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WILSON MIDDLE SCHOOL MULTI-PURPOSE FIELD PROJECT

Glendale Community Services and Parks

Volume I: Draft EIR

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Abbreviations and Acronyms

ABBREVIATIONS AND ACRONYMS

AAQS	ambient air quality standards
AB	Assembly Bill
ACM	asbestos-containing materials
ADT	average daily traffic
amsl	above mean sea level
AQMP	air quality management plan
AST	aboveground storage tank
BAU	business as usual
bgs	below ground surface
BMP	best management practices
CAA	Clean Air Act
CAFE	corporate average fuel economy
CalARP	California Accidental Release Prevention Program
CalEMA	California Emergency Management Agency
Cal/EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources, Recycling, and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cfs	cubic feet per second
CGS	California Geologic Survey
CMP	congestion management program

Abbreviations and Acronyms

CNDDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	carbon monoxide
CO ₂ e	carbon dioxide equivalent
Corps	US Army Corps of Engineers
CSO	combined sewer overflows
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dba	A-weighted decibel
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gases
GWP	global warming potential
HCM	Highway Capacity Manual
HQTA	high quality transit area
HVAC	heating, ventilating, and air conditioning system
IPCC	Intergovernmental Panel on Climate Change
L _{dn}	day-night noise level
L _{eq}	equivalent continuous noise level
LBP	lead-based paint
LCFS	low-carbon fuel standard
LOS	level of service
LST	localized significance thresholds
M _w	moment magnitude
MCL	maximum contaminant level
MEP	maximum extent practicable

Abbreviations and Acronyms

mgd	million gallons per day
MMT	million metric tons
MPO	metropolitan planning organization
MT	metric ton
MWD	Metropolitan Water District of Southern California
NAHC	Native American Heritage Commission
NO _x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
O ₃	ozone
OES	California Office of Emergency Services
PM	particulate matter
POTW	publicly owned treatment works
ppm	parts per million
PPV	peak particle velocity
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
RMP	risk management plan
RMS	root mean square
RPS	renewable portfolio standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	state implementation plan
SLM	sound level meter
SoCAB	South Coast Air Basin
SO _x	sulfur oxides
SQMP	stormwater quality management plan
SRA	source receptor area [or state responsibility area]
SUSMP	standard urban stormwater mitigation plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

Abbreviations and Acronyms

TAC	toxic air contaminants
TNM	transportation noise model
tpd	tons per day
TRI	toxic release inventory
TTCP	traditional tribal cultural places
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	urban water management plan
V/C	volume-to-capacity ratio
VdB	velocity decibels
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WQMP	water quality management plan
WSA	water supply assessment

1. Executive Summary

1.1 INTRODUCTION

This draft environmental impact report (DEIR) addresses the environmental effects associated with the implementation of the proposed Wilson Middle School Multi-Purpose Field Project. The California Environmental Quality Act (CEQA) requires that local government agencies consider the environmental consequences before taking action on projects over which they have discretionary approval authority. An environmental impact report (EIR) analyzes potential environmental consequences in order to inform the public and support informed decisions by local and state governmental agency decision makers. This document focuses on impacts determined to be potentially significant in the Initial Study completed for this Project (see Appendix A1).

This DEIR has been prepared pursuant to the requirements of CEQA and the City of Glendale's CEQA procedures. The City of Glendale, as the lead agency, has reviewed and revised all submitted drafts, technical studies, and reports as necessary to reflect its own independent judgment, including reliance on City technical personnel from other departments and review of all technical subconsultant reports.

Data for this DEIR derive from onsite field observations, discussions with affected agencies, analysis of adopted plans and policies, review of available studies, reports, data and similar literature, and specialized environmental assessments (aesthetics, air quality, greenhouse gas emissions, noise, and transportation and traffic).

1.2 ENVIRONMENTAL PROCEDURES

This DEIR has been prepared pursuant to CEQA to assess the environmental effects associated with implementation of the proposed Project, as well as anticipated future discretionary actions and approvals. CEQA established six main objectives for an EIR:

1. Disclose to decision makers and the public the significant environmental effects of proposed activities.
2. Identify ways to avoid or reduce environmental damage.
3. Prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures.
4. Disclose to the public reasons for agency approval of projects with significant environmental effects.
5. Foster interagency coordination in the review of projects.
6. Enhance public participation in the planning process.

1. Executive Summary

An EIR is the most comprehensive form of environmental documentation in CEQA and the CEQA Guidelines; it is intended to provide an objective, factually supported analysis and full disclosure of the environmental consequences of a proposed project with the potential to result in significant, adverse environmental impacts.

An EIR is one of various decision-making tools used by a lead agency to consider the merits and disadvantages of a project that is subject to its discretionary authority. Before approving a proposed project, the lead agency must consider the information in the EIR; determine whether the EIR was prepared in accordance with CEQA and the CEQA Guidelines; determine that it reflects the independent judgment of the lead agency; adopt findings concerning the project's significant environmental impacts and alternatives; and adopt a statement of overriding considerations if significant impacts cannot be avoided.

1.2.1 EIR Format

Chapter 1. Executive Summary: Summarizes the background and description of the proposed Project, the format of this EIR, Project alternatives, any critical issues remaining to be resolved, and the potential environmental impacts and mitigation measures identified for the proposed Project.

Chapter 2. Introduction: Describes the purpose of this EIR, background on the proposed Project, the notice of preparation, the use of incorporation by reference, and Final EIR certification.

Chapter 3. Project Description: A detailed description of the proposed Project, including its objectives, its area and location, approvals anticipated to be required as part of the proposed Project, necessary environmental clearances, and the intended uses of this EIR.

Chapter 4. Environmental Setting: A description of the physical environmental conditions in the vicinity of the proposed Project as they existed at the time the notice of preparation was published, from local and regional perspectives. These provide the baseline physical conditions from which the lead agency determines the significance of the Project's environmental impacts.

Chapter 5. Environmental Analysis: Each environmental topic is analyzed in a separate section that discusses: the thresholds used to determine if a significant impact would occur; the methodology to identify and evaluate the potential impacts of the proposed Project; the existing environmental setting; the potential adverse and beneficial effects of the proposed Project; the level of impact significance before mitigation; the mitigation measures for the proposed Project; the level of significance after mitigation is incorporated; and the potential cumulative impacts of the proposed Project and other existing, approved, and proposed development in the area.

Chapter 6. Significant Unavoidable Adverse Impacts: Describes the significant unavoidable adverse impacts of the proposed Project.

Chapter 7. Alternatives to the Proposed Project: Describes the alternatives and compares their impacts to the impacts of the proposed Project. Alternatives include the No Project Alternative and a Reduced Intensity Alternative.

1. Executive Summary

Chapter 8. Impacts Found Not to Be Significant: Briefly describes the potential impacts of the proposed Project that were determined not to be significant by the Initial Study and were therefore not discussed in detail in this EIR.

Chapter 9. Significant Irreversible Changes Due to the Proposed Project: Describes the significant irreversible environmental changes associated with the proposed Project.

Chapter 10. Growth-Inducing Impacts of the Project: Describes the ways in which the proposed Project would cause increases in employment or population that could result in new physical or environmental impacts.

Chapter 11. Organizations and Persons Consulted: Lists the people and organizations that were contacted during the preparation of this EIR.

Chapter 12. Qualifications of Persons Preparing EIR: Lists the people who prepared this EIR for the proposed Project.

Chapter 13. Bibliography: The technical reports and other sources used to prepare this EIR.

Appendices: The appendices for this document (in PDF format on a CD attached to the front cover) comprise these supporting documents:

- Appendix A1: NOP/Initial Study
- Appendix A2: Comments Letters on NOP
- Appendix B: Lighting Study
- Appendix C: Air Quality/GHG Modeling Data
- Appendix D: Noise Data
- Appendix E: Traffic Study
- Appendix F: Transportation Fuel and Energy Use Calculations

1.2.2 Type and Purpose of This DEIR

This DEIR has been prepared as a “Project EIR,” defined by Section 15161 of the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). This type of EIR examines the environmental impacts of a specific development project and should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation.

1.3 PROJECT LOCATION

Wilson Middle School (WMS) is located at 1221 Monterey Road in the northeast part of the City of Glendale, Los Angeles County, California (Figure 1, *Regional Location*). The WMS Multi-Purpose Field Project (proposed Project) would disturb approximately 3.85 acres – consisting of the existing athletic field and basketball courts – along the northern portion of the WMS campus. The proposed Project would not impact other areas of the campus. The 3.85 acres will be referred to as the “Project site.”

1. Executive Summary

The Project site is bounded by multifamily residential uses to the north (fronting East Glenoaks Boulevard), WMS campus buildings, including classrooms and administrative buildings (fronting Monterey Road) to the south, WMS campus buildings to the west, with single-family and multi-family residential uses located west of the campus fronting Adams Street, and Verdugo Road to the east. The City of Glendale (City) is surrounded by the cities of La Canada Flintridge to the north, Pasadena to the east, Burbank to the west and Los Angeles to the south. Regional access to the WMS campus is State Route 134 (SR-134), approximately 0.13 miles to the south. The WMS campus is rectangularly shaped and bordered by Glenoaks Boulevard to the north, Monterey Road to the south, Verdugo Road to the east, and Adams Street to west (Figure 2, *Local Vicinity*).

1.4 PROJECT SUMMARY

The City's Services and Parks Department has partnered with the Glendale Unified School District (GUSD) to develop a multi-purpose field with sports field lighting on the campus of WMS located at 1221 Monterey Road in the northeast part of Glendale.

The proposed Project would involve replacement of an result in the redevelopment of the existing grass field and paved basketball courts with a joint use multi-purpose synthetic all-weather sports field with football, soccer, and lacrosse markings and surrounding five-lane all-weather rubberized surface jogging track, fitness equipment, consisting of, perimeter security fence with privacy screening, restroom and storage/maintenance building(s), walkways, landscaping, irrigation, re-grading of the existing basketball court surface, and sports field lighting. The proposed Project would make use of existing street and on-site parking. No change in site access or parking would occur.

The proposed Project would not introduce new uses to the Project site; rather, the proposed Project would provide an improved multi-surface field for the students and would also allow for the extended use of the Project site by outside sporting groups during nighttime hours. The City's use of the proposed field would be from 5:00 p.m. to 10:00 p.m. Monday through Friday, and 8:00 a.m. to 10:00 p.m. on Saturday and Sunday. Specifically, operation of the proposed field lighting would allow these groups to utilize the field until 10:00 p.m., in accordance with the 2020 Joint Use Agreement. Under the 2020 Joint Use Agreement, GUSD and the City would jointly set appropriate hours of operation for the proposed facility while maintaining a sense of flexibility and cooperation for each organization's changing or special program needs. GUSD shall have the exclusive use of the proposed facilities during all regular school days¹ from 7:00 a.m. to 5:00 p.m. while the City shall have the right to exclusive use of the facilities at the close of regular school days and on Saturdays, Sundays, school holidays, and during school vacation periods. Use of the proposed field lighting by outside groups would require a facility use permit issued by GUSD or the City that would establish the allowable hours of use, similar to procedures utilized currently. The City would have a Community Services & Parks Department employee on site during permitted field times when the school is not in use. No permanent seating or bleachers, scoreboards or amplified sound systems are proposed.

¹ Regular school days are defined as those days on which school is held in regular session as established in the school calendar from time to time and adopted by the Board of Education for each school year.

1. Executive Summary

1.5 SUMMARY OF PROJECT OBJECTIVES

Objectives of the Project aid decision makers in their review of the Project and associated environmental impact. The objectives for this Project are:

1. Provide a recreational multi-purpose athletic field for the City of Glendale residents.
2. Utilize existing space to enhance opportunities for after-school athletic and extracurricular activities.
3. Allow use of the facility by District-approved community groups.
4. Respond to City of Glendale residents' request for more youth athletic playing fields.
5. Conserve water resources by replacing natural turf field with no water/non-living artificial turf field.
6. Provide lighting to allow night use of the sports field.

1.6 SUMMARY OF PROJECT ALTERNATIVES

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to a project that could feasibly attain the basic objectives of a project and avoid or lessen the environmental effects of a project. While the City considered various options and recommendations during the scoping process, the final selection of alternatives was based on the CEQA Guidelines Section 15126.6[f], which states that the selection of alternative shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.

The following lists alternatives considered during the scoping and planning process but were rejected for detailed analysis in the DEIR for the reasons described in Section 7.2, *Alternatives Considered And Rejected During The Scoping/ Project Planning Process*:

- Existing City/Community Parks & Fields: Alternative locations presented at community meetings and in comment letters addressed the use of existing City-owned land to be developed and/or utilized for recreational programming in lieu of the proposed Project site. Sites suggested included the Glendale Community College, Glendale High School, John Ferraro Athletic Fields, and Stengel Field. Based on the assessment conducted for each site, it was concluded that there are either no additional developable spaces on these sites or additional programming would encroach on current activity programming.
- Open Space: Several city-owned parcels were identified by members of the public during the Project scoping process as options to be converted to multipurpose fields in lieu of the proposed Project location. Development of any of these sites that would require extensive grading and construction to make suitable for use as soccer fields. Environmental impacts of developing these areas would far exceed those of the proposed Project. The sites are infeasible with regards to economic viability due to the extensive construction and potential environmental disruption necessary to use them as playfields.
- Site "A": The City owns an approximately six-acre parcel that could potentially be developed as a sports complex. It has the potential to be developed for active recreation similar to the nearby Glendale Sports

1. Executive Summary

Complex, but is constrained by the limited access on Fern Lane, a residential street already serving the Sports Complex. Due to the traffic and construction related impacts, the environmental impacts of developing this site would be greater than those of the proposed Project.

Based on the criteria listed in Section 7.1.1, *Alternatives to the Proposed Project*, the following two alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the proposed Project, but may avoid or substantially lessen any of the significant effects of the proposed Project. These alternatives are analyzed in detail in the following sections.

- No Project/Existing General Plan Alternative
- Multi-Purpose Field with No Lighting Alternative

1.7 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

1.7.1 No Project Alternative

CEQA Guidelines Section 15126.6(e) requires that a “No Project” Alternative be evaluated. This analysis must discuss the existing site conditions as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved. Under the No Project Alternative, the proposed synthetic turf field and track, 70-foot light poles, and restroom/storage building would not be constructed. The existing field would continue to be used only during the day time, and WMS students would continue to travel to other facilities in the District for some practices and games. This alternative would not meet any of the project objectives identified in Section 1.5.

1.7.2 Field With No Lights

This alternative would provide a synthetic field as depicted in the proposed Project, with no nighttime lighting. This alternative would eliminate aesthetic impacts from the 70-foot lights. No nighttime practices or games would occur under this alternative, and hours of use would be limited to daylight hours only. All other aspects of the proposed Project would remain the same.

1.8 ISSUES TO BE RESOLVED

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the proposed Project, the major issues to be resolved include decisions by the lead agency as to:

1. Whether this DEIR adequately describes the environmental impacts of the project.
2. Whether the benefits of the project override those environmental impacts which cannot be feasibly avoided or mitigated to a level of insignificance.
3. Whether the proposed land use changes are compatible with the character of the existing area.

1. Executive Summary

4. Whether the identified goals, policies, or mitigation measures should be adopted or modified.
5. Whether there are other mitigation measures that should be applied to the project besides the Mitigation Measures identified in the DEIR.
6. Whether there are any alternatives to the project that would substantially lessen any of the significant impacts of the proposed project and achieve most of the basic project objectives.

1.9 AREAS OF CONTROVERSY

The areas of controversy include issues related to aesthetics, especially the spill light and glare impacts from 70-foot nighttime lighting, noise from field use, impacts to air quality, impacts to greenhouse gas emissions, and traffic congestion and parking issues from practices and events. Comments received during circulation of the NOP/IS are included in Appendix A1.

1.10 SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND LEVELS OF SIGNIFICANCE AFTER MITIGATION

Table 1-1, *Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation*, summarizes the conclusions of the environmental analysis contained in this EIR. Impacts are identified as significant or less than significant, and mitigation measures are identified for all significant impacts. The level of significance after imposition of the mitigation measures is also presented.

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1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.1 AESTHETICS			
Impact 5.1-3 Operation of the proposed Project would generate additional nighttime light and glare.	Potentially Significant	AES-1 The City of Glendale Community Services and Parks Department shall minimize the effects of new sources of nighttime lighting by incorporating the following measures into Project design and operation: <ul style="list-style-type: none"> All lighting shall be shielded and directed downward onto the athletic fields to minimize potential light escape and/or spillover onto adjacent properties. The new athletic field lights shall be shall shut off automatically at 10:00 p.m. 	Significant and Unavoidable
Cumulative Impact	Less Than Significant	No mitigation measures are required.	Less Than Significant
5.2 AIR QUALITY			
Impact 5.2-1 Construction activities associated with the proposed Project would not generate short-term emissions in exceedance of SCAQMD'S threshold criteria.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.2-2 Long-term operation of the Project would not generate additional vehicle trips and associated emissions in exceedance of SCAQMD's threshold criteria.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.2-3 The proposed Project could expose sensitive receptors to substantial pollutant concentrations during construction.	Potentially Significant	AQ-1 The construction contractor shall prepare a fugitive dust control plan and implement the following measures during ground-disturbing activities—in addition to the existing requirements for fugitive dust control under South Coast Air Quality Management District (SCAQMD) Rule 403—to further reduce PM ₁₀ and PM _{2.5} emissions. The City shall verify that these measures have been implemented during normal construction site inspections. <ul style="list-style-type: none"> Following all grading activities, the construction contractor shall reestablish ground cover on the construction site through seeding and watering. During all construction activities, the construction contractor shall sweep streets with SCAQMD Rule 1186-compliant, PM₁₀-efficient vacuum units 	Less Than Significant

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>on a daily basis if silt is carried over to adjacent public thoroughfares or occurs as a result of hauling.</p> <ul style="list-style-type: none"> • During all construction activities, the construction contractor shall maintain a minimum 24-inch freeboard on trucks hauling dirt, sand, soil, or other loose materials and shall tarp materials with a fabric cover or other cover that achieves the same amount of protection. • During all construction activities, the construction contractor shall limit onsite vehicle speeds on unpaved roads to no more than 15 miles per hour. • During all construction activities, the construction contractor shall water exposed ground surfaces and disturbed areas a minimum of every three hours on the construction site and a minimum of three times per day. • During all construction activities, the construction contractor shall apply non-toxic soil stabilizer according to manufactures' specifications, to all inactive construction areas (previously graded areas inactive for ten days or more). <p>AQ-2 The construction contractor shall use equipment that meets the US Environmental Protection Agency (EPA) Tier 4 emissions standards for off-road diesel-powered construction equipment with more than 50 horsepower during ground-disturbing activities, unless it can be demonstrated to the City that such equipment is not available. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 4 diesel emissions control strategy for a similarly sized engine, as defined by the California Air Resources Board's regulations.</p> <ul style="list-style-type: none"> • Prior to construction, the Project engineer shall ensure that all demolition and grading plans clearly show the requirement for EPA Tier 4 or higher emissions standards for construction equipment over 50 horsepower. During construction, the construction contractor shall maintain a list of all operating equipment in use on the construction site for verification by the City. The construction equipment list shall state the makes, models, and numbers of construction equipment onsite. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations. Construction contractors shall also ensure that all nonessential idling of construction equipment is restricted to five minutes 	

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		or less in compliance with California Air Resources Board's Rule 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.	
Impact 5.2-4 The proposed Project would not expose sensitive receptors to substantial pollutant concentrations during operation.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.2-5 The proposed Project is consistent with the applicable Air Quality Management Plan.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Cumulative Impact	Less Than Significant	No mitigation measures are required.	Less Than Significant
5.3 GREENHOUSE GAS EMISSIONS			
Impact 5.3-1 Development of the proposed Project would result in a substantial increase of GHG emissions.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.3-2 The proposed Project would not conflict with the plans adopted for the purpose of reducing GHG emissions.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Cumulative Impact	Less Than Significant	No mitigation measures are required.	Less Than Significant
5.4 NOISE			
Impact 5.4-1 Construction activities would result in temporary noise increases in the vicinity of the proposed Project.	Potentially Significant	<p>NOI-1 Construction Noise: Prior to initiation of grading, the City shall incorporate the following measures as a note on the grading plan cover sheet to ensure that the greatest distance between noise sources and sensitive receptors during construction activities has been achieved, and that construction noise has been reduced.</p> <ul style="list-style-type: none"> During construction activities, all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers, consistent with manufacturers' standards. All stationary construction equipment shall be placed so that emitted noise is directed away from the noise-sensitive receptors nearest the proposed Project site boundaries. 	Significant and Unavoidable

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • Sound Blankets. Sound blankets shall be used on construction equipment where technically feasible. • Equipment shall be staged in areas that will create the greatest distance between construction-related noise sources and the noise-sensitive receptors nearest the proposed Project site during all Project construction. • All construction-related activities shall be restricted to the construction hours outlined in the City's Noise Ordinance (GMC Section 8.36.080). • Haul truck and other construction-related trucks traveling to and from the proposed Project site shall be restricted to the same hours specified for the operation of construction equipment. To the extent feasible, haul routes shall not pass directly by sensitive land uses or residential dwellings. • Where construction will occur adjacent to any developed/occupied noise-sensitive uses, a construction-related noise mitigation plan that demonstrates that noise levels at the sensitive uses shall be below the 65 dBA threshold shall be submitted to the City of Glendale for review and approval. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the Project, through the use of such methods as: (1) temporary noise attenuation fences; (2) preferential location of equipment; and (3) use of current technology and noise-suppression equipment. 	

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 5.4-2 The proposed Project would not create short-term groundborne vibration and groundborne noise.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.4-3 Project implementation would result in long-term operation-related noise that would not exceed local standards.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Cumulative Impact	Less Than Significant	No mitigation measures are required.	Less Than Significant
5.5 TRANSPORTATION			
Impact 5.5-1 The proposed Project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including roadway facilities.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.5-2 The proposed Project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, bicycle, and pedestrian facilities.	Potentially Significant	<p>T-1 Construction Staging and Traffic Management Plan. Prior to construction of the proposed Project, the construction contractor shall prepare and submit a Construction Staging and Traffic Management Plan to the City for approval. The plan shall mitigate construction impacts during each phased activity. The plan shall include the following specific elements:</p> <ul style="list-style-type: none"> In order to reduce vehicle and pedestrian conflicts resulting from construction of the proposed Project, all construction related truck traffic, including those utilized for exporting soil material, shall access the Project site from Verdugo Road. The construction contract shall require that construction workers park in designated staging area(s) to provide adequate parking for all employees and visitors to the campus throughout the duration of construction activities of the proposed Project. In the event that adequate parking cannot be provided at the proposed Project site due to displacement of parking spaces by construction activities, a satellite parking area shall be designated, and a shuttle bus shall be operated to transfer employees and visitors to and from the campus. In order to eliminate any impacts to the local traffic in and around the Proposed Project site, all construction related trucks, including those utilized for exporting soil material shall not do so during the drop-off/pick- 	Less Than Significant

1. Executive Summary

Table 1-1 Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		<p>up hours of 7:30 to 8:30 a.m. and 2:15 to 3:15 p.m. during the school year.</p> <ul style="list-style-type: none"> The construction contractor shall be required to maintain a minimum sidewalk width of 5 feet during the construction period. A flag person shall be provided whenever trucks entering or leaving the Proposed Project site may impede the flow of pedestrian, bicycle, or automotive traffic. 	
Impact 5.5-3 The proposed Project would not conflict with or be inconsistent with CEQA Guidelines 15064.3, subdivision (b).	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.5-4 Project circulation improvements have been designed to adequately address potentially hazardous conditions (sharp curves, etc), potential conflicting uses, and emergency access.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.5-5 Adequate parking would be provided for the proposed Project.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Cumulative Impact	Less Than Significant	No mitigation measures are required.	Less Than Significant
5.6 ENERGY			
Impact 5.6-1 Construction activities would not result in wasteful, inefficient, or unnecessary consumption of energy or have excessive energy requirements.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact 5.6-2 Operation of the proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Cumulative Impact	Less Than Significant	No mitigation measures are required.	Less Than Significant

2. Introduction

2.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act (CEQA) requires that all state and local governmental agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects. This draft environmental impact report (DEIR) has been prepared to satisfy CEQA and the CEQA Guidelines. The environmental impact report (EIR) is the public document designed to provide decision makers and the public with an analysis of the environmental effects of the proposed Project, to indicate possible ways to reduce or avoid environmental damage and to identify alternatives to the Project. The EIR must also disclose significant environmental impacts that cannot be avoided; growth inducing impacts; effects not found to be significant; and significant cumulative impacts of all past, present, and reasonably foreseeable future projects.

The lead agency means “the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment” (Guidelines § 21067). The City has the principal responsibility for Project approval. For this reason, the City of Glendale is the CEQA lead agency for this Project.

The intent of the DEIR is to provide sufficient information on the potential environmental impacts of the proposed Project to allow the City to make an informed decision regarding Project approval. Specific discretionary actions to be reviewed by the City are described in Section 3.4, *Intended Uses of the EIR*.

This DEIR has been prepared in accordance with requirements of the:

- California Environmental Quality Act (CEQA) of 1970, as amended (Public Resources Code, §§ 21000 et seq.)
- State Guidelines for the Implementation of the CEQA of 1970 (CEQA Guidelines), as amended (California Code of Regulations, §§ 15000 et seq.)

The overall purpose of this DEIR is to inform the lead agency, responsible agencies, decision makers, and the general public about the environmental effects of the development and operation of the proposed Project. This DEIR addresses effects that may be significant and adverse; evaluates alternatives to the Project; and identifies mitigation measures to reduce or avoid adverse effects.

2.2 NOTICE OF PREPARATION AND INITIAL STUDY

The City’s Community Services and Parks determined that an EIR would be required for this Project and issued a Notice of Preparation (NOP) and Initial Study on August 1, 2017 (see Appendix A1). Comments received

2. Introduction

during the initial study's public review period, from August 1, 2017 to September 1, 2017, are included in Appendix A2. A Scoping Meeting was held on August 17, 2017, at the Wilson Middle School Library, 1221 Monterey Road, Glendale, CA.

The NOP process helps determine the scope of the environmental issues to be addressed in the DEIR. Based on this process and the initial study for the Project, certain environmental categories were identified as having the potential to result in significant impacts. Issues considered Potentially Significant are addressed in this DEIR, but issues identified as Less Than Significant or No Impact are not. Refer to the initial study in Appendix A1 for discussion of how these initial determinations were made.

2.3 SCOPE OF THIS DEIR

The scope of the DEIR was determined based on the City's initial study, comments received in response to the NOP, and comments received at the scoping meeting conducted by the City. Pursuant to Sections 15126.2 and 15126.4 of the CEQA Guidelines, the DEIR should identify any potentially significant adverse impacts and recommend mitigation that would reduce or eliminate these impacts to levels of insignificance.

The information in Chapter 3, *Project Description*, establishes the basis for analyzing future, Project-related environmental impacts. However, further environmental review by the City may be required as more detailed information and plans are submitted on a project-by-project basis.

2.3.1 Impacts Considered Less Than Significant

During preparation of the Initial Study, the City determined that 13 environmental impact categories were not significantly affected by or did not affect the proposed Project. These categories are not discussed in detail in this DEIR.

- Agriculture and Forestry Resources
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services

2. Introduction

- Recreation
- Tribal Cultural Resources
- Utilities and Service Systems

2.3.2 Potentially Significant Adverse Impacts

The City determined that five environmental factors have potentially significant impacts if the proposed Project is implemented.

- Aesthetics
- Air Quality
- Greenhouse Gas Emissions
- Noise
- Transportation/Traffic
- Energy

2.3.3 Unavoidable Significant Adverse Impacts

This DEIR identifies two significant and unavoidable adverse impacts, as defined by CEQA, that would result from implementation of the proposed Project. Unavoidable adverse impacts may be considered significant on a project-specific, cumulatively significant, and/or potentially significant basis. If a project is determined to have a significant impact, the City must prepare a “statement of overriding considerations” before it can approve the project, where in the decision-making body must find and determine whether the benefits of the proposed project were balanced against the project’s unavoidable significant environmental effects outweigh the adverse effects, and therefore the adverse effects are considered acceptable. As further discussed herein in Section 6, *Significant Unavoidable Adverse Impacts*, one of the impacts in the DEIR were found to be significant and unavoidable. The impact that was found in the DEIR to be significant and unavoidable is:

- Operational light trespass
- Construction-generated noise

2.4 INCORPORATION BY REFERENCE

Some documents are incorporated by reference into this DEIR, consistent with Section 15150 of the CEQA Guidelines, and they are available for review at the City’s Community Services & Parks Department, 613 East Broadway Rm 120, Glendale, CA 91206.

- *City of Glendale General Plan*, prepared by City , 1986, as the same has been amended from time to time. The General Plan serves as the major blueprint for directing growth within the City and presents a comprehensive plan to accommodate the City’s growing needs. Currently the Land Use Element of the General Plan regulates the existing land uses on the proposed Project site. The General Plan analyzes existing conditions in the City, including physical, social, cultural, and environmental resources and opportunities. It also looks at trends, issues, and concerns that affect the region; describes City goals and

2. Introduction

objectives; and provides policies to guide development and change. The City's General Plan establishes the policies for use and protection of resources to meet community needs. The General Plan's seven elements addressing circulation, conservation, housing, land use, noise, open space, and safety are mandated by state law and three additional topics (community facilities, historic preservation, and recreation) are recommended, but not legally required. The City's General Plan is available at <https://www.glendaleca.gov/government/departments/community-development/planning-division/city-wide-plans>.

- *City of Glendale Zoning Code* is prepared by the City and portions of it were last updated in 2019. The City's Zoning Code sets forth a particular land use regulation uniformly applicable within zones. The zoning on a property can be found on the Zoning Map. The allowed uses and standards for each zone in the City's Zoning Code is available at <http://qcode.us/codes/glendale/view.php?topic=30&frames=on>.

2.5 FINAL EIR CERTIFICATION

This DEIR is being circulated for public review for 45 days. Interested agencies and members of the public are invited to provide the City with written comments on the DEIR and send the comments to the City address shown on the title page of this document. Upon completion of the 45-day review period, the City will review all written comments received and prepare written responses. A Final EIR (FEIR) will incorporate the received comments, responses to the comments, and any changes to the DEIR that result from comments. The FEIR will be presented to the City for potential certification as the environmental document for the Project. All persons who comment on the DEIR will be notified of the availability of the FEIR and the date of the public hearing before the City Council.

The DEIR is available to the general public for review at various locations:

- City of Glendale Community Services and Parks website: <http://www.glendaleca.gov/parks>
- Glendale Unified School District website: <https://www.gusd.net/>

2.6 MITIGATION MONITORING

Public Resources Code, Section 21081.6, requires that agencies adopt a monitoring or reporting program for any project for which it has made findings pursuant to Public Resources Code 21081 or adopted a Negative Declaration pursuant to 21080(c). Such a program is intended to ensure the implementation of all mitigation measures adopted through the preparation of an EIR or Negative Declaration.

The Mitigation Monitoring Program for the Project will be completed as part of the Final EIR, prior to consideration of the Project by the Glendale City Council.

3. Project Description

3.1 PROJECT LOCATION

Wilson Middle School (WMS) is located at 1221 Monterey Road in the northeast part of the City of Glendale, Los Angeles County, California (Figure 3-1, *Regional Location*). The Wilson MS Multi-Purpose Field Project (proposed Project) would disturb approximately 3.85 acres – consisting of the existing athletic field and basketball courts – along the northern portion of the WMS campus. The proposed Project would not impact other areas of the campus. The 3.85 acres will be referred to as the “Project site.” The Project site is bounded by multifamily residential uses to the north (fronting East Glenoaks Boulevard), WMS campus buildings, including classrooms and administrative buildings (fronting Monterey Road) to the south, WMS campus buildings to the west, with single-family and multi-family residential uses located west of the campus fronting Adams Street, and Verdugo Road to the east. The City is surrounded by the cities of La Canada Flintridge to the north, Pasadena to the east, Burbank to the west and Los Angeles to the south. Regional access to the WMS campus is State Route 134 (SR-134), approximately 0.13 miles to the south. The WMS campus is rectangularly shaped and bordered by Glenoaks Boulevard to the north, Monterey Road to the south, Verdugo Road to the east, and Adams Street to west (Figure 3-2, *Local Vicinity* and Figure 3-3, *Aerial Photograph*).

3.2 STATEMENT OF OBJECTIVES

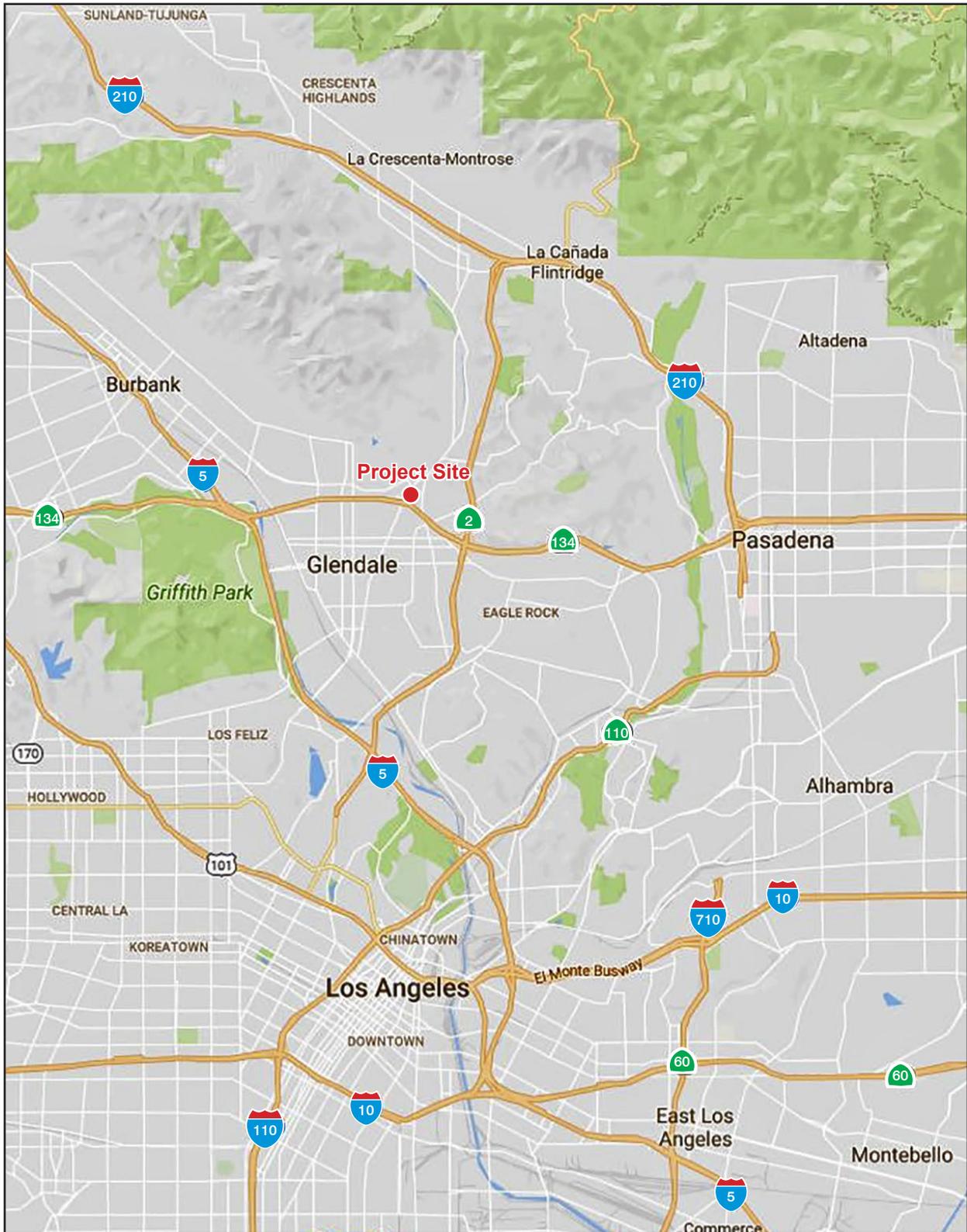
Objectives for the Project will aid decision makers in their review of the Project and associated environmental impacts. The objectives for this Project are

1. Provide a recreational multi-purpose athletic field for the City of Glendale residents.
2. Utilize existing space to enhance opportunities for after-school athletic and extracurricular activities.
3. Allow use of the facility by District-approved community groups.
4. Respond to City of Glendale residents’ request for more youth athletic playing fields.
5. Conserve water resources by replacing natural turf field with no water/non-living artificial turf field.
6. Provide lighting to allow night use of the sports field.

3. Project Description

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Figure 3-1 - Regional Location
3. Project Description

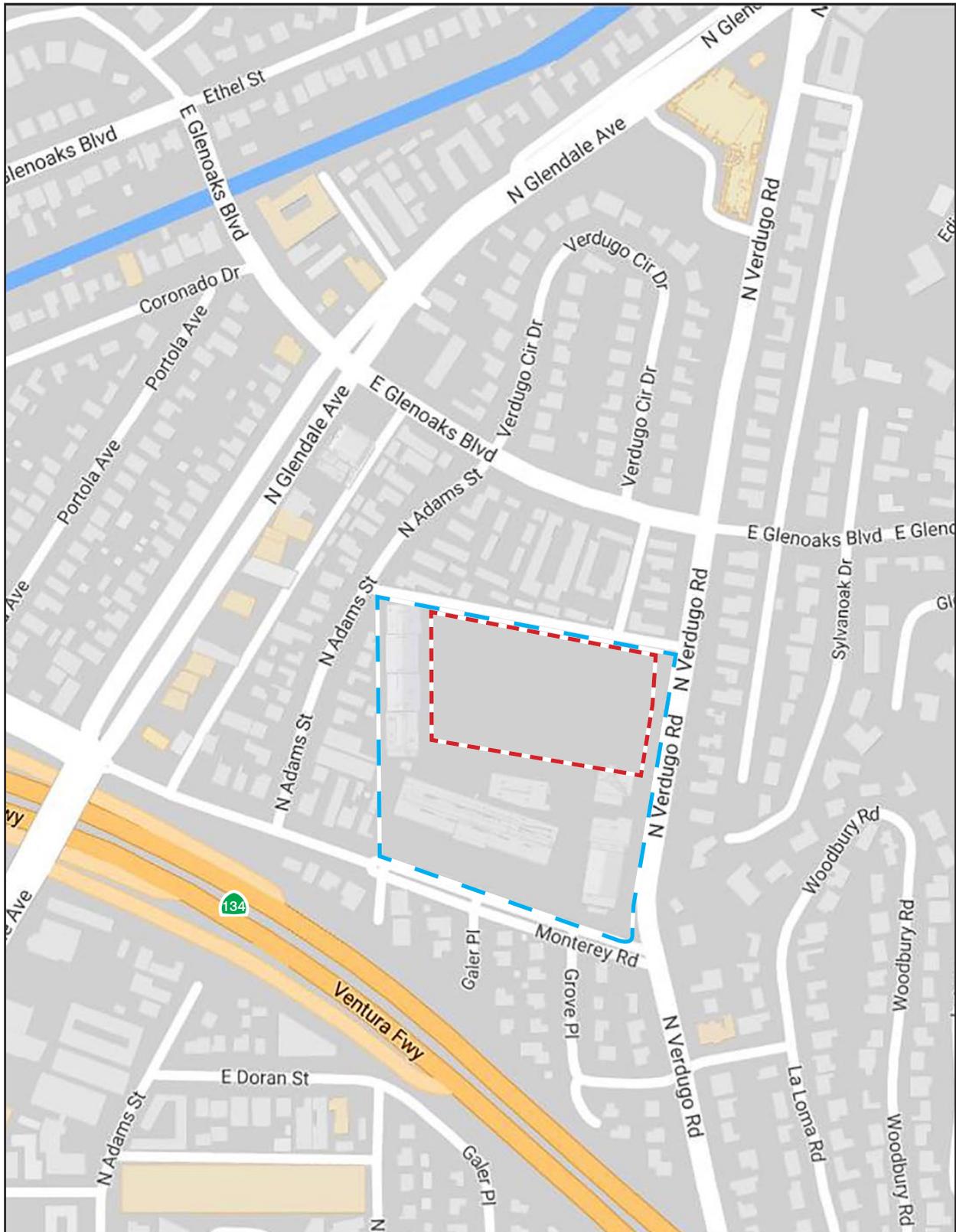


Source: Google Maps, 2017

3. Project Description

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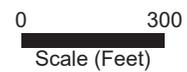
Figure 3-2 - Local Vicinity
3. Project Description



— School Boundary

--- Project Site

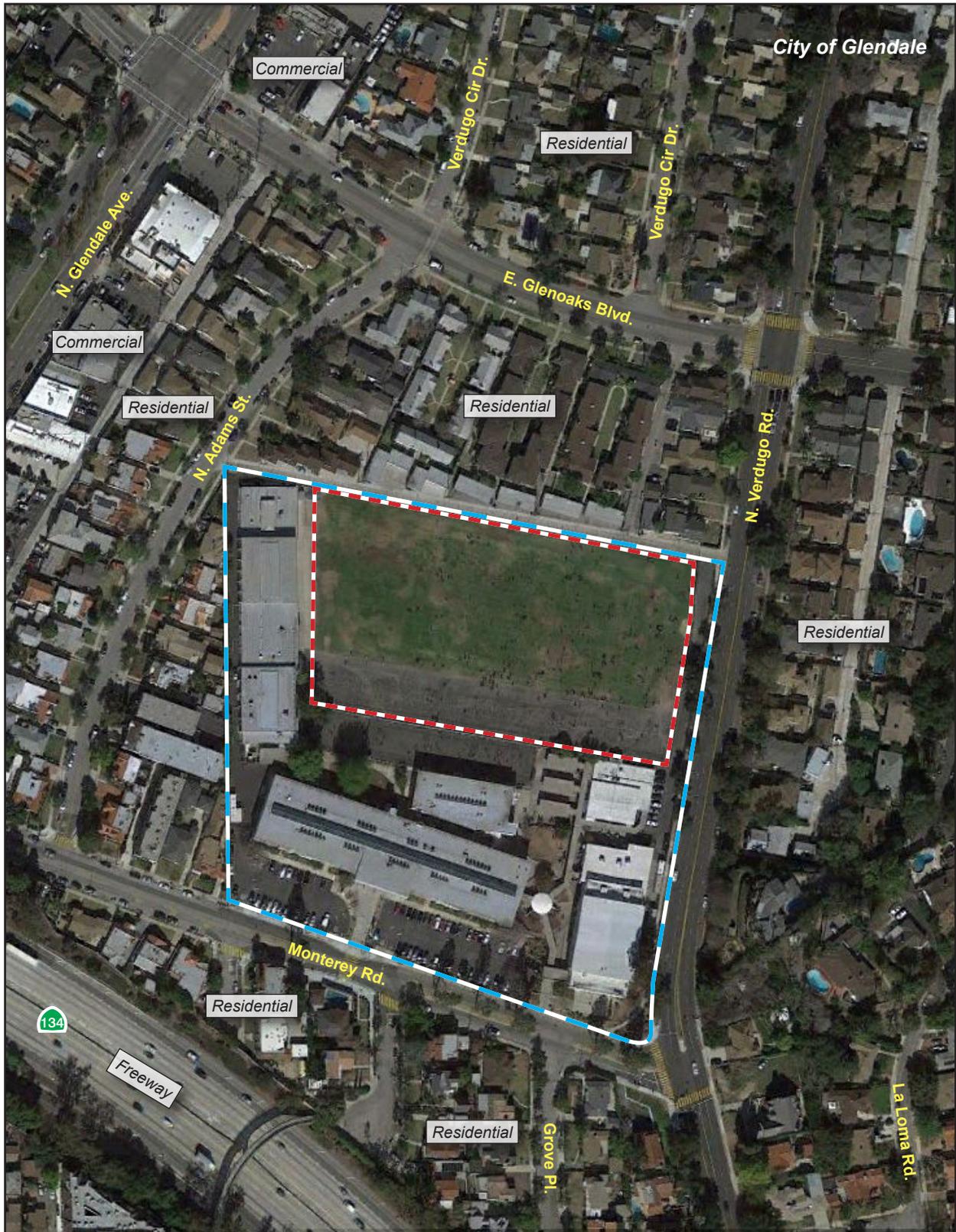
Source: Google Maps, 2017



3. Project Description

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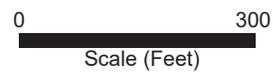
Figure 3-3 - Aerial Photograph
3. Project Description



— School Boundary

- - - Project Site

Source: Google Maps, 2017



3. Project Description

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3. Project Description

3.3 PROJECT CHARACTERISTICS

“Project,” as defined by the CEQA Guidelines, means:

... the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following: (1)...an activity directly undertaken by any public agency including ... improvements to existing structure. (14 Cal. Code of Reg. § 15378[a])

3.3.1 Proposed Land Use

The proposed Project would involve replacement of an existing grass field and paved basketball courts with a joint use multi-purpose synthetic all-weather sports field with football, soccer, and lacrosse markings and surrounding five-lane all-weather rubberized surface jogging track, fitness equipment, consisting of perimeter security fence with privacy screening, restroom and storage/maintenance building(s), walkways, landscaping, irrigation, re-grading of the existing basketball court surface, and sports field lighting. The proposed Project would make use of existing street and on-site parking. No change in site access or parking would occur. The proposed field lighting is necessary for evening use on weeknights and weekends. The City’s use of the proposed field would be from 5:00 p.m. to 10:00 p.m. Monday through Friday, and 8:00 a.m. to 10:00 p.m. on Saturday and Sunday. The City would have a Community Services & Parks Department employee on site during permitted field times when the school is not in use. No permanent seating or bleachers, scoreboards or amplified sound systems are proposed.

The proposed Project would develop two City structures on the Project site including a restroom facility with a small equipment storage area and a maintenance shed for field grooming equipment and materials. The proposed restroom would include two women’s toilet stalls, one being American with Disabilities Act (ADA) compliant; one men’s ADA compliant toilet stall; and two men’s urinals.

Lighting System

The proposed Project involves the installation and operation of six 70-foot-tall light poles along the perimeter of the running track. Figure 3-4, *Site Plan*, illustrates the and location of the proposed field lighting fixtures on the Project site. Each light pole would be mounted with seven light fixtures utilizing 1,500 watt (1.56 kilowatts per hour [kW/h]) Musco TLC-LED-1150 lamps and equipped with Light-Structure Green (LSG) visors. The new light poles would provide an average of 30 foot-candles across the athletic field, which is the lighting standard for recreational activity, based on Illumination Engineering Society of North America (IESNA) RP-6-15 Recommended Practice for Sports Lighting. The lighting would also be designed to reduce illumination levels, or the amount of light present on a surface or plane, to zero at the site perimeter. Additionally, the light fixtures would be positioned in such a way to minimize glare, or lighting entering the eye directly from the light fixtures on surrounding land uses and roadways. The positioning and directional nature of the light fixtures would also be established to limit sky glow to the extent possible. Sky glow is the amount of light reflecting into the night sky that reduces visibility of the sky and stars.

3. Project Description

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Figure 3-4 - Site Plan
3. Project Description



— School Boundary

--- Project Site

⊗ Lighting Locations (6)

0 125

Scale (Feet)



Source: Google Earth Pro, 2017

3. Project Description

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3. Project Description

Use and Scheduling

The Project site is currently utilized by WMS for physical education purposes and school sports programs. In addition to WMS uses, the project site is used on the weekends by American Youth Soccer Organization (AYSO) from 8:00 a.m. to 6:00 p.m. on Saturdays, and 10:00 a.m. to 6:00 p.m. on Sundays.

The proposed Project would not introduce new uses or increase capacity of the existing Wilson MS field for AYSO use to the Project site; rather, the proposed Project would provide an improved multi-surface field for the students and would also allow for the extended use of the Project site by outside sporting groups during evening and nighttime hours. Specifically, operation of the proposed field lighting would allow these groups to utilize the field until 10:00 p.m., in accordance with the 1999 Joint Use Agreement. Under the 1999 Joint Use Agreement, GUSD and the City would jointly set appropriate hours of operation for each facility while maintaining a sense of flexibility and cooperation for each organization’s changing or special program needs. GUSD shall have the right to the exclusive use of the shared-use facilities during all regular school days¹ during regular school hours while the City shall have the right to exclusive use of the facilities at the close of regular school days and on Saturdays, Sundays, school holidays, and during school vacation periods. Use of the proposed field lighting by outside groups would require a Facilities Use Permit issued by GUSD or the City that would establish the allowable hours of use.

3.3.2 Project Phasing

Construction activities are anticipated to begin in Summer 2021. The construction would be completed in one stage, last approximately three months, and include the following activities: asphalt demolition, grading and excavation of the existing field, trenching for site utilities and irrigation; synthetic turf installation; and light pole installation; construction of the restroom and storage/maintenance building and resurfacing of the existing basketball courts. Grading activities would result in the disturbance of approximately 121,771 square feet of area, and would result in the export of approximately 13,381 cubic yards of soil. The anticipated duration and number of construction workers for each phase are identified in Table 3.3-1, *Proposed Construction Schedule*. The highest construction related traffic increases would occur during the soil haul phase, which is expected to last approximately 16 total days and which would generate approximately 105 truck trips per day. It is assumed that haul vehicles would utilize local roadways to access SR-134 and on-site construction workers would utilize existing school parking.

Table 3.3-1 Proposed Construction Schedule

Construction Activity	Duration (weeks)	On-site Construction Workers
Asphalt Demolition	3	6
Grading	3	7
Utility Trenching	1	2
Field Installation/Portable Building Haul	3	3
Paving	3	7

Source: Construction data was extrapolated from the California Emissions Estimator Model (CalEEMod), version 2016.3.2.25.25.

¹ Regular school days are defined as those days on which school is held in regular session as established in the school calendar from time to time and adopted by the Board of Education for each school year.

3. Project Description

3.4 INTENDED USES OF THE EIR

This Draft EIR is a project DEIR that examines the environmental impacts of the proposed Project. This DEIR also addresses various actions by the City and others to adopt and implement the proposed Project. It is the intent of this DEIR to evaluate the environmental impacts of the proposed Project, thereby enabling the City, other responsible agencies, and interested parties to make informed decisions with respect to the requested entitlements. The anticipated approvals required for this Project are:

Lead Agency	Action
City of Glendale	Approve Joint Use Development and Use Agreement Certify EIR Adopt Mitigation Monitoring Program
Glendale Unified School District	Joint Use Development and Use Agreement
Responsible Agencies	Action
State	
Department of General Services, Division of State Architect	Approval of Construction Drawings
Regional	
Los Angeles Regional Water Quality Control Board	National Pollutant Discharge Elimination System Permit
South Coast Air Quality Management District	Rule 201: Permit to construct
Local	
City of Glendale Public Works	Grading Permit Storm Drain MS4 Permit Offsite improvement permits such as drainage, sewer, water, electrical, etc.
City of Glendale Fire Department	Fire and Emergency Access

4. Environmental Setting

4.1 INTRODUCTION

This section provides a “description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, ... from both a local and a regional perspective” (Guidelines § 15125[a]), pursuant to provisions of the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The environmental setting provides the baseline physical conditions from which the lead agency will determine the significance of environmental impacts resulting from the proposed Project.

4.2 REGIONAL ENVIRONMENTAL SETTING

4.2.1 Regional Location

The City of Glendale is located in the County of Los Angeles within the Los Angeles Basin, a coastal plain at the north end of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges Geomorphic Province is characterized by mountain ranges separated by northwest-trending valleys, and extends from southwestern California south into Mexico. The Los Angeles Basin is bounded by the Santa Monica Mountains and San Gabriel Mountains to the north, the Santa Ana Mountains to the east, and the Pacific Ocean to the south and west. The Santa Monica Mountains and San Gabriel Mountains are part of the Transverse Ranges Geomorphic Province, an east-west-trending series of steep mountain ranges and valleys extending from Santa Barbara County in the west to central Riverside County in the east.

As shown in Figure 3-1, *Regional Location*, the City is located at the southeastern end of the San Fernando Valley in Los Angeles County, approximately 8 miles north of downtown Los Angeles. The City itself is bordered by the Sun Valley and Tujunga neighborhoods of Los Angeles to the northwest, La Cañada Flintridge and the unincorporated area of La Crescenta to the northeast, Burbank and Griffith Park to the west, Eagle Rock and Pasadena to the east, the Atwater Village neighborhood of Los Angeles to the south, and the Glassell Park neighborhood of Los Angeles to the southeast.

4.2.2 Regional Planning Considerations

SCAG Regional Transportation Plan/Sustainable Communities Strategy

The Southern California Association of Governments (SCAG) is a council of governments representing Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. SCAG is the federally recognized metropolitan planning organization for this region, which encompasses over 38,000 square miles. SCAG is a regional planning agency and a forum for addressing regional issues concerning transportation, the economy, community development, and the environment. SCAG is also the regional clearinghouse for projects

4. Environmental Setting

requiring environmental documentation under federal and state law. In this role, SCAG reviews proposed development and infrastructure projects to analyze their impacts on regional planning programs.

The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted in April 2016 (SCAG 2016). Major themes in the 2016 RTP/SCS include integrating strategies for land use and transportation; striving for sustainability; protecting and preserving existing transportation infrastructure; increasing capacity through improved systems managements; providing more transportation choices; leveraging technology; responding to demographic and housing market changes; supporting commerce, economic growth, and opportunity; promoting the links between public health, environmental protection, and economic opportunity; and incorporating the principles of social equity and environmental justice.

The SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce greenhouse gas (GHG) emissions from transportation (excluding goods movement). The SCS is meant to provide growth strategies that will achieve the regional GHG emissions reduction targets identified by the California Air Resources Board. The SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives to governments and developers for consistency. The proposed Project's consistency with the applicable 2016-2040 RTP/SCS policies is analyzed in detail in Section 5.3, *Greenhouse Gas Emissions*.

South Coast Air Basin Air Quality Management Plan

The City is in the South Coast Air Basin (SoCAB), which is managed by the South Coast Air Quality Management District (SCAQMD). Pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law and standards are detailed in the SoCAB Air Quality Management Plan (AQMP). Air pollutants for which Ambient Air Quality Standard (AAQS) have been developed are known as criteria air pollutants—ozone (O₃), carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide, coarse inhalable particulate matter (PM₁₀), fine inhalable particulate matter (PM_{2.5}), and lead. VOC and NO_x are criteria pollutant precursors and go on to form secondary criteria pollutants, such as O₃, through chemical and photochemical reactions in the atmosphere. Air basins are classified as attainment/nonattainment areas for particular pollutants depending on whether they meet AAQS for that pollutant. Based on the SoCAB AQMP, the SoCAB is designated nonattainment for O₃, PM_{2.5}, PM₁₀, and lead (Los Angeles County only) under the California and National AAQS and nonattainment for NO₂ under the California AAQS. The proposed Project's consistency with the applicable AAQS is discussed in Section 5.2, *Air Quality*.

Greenhouse Gas Emissions Reduction Legislation

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-03-05; Executive Order B-30-15; Assembly Bill 32 (AB 32), the Global Warming Solutions Act (2008); and Senate Bill 375 (SB 375), the Sustainable Communities and Climate Protection Act.

Executive Order S-03-05, signed June 1, 2005, set the following GHG reduction targets for the State of California:

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- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

AB 32 was passed by the state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the emissions reduction targets established in Executive Order S-3-05. Executive Order B-30-15 also established an interim goal of a 40 percent reduction below 1990 levels by 2030.

In 2008, SB 375 was adopted to connect GHG emissions reductions targets for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce vehicle miles traveled and vehicle trips. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035.

The proposed Project's ability to meet these regional GHG emissions reduction target goals is analyzed in Section 5.3, *Greenhouse Gas Emissions*.

Los Angeles Metropolitan Transit Authority

The Los Angeles Metropolitan Transit Authority (Metro) is Los Angeles County's designated congestion management agency. Metro is responsible for the conformance monitoring and updating of Los Angeles County's Congestion Management Program (CMP), a multimodal program. The proposed Project's consistency with the CMP is provided in Section 5.5, *Transportation and Traffic*.

Congestion Management Program

The most recent CMP was issued by Metro in 2010. The goals of the CMP are to link local land use decisions with their impacts on regional transportation, and air quality; and to develop a partnership among transportation decision makers on devising appropriate transportation solutions that include all modes of travel. To meet these goals, the CMP provides:

- Tracking and analysis to determine how the regional highway and transit systems are performing.
- Local analysis of the impacts of local land use decisions on regional transportation.
- Local implementation of Transportation Demand Management (TDM) design guidelines that ensure new development includes improvements supportive of transit and TDM.
- Tracking new building activity throughout Los Angeles County (Metro 2010).

4.3 LOCAL ENVIRONMENTAL SETTING

The Project site is bounded by multifamily residential uses to the north (fronting East Glenoaks Boulevard), WMS campus buildings, including classrooms and administrative buildings (fronting Monterey Road) to the south, WMS campus buildings to the west, with single-family and multi-family residential uses located west of the campus fronting Adams Street, and Verdugo Road to the east. The WMS campus is rectangularly shaped

4. Environmental Setting

and bordered by Glenoaks Boulevard to the north, Monterey Road to the south, Verdugo Road to the east, and Adams Street to west. SR-134 is approximately 0.13 miles to the south of the Project site.

4.3.1 Location and Land Use

The WMS campus is approximately 10 acres in size and is currently developed with classroom buildings, administration building, a gymnasium, a multi-purpose athletic field, ten outdoor basketball courts, an outdoor lunch area, cafeteria, staff/visitor parking lot, student drop-off/pick-up zone, pedestrian walkways and landscaped planters (see Figure 3-3, *Aerial Photograph*). School enrollment for the 2016-17 school year included 1,183 students attending 6th through 8th grade. The typical bell schedule begins the school day at 8:00 a.m. and dismissal occurs at 2:47 p.m.

The existing athletic field is located on the northernmost portion of the campus, to the north of the existing basketball courts. The athletic field is a 2.75-acres and comprised of natural turf, with a long jump pit located along the eastern border. The basketball courts are approximately 0.92 acres and include six of the ten courts on the campus (the remaining four are to the south and separated from the Project site by an existing fence and are not a part of the proposed Project). The field does not have bleachers or lights. The Project site is approximately 6 feet below the grade of Verdugo Road, and 5 feet below the grade of the unnamed alley between the site and the multi-family homes to the north. A small storage box is located along the eastern border. The field and the adjacent basketball courts are relatively level, with a minor slope towards the center for site drainage.

The Project site is currently utilized by WMS for physical education purposes and school sports programs. In addition to WMS uses, outside sporting groups have been individually permitted by Glendale Unified School District (GUSD) to use the practice field on weekends generally between the hours of 8:30 a.m. and 6:00 p.m. on Saturdays and 8:00 a.m. and 6:00 p.m. on Sundays.

Parking and Access

Main vehicular access to the WMS campus is provided along Monterey Road, including the student drop-off/pick-up zone and faculty/visitor parking located along Monterey Road. Limited parking is provided along the western perimeter of the campus, adjacent the classroom buildings located west of the Project site. Street parking is available on Verdugo Road, Monterey Road and Adams Street. Construction workers and vehicles would access the Project site through the western parking area, entering from Verdugo Road, separate from the main student pick-up/drop-off and faculty/visitor parking.

4.3.2 Scenic Features

The Project site is surrounded by the WMS campus to the west and south, North Verdugo Road to the east, and residential uses to the north. The proposed Project's surrounding vicinity is urban and is fully developed with residential and commercial uses. The nearest scenic areas in the vicinity are the Verdugo Mountains Open Space Preserve, approximately 1.5 miles to the north, and the San Rafael Hills, approximately 1.2 miles to the east. Details related to impacts on the Project site's scenic features and visual character are provided in Section 5.1, *Aesthetics*.

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4.3.3 Climate and Air Quality

As noted above, Glendale is in the SoCAB, which is managed by SCAQMD. The SoCAB is designated as nonattainment for ozone (O₃), fine inhalable particulate matter (PM_{2.5}), and lead (Los Angeles County only) under the California and National AAQS and nonattainment for coarse inhalable particulate matter (PM₁₀) and nitrogen dioxide (NO₂) under the California AAQS. Additional information regarding air quality and climate change regulation affecting Glendale is provided in Section 4.2.2, *Regional Planning Considerations*, above. Existing air quality conditions in the City are also provided in Sections 5.2, *Air Quality*, and 5.3, *Greenhouse Gas Emissions*.

4.3.4 Noise

The Project site is in a predominantly residential area and is subject to noise from transportation and stationary sources. In addition to roadway noise and residential noise sources (i.e. property maintenance, light mechanical equipment, people talking, etc.), the Project vicinity is also subject to recurring events of athletic field noise from the existing Project site. Noise sensitive receptors in the vicinity of the proposed Project are the residential uses located immediately to the north and adjacent to the practice field, the residential uses located to the west opposite school buildings and the residential uses located to the east across from North Verdugo Road. Refer to Section 5.4, *Noise*, for additional information concerning the noise environment and an analysis of Project-related noise impacts.

4.3.5 General Plan and Zoning

The City's General Plan Land Use Element designates the Project site as Public Semi-Public (Glendale 2018). The middle school campus is zoned as Low Density Residential (R1). According to Section 30.11.020 Residential District Land Uses And Permit Requirements, public parks and recreational facilities are permitted in the R1 zone.

4.4 ASSUMPTIONS REGARDING CUMULATIVE IMPACTS

Section 15130 of the CEQA Guidelines states that cumulative impacts shall be discussed where they are significant. It further states that this discussion shall reflect the level and severity of the impact and the likelihood of occurrence, but not in as great a level of detail as that necessary for the project alone. Section 15355 of the Guidelines defines cumulative impacts as "...two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts represent the change caused by the incremental impact of a project when added to other proposed or committed projects in the vicinity.

The CEQA Guidelines (Section 15130 [b][1]) state that the information utilized in an analysis of cumulative impacts should come from one of two sources:

- A. A list of past, present and probable future projects producing related cumulative impacts, including, if necessary, those projects outside the control of the agency.
- B. A summary of projections contained in an adopted General Plan or related planning document designed to evaluate regional or area-wide conditions.

4. Environmental Setting

The cumulative impact analysis in this DEIR uses Method A. The list of related projects was prepared based on data provided by the City's Current Projects Map online tool (Glendale, CA Planning Division, 2019). A total of 22 cumulative projects were identified in the study area for the traffic study, shown on Table 4-1, *Summary of Related Projects*, below. These projects are future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by the City located within 2 miles of the Project site.

Table 4-1 Summary of Related Projects

ID	Project Location	Proposed Land Use	Size	Status	Distance (miles)
1	1001 E Colorado Street	Hotel	134 rooms	Under Construction	0.88
2	337 N Cedar Street	MF Residential	4 du	Approved	0.48
3	115 N Adam Street	MF Residential	4 du	Approved	0.62
4	413 N Brand Blvd	MF Residential Commercial	228 du 5,000 sf	Approved	0.95
5	426-503 N Kenwood Street	MF Residential	21 du	Approved	0.75
6	610 N Brand Blvd	MF Residential	240 du	Proposed	0.94
7	534 N Kenwood Street	MF Residential	11 du	Proposed	0.73
8	210 W Lexington and 418 N Central Avenue	MF Residential Live/Work Commercial	464 du 25 du 8,140 sf	Under Construction	1.09
9	130 N Central Avenue	MF Residential Commercial (Option A) Live/Work (Option B)	153 du 4,900 sf 5 du	Approved	1.22
10	352-358 W Milford Street	Affordable MF Residential	32 du	Under Construction	1.27
11	361 Myrtle Street	Condominium	15 du	Proposed	1.31
12	452 W Milford	MF Residential	15 du	Approved	1.47
13	350 Salem Street	Condominium	12 du	Approved	1.33
14	520 N Central Avenue	MF Residential	99 du	Approved	1.1
15	515-523 N Central Avenue	General Office	14,229 sf	Proposed	1.13
16	1100-1108 N Brand Boulevard	Hotel	85 rooms	Under Construction	1.02
17	135 W Glenoaks Boulevard	Hotel	219 rooms	Proposed	1.09
19	500 E Colorado Street	Medical Office Retail	30,800 sf 8,230 sf	Under Construction	1.77
20	126-132 S Kenwood Street	MF Residential	44 du	Proposed	1
21	145 N Louise Street	Hotel	147 rooms	Under Construction	0.97

Source: Placemarks 2020; Appendix E of this DEIR.

Notes: MF = multi-family; du=dwelling units; sf=square feet

Please refer to Chapter 5, *Environmental Analysis*, of this DEIR for a discussion of the cumulative impacts associated with development and growth in the City and region for each environmental resource area.

4. Environmental Setting

4.5 REFERENCES

Glendale, City of. 1968. City of Glendale General Plan Land Use Element. Accessed January 27, 2018.
<https://www.glendaleca.gov/home/showdocument?id=27328>.

———. 2019. Current Projects Map online tool. Glendale, CA Planning Division.
<http://glendalegeo.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=2b58677f8b2249fbadc0d2f8e6d3eec9>

Los Angeles County Metropolitan Transportation Authority (Metro). 2010. 2010 Congestion Management Program. http://media.metro.net/docs/cmp_final_2010.pdf.

4. Environmental Setting

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5. Environmental Analysis

Chapter 5 examines the environmental setting of the proposed Project, analyzes its effects and the significance of its impacts, and recommends mitigation measures to reduce or avoid impacts. This chapter has a separate section for each environmental issue area that was determined to need further study in the EIR. This scope was determined in the initial study and notice of preparation (NOP), which were published August 1, 2017 (see Appendix A1), and through public and agency comments received during the NOP comment period from August 1, 2017, to September 1, 2017 (see Appendix A2). Environmental issues and their corresponding sections are:

- 5.1 Aesthetics
- 5.2 Air Quality
- 5.3 Greenhouse Gas Emissions
- 5.4 Noise
- 5.5 Transportation and Traffic
- 5.6 Energy

Sections 5.1 through 5.5 provide a detailed discussion of the environmental setting, impacts associated with the proposed Project, and mitigation measures designed to reduce significant impacts where required and when feasible. The residual impacts following the implementation of any mitigation measure are also discussed.

The initial study also determined that certain issues under an environmental topic would not be significantly affected by implementation of the proposed Project; these issues are not discussed further in this EIR.

Organization of Environmental Analysis

To assist the reader with comparing information between environmental issues, each section is organized under nine major headings:

- Environmental Setting
- Thresholds of Significance
- Environmental Impacts
- Cumulative Impacts
- Existing Regulations and Standard Conditions
- Level of Significance Before Mitigation
- Mitigation Measures
- Level of Significance After Mitigation
- References

5. Environmental Analysis

In addition, Chapter 1, *Executive Summary*, has a table that summarizes all impacts by environmental issue.

Terminology Used in This Draft SEIR

The level of significance is identified for each impact in this DEIR. Although the criteria for determining significance are different for each topic area, the environmental analysis applies a uniform classification of the impacts based on definitions consistent with CEQA and the CEQA Guidelines:

- **No impact.** The project would not change the environment.
- **Less than significant.** The project would not cause any substantial, adverse change in the environment.
- **Less than significant with mitigation incorporated.** The EIR includes mitigation measures that avoid substantial adverse impacts on the environment.
- **Significant and unavoidable.** The project would cause a substantial adverse effect on the environment, and no feasible mitigation measures are available to reduce the impact to a less than significant level.

5. Environmental Analysis

5.1 AESTHETICS

This section of the Draft Environmental Impact Report (DEIR) discusses potential impacts to the visual appearance and character of the Project site and its surroundings associated with implementation of the proposed Project. The analysis in this section is based in part on the following technical report:

- *Lighting Report for Wilson Middle School*, Musco Sports Lighting, LLC. (Musco Lighting), June 2018.

A complete copy of this study is included in Appendix B to this DEIR.

5.1.1 Environmental Setting

5.1.1.1 REGULATORY SETTING

State and local laws, regulations, plans, and guidelines that are applicable to the proposed Project are summarized below.

State

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2016 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On June 10, 2015, the CEC adopted the 2016 Building Energy Efficiency Standards, which went into effect on January 1, 2017. Title 24 requires outdoor lighting controls to reduce energy usage; in effect, this reduces outdoor lighting.

Nighttime Sky, CCR Title 24, Outdoor Lighting Standards

The California legislature passed a bill in 2001 requiring the California Energy Commission to adopt energy efficiency standards for outdoor lighting, both public and private. In November 2003 the commission adopted changes to the California Code of Regulations, Title 24, parts 1 and 6, Building Energy Efficiency Standards. These standards became effective on October 1, 2005, and included changes to the requirements for outdoor lighting for residential and nonresidential development. These standards improved the quality of outdoor lighting and helped to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set for different “lighting zones” (LZ), and the zone for a specific area is based on population figures from the 2000 Census. Areas can be designated LZ1 (dark), LZ2 (rural), or LZ3 (urban). Based on this classification, the Project site is designated LZ3.

5. Environmental Analysis AESTHETICS

Local

City of Glendale Zoning Code

Sections of the Glendale Municipal Code that pertain to aesthetics—and lighting in particular—are found in Chapter 30 (Zoning Code).

- **Section 30.30.040: (R1) Lighting.** This section of the Zoning Code restricts outdoor lighting for uncovered parking areas, vehicle access ways, and walkways within specific zones to sixteen feet or less. This section also regulates overspill, compliance with state energy efficiency standards (see above), and light that flashes, shimmers, or flickers. The Project site’s zoning designation (R1) is not an applicable designation as listed in Section 30.30.040.

Glendale General Plan Open Space and Conservation Element

The Open Space and Conservation Element of the Glendale General Plan (Glendale 1993) addresses, among other topics, visual and scenic resources. The element lists the following aesthetic functions of open space:

- Scenic beauty, such as landscapes that contain lush or colorful vegetation or other features that are visually attractive on the basis of their appearance.
- Prominent stature, such as topographical relief features that are bold, highly visible or distinctive.
- Uniqueness such as features that are unusual or uncommon.
- Contrast or symmetry, such as landscapes with component features of high diversification or a consistently occurring pattern with an interesting visual effect.
- Identify and form, such as neighborhoods and historic resources, reflecting a sense of time and place within the history of the community.

The visual and scenic resources subsection of the element generally focuses on the City’s ridgelines and large contiguous areas of open space to satisfy the functions listed above. Because the Project site is located in an urbanized portion of the City away from the City’s primary visual resources (e.g., the Verdugo Mountains, San Rafael Hills, and San Gabriel Mountains), the site and its immediate surroundings are characterized as areas of “low visual sensitivity” (Glendale 1993). The potential visual impacts of light and glare on Glendale’s scenic resources are not discussed in the City’s General Plan.

5.1.1.2 VISUAL SETTING

Visual Character and Resources

The Project site is fully developed and consists of a middle school campus. The Project’s surrounding vicinity is urban and is fully developed with residential and commercial uses. As discussed in the Initial Study to this DEIR, the Project site does not contain unique visual features that would distinguish it from surrounding areas nor is it located within a designated scenic vista. Trees and shrubs at WMS are ornamental and not known to hold any special importance as noteworthy visual assets.

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AESTHETICS

Landform

The Project site and surrounding immediate vicinity are largely flat. The existing sports field is somewhat sunken below the grade of the alley to the north and Verdugo Road to the east, with a small wall separating these roadways from the play surface. This wall is approximately six feet at its tallest in the Project site's northeast corner. Outside of the Project site, residential neighborhoods to the east and northeast are located in the College Hills.

Scenic Views and Vistas

The nearest scenic areas in the vicinity are the Verdugo Mountains Open Space Preserve, approximately 1.5 miles to the north, and the San Rafael Hills, approximately 1.2 miles to the east. Views from the Project site to scenic areas (i.e., ridgelines and mountains) are limited and obstructed by the surrounding urban environment.

Light and Glare

Because WMS is located in an urban environment, the Project site and its immediate vicinity contains many existing sources of nighttime illumination. Under existing conditions, nighttime lighting on the WMS campus are limited to security lighting along pathways and building exteriors. There is no nighttime lighting installed on the existing athletic fields. Off-site lighting sources includes street lighting, exterior lighting on existing single- and multi-family residential, and commercial uses. Additional ambient light in the area is generated by surrounding neighborhoods and the Ventura Freeway (SR-134) to the south and southwest.

5.1.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, except as provided in Public Resources Code Section 21099, a project would normally have a significant effect on the environment if the project would:

- AE-1 Have a substantial adverse effect on a scenic vista.
- AE-2 Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- AE-3 In non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings. Public views are those that are experienced from publicly accessible vantage point. In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality
- AE-4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

The Initial Study, included as Appendix A1 found that impacts associated with the following thresholds would be less than significant:

- Threshold AE-1: The Project site does not contain unique visual features that would distinguish it from surrounding areas nor is it located within a designated scenic vista. Views from the Project site and these

5. Environmental Analysis

AESTHETICS

scenic areas are limited and obstructed by the surrounding urban environment. Implementation of the proposed Project would not result in the obstruction or degradation of existing scenic views, and views would continue to be available beyond the Project site. Therefore, impacts to scenic vista would be less than significant.

- Threshold AE-2: No state scenic highways, scenic resources, or historic buildings exist on the site or within the Project vicinity. Therefore, the proposed Project would have no impact on scenic resources within a state scenic highway.
- Threshold AE-3: Changing the existing grass field to a synthetic turf field would not change the visual character of the site or the surrounding areas, as it would continue to be used as it is presently. Implementation of the proposed lighting facilities, synthetic turf field, and, surrounding rubberized jogging track would not detract from the visual character of the site, as these improvements would be visually consistent with the uses currently existing on the Project site. Therefore, impacts would be less than significant.

Based on this analysis, these impacts will not be addressed in the following analysis.

5.1.3 Environmental Impacts

5.1.3.1 METHODOLOGY

Nighttime illumination and glare impacts are the effects of a project's exterior lighting upon adjoining uses and areas. Light and glare impacts are determined through a comparison of the existing light sources with the proposed lighting plan or policies. In some cases, excessive light and glare can be annoying to residents or other sensitive land uses; be disorienting or dangerous to drivers; impair the character of rural communities; and/or adversely affect wildlife.

Nighttime illumination and glare analysis addresses the effects of a project's nighttime lighting on adjoining uses and areas. Light and glare impacts are determined through a comparison of the existing light sources with the proposed lighting plan or policies. If the project has the potential to generate spill light on adjacent sensitive receptors or generate glare at receptors in the vicinity of the site, mitigation measures can be provided to reduce potential impacts, as necessary. The following provides relevant lighting assessment terminology used in this analysis.

Foot-candle. The unit of measure expressing the quantity of light on a surface. One foot-candle is the illuminance produced by a candle on a surface of one square foot from a distance of one foot. The general benchmarks for light levels are shown in Table 5.1-1.

Table 5.1-1 General Light Levels Benchmark

Outdoor Light	Foot-candles
Direct Sunlight	10,000
Full Daylight	1,000
Overcast Day	100

5. Environmental Analysis AESTHETICS

Dusk	10
Twilight	1
Deep Twilight	0.1
Full Moon	0.01
Quarter Moon	0.001
Moonless Night	0.0001
Overcast Night	0.00001
Gas station canopies	25–30
Typical neighborhood streetlight	1.0–5.0

Source: NOAA 2016.

Horizontal foot-candle. The amount of light received on a horizontal surface such as a roadway or parking lot pavement.

Vertical foot-candle. The amount of light received on a vertical surface such as a billboard or building façade.

Lumen. A unit of measure for quantifying the amount of light energy emitted by a light source. In other words, foot-candles measure the brightness of the light at the illuminated object, and lumens measure the amount of light radiated by the light source.

Luminaire (“light fixture”). The complete lighting unit (fixture) consists of a lamp—or lamps and ballast(s)—and the parts that distribute the light (reflector, lens, diffuser), position and protect the lamps, and connect the lamps to the power supply. An important component of luminaires is their shielding:

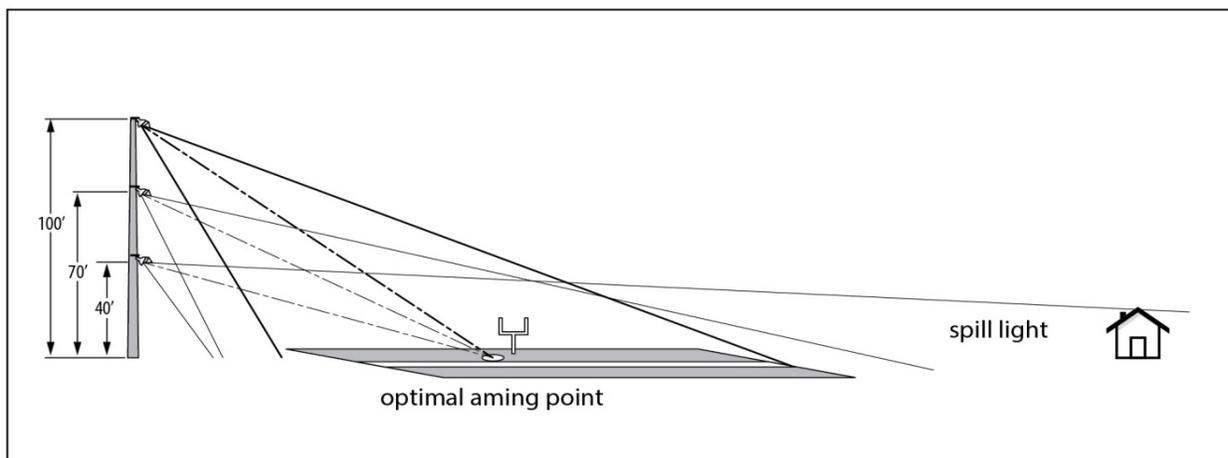
- **Fully shielded.** A luminaire emitting no light above the horizontal plane.
- **Shielded.** A luminaire emitting less than 2 percent of its light above the horizontal plane.
- **Partly shielded.** A luminaire emitting less than 10 percent of its light above the horizontal plane.
- **Unshielded.** A luminaire that may emit light in any direction.

Spill light. Light from a lighting installation that falls outside the boundaries of the property for which it is intended.

Light trespass. Spill light that, because of quantitative, directional, or type of light, causes annoyance, discomfort, or loss in visual performance and visibility. Light trespass is light cast where it is not wanted or needed, such as light from a streetlight or a floodlight that illuminates someone’s bedroom at night, making it difficult to sleep. As a general rule, taller poles allow fixtures to be aimed more directly on the playing surface, which reduces the amount of light spilling into surrounding areas. Proper fixture angles ensure even light distribution across the playing area and reduce spill light. See Illustration AE-1, *Light Trespass*, below, adapted from Musco Sports Lighting, LLC (Musco Lighting 2015).

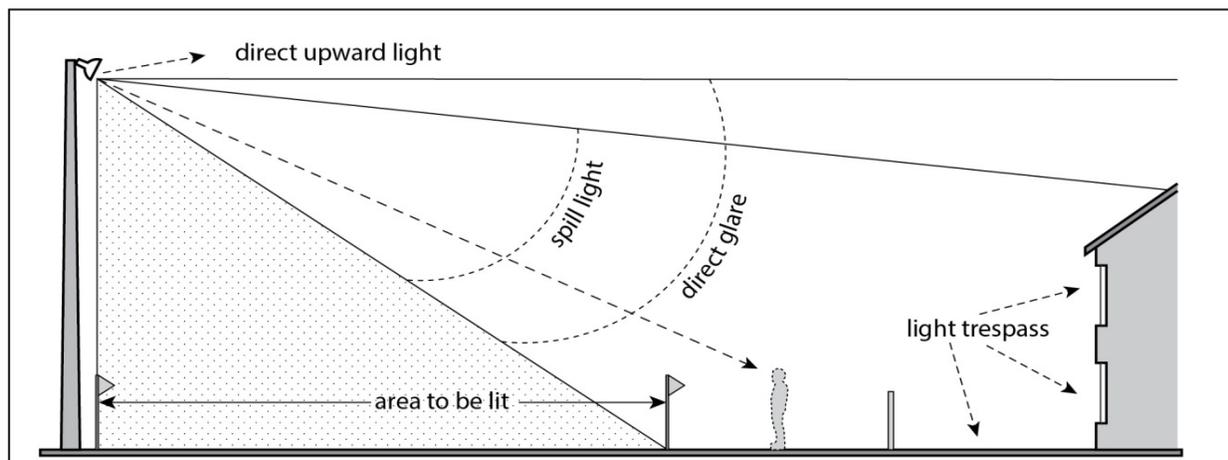
5. Environmental Analysis AESTHETICS

Illustration AE-1. Light Trespass



Glare. Light that causes visual discomfort or disability or a loss of visual performance when a bright object appears against a dark background. Glare can be generated by building-exterior materials, surface-paving materials, vehicles traveling or parked on roads and driveways, and stadium lights. Any highly reflective façade material is a concern because buildings can reflect bright sunrays. The concepts of spill light, direct glare, and light trespass are illustrated in Illustration AE-2, *Glare*, below, adapted from Institution of Lighting Engineers (ILE 2003).

Illustration AE-2. Glare



The City recognizes that light trespass varies according to surrounding environmental characteristics. Areas that are more rural in character are more susceptible to impacts resulting from the installation of new artificial lighting sources, whereas urbanized areas are characterized by a large number of existing artificial lighting sources and are less susceptible to adverse effects associated with new artificial lighting sources. Therefore, lighting standards vary according to the amount and intensity of existing light sources in the area. In order to determine appropriate lighting standards that reflect the existing lighting conditions, land uses are categorized into four lighting zones (IES 2011):

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- **LZ1: Low ambient lighting.** Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety and convenience, but it is not necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline.
- **LZ2: Moderate ambient lighting.** Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety and convenience, but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline.
- **LZ3: Moderately high ambient lighting.** Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security, and/or convenience, and it is often uniform and/or continuous. After curfew, lighting may be extinguished or reduced in most areas as activity levels decline.
- **LZ4: High ambient lighting.** Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security, and/or convenience, and it is mostly uniform and/or continuous. After curfew, lighting may be extinguished or reduced in some areas as activity levels decline.

The Project site is identified as LZ3 based on population figures from the 2000 Census and the above IES lighting zone description.

Proposed Lighting System

As discussed in Chapter 3 of this DEIR, the proposed Project would replacement of an result in the redevelopment of the existing grass field and paved basketball courts with a joint use multi-purpose synthetic all-weather sports field with football, soccer, and lacrosse markings and surrounding five-lane all-weather rubberized surface jogging track, fitness equipment, consisting of, perimeter security fence with privacy screening, restroom and storage/maintenance building(s), walkways, landscaping, irrigation, re-grading of the existing basketball court surface, and sports field lighting. The proposed field lighting is necessary for evening use on weeknights and weekends. The City's use of the proposed field would be from 5:00 p.m. to 10:00 p.m. Monday through Friday, and 8:00 a.m. to 10:00 p.m. on Saturday and Sunday.

The proposed Project involves the installation and operation of six 70-foot-tall light poles along the perimeter of the running track. Figure 3-4, *Site Plan* illustrates the location of the proposed field lighting fixtures on the Project site. Each light pole would be mounted with seven light fixtures utilizing 1,500 watt (1.56 kilowatts per hour [kW/h]) Musco TLC-LED-1150 lamps and equipped with Light-Structure Green (LSG) visors. The new light poles would provide an average of 30 foot-candles across the athletic field, which is the lighting standard for recreational activity based on Illumination Engineering Society of North. America (IESNA) RP-6-15 *Recommended Practice for Sports Lighting*. Using the TLC for Led system, the proposed lighting can be controlled to direct the light precisely onto the field instead of typical floodlights.

5. Environmental Analysis

AESTHETICS

The analysis below was performed using a photometric study and view simulations of the proposed light system. The photometric study was prepared by Musco Lighting based on an engineered design layout that included the programmed six 70-foot-tall poles, each with 42 lights: five lights in a horizontal configuration across the top of each pole and two ball tracking 'up' lights placed at 20 feet from the base of each pole. The photometric study serves as a blueprint for the anticipated light levels both on and off the proposed Project site by calculating the amount of light that will fall on an object based on the output and angle of the fixture(s). Based on this design configuration, the light levels were calculated for the center of the proposed playing field and at the WMS property line boundaries.

To further evaluate the potential for Project lighting to affect surrounding sensitive land uses, nighttime visual simulations were prepared. In creation of the visual simulations, PlaceWorks took photographs of the Project site to show the worst-case visual impacts of the Project site from surrounding public vantage points. PlaceWorks modeled the proposed improvements using AutoCAD files of the site plan. The 3D model was imported into AutoDesk MdsMax to verify accurate dimensions and massing of modeled lighting for the proposed Project from the files received from Musco Lighting. Once verification of model size was confirmed, the view simulations were combined with the existing photographs in Adobe Photoshop. These simulations are intended to provide a photo realistic rendering of the proposed Project upon completion.

5.1.3.2 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.1-1: Operation of the proposed Project would generate a new source of substantial light or glare which would adversely affect nighttime views in the area. [Threshold AE-4]

Impact Analysis:

Light Trespass Impact

Although the City's Municipal Code does not identify a maximum amount of illumination that can be generated by recreational uses, it defines light trespass for parking structures as light exceeding 0.5 foot-candle at the property line. Therefore, the City has adopted the 0.5 foot-candle at the property line as the threshold for impact for the proposed Project.

The proposed 70-foot-tall light poles provide the minimum height required to effectively illuminate the field area with an average maximum of 30 foot-candles (fc). It is not possible to completely eliminate spillover of light and glare onto adjoining properties and roadways, but the proposed pole height allows the best control for focusing the lights to minimize spillover light. Higher mounting heights are generally more effective in controlling spill light, because a more controlled and/or narrower beam may be used, making it easier to confine the light to the designated area. Lower mounting heights increase the spill light beyond the property boundaries. Lower mounting heights make bright parts of the floodlights more visible from positions outside the property boundary, which can increase glare.

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As shown in Figure 5.1-1, *Proposed Field Illumination Summary*, light levels from the six 70-foot tall light poles would have an average minimum light level of 30 foot-candles along any horizontal surface of the improved playing field. The figure illustrates horizontal spill light levels in foot-candles on a 30-foot by 30-foot grid. As described above, horizontal foot-candles represent the light level received on a horizontal surface such as a sports field, roadway, or parking lot pavement. As shown, the proposed system provides intended lighting levels on the field, with spill light dissipating away from the playing surface.

Figure 5.1-2, *Proposed Field Illumination Summary – Off-site*, illustrate the amount of light trespass at the WMS property line with implementation of the proposed Project. As shown in Figure 5.1-2, light spillover along the southern, eastern, and western property lines would not reach levels above 0.0 foot-candles and no adverse impacts would occur. However, along the northern property line, light levels from the proposed field lighting would approach 3.5 foot-candle on the neighboring property consisting of multi-family residential uses. Light levels would exceed the 0.5 foot-candle threshold and the proposed Project would result in new lighting that would intrude on neighboring residential uses and could affect nighttime views. This would be a potentially significant impact.

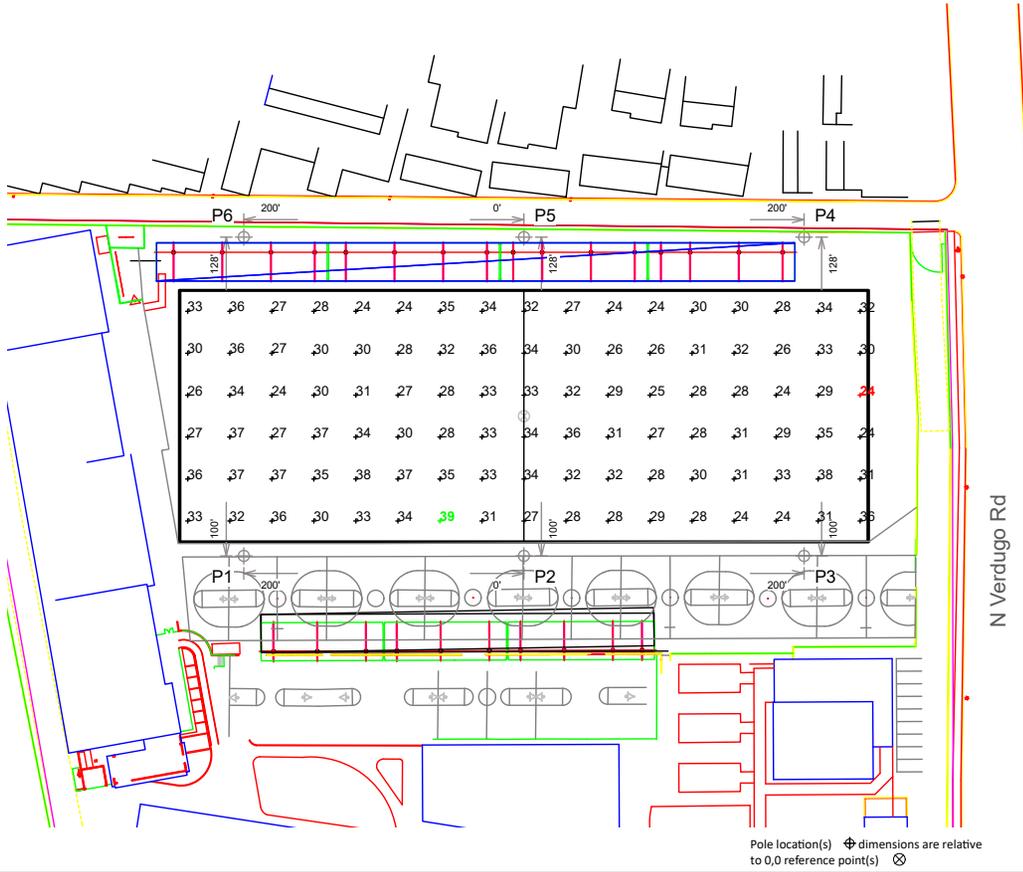
To further evaluate the potential for Project lighting to affect surrounding sensitive land uses, nighttime visual simulations were prepared. Per CEQA requirements, the evaluation of potential visual impacts of a project on private vantage points (e.g. single-family or multi-family residential uses) is generally not required. Evaluation of such impacts is instead focused on potential effects on public views (e.g., from public roadways). The five view simulations prepared for the proposed Project are shown in Figures 5.1-4 through 5.1-8. A key map showing the vantage point of each simulation is shown in Figure 5.1-3, *View Simulation Key Map*. The potential light impacts of the proposed Project are described below. Although the proposed lighting system would not generate light and glare impacts during the day, daytime view simulations are shown in the figures and explained below for context purposes.

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Figure 5.1-1 - Proposed Field Illumination Summary
5. Environmental Analysis

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY/ POLE	THIS GRID	OTHER GRIDS	
3	P1-P3	70'	-	15'	TLC-BT-575	2	2	0	
				70'	TLC-LED-1150	5	5	0	
3	P4-P6	70'	-	20'	TLC-BT-575	2	2	0	
				70'	TLC-LED-1150	5	5	0	
6	TOTALS					42	42	0	



GRID SUMMARY	
Name:	Multipurpose
Size:	492' x 180'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Guaranteed Average:	30		
Scan Average:	30.69		
Maximum:	39		
Minimum:	24		
Avg / Min:	1.30		
Guaranteed Max / Min:	3		
Max / Min:	1.65		
UG (adjacent pts):	1.45		
CU:	0.67		
No. of Points:	102		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 52,000 lumens		
No. of Luminaires:	42		
Total Load:	41.4 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>63,500	>63,500	>63,500
TLC-BT-575	>63,500	>63,500	>63,500
Reported per TM-21-11. See luminaire datasheet for details.			

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



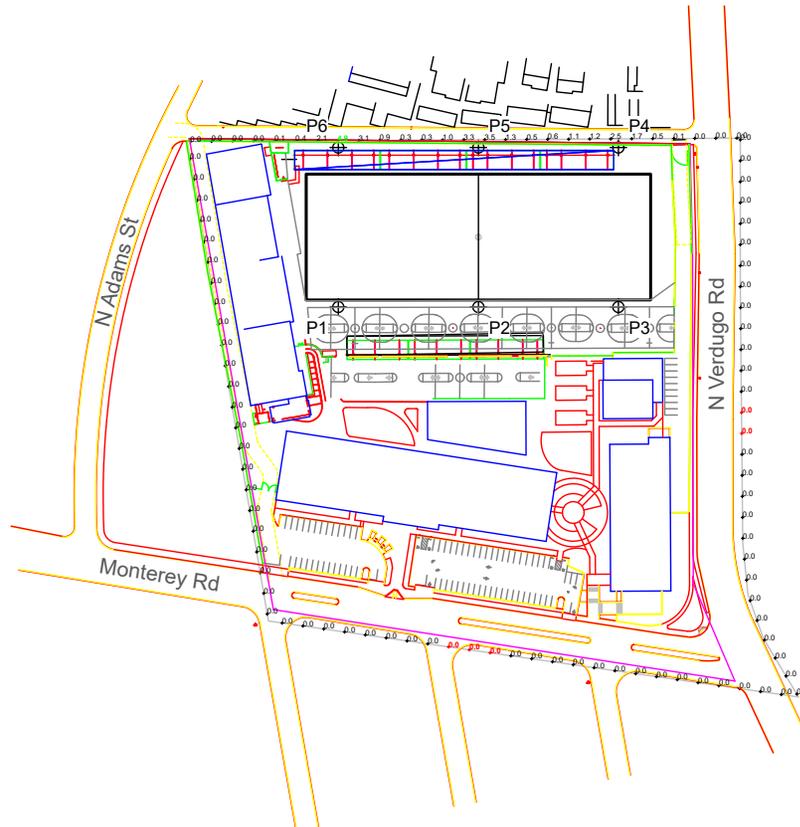
Source: Musco Lighting, 2018

5. Environmental Analysis AESTHETICS

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Figure 5.1-2 - Proposed Field Illumination Summary Off-site
5. Environmental Analysis

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY/ POLE	THIS GRID	OTHER GRIDS	
3	P1-P3	70'	-	15'	TLC-BT-575	2	2	0	
				70'	TLC-LED-1150	5	5	0	
3	P4-P6	70'	-	20'	TLC-BT-575	2	2	0	
				70'	TLC-LED-1150	5	5	0	
6	TOTALS					42	42	0	



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

GRID SUMMARY	
Name:	Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	0.2856		
Maximum:	4.91		
Minimum:	0.00		
No. of Points:	103		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 52,000 lumens		
No. of Luminaires:	42		
Total Load:	41.4 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>63,500	>63,500	>63,500
TLC-BT-575	>63,500	>63,500	>63,500

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

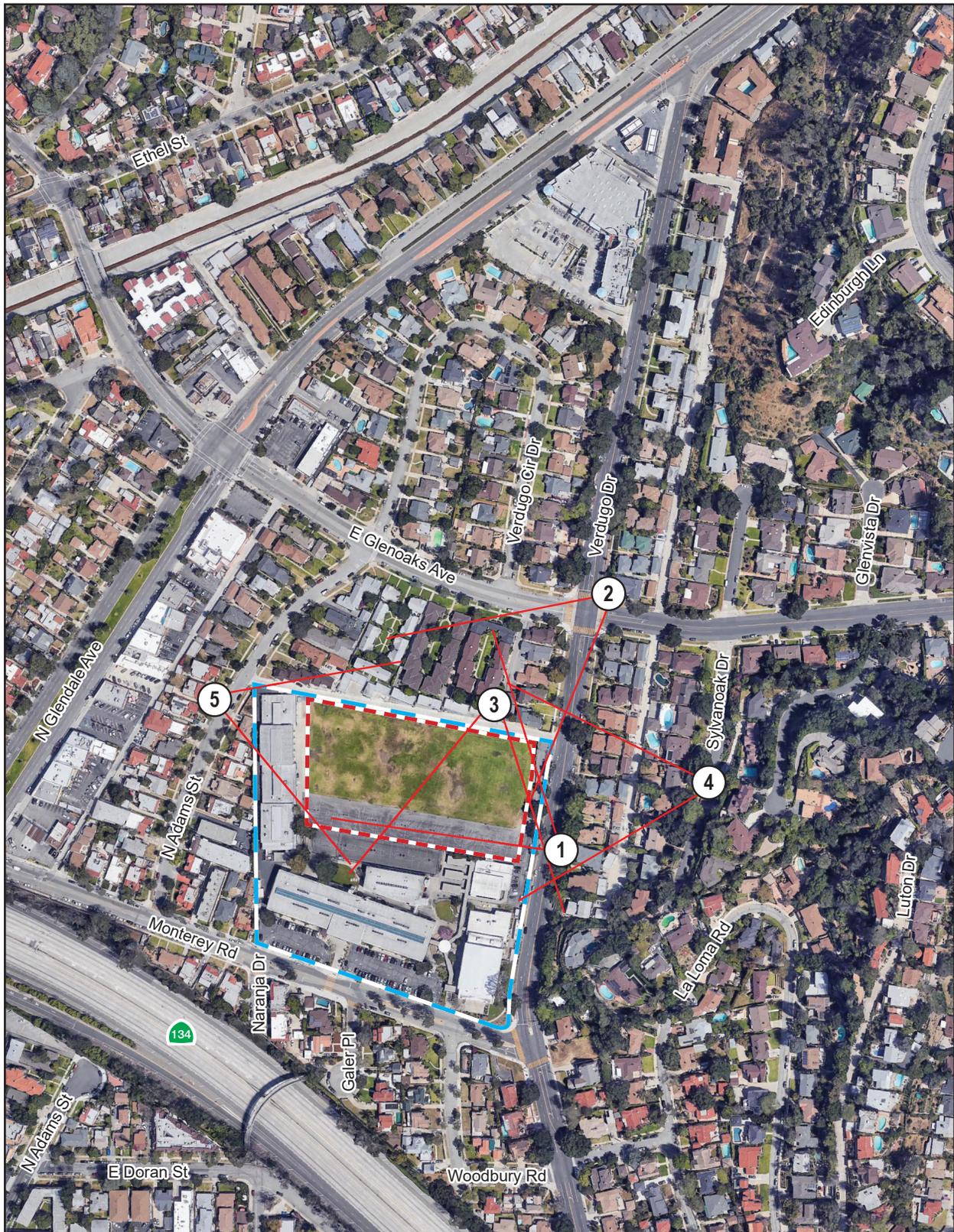
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



5. Environmental Analysis AESTHETICS

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Figure 5.1-3 - View Simulation Key Map
5. Environmental Analysis



— School Boundary

- - - Project Site

① View Location and Direction (5)

0 350
Scale (Feet)

Source: Google Earth, 2018



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5. Environmental Analysis AESTHETICS

View 1

As shown in Figure 5.1-3, View 1 looks in a northwest direction across the Project site from North Verdugo Road. Figure 5.1-4, *View Simulation, View 1*, shows the Project site under existing conditions and under implementation of the proposed Project. Daytime views of the Project site from this vantage point would be little changed under the proposed Project. Existing street trees, street lights, and power lines obstruct views across the site and views of the proposed light poles would also be partially obstructed. While the proposed light poles are visible from the street and are taller than other elements of area's built environment, distant views of trees across the site are still visible from View 1. The overall daytime visual character of View 1 is essentially unchanged.

Figure 5.1-4 also shows the Project site at night. Views from View 1 are relatively dark for an urban context. The most significant source of illumination is a yellow street light on the western frontage of Verdugo Road adjacent to the Project site. Under the proposed Project, the proposed light poles are clearly visible due to their height above other vertical visual elements (buildings and trees) and their illumination of a surface (the turf field) that is unlit under existing conditions. However, as shown in Figure 5.1-2, the light poles closest to View 1 clearly direct light downward onto the field and existing solar panels and do not spill light in a broader manner. The nighttime sky is generally black as under existing conditions and the most prominent source of light is still the existing street light. Accordingly, homes across Verdugo Road would not be expected to experience excessive light pollution in their windows or yards. Nor would drivers along Verdugo Road be expected to experience excessive light or glare generated by the proposed Project when driving at night.

View 2

As shown in Figure 5.1-3, View 2 looks in a southwest direction from the intersection of Verdugo Drive and East Glenoaks Avenue. Figure 5.1-5, *View Simulation, View 2*, shows the Project site under existing conditions and under implementation of the proposed Project. Existing daytime views are dominated by foreground views of homes, trees, street lights, and the pole-mounted traffic signal lights. Daytime views from this vantage point would be little changed under the proposed Project; only one proposed light pole is barely visible from View 2, behind an existing street light pole and trees.

Figure 5.1-5 also shows View 2 at night, which features more ambient light than View 1. The most significant sources of illumination are yellow street lights and the traffic signal lights (including the walk/don't walk signal). Under the proposed Project, one proposed light pole is visible (see left-center of photo) Due to their height above other vertical visual elements (buildings and trees), downward-projected light from this and an adjacent light pole are visible. However, the nighttime sky in most of View 2 is as dark as under existing conditions and the most prominent sources of light are still existing street lights and traffic signals. Accordingly, users of this intersection (including cars and pedestrians) and nearby homes would not be expected to experience light pollution generated at the Project site. Light generated by the proposed Project is limited to a distant faint glow in a small portion of the view framed by View 2.

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Figure 5.1-4 - View Simulation, View 1
5. Environmental Analysis

Day



Existing



Proposed

Night



Existing



Proposed

5. Environmental Analysis AESTHETICS

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Figure 5.1-5 - View Simulation, View 2
5. Environmental Analysis

Day



Existing



Proposed

Night



Existing



Proposed

5. Environmental Analysis AESTHETICS

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5. Environmental Analysis AESTHETICS

View 3

View 3 looks south into the Project site from the adjacent east-west oriented alley. Figure 5.1-6, *View Simulation, View 3*, shows the Project site under existing conditions and under implementation of the proposed Project. Daytime views of the Project site from this vantage point would be little changed under the proposed Project. Under both existing conditions and the proposed Project, View 3 is framed by garage structures associated with the adjacent apartment complexes, along with existing utility poles. Views across the existing play field and toward the existing school buildings are substantially obstructed by the site's existing pole-mounted solar array. The existing solar array, fencing, and utility poles remain the most prominent visual obstructions from View 3 under the proposed Project. Although two light poles are visible, they are thin and do not block views of anything behind WMS. The overall daytime visual character of View 3 is unchanged.

Figure 5.1-6 also shows View 3 at night, only at a slightly different angle. Under existing conditions, the most prominent sources of nighttime illumination at this vantage point are building lights on the WMS campus and other lights in the distance down Verdugo Road. Because this vantage point faces toward central Glendale, an overall ambient glow of light is visible in the night sky. As shown in the figure, the existing play field and solar array do not feature lighting.

Under the proposed Project, three proposed light poles are visible: one in the foreground and two on the south side of proposed play field. Due to their height above other vertical visual elements (school buildings and solar array), nighttime light from the poles is visible. However, the proposed light fixtures clearly direct this light downward. The play surface is also clearly lit in View 3. There would be a noticeable increase in nighttime light from this vantage point during evening use of the proposed recreation facilities, mostly on the lower level of garage doors. However, upper level residential windows do face the Project site. As described above, the proposed field lighting would result in light levels of 3.5 foot-candles along the property line. This increase is considered potentially significant.

View 4

View 4 looks west toward the Project site from the residential neighborhood. Specifically, the view looks over a single-family residence on Sylvanoak Drive. Figure 5.1-7, *View Simulation, View 5*, shows the roof of the house, surrounding trees, power lines, and buildings at lower elevations in the distance. High-rise buildings in central Glendale (along Brand Boulevard and Central Avenue) are visible in the center of Figure 5.1-7, *View Simulation, View 4*. As in Views 1 through 3, daytime views of the Project site from this vantage point would be little changed under the proposed Project. Under both existing conditions and the proposed Project, View 4 is framed by existing buildings, trees, and other elements of the built environment. Under the proposed Project, daytime views from View 4 include four proposed light poles: three on the north side of the Project site and one on the south. These are roughly the same visual height as existing powerlines and buildings in the distance.

Figure 5.1-7 also shows View 4 at night. Under existing conditions, the most prominent sources of nighttime illumination at this vantage point are building lights in the distance and general ambient light generated by urbanized areas of Glendale and surrounding communities. Street lights are visible in the middle distance but are overshadowed by the general glow of the distance nighttime sky.

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Under the proposed Project, four proposed light poles are visible: one on the south side of the play field and three on the north. Due to their height above other visual elements in the middle distance, nighttime light from the poles is visible. Light falling on the existing solar array is also visible and, as shown in Figure 5.1-5, the buildings on the west side of the WMS campus look brighter due to their adjacency to the lighted field surface. Although there would be a noticeable increase in nighttime light from this vantage point during evening use of the proposed recreation facilities, numerous sources of light in the middle and far distance obscure the visual effect of the proposed light poles. Light from the poles would contribute to an environment that feature substantial distance illumination under existing conditions.

Furthermore, due to its distance from the Project site, the residential neighborhood with a View 4 vantage point would not experience direct light from the Project site shining in windows or on outdoor spaces. While some homes, such as those on Sylvanoak Drive, Woodbury Road, and Glenvista Drive would be able to see the tops of light poles on the Project site when looking to the west at night, due to the distance from the lights, the intervening geography, landscaping and residential uses, as well as the downward orientation of the proposed lighting system, the lights would not intrude on residential uses at this vantage point.

View 5

View 5 looks east toward the Project site from North Adams Street. Figure 5.1-8 shows the walled yard of a single-story home. Behind this are the buildings of WMS. The most prominent elements affecting views of the sky and hillsides to the east of the school are a street light, utility pole, and multiple power lines. As shown in Figure 5.1-6, daytime views of the Project site from this vantage point would be little changed under the proposed Project. Two proposed light poles are visible, but they are substantially less visually prominent than the existing school buildings, public utility infrastructure. Under the proposed Project, View 5 remains framed by the existing utility pole and street light; trees in the distance are still visible.

Figure 5.1-8 also shows View 5 at night. As with View 1, View 5 is quite dark at night. Under existing conditions, the most prominent sources of nighttime illumination when the photo was taken at this vantage point are the existing street light and the securing lighting along the northern boundary of the WMS campus.

Under the proposed Project, four proposed light poles are visible: one on the south side of the play field and three on the north. Due to their height above other visual elements, nighttime light from the poles is visible and reduces the existing darkness provided by View 5. Although there would be an increase in visible nighttime light from this vantage point during evening use of the proposed recreation facilities, light levels would not be substantial as spill light would be reduced to 0.0 foot-candles by the distance and intervening structures of the WMS campus. As with the existing condition, the most prominent source of light along Adams Street would still be the existing street light. Furthermore, the downward orientation of the proposed lights and bulk of the school's existing buildings (which separate the proposed play surface and homes along Adams Street), would limit the spill of direct light onto back yards and into rear windows.

Figure 5.1-6 - View Simulation, View 3
5. Environmental Analysis

Day

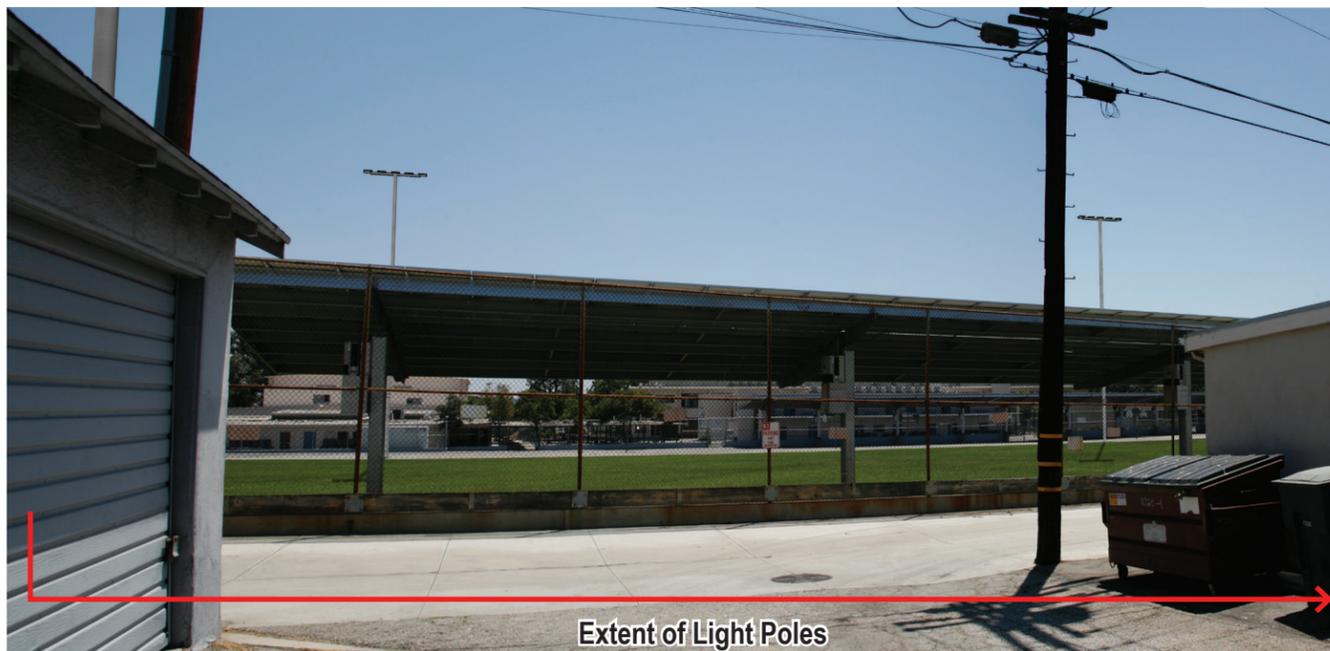


Existing

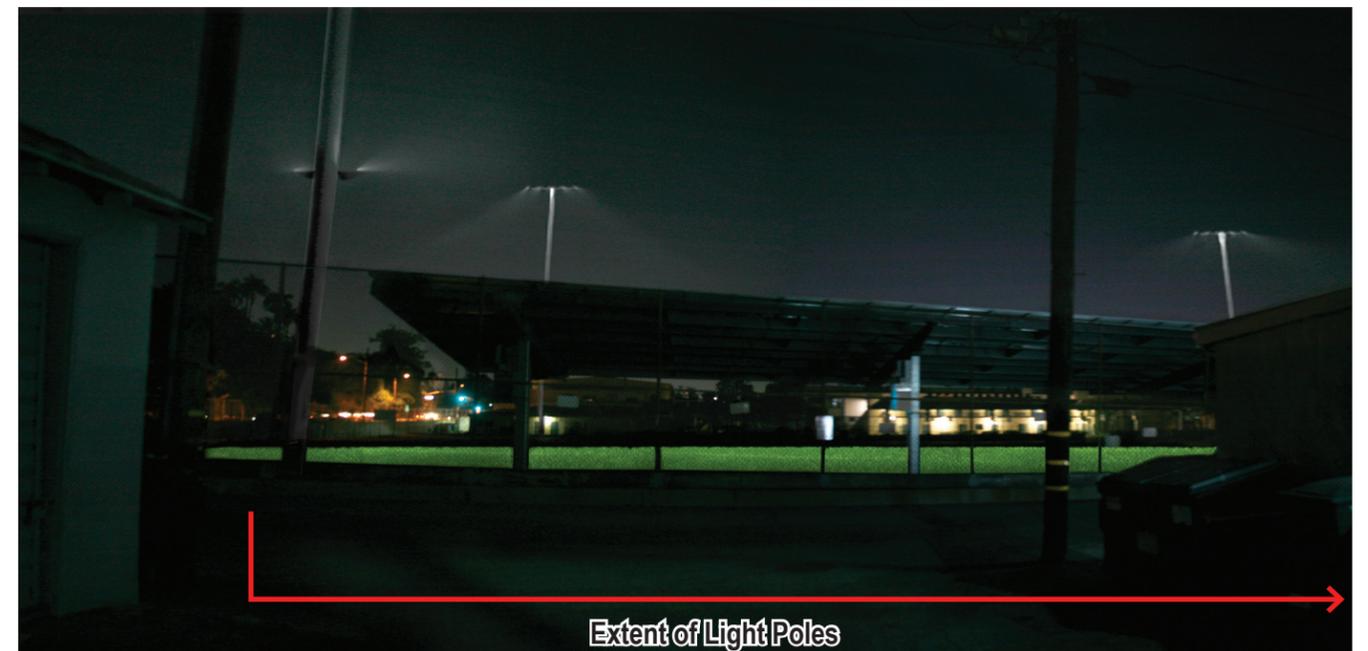
Night



Existing



Proposed



Proposed

5. Environmental Analysis AESTHETICS

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Figure 5.1-7 - View Simulation, View 4
5. Environmental Analysis

Day



Existing

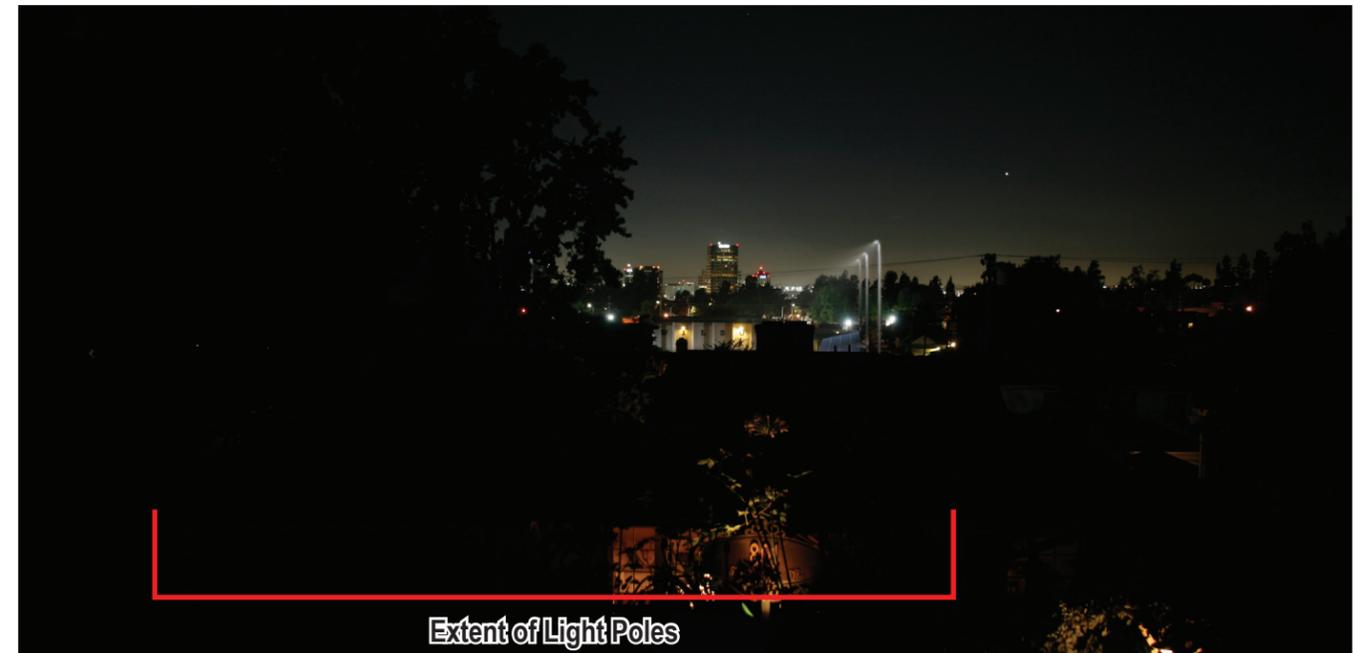


Proposed

Night



Existing



Proposed

5. Environmental Analysis AESTHETICS

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Figure 5.1-8 - View Simulation, View 5
5. Environmental Analysis

Day



Existing



Proposed

Night



Existing



Proposed

5. Environmental Analysis AESTHETICS

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Generation of Glare

In addition to nighttime illumination, the lighting study prepared for the proposed Project models the glare that would be generated by the proposed lighting system and seen by an observer “when facing the brightest light source from any direction” (Musco Lighting 2018). As shown in the study (see Appendix B to this DEIR), most glare generated by the proposed Project would only be observed on the Project site or other portions of the WMS campus. Glare deemed to be “significant” or “high glare” would be limited to the area directly around the play field. High glare is defined as 150,000 or more candela while significant glare is defined as 25,000 to 75,000 candela and equivalent to high beam headlights of a car. Glare would be visible from surrounding streets (mostly Verdugo Road) and surrounding land uses. However, these areas would primarily experience “minimal to no glare” (500 or less candela), which is equivalent to a 100W incandescent light bulb.

Conclusion

Consistent with the Glendale Municipal Code, the proposed lighting system directs light “away from adjacent properties and public rights of way.” As discussed above, the proposed lighting system—when in use—would generate additional sources of light that would be visible from surrounding streets and land uses (including residential neighborhoods). However, the Project site is in an urbanized environment with a variety of existing sources of nighttime illumination; most views toward the Project site feature an existing glow produced by building lights, street lights, traffic, and other elements of the urban context. Furthermore, there are no windows or outdoor spaces (e.g., yards) that would be expected to experience direct light overspill from the proposed light poles. Although the poles would be 70-foot-tall, they would face downward and would not be used past 10:00 p.m. However, implementation of the proposed Project would result in light levels along the norther property line to exceed the City’s 0.5 foot-candle threshold, and impacts of the proposed Project would be potentially significant.

5.1.4 Cumulative Impacts

The list of related projects analyzed by this DEIR for cumulative projects is provided in Chapter 4 (see Table 4-1). Light and glare impacts, like many other aesthetic impacts, are generally area-specific. None of the related projects in Table 4-1, *Summary of Related Projects*, are close enough to the Project site to generate cumulatively-considerable light and glare impacts. Fourteen of the 15 are south of the SR-134; the remaining site is north of SR-134 but 1.26 miles to the west. Therefore, the proposed Project would not combine with other projects to generate significant cumulative adverse impacts related to light and glare.

5.1.5 Existing Regulations and Standard Conditions

The analysis above assumes compliance with the following codes, rules, and regulations pertain to aesthetics were described in detail in Section 5.1.1.1 of this DEIR.

- Glendale General Plan Open Space and Conservation Element

5. Environmental Analysis AESTHETICS

5.1.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impact would be potentially significant: 5.1-1.

5.1.7 Mitigation Measures

IMPACT 5.1-1

MM-AES-1: The City of Glendale Community Services and Parks Department shall minimize the effects of new sources of nighttime lighting by incorporating the following measures into Project design and operation:

- All lighting shall be shielded and directed downward onto the athletic fields to minimize potential light escape and/or spillover onto adjacent properties.
- The new athletic field lights shall be shall shut off automatically at 10:00 p.m.

5.1.8 Level of Significance After Mitigation

Although mitigation measures MM-AES-1 would reduce light and glare impacts, such impacts would remain significant and unavoidable.

5.1.9 References

California Energy Commission (CEC). 2018. 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings. Table 10-114 A Lighting Zone Characteristics and Rules for Amendments by Local Jurisdictions. <https://ww2.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf>

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5. Environmental Analysis

5.2 AIR QUALITY

This section of the DEIR evaluates the potential air quality impact of the proposed Project. This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (SCAQMD). The analysis in this section is based on buildout of the proposed Project, as modeled using the California Emissions Estimator Model (CalEEMod) and trip generation and vehicle miles traveled (see Appendix F to this DEIR). The criteria air pollutant emissions modeling for construction and operational phases are included in Appendix D of this DEIR.

5.2.1 Environmental Setting

5.2.1.1 REGULATORY SETTING

Ambient air quality standards (AAQS) have been adopted and are periodically updated at state and federal levels for criteria air pollutants. In addition, both the state and federal governments regulate the release of toxic air contaminants (TACs). The Project site is within the South Coast Air Basin (SoCAB). Land use is subject to the rules and regulations imposed by SCAQMD, the California AAQS adopted by the California Air Resources Board (CARB), and National AAQS adopted by the United States Environmental Protection Agency (EPA). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed Project are summarized below.

Federal and State Laws

Ambient Air Quality Standards

The Clean Air Act was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The Clean Air Act allows states to adopt more stringent standards or to include other pollutants. The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect “sensitive receptors” most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 5.2-1, *Ambient Air Quality Standards for Criteria Pollutants*. These pollutants are ozone (O₃),

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nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), coarse inhalable particulate matter (PM₁₀), fine inhalable particulate matter (PM_{2.5}), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Table 5.2-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard ¹	Federal Primary Standard ²	Major Pollutant Sources
Ozone (O ₃) ³	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm ²	
Respirable Coarse Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m ³	150 µg/m ³	
Respirable Fine Particulate Matter (PM _{2.5}) ⁴	Annual Arithmetic Mean	12 µg/m ³	12 µg/m ³	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m ³	
Lead (Pb)	30-Day Average	1.5 µg/m ³	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m ³	
	Rolling 3-Month Average	*	0.15 µg/m ³	
Sulfates (SO ₄) ⁵	24 hours	25 µg/m ³	*	Industrial processes.

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Table 5.2-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard ¹	Federal Primary Standard ²	Major Pollutant Sources
Visibility Reducing Particles	8 hours	ExCo = 0.23/km visibility of 10≥ miles	*	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	*	Hydrogen sulfide (H ₂ S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	*	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016a.

Notes: ppm = parts per million; µg/m³ = micrograms per cubic meter

* Standard has not been established for this pollutant/duration by this entity.

1 California standards for O₃, CO (except 8-hour Lake Tahoe), SO₂ (1 and 24 hour), NO₂, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California AAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than O₃, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth-highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

4 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 maintained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were maintained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

5 On June 2, 2010, a new 1-hour SO₂ standard was established, and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

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Tanner Air Toxics Act and Air Toxics “Hot Spot” Information and Assessment Act

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California legislature enacted a program to identify the health effects of TACs and to reduce exposure to them. The California Health and Safety Code defines a TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health” (17 CCR § 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 U.S. Code § 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics “Hot Spot” Information and Assessment Act of 1987). The Tanner Air Toxics Act set up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an “airborne toxics control measure” for sources that emit that TAC. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate “toxics best available control technology” to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

CARB has promulgated the following specific rules to limit TAC emissions:

- **13 CCR Chapter 10, § 2485**, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- **13 CCR Chapter 10, § 2480**, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- **13 CCR § 2477 and Article 8**, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

Air Pollutants of Concern

Criteria Air Pollutants

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide (SO₂), coarse inhalable particulate matter (PM₁₀), fine inhalable particulate matter (PM_{2.5}), and lead (Pb) are primary air pollutants. Of these, CO, SO₂, NO₂, PM₁₀, and PM_{2.5} are “criteria air pollutants,” which means that AAQS have been established for them.

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VOC and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O₃) and nitrogen dioxide (NO₂) are the principal secondary pollutants.

Each of the primary and secondary criteria air pollutants and its known health effects are described here.

- **Carbon Monoxide** is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (SCAQMD 2005; USEPA 2017). The SoCAB is designated in attainment of CO criteria levels under the California and National AAQS (CARB 2017a).
- **Volatile Organic Compounds** are composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources include evaporative emissions from paints and solvents, asphalt paving, and household consumer products such as aerosols (SCAQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O₃, SCAQMD has established a significance threshold (see Section 5.2.3.1, *South Coast Air Quality Management District Thresholds*).
- **Nitrogen Oxides** are a by-product of fuel combustion and contribute to the formation of ground-level O₃, PM₁₀, and PM_{2.5}. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO₂). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_x produced by combustion is NO, but NO reacts quickly with oxygen to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO₂ is only potentially irritating. NO₂ absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO₂ exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO₂ exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO₂ concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (SCAQMD 2005; USEPA 2017). The SoCAB is designated an attainment area for NO₂ under the National and California AAQS (CARB 2017a).
- **Sulfur Dioxide** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO₂. When sulfur dioxide forms sulfates (SO₄) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO₂ is both a primary and secondary criteria air pollutant. At

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sufficiently high concentrations, SO₂ may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO₂, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing.) At lower concentrations and when combined with particulates, SO₂ may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (SCAQMD 2005; USEPA 2017). The SoCAB is designated attainment for SO₂ under the California and National AAQS (CARB 2017a).

- **Suspended Particulate Matter** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM₁₀, include particulate matter with an aerodynamic diameter of 10 microns or less (i.e., ≤10 millionths of a meter or 0.0004 inch). Inhalable fine particles, or PM_{2.5}, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤2.5 millionths of a meter or 0.0001 inch). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM₁₀ and PM_{2.5} may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The EPA's scientific review concluded that PM_{2.5}, which penetrates deeply into the lungs, is more likely than PM₁₀ to contribute to health effects and at far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (SCAQMD 2005). There has been emerging evidence that ultrafine particulates, which are even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), have human health implications, because ultrafine particulates' toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (SCAQMD 2013). However, the EPA or CARB has yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,¹ environmental damage,² and aesthetic damage³ (SCAQMD 2005; USEPA 2017). The SoCAB is a nonattainment area for PM_{2.5} under California and National AAQS and a nonattainment area for PM₁₀ under the California AAQS (CARB 2017a).⁴
- **Ozone** is commonly referred to as “smog” and is a gas that is formed when VOCs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O₃ is a

¹ PM_{2.5} is the main cause of reduced visibility (haze) in parts of the United States.

² Particulate matter can be carried over long distances by wind and settle on ground or water, making lakes and streams acidic, changing the nutrient balance in coastal waters and large river basins, depleting the nutrients in soil, damaging sensitive forests and farm crops, and affecting the diversity of ecosystems.

³ Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

⁴ CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM₁₀ to attainment for PM₁₀ under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM₁₀ standards from 2004 to 2007. The EPA approved the State of California's request to redesignate the South Coast PM₁₀ nonattainment area to attainment of the PM₁₀ National AAQS, effective on July 26, 2013.

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secondary criteria air pollutant. O₃ concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O₃ poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O₃ can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O₃ also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O₃ also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O₃ harms sensitive vegetation during the growing season (SCAQMD 2005; USEPA 2017). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2017a).

- **Lead** is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (SCAMQD 2005; USEPA 2017). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.⁵ As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (SCAQMD 2012; CARB 2017a). Because emissions of lead are found only in projects that are permitted by SCAQMD, lead is not a pollutant of concern for the Project.

Toxic Air Contaminants

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

⁵ Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (SCAQMD 2012).

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Diesel Particulate Matter

In 1998, CARB identified DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs.

Air Quality Management Planning

SCAQMD is the agency responsible for improving air quality in the SoCAB and assuring that the National and California AAQS are attained and maintained. SCAQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2016 AQMP

On March 3, 2017, SCAQMD adopted the 2016 AQMP, which serves as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031,
- 2012 National annual PM_{2.5} standard by 2025⁶,
- 2006 National 24-hour PM_{2.5} standard by 2019,
- 1997 National 8-hour ozone standard by 2023, and the
- 1979 National 1-hour ozone standard by year 2022.

It is projected that total NO_x emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone standard by year 2022 (SCAQMD 2017a), which requires reducing NO_x emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions above existing regulations to meet the 2031 ozone standard.

Reducing NO_x emissions would also reduce PM_{2.5} concentrations in the SoCAB. However, as the goal is to meet the 2012 federal annual PM_{2.5} standard no later than year 2025, SCAQMD is seeking to reclassify the SoCAB from “moderate” to “serious” nonattainment under this federal standard. A “moderate” non-attainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA (SCAQMD 2017a).

⁶ The 2016 AQMP requests a reclassification from moderate to serious non-attainment for the 2012 National PM_{2.5} standard.

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Lead Implementation Plan

In 2008, the EPA designated the Los Angeles County portion of the SoCAB as a nonattainment area under the federal lead classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in the City of Vernon and the City of Industry that exceeded the new standard in the 2007-to-2009 period. The remainder of the SoCAB, outside the Los Angeles County nonattainment area, remains in attainment of the new 2008 lead standard. On May 24, 2012, CARB approved the State Implementation Plan (SIP) revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to the EPA for approval.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of activity, including the following:

- **Rule 401, Visible Emissions.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than three minutes in any one hour that is as dark as or darker than designated No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.
- **Rule 402, Nuisance.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- **Rule 403, Fugitive Dust.** This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust, and requires best available control measures to be applied to earth moving and grading activities. In general, the rule prohibits new developments from the installation of wood-burning devices.
- **Rule 445, Wood Burning Devices.** This rule is intended to reduce the emission of particulate matter from wood-burning devices and applies to manufacturers and sellers of wood-burning devices, commercial sellers of firewood, and property owners and tenants that operates a wood-burning device.
- **Rule 1113, Architectural Coatings.** This rule serves to limit the VOC content of architectural coatings used on projects in the SCAQMD. Any person who supplies, sells, offers for sale, or manufactures any

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architectural coating for use on projects in the SCAQMD must comply with the current VOC standards set in this rule.

- **Rule 1401, New Source Review of Toxic Air Contaminants.** This rule specifies limits for maximum individual cancer risk, cancer burden, and noncancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants listed under the rule. The rule establishes allowable risks for permit units requiring new permits pursuant to Rules 201 or 203.
- **Rule 1403, Asbestos Emissions from Demolition/Renovation Activities.** The purpose of this rule is to specify work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM). The requirements for demolition and renovation activities include asbestos surveying, notification, ACM removal procedures and time schedules, ACM handling and clean-up procedures, and storage, disposal, and landfilling requirements for asbestos-containing waste materials. All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

5.2.1.2 EXISTING CONDITIONS

South Coast Air Basin

The Project site is in the SoCAB, which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills; it is bounded by the Pacific Ocean in the southwest quadrant, and high mountains form the remainder of the perimeter. The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (SCAQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the Project site is the Pasadena, California, Monitoring Station (ID 046719). The average low is reported at 42.6°F in January, and the average high is 89.2°F in August (WRCC 2017).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall averages 20.24 inches per year in the proposed Project (WRCC 2017).

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Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 2005).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur in both the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (SCAQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the proposed Project (SCAQMD 2005).

SoCAB Nonattainment Designations

The AQMP provides the framework for air quality basins to achieve attainment of the California and National AAQS through the SIP. Areas are classified as attainment or nonattainment areas for particular pollutants depending on whether they meet the ambient air quality standards. Severity classifications for nonattainment are marginal, moderate, serious, severe, and extreme.

- **Unclassified:** A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- **Attainment:** A pollutant is in attainment if the AAQS for that pollutant was not violated at any site in the area during a three-year period.

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- **Nonattainment:** A pollutant is in nonattainment if there was at least one violation of an AAQS for that pollutant in the area.
- **Nonattainment/Transitional:** A subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 5.2-2, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*. The SoCAB is designated in attainment of the California AAQS for sulfates and designated a nonattainment area for lead (Los Angeles County only) under the National AAQS.

Table 5.2-2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM ₁₀	Serious Nonattainment	Attainment
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO ₂	Attainment	Attainment/Maintenance
SO ₂	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only) ¹
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2017a.

¹ In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

SoCAB Multiple Air Toxics Exposure Study IV

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In 2008, SCAQMD conducted its third update to the MATES study (MATES III) based on the Office of Environmental Health Hazards Assessment (OEHHA) 2003 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (2003 HRA Guidance Manual). The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in a million. The largest contributor to this risk was diesel exhaust, which accounted for 84 percent of the cancer risk (SCAQMD 2008).

SCAQMD recently released the fourth update (MATES IV), which was also based on OEHHA's 2003 HRA Guidance Manual. The results showed that the overall monitored risk for excess cancer from a lifetime exposure to ambient levels of air toxics decreased to approximately 418 in one million. Compared to the 2008 MATES III, monitored excess cancer risks decreased by approximately 65 percent. Approximately 90 percent of the risk is attributed to mobile sources, and 10 percent is attributed to TACs from stationary sources, such as refineries, metal processing facilities, gas stations, and chrome plating facilities. The largest contributor to this risk was diesel exhaust, which accounted for approximately 68 percent of the air toxics risk. Compared to MATES III, MATES IV found substantial improvement in air quality and associated decrease in air toxics exposure. As a result, the estimated basin-wide population-weighted risk decreased by approximately 57 percent since MATES III (SCAQMD 2015a).

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OEHHA updated the guidelines for estimating cancer risks on March 6, 2015 (OEHHA 2015). The new method uses higher estimates of cancer potency during early life exposures, which result in a higher calculation of risk. There are also differences in the assumptions on breathing rates and length of residential exposures. When combined together, SCAQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher than the risk identified in MATES IV using the 2015 OEHHA guidance methodology (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (SCAQMD 2015a).

Existing Ambient Air Quality

Existing ambient air quality, historical trends, and projections in the vicinity of the Project site are best documented by measurements made by SCAQMD. The Project site is in Source Receptor Area (SRA) 3–Southwest Los Angeles County Coastal. The air quality monitoring station closest to the Project site is the Pasadena – S Wilson Avenue Monitoring Station. This station monitors O₃, NO₂, CO, and PM_{2.5}. Additional data for PM₁₀ is supplemented by the Los Angeles–North Main Street Monitoring Station, and data for SO₂ is from the Burbank Monitoring Station. The most current five years of data monitored at these stations are included in Table 5.2-3, *Ambient Air Quality Monitoring Summary*. The data show recurring violations of the federal PM_{2.5} and standard. The federal and state 8-hr O₃ standard, and the state PM₁₀ standard were also frequently exceeded in the last five years. The CO, NO₂, and SO₂ standards have not been violated in the last five years in the Project vicinity.

Table 5.2-3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2012	2013	2014	2015	2016
Ozone (O₃)					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	8	2	6	12	12
State 8-hour ≥ 0.07 ppm (days exceed threshold)	20	2	13	18	15
Federal 8-Hour > 0.070 ppm (days exceed threshold)	9	0	7	7	18
Max. 1-Hour Conc. (ppm)	0.111	0.099	0.124	0.111	0.126
Max. 8-Hour Conc. (ppm)	0.086	0.075	0.096	0.084	0.090
Carbon Monoxide (CO)					
State 8-Hour > 9.0 ppm (days exceed threshold)	0	*	*	*	*
Federal 8-Hour ≥ 9.0 ppm (days exceed threshold)	0	*	*	*	*
Max. 8-Hour Conc. (ppm)	1.58	*	*	*	*
Nitrogen Dioxide (NO₂)					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	71.2	66.7	75.2	74.9	71.9
Sulfur Dioxide (SO₂)¹					
State 24-Hour ≥ 0.04 ppm (days exceed threshold)	0	0	*	*	*
Federal 24-Hour ≥ 0.14 ppm (days exceed threshold)	0	0	*	*	*
Max 24-Hour Conc. (ppm)	0.002	0.002	*	*	*
Coarse Particulates (PM₁₀)²					
State 24-Hour > 50 µg/m ³ (days exceed threshold)	43	20	18	30	21
Federal 24-Hour > 150 µg/m ³ (days exceed threshold)	0	0	0	0	0

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Table 5.2-3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2012	2013	2014	2015	2016
Max. 24-Hour Conc. ($\mu\text{g}/\text{m}^3$)	90.9	74.5	86.8	88.5	74.6
Fine Particulates ($\text{PM}_{2.5}$)					
Federal 24-Hour > 35 $\mu\text{g}/\text{m}^3$ (days exceed threshold)	2	4	2	6	0
Max. 24-Hour Conc. ($\mu\text{g}/\text{m}^3$)	54.2	45.1	64.6	48.5	29.2

Source: CARB 2017b. Data for O_3 , NO_2 , CO , and $\text{PM}_{2.5}$ are from the Pasadena – S Wilson Avenue Monitoring Station.

Notes: ppm = parts per million; ppb = parts per billion, $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

* Data not available.

¹ Data from the Burbank Monitoring Station

² Data from the Los Angeles–North Main Street Monitoring Station

Existing Emissions

The Project site currently generates criteria air pollutant emissions from transportation, energy (natural gas use), and area sources (e.g., natural gas fireplaces, aerosols, landscaping equipment).

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are also considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. The nearest off-site sensitive receptors to the proposed Project include the surrounding residences along East Glenoaks Boulevard, Monterey Road, North Adams Street, and North Verdugo Road. In addition to the off-site sensitive receptors, there are also existing sensitive receptors, consisting of students currently attending WMS.

5.2.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.
- AQ-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- AQ-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- AQ-4 Expose sensitive receptors to substantial pollutant concentrations.
- AQ-5 Create objectionable odors affecting a substantial number of people.

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The Initial Study, included as Appendix A1 found that impacts associated with the following thresholds would be less than significant:

- AQ-5: CARB's (2005) Air Quality and Land Use Handbook identifies the sources of the most common odor complaints received by local air districts. Typical sources include facilities such as sewage treatment plants, landfills, recycling facilities, petroleum refineries, and livestock operations. The Project does not contain any of the land uses identified as typically associated with emissions of objectionable odors. As such, Project impacts would be less than significant.

5.2.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

The analysis of the proposed Project's air quality impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website (SCAQMD 1993).⁷ CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. SCAQMD has established regional thresholds of significance. In addition to the regional thresholds, projects are subject to the AAQS. These are addressed through an analysis of localized CO impacts and localized significance thresholds (LSTs).

Regional Significance Thresholds

SCAQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 5.2-4, *SCAQMD Significance Thresholds*, lists thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the EPA and CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, SCAQMD has not developed thresholds for them.

Table 5.2-4 SCAQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO _x)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO _x)	150 lbs/day	150 lbs/day
Particulates (PM ₁₀)	150 lbs/day	150 lbs/day
Particulates (PM _{2.5})	55 lbs/day	55 lbs/day

Source: SCAQMD 2015b.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are

⁷ SCAQMD's air quality significance thresholds are current as of March 2015 and can be found at: <http://www.aqmd.gov/ceqa/hdbk.html>.

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determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems.

- Increases cancer risk (PM_{2.5}, TACs)
- Aggravates respiratory disease (O₃, PM_{2.5})
- Increases bronchitis (O₃, PM_{2.5})
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O₃)
- Reduces resistance to infections and increases fatigue (O₃)
- Reduces lung growth in children (PM_{2.5})
- Contributes to heart disease and heart attacks (PM_{2.5})
- Contributes to premature death (O₃, PM_{2.5})
- Contributes to lower birth weight in newborns (PM_{2.5}) (SCAQMD 2015c)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of PM_{2.5} is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB (SCAQMD 2015d). In addition, University of Southern California scientists' landmark children's health study found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (SCAQMD 2015d).

Mass emissions in Table 5.2-4 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. Therefore, regional emissions from a single project do not trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed above. SCAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SoCAB. To achieve the health-based standards established by the EPA, SCAQMD prepares an AQMP that details regional programs to attain the AAQS.

Localized Significance Thresholds

SCAQMD developed LSTs to determine if emissions of NO₂, CO, PM₁₀, or PM_{2.5} generated at a Project site (offsite mobile-source emissions are not included the LST analysis) would expose sensitive receptors to substantial concentrations of criteria air pollutants. LSTs are the maximum emissions at a Project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS. LSTs are based on the ambient concentrations of that pollutant in the project source receptor area and the distance to the nearest sensitive receptor. LST analysis for construction is applicable to all projects of five acres or less; however, it can be used to screen larger projects to determine whether or not dispersion modeling may be required. Table 5.2-5, *SCAQMD Localized Significance Thresholds*, shows the localized significance thresholds for projects in the SoCAB.

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Table 5.2-5 SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO ₂ Standard (CAAQS)	0.18 ppm
Annual NO ₂ Standard (CAAQS)	0.03 ppm
24-Hour PM ₁₀ Standard – Construction (SCAQMD) ¹	10.4 µg/m ³
24-Hour PM _{2.5} Standard – Construction (SCAQMD) ¹	10.4 µg/m ³
24-Hour PM ₁₀ Standard – Operation (SCAQMD) ¹	2.5 µg/m ³
24-Hour PM _{2.5} Standard – Operation (SCAQMD) ¹	2.5 µg/m ³
Annual Average PM ₁₀ Standard (SCAQMD) ¹	1.0 µg/m ³

Source: SCAQMD 2015b.

ppm = parts per million; µg/m³ = micrograms per cubic meter

¹ Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM₁₀ and PM_{2.5}, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

5.2.2.2 CO HOTSPOTS

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9.0 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. Typically, for an intersection to exhibit a significant CO concentration, it would need operate at level of service (LOS) E or worse without improvements (Caltrans 1997). However, at the time of the 1993 Handbook, the SoCAB was designated nonattainment under the California AAQS and National AAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

5.2.2.3 HEALTH RISK ANALYSIS

Whenever a project would require use of chemical compounds that have been identified in SCAQMD Rule 1401; placed on CARB's air toxics list pursuant to AB 1807, the Air Contaminant Identification and Control Act (1983); or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by SCAQMD. Table 5.2-6, *SCAQMD Toxic Air Contaminants Incremental Risk Thresholds*, lists SCAQMD's TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed Project on the environment, not the significant effects of the environment on the proposed Project. (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 [Case No. S213478]). CEQA does not require analysis of the proposed Project's environmental effects from siting sensitive receptors. However, the environmental document must analyze the impacts of environmental hazards on future users when a proposed Project exacerbates an existing environmental hazard or condition. Residential, commercial, school, and office uses do not use substantial quantities of TACs, and these thresholds are typically applied to new industrial projects.

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Table 5.2-6 SCAQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Individual Cancer Risk	≥ 10 in 1 million
Cancer Burden (in areas ≥ 1 in 1 million)	> 0.5 excess cancer cases
Hazard Index (Project increment)	≥ 1.0
Source: SCAQMD 2015b.	

5.2.3 Environmental Impacts

5.2.3.1 METHODOLOGY

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur as a result of construction and operation the proposed Project. SCAQMD has published the *CEQA Air Quality Handbook* (Handbook) and updates on its website that are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts (SCAQMD 2017b). The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs, and they were used in this analysis. Modeling of criteria air pollutants was conducted using the California Emissions Estimator Model (CalEEMod), version 2016.3.2.25.25. On-road transportation sources are based on trip generation rates as shown in the traffic study (Appendix E).

5.2.3.2 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.2-1: Construction activities associated with the proposed Project would not generate short-term emissions in exceedance of SCAQMD'S threshold criteria. [Thresholds AQ-2 and AQ-3]

Impact Analysis: A project would normally have a significant effect on the environment if it violates any air quality standard or contributes substantially to an existing or projected air quality violation. Construction activities produce combustion emissions from various sources, such as onsite heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Site preparation activities produce fugitive dust emissions (PM₁₀ and PM_{2.5}) from grading, excavation, and demolition. Exhaust emissions from construction onsite would vary daily.

Construction activities would occur over 3.85 acres of the approximately 9-acre Project site. Construction activities would temporarily increase PM₁₀, PM_{2.5}, VOC, NO_x, SO_x, and CO regional emissions within the SoCAB. Construction activities associated with buildout of the proposed Project would occur over approximately three months from June 2019 through August 2019. Construction would include asphalt demolition, site preparation, grading, paving, turf and light installation, and painting. The construction schedule and equipment mix is based on preliminary engineering and is subject to changes during final design and as dictated by field conditions. Results of the construction emission modeling are shown in Table 5.2-7, *Maximum*

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Daily Regional Construction Emissions. As shown in the table, maximum daily construction emissions would not exceed SCAQMD's regional construction significance thresholds.

Table 5.2-7 Maximum Daily Regional Construction Emissions

Source	Criteria Air Pollutants (pounds per day) ^{1,2,3}					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Asphalt Demolition + Haul ⁴	4	40	23	<1	2	2
Site Preparation	5	49	24	<1	11	7
Grading + Haul ⁵	4	68	25	<1	6	4
Utility Trenching	1	6	5	<1	<1	<1
Lighting Installation + Landscaping + Paving	3	33	21	<1	2	2
Architectural Coatings	1	2	2	<1	<1	<1
Maximum Daily Emissions	5	65	25	<1	11	7
SCAQMD Regional Construction Threshold	75	100	550	150	150	55
Significant?	No	No	No	No	No	No

Source: CalEEMod 2016.3.2.25.

Note: Totals may not add up to 100 percent due to rounding.

1 Construction emissions modeling assumed construction in 2018. Changing Project implementation timeframe to 2019 does not impact AQ modeling assumptions.

2 Construction equipment mix is based on CalEEMod default construction mix. See Appendix D for a list of assumptions on emissions generated on a worst-case day.

3 Grading includes compliance with SCAQMD Rule 403 fugitive dust control measures. Measures include requiring an application of water at least twice per day to at least 80 percent of the unstabilized disturbed onsite surface areas, replacing disturbed ground cover quickly, and restricting speeds on unpaved roads to less than 15 miles per hour. Modeling also assumes a VOC of 50 g/L for interior and 100 g/L for exterior paints pursuant to SCAQMD Rule 1113.

4 Assumes up to approximately 316 tons of asphalt would be demolished and hauled offsite.

5 Assumes up to 13,381 cubic yards of soil haul could be required.

Level of Significance before Mitigation: Short-term construction-related impacts to air quality would be less than significant and no mitigation measures are required.

Impact 5.2-2: Long-term operation of the proposed Project would not generate additional vehicle trips and associated emissions in exceedance of SCAQMD's threshold criteria. [Thresholds AQ-2 and AQ-3]

Impact Analysis: Long-term air pollutant emissions generated by the proposed Project would be generated by area sources (e.g., landscape fuel use), mobile sources from vehicle trips, and energy use associated with the proposed lighting system. Criteria air pollutant emissions for the proposed Project were modeled using CalEEMod. Table 5.2-8, *Maximum Daily Regional Operational Phase Emissions*, identifies criteria air pollutant emissions from the proposed Project.

As shown in the table, Project-related air pollutant emissions would not exceed the SCAQMD's regional emissions thresholds for operational activities. Mobile-source emissions are based on the estimated 182 average daily weekday trips the proposed field improvements would generate. As shown in Table 5.2-8 below, total Project-related air pollutant emissions from area sources, energy use, and Project related vehicle trips from operation of the field renovation Project would not exceed the SCAQMD's regional emissions thresholds for operational activities.

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Table 5.2-8 Maximum Daily Regional Operational Phase Emissions

Source	Criteria Air Pollutants (lbs/day)					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Area	<1	<1	<1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile Sources	<1	1	8	<1	2	<1
Total Emissions	1	1	8	<1	2	<1
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Regional Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2016.3.2.25.

Note: Highest winter or summer emissions are reported. Totals may not add up to 100 percent due to rounding.

Level of Significance before Mitigation: Long-term operation-related impacts to air quality would be less than significant and no mitigation measures are required.

Impact 5.2-3: The proposed Project could expose sensitive receptors to substantial pollutant concentrations during construction. [Threshold AQ-4]

Impact Analysis: Development of the proposed Project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevating those levels. Unlike the construction emissions shown in Table 5.2-7, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or µg/m³) and can be correlated to potential health effects. LSTs are the amount of Project-related emissions at which localized concentrations (ppm or µg/m³) would exceed the AAQS for criteria air pollutants for which the SoCAB is designated a nonattainment area.

Construction LSTs

Localized significance thresholds (LSTs) are based on the California AAQS, which are the most stringent AAQS that have been established to provide a margin of safety in the protection of public health and welfare. They are designated to protect sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. Construction LSTs are based on the size of the Project site, distance to the nearest sensitive receptor, and Source Receptor Area. Receptors proximate to the proposed Project site are the residences surrounding the Project site, as well as students attending WMS.

Air pollutant emissions generated by construction activities are anticipated to cause temporary increases in air pollutant concentrations. Table 5.2-9, *Construction Emissions Compared to the Screening-Level Localized Significance Thresholds*, shows the maximum daily construction emissions (pounds per day) generated during onsite construction activities compared with the SCAQMD's LSTs. As shown in the table, the maximum daily NO_x, CO, and PM₁₀ construction emissions generated from onsite construction-related activities would be less than their respective SCAQMD LSTs. However, the SCAQMD LST threshold for PM_{2.5} would be exceeded during site preparation. Therefore, Project-related construction activities would have the potential to expose sensitive receptors to substantial pollutant concentrations.

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Table 5.2-9 Construction Emissions Compared to the Screening-Level Localized Significance Thresholds

Source	Pollutants(lbs/day) ^{1,2}			
	NO _x	CO	PM ₁₀	PM _{2.5}
2019 Asphalt Demolition + Haul	38	22	2.08	1.82
2019 Utility Trenching	5	5	0.37	0.34
2019 Paving + Lighting Installation	31	19	1.68	1.55
2019 Architectural Coating	2	2	0.15	0.15
SCAQMD ≤1.00-acre LST	80	498	4.00	3.00
Exceeds LST?	No	No	No	No
2019 Grading + Haul	31	17	4.39	2.87
SCAQMD 2.50-acre LST	124	894	8.16	4.67
Exceeds LST?	No	No	No	No
2019 Site Preparation	48	22	10.30	6.61
SCAQMD 3.50-acre LST	143	1,110	10.49	6.00
Exceeds LST?	No	No	No	Yes

Source: CalEEMod Version 2016.3.2.25., SCAQMD 2008, and SCAQMD 2011.

Notes: In accordance with SCAQMD methodology, only onsite stationary sources and mobile equipment occurring on the proposed Project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the proposed Project site in Source Receptor Area (SRA) 7.

¹ The construction schedule is based on the preliminary information provided by the City. Where specific information regarding Project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.

² Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186-compliant sweepers.

Construction Health Risk

SCAQMD currently does not require health risk assessments to be conducted for short-term emissions from construction equipment. Emissions from construction equipment primarily consist of diesel particulate matter (DPM). The Office of Environmental Health Hazards Assessment (OEHHA) has adopted new guidance for the preparation of health risk assessments issued in March 2015. OEHHA has developed a cancer risk factor and non-cancer chronic reference exposure level for DPM, but these factors are based on continuous exposure over a 30-year time frame. No short-term acute exposure levels have been developed for DPM. Construction activities are scheduled to occur over approximately one year. The short construction durations would limit the exposure to onsite and offsite receptors. SCAQMD currently does not require the evaluation of long-term excess cancer risk or chronic health impacts for a short-term project. Additionally, with mitigation, localized construction emissions would not exceed the SCAQMD LSTs. For the reasons stated above, it is anticipated that construction emissions would not pose a threat to onsite and offsite receptors at or near the school.

Level of Significance before Mitigation: Because construction of the proposed Project would exceed SCAQMD localized significance thresholds, Impact 5.2-3 would be potentially significant and mitigation measures are required.

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Impact 5.2-4: The proposed Project would not expose sensitive receptors to substantial pollutant concentrations during operation. [Threshold AQ-4]

Impact Analysis: Development of the proposed Project could expose sensitive receptors to elevated pollutant concentrations during operational activities if it would cause or contribute significantly to elevating those levels. Unlike the construction emissions shown in Table 5.2-7, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu\text{g}/\text{m}^3$) and can be correlated to potential health effects. LSTs are the amount of Project-related emissions at which localized concentrations (ppm or $\mu\text{g}/\text{m}^3$) would exceed the AAQS for criteria air pollutants for which the SoCAB is designated a nonattainment area.

Operation LSTs

Operation of the proposed Project would not generate substantial quantities of emission from onsite, stationary sources. Land uses that have the potential to generate substantial stationary sources of emissions that would require a permit from SCAQMD include industrial land uses, such as chemical processing and warehousing operations where substantial truck idling could occur onsite. The proposed Project does not fall within these categories of uses. Table 5.2-10, *Onsite Operational Emissions Compared to the Screening-Level Localized Significance Thresholds*, shows the increase in localized daily operational emissions. As shown in this table, while operation of the proposed Project would result in the use of standard onsite mechanical equipment such as heating, ventilation, and air conditioning units in addition to occasional use of landscaping equipment for Project site maintenance, air pollutant emissions generated from these activities would be nominal and would not exceed SCAQMD operational phase LSTs. Therefore, localized air quality impacts related to stationary-source emissions would be less than significant.

Table 5.2-10 Onsite Operational Emissions Compared to the Screening-Level Localized Significance Thresholds

Source	Pollutants (lbs/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
Area Sources	<1	<1	<0.01	<0.01
Energy Sources	<1	<1	<0.01	<0.01
Maximum Daily Onsite Operation Emissions	<1	<1	<0.01	<0.01
SCAQMD LST	172	1,434	4.00	2.00
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2016.3.1., SCAQMD 2008, and SCAQMD 2011.

Notes: LSTs are based on receptors within 82 feet (25 meters) of the proposed Project site in Source Receptor Area (SRA) 7.

Carbon Monoxide Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9.0 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds.

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The SoCAB has been designated attainment under both the national and California AAQS for CO. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—in order to generate a significant CO impact (BAAQMD 2017). The proposed Project would result in approximately 182 average daily trips during a weekday, which are substantially less than the volumes cited above. Furthermore, the SoCAB has since been designated as attainment under both the national and California AAQS for CO. The proposed Project would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the Project site. Localized air quality impacts related to mobile-source emissions would be less than significant.

Level of Significance before Mitigation: Impacts from long-term operation-related exposure of sensitive receptors to substantial pollutant concentrations would be less than significant and no mitigation measures are required.

Impact 5.2-5: The proposed Project is consistent with the applicable Air Quality Management Plan. [Threshold AQ-1]

Impact Analysis: A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the air quality management plan (AQMP). It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration at an early enough stage to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to clean air goals in the AQMP. The most recently adopted comprehensive plan is the 2016 AQMP, adopted on March 3, 2017 (see Appendix A for a description of the 2016 AQMP in the Initial Study).

Regional growth projections are used by SCAQMD to forecast future emission levels in the SoCAB. For southern California, these regional growth projections are provided by the Southern California Association of Governments (SCAG) and are partially based on land use designations in city/county general plans. Typically, only large, regionally significant projects have the potential to affect the regional growth projections.

The proposed Project would involve replacement of the existing grass field and paved basketball courts at WMS to serve the needs of the local community. The proposed Project is not a project of statewide, regional, or areawide significance that would require intergovernmental review under Section 15206 of the CEQA Guidelines. Therefore, the proposed Project would not have the potential to substantially affect SCAG's demographic projections. Additionally, the regional emissions generated by construction and operation of the proposed Project would be less than the SCAQMD emissions thresholds (see Impact 5.2-1 and Impact 5.2-2), and SCAQMD would not consider the proposed Project a substantial source of air pollutant emissions that would have the potential to affect the attainment designations in the SoCAB. Thus, the proposed Project would not affect the regional emissions inventory or conflict with strategies in the AQMP.

Level of Significance before Mitigation: Impacts to consistency with the AQMP would be less than significant and no mitigation measures are required.

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5.2.4 Cumulative Impacts

In accordance with the SCAQMD methodology, any project that produces a significant project-level regional air quality impact in an area that is in nonattainment contributes to the cumulative impact. Cumulative projects in the local area include new development and general growth within the SoCAB. The greatest source of emissions within the SoCAB is mobile sources. Due to the extent of the area potentially impacted from cumulative project emissions, SCAQMD considers a project cumulatively significant when project-related emissions exceed the SCAQMD regional emissions thresholds shown in Table 5.2-4, *SCAQMD Significance Thresholds*.

Construction

The SoCAB is designated nonattainment for O₃, PM_{2.5}, and lead (Los Angeles County only) under the California and National AAQS and nonattainment for PM₁₀ under the California AAQS. Air quality would be temporarily impacted during construction activities. Project-related construction emissions would not exceed the SCAQMD regional significance thresholds. Therefore, the proposed Project's construction emissions would be less than cumulative considerable and would be less than significant.

Operation

For operational air quality emissions, any project that does not exceed or can be mitigated to less than the daily regional threshold values is not considered by SCAQMD to be a substantial source of air pollution and does not add significantly to a cumulative impact. Emissions associated with operation of the proposed Project would not exceed SCAQMD regional emissions thresholds for long-term operation and would not cumulatively contribute to the nonattainment designations of the SoCAB. Therefore, the proposed Project's air pollutant emissions would be less than significant.

5.2.5 Existing Regulations and Standard Conditions

State

- Clean Car Standards – Pavley (AB 1493)
- California Advanced Clean Cars CARB (Title 13 CCR)
- Low-Emission Vehicle Program – LEV III (Title 13 CCR)
- Statewide Retail Provider Emissions Performance Standards (SB 1368).
- Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools (13 CCR 2480)
- Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling (13 CCR 2485)
- In-Use Off-Road Diesel Idling Restriction (13 CCR 2449)
- Building Energy Efficiency Standards (Title 24, Part 6)
- California Green Building Code (Title 24, Part 11)
- Appliance Energy Efficiency Standards (Title 20)

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SCAQMD

- SCAQMD Rule 201: Permit to Construct
- SCAQMD Rule 402: Nuisance Odors
- SCAQMD Rule 403: Fugitive Dust
- SCAQMD Rule 445: Wood-Burning Devices
- SCAQMD Rule 1113: Architectural Coatings
- SCAQMD Rule 1186: Street Sweeping
- SCAQMD Rule 1401: New Source Review of Toxic Air Contaminants
- SCAQMD Rule 1403: Asbestos Emissions from Demolition/Renovation Activities

5.2.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, some impacts would be less than significant: 5.2-1, 5.2-2, 5.2-4, and 5.2-5.

Without mitigation, these impacts would be **potentially significant**:

- **Impact 5.2-3** Construction associated with the proposed Project would generate emissions that would exceed SCAQMD's localized significance thresholds and would have the potential to expose sensitive receptors to substantial pollutant concentrations.

5.2.7 Mitigation Measures

Impact 5.2-3

MM AQ-1 The construction contractor shall prepare a fugitive dust control plan and implement the following measures during ground-disturbing activities—in addition to the existing requirements for fugitive dust control under South Coast Air Quality Management District (SCAQMD) Rule 403—to further reduce PM₁₀ and PM_{2.5} emissions. The City shall verify that these measures have been implemented during normal construction site inspections.

- Following all grading activities, the