1-4). Additionally, planning for The Mill Phase 5 to include another 300 units on new lands located east of 5th Street is underway and assumed in the future Specific Plan condition.

Source: City of Sacramento Parcel Data, assembled by Ascent Environmental, Inc., 2019



Source: Ascent Environmental Inc., 2019

Figure 1 Concept Plan for the West Broadway Specific Plan

3 METHODOLOGY

All emissions estimates and analyses presented in this AQMP were conducted based on the AQMP Guidance and discussions with SMAQMD staff. Emissions modeling was conducted using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2, in accordance with SMAQMD guidance. Emissions estimates included in this AQMP include long-term operational emissions of criteria air pollutants and ozone precursors (i.e., ROG, NOX, respirable particulate matter [PM10]) associated with mobile sources (i.e., trip generation) and stationary sources (e.g., area wide and energy consumption). Project details such as proposed land uses and densities, project-generated trips, and project components are based on information included in the traffic study conducted for the project. Details regarding the traffic study and traffic related impacts are included in Section 4.12 of the WBSP EIR.

To estimate mobile source emissions, CalEEMod was used in combination with project-specific traffic data included in the traffic modeling conducted for the project and in included in Section 4.12 of the WBSP EIR. The traffic section of the EIR includes a description of existing conditions and traffic-related impacts associated with the project. The project-specific traffic study was used to obtain trip data associated with the project. Specifically, the traffic study included estimates of daily vehicle miles traveled (VMT) and trip generation associated with the existing conditions and existing plus project conditions.

Based on consultation and recommendation from the SMAQMD staff, the emissions modeling and analysis process for the project included modeling existing conditions in the project area. These emissions were then excluded (subtracted) from project model runs, assuming that by the buildout period of the project, all existing land uses in the area currently will be replaced by the land uses included in the project. This allows the analysis to focus exclusively on additional emissions generated by the project and not account for existing emissions sources in the project area.

In accordance with SMAQMD guidance for the evaluation of projects where a traffic study has been prepared, CalEEMod is used to estimate the project's emissions with and without the incorporation of emission reduction measures. The estimation of emissions that do not account for emission reduction measures and uses CalEEMod defaults is referred to as the unmitigated emissions scenario. The estimate that does account for the incorporation of emission reduction measures and project-specific traffic data is referred to as the mitigated emissions scenario. The total daily mass emissions that the project shall reduce to meet the 15 percent reduction target for the AQMP is then calculated based on the maximum mobile sector emissions of ROG and NOX separately as established by the unmitigated emission scenario. The two scenarios are described in further detail below.

3.1 UNMITIGATED EMISSIONS SCENARIO

To establish the unmitigated emissions scenario, the proposed land uses and their sizes were entered into CalEEMod for the buildout year 2036. Proposed land use and unit numbers were based on the net change in land uses in the Specific Plan Area shown in Table 2-2 of the Project Description included in the WBSP EIR.

Once representative land uses were chosen, CalEEMod was run for both the winter and summer seasons using default values and trip rates for Sacramento County to determine if emissions exceed SMAQMD-adopted operational thresholds. CalEEMod does not account for regional reductions in VMT due to other surrounding development or changes in the roadway network and therefore, default trip rates assigned by CalEEMod to the proposed land uses would represent the maximum trip generation and associated emissions. The unmitigated emissions from these runs were used to establish the AQMP reduction target for the project. In accordance with SMAQMD recommendations, the emission reduction targets were based on the mobile sector only, not total combined project emissions. Although SMAQMD-adopted operational thresholds are based on maximum daily emissions, guidance from SMAQMD suggests the use of annual emissions of ROG and NOX for determining the AQMP reduction target.

3.2 MITIGATED EMISSIONS SCENARIO

To establish the mitigated emissions scenario, the unmitigated emissions scenario (as described above) was adjusted to more accurately reflect project-specific parameters. Project-specific VMT and total trips were obtained from Section 4.12 "Traffic and Circulation" of the WBSP EIR. The unmitigated emissions scenario was altered to reflect the project's annual VMT for the year 2035. The 2019 Title 24 Building Energy Efficiency Standards were also included in the mitigated emissions scenario because the project would be operational after January 1, 2020, when the new standards take effect. The 2019 Title 24 standards would result in energy consumption reductions for residential (single-family and low-rise multifamily only) and nonresidential buildings. See Appendix A for details on 2019 Title 24 energy reductions. Based on guidance from SMAQMD staff, the mitigated emissions scenario also accounts for project design features that will result in emissions reductions including pedestrian network improvements in the specific plan area which will take place as part of the implementation of the project.

4 EMISSIONS REDUCTION TARGET

This section shows the calculations conducted to establish the project's emission target of 15 percent for the AQMP. Calculation methods were based on discussions with SMAQMD staff and the SMAQMD's AQMP Guidance. Reduction targets were based on the unmitigated emission scenario as described above in Section 3. Detailed calculations are provided below.

4.1 UNMITIGATED EMISSIONS SCENARIO AND REDUCTION TARGET

Implementation of the WBSP would allow for the development of various land use types and intensities, as summarized in Table 1 and Table 2 and illustrated in Figure 1. Based on the proposed land use types and sizes (Table 2), emissions of criteria air pollutants and ozone precursors were quantified using defaults in CalEEMod. Based on the proposed land uses and CalEEMod defaults for trip generation rates and average trip distance, the annual VMT for development within the specific plan area is project to be 95,870,782. The default average daily trips estimated were 262,660. Daily VMT was calculated by dividing the annual VMT by 365 days per year. As stated in the methodology section, emissions from existing land uses in the specific plan area were subtracted from the overall emissions total for the project. Table 3 summarizes these results in tons per year (tons/year).

Table 3 Summary of Annual Operational Emissions of Ozone Precursors at Full Buildout for the Unmitigated Scenario (2035)

Source Type	Tons/year		
	ROG	NO_X	PM_{10}
Existing Conditions			
Area Source[1]	7.9	0.1	0.1
Energy[2]	0.2	1.5	0.1
Mobile Source	1.6	8.4	9.6
Total Annual Emissions	9.7	10.0	9.7
Default Project Full Buildout (2035)			
Area Source[1]	26.3	0.6	0.3
Energy[2]	0.3	3.0	0.2
Mobile Source	6.4	33.2	38.1
Total Annual Emissions	33.0	36.7	38.6
Net New Emissions – Default Project Full Buildout (2035)			
Area Source[1]	18.4	0.4	0.2
Energy[2]	0.17	1.5	0.1
Mobile Source	4.8	24.8	28.6
Total Annual Emissions	23.4	26.7	28.9

Notes: NOX = oxides of nitrogen; ROG = reactive organic gases; PM_{10} = respirable particulate matter; tons/year = tons per year.

Totals may not sum exactly because of rounding.

[1] Area-source emissions include emissions from landscaping, application of architectural coatings, and consumer products, and are estimated based on default model settings.

[2] Energy emissions include emissions associated with natural gas consumption for indoor heating/cooling and appliance use.

See Appendix A for detailed input parameters and modeling results.

Source: Modeling conducted by Ascent Environmental in 2019.

To determine the mass reduction in emissions, a project needs to achieve to meet the 15 percent reduction target, the first step is to determine the total mass emissions of ozone precursors emitted by the project's mobile sector. As shown in Table 4 below, the unmitigated scenario would result in total ROG emissions of 4.8 tons/year and total NO_X of 24.8 tons/year from the mobile sector. To achieve the 15 percent reduction target, ROG would need to be reduced by a minimum of 0.714 tons/year and NO_X by a minimum of 3.717 tons/year. Table 4 below displays the reduction target in tons/year for each ozone precursor.

Table 4 Criteria Air Pollutant Reduction Targets

	ROG	NO_X
Mobile Source	4.8	24.8
15 Percent Reduction Target[2]	0.714	3.717

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases; tons/year = tons per year.

[1] Emissions taken from the unmitigated CalEEMod run using CalEEMod default trip rates.

[2] A 15 percent mitigation target is required by this project per SMAQMD guidance as it was included in the currently adopted SIP. The reduction target of 15 percent is calculated based on the total ROG and NOX emissions from the mobile sector.

Source: Data compiled by Ascent Environmental in 2019.

5 PROJECT TRAFFIC MODELING AND DESIGN FEATURES

The following section discusses the specific project components used to conduct the mitigated emissions scenario using CalEEMod, project-specific traffic information, and project design features included within the Specific Plan. A description of the project design feature is provided, how the project would incorporate the specific design feature, and how the emissions modeling was adjusted to reflect each design component. Each design feature is described separately below.

5.1 TRAFFIC STUDY

Traffic modeling was completed for the WBSP. Traffic modeling for the project considered several design features incorporated into the Specific Plan Area that would result in daily VMT and trip generation rates that are lower than the estimate provided by CalEEMod. Traffic modeling was conducted using the most recent version of SACMET, a travel demand model developed and maintained by SACOG. The model was run after refinement to the existing study area traffic analysis zones, existing land use, and roadway network details. Specifically, the traffic modeling takes into account the density of land uses proposed in the WBSP, the diversity of land uses proposed for the project, the existing and proposed pedestrian and bicycle facilities in the Specific Plan Area, and transit services in or near the Specific Plan Area. Key features of the SACMET model include: (1) full model iteration on level of service variables; (2) auto ownership and trip generation steps with accessibility variables; (3) a joint destination and mode choice model for work trips; (4) mode choice models with separate walk and bike modes, walk and drive access to transit modes, and carpool modes; (5) mode choice models with land use, travel time and monetary costs, and household attribute variables; (6) all mode choice equations in logit form; and (7) a trip assignment step with separate A.M. and P.M. peak (both 3 hour and 1 hour peak) and off-peak periods (Rodier et al. 1999). The VMT adjustment from the CalEEMod default scenario to the project-specific VMT scenario was a reduction of approximately 30%. See Table 5 for total reductions achieved through the project-specific VMT scenario.

5.2 PROJECT DESIGN FEATURES INCLUDED IN TRAFFIC STUDY

This section discusses project design features that are included as part of the project that would help reduce overall emissions associated with project based on SMAQMD Guidance. VMT reductions from these features are included in traffic modeling as part of the project-specific VMT scenario.

5.2.1 LUT-1 Increase Density

Design Feature Description: The project would be designed in a way that increases density without increasing the amount of land utilized. Communities that feature higher densities, which normally include a mixed-use component and access or proximity to alternative modes of transportation result in a reduction in VMT.

Project Applicability: The project would include residential, retail, office, industrial and mixed-use land uses. The traffic study accounts for the density of residential development and the connections between land uses within the project area, and thus the resultant effect on trip generation rates and trip lengths. The total VMT associated with operation of the WBSP at full buildout accounts for the increase in density and the fact that residents, employees, and students would not need to travel long distances to access various services.

5.2.2 LUT-3 Increase Diversity

Design Feature Description: The project would be designed with a variety of land use types in close proximity, which results in decreased VMT because trips between land use types are shorter and may be accommodated by non-auto modes of transport. The project would minimize the need for external trips by including services and facilities by including these services in the Specific Plan Area.

Project Applicability: The project would include mixed-use development that would encourage walking, bicycling, and transit through the planned trail network. The traffic study accounts for the proximity of residential units to parks, schools, and other uses and the resultant effect on trip generation and average trip lengths. As such, the total VMT associated with operation of the WBSP at full buildout accounts for the diversity of land uses within the project area.

5.2.3 LUT-4 Improve Destination Accessibility

Design Feature Description: The project is located near downtown Sacramento and would be in an area with high accessibility to destinations, such as employment centers, shopping, and entertainment. Destination accessibility is measured in terms of the number of jobs or other attractions reachable within a given travel time, which tends to be highest at regional centers and lowest at peripheral locations. The location of the project also increases the potential for pedestrians to walk and bike to these destinations and; therefore, reduces VMT.

Project Applicability: The project would be located approximately 1.1 miles from what SMAQMD considers the regional center (the intersection of 10th and K Streets in Sacramento). The traffic study accounts for the proximity to the regional center and the resultant effect on both trip generation rates and average trip lengths. As described above, the traffic study uses the SACMET model which considers region-specific travel patterns. As such, the total VMT associated with operation of the WBSP at full buildout accounts for the fact that residents, employees, and students would not need to travel long distances to access various services.

5.2.4 LUT-5 Increase Transit Accessibility

Design Feature Description: Locating a project with high density near transit would facilitate the use of transit by people traveling to or from the project site. The use of transit results in a mode shift and; therefore, reduced VMT.

Project Applicability: The project is located near the route 2 and 51 bus lines which are operated by Sacramento Regional Transit District (RT). The RT route 38 bus line circulates through the Specific Plan Area, running north-south along 5th Street. The traffic study accounts for these transit routes and proximity to existing facilities and the resultant effect on both trip generation rates and average trip lengths.

5.2.5 Pedestrian and Bicycle Facilities

Design Feature Description: The WBSP includes several design features related to pedestrian and bicycle facilities in the Specific Plan Area. These design features include the following project features: LUT-9 Improve Walkability Design, SDT-1 Improve Pedestrian Network, SDT-5 Incorporate Bike Lane Street Design, SDT-6 Provide Bike Parking in Non-Residential Projects, SDT-7 Provide Bike Parking in Multi-Unit Residential Projects, and SDT-9 Dedicate Land for Bike Trails.

Project Applicability: Chapter 7 of the WBSP includes a discussion of the circulation and mobility elements of the project. Figure 7-25 in the WBSP identifies the existing and planned pedestrian facilities in the Specific Plan Area. Figure 7-26 in the WBSP identifies the existing and planned bicycle facilities in the Specific Plan Area. The traffic modeling conducted for the Project accounts for both the existing and planned pedestrian and bicycle facilities in the Specific Plan Area and adjust the number of trips made by biking or walking due to the presence of these facilities.

5.2.6 Increased Pedestrian Network

Design Feature Description: This measure would ensure that each development project in the Specific Plan Area would include pedestrian access network to link areas of the project site to encourage people to walk instead of drive to nearby destinations. This mode shift results in people driving less and thus a reduction in VMT. The project will provide a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the project site. The project will minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, landscaping, and slopes that impede pedestrian circulation will be eliminated.

Project Applicability: This measure would apply to all individual residential and commercial development projects that are to be developed in the specific plan area. Compliance with this measure will be checked during the plan review stage for individual residential and commercial development projects. Compliance with this measure with be conducted qualitatively by City staff planners to ensure adequate pedestrian access is being provided to all existing or planned external streets and pedestrian facilities contiguous with the project site.

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6 PROJECT SPECIFIC VMT SCENARIO AND REDUCTION TARGET ACHIEVEMENT

To generate the project specific VMT scenario for the project, the default scenario was altered to reflect project-specific traffic parameters described in the project specific traffic modeling identified in Section 5. Based on the traffic modeling, the project's annual VMT would be approximately 30% lower than the CalEEMod default scenario. Based on the measures included in the traffic study and the adjusted VMT and trip generation estimate for the project, the ROG and NOX emission reductions have been achieved and are shown below in Table 5. The project specific VMT scenario would result in a reduction in ROG emissions of 0.724 (tons per year) and would achieve the 15% reduction target (0.714 tons per year) based on reductions achieved through the project-specific VMT scenario. The project specific VMT scenario would also result in a reduction in NOx emissions of 3.540 (tons per year) but would not achieve the 15% reduction target (3.717 tons per year) through the project-specific VMT scenario along. Therefore, additional mitigation will be needed to achieve the NO_X emissions reductions targets for the AQMP.

Table 5 Summary of Annual Operational Emissions of Ozone Precursors at Full Buildout for the Unmitigated Scenario (2035)

Source Type	Tons/year		
	ROG	NO_X	PM_{10}
Net New Emissions – Default Project Full Buildout (2035)			
Area Source[1]	18.4	0.4	0.2
Energy[2]	0.17	1.47	0.1
Mobile Source	4.8	24.8	28.6
Total Annual Emissions	23.4	26.7	28.9
Net New Emissions – Project Specific VMT Scenario (2035)			
Area Source[1]	18.4	0.4	0.2
Energy[2]	0.18	1.52	0.1
Mobile Source	4.0	21.2	17.0
Total Annual Emissions	22.7	23.2	17.3
Reduction from Project Specific Scenario (tons/year)	-0.724	-3.540	-11.57
Reduction needed for AQMP (tons/year)	0.714	3.717	N/A
15% Reduction from Mobile Source Emissions Achieved?	Y	N	N/A

Notes: NOX = oxides of nitrogen; ROG = reactive organic gases; PM_{10} = respirable particulate matter; tons/year = tons per year; N/A = not applicable because SMAQMD does not have a reduction target for PM_{10} as part of the AQMP process.
Totals may not sum exactly because of rounding.
[1] Area-source emissions include emissions from landscaping, application of architectural coatings, and consumer products, and are estimated based on default model settings.
[2] Energy emissions include emissions associated with natural gas consumption for indoor heating/cooling and appliance use.
See Appendix A for detailed input parameters and modeling results.
Source: Modeling conducted by Ascent Environmental in 2019.

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7 ADDITIONAL MITIGATION AND REDUCTION TARGET ACHIEVEMENT

This section includes the additional mitigation measures that would be needed as part of the project to achieve the 15 reductions in ozone precursors emission needed as part of the AQMP.

7.1 M1: REQUIRE 13% OF RESIDENTIAL UNITS BE ALL-ELECTRIC

Measure Description: 13 percent of all new residential dwelling units developed in the specific plan area shall include all-electric appliances (e.g., electric cooktop and stove, electric hot water heater). Requiring electric appliances to replace appliances traditionally fueled by natural gas would reduce ozone precursor emissions associated with natural gas use in residential land uses (e.g., hot water heating, cooking) developed as part of in the project. Specific requirements for this measure would include that 13 percent of residential units in the specific plan area:

- Include all electric appliances for space heating, hot water heating, cooking, and other appliance that could otherwise be fueled by natural gas. Appliances options should include, but are not limited to:
  - Solar Hot Water Heater systems
  - Heat pump hot water heaters
  - On-demand electric hot-water heaters
  - Induction cooktops and electric ovens
  - All electric HVAC system

Individual project applicants proposing residential development projects in the specific plan area would need to demonstrate as part of the development review process that 13 percent of units in the project (rounding up to the nearest whole number if number of required units is not a whole number) include all electric appliances and exclude natural gas connections to the unit, to ensure the unit remains all-electric through the lifetime of the unit. As part of demonstrating consistency with the measure, the applicant must demonstrate that no natural gas infrastructure has been designed or installed for use in the all-electric units. Additionally, the applicant shall demonstrate that, through a chosen legally binding mechanism (e.g., contract, lease agreement, or other document), that the all-electric units for the project remain all-electric units in perpetuity, through lifetime of the unit. Demonstration of compliance with this measure will be included as part of the conditions of approval for the project.

The City is currently considering adoption of a citywide ordinance related to the use of electric appliances within all new development. Should the City adopt such an ordinance during implementation of the WBSP, implementation of this measure would no longer be necessary.

Project Applicability: This measure applies to residential developments that are built as part of the project. There are several all-electric residential projects either built or planned for development in the Sacramento region. These include: D.R. Horton: Independence, Indie Capital: Broadway Redux and Mansion Flats, Next Generation Capital: Icon @ 14 & C, Riverland Homes: Rio Villas, and Sacramento Urban Works: Castro Zero Energy. The Sacramento Municipal Utility District provides rebates to builders developing all-electric homes.

Table 6 Summary of Annual Operational Emissions of Ozone Precursors at Full Buildout with AQMP Mitigation (2035)

Source Type	Tons/year	
	ROG	NO_X
Project Specific VMT Scenario		
Area Source[1]	18.4	0.4
Energy[2]	0.18	1.52
Mobile Source	4.0	21.2
Total Annual Emissions	22.7	23.2
Project Specific VMT Scenario with Additional Mitigation		
Area Source[1]	18.4	0.4
Energy[2]	0.15	1.28
Mobile Source	4.0	21.2
Total Annual Emissions	22.6	23.0
Reduction from Project Specific VMT Scenario with Additional Mitigation (tons/year)	-0.746	-3.730
Reduction needed for AQMP (tons/year)	0.714	3.717
15% Reduction from Mobile Source Emissions Achieved?	Y	Y

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases; PM_{10} = respirable particulate matter; tons/year = tons per year.
Totals may not sum exactly because of rounding.
[1] Area-source emissions include emissions from landscaping, application of architectural coatings, and consumer products, and are estimated based on default model settings.
[2] Energy emissions include emissions associated with natural gas consumption for indoor heating/cooling and appliance use.
See Appendix A for detailed input parameters and modeling results.
Source: Modeling conducted by Ascent Environmental in 2019.

As shown in Table 6, with the additional mitigation measure (M1) to require 13 percent of all residential units to be built as part for the project to include all electric appliances, the project would achieve the reductions needed to ensure the project is contributing its fair share of reducing regional emissions of ozone precursor emissions as part of the project.

8 CONCLUSION

The application of the above mitigation measures to the proposed project would ensure the project achieves the 15 percent emissions reduction target established by SMAQMD for AQMPs. Taking into account all the project features including the mix of proposed land uses, incorporated bicycle and pedestrian facilities, proximity to transit services, as well as the additional mitigation from this AQMP, the WBSP would result in a 15 percent reduction in long-term operational emissions of ozone precursors over the unmitigated emissions scenario.

None of the measures included in the project design would need ongoing monitoring beyond the buildout date of the project. By meeting the 15 percent reduction target, the AQMP has achieved the requirements set forth by SMAQMD. The total reduction of ozone precursors achieved through project design measures is shown above in Table 6. Further, as noted above, in the event that the City of Sacramento adopts a citywide ordinance that requires the use of electric appliances in at least 15 percent of all new residential development, implementation of this mitigation measure as part of the WBSP would no longer be necessary or required.

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9 REFERENCES

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2017 (November 30). Recommended Guidance for Land Use Emission Reduction Version 4.0 for Operational Emissions. Available:

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Appendix A

CalEEMod Modeling Results and Assumptions Tables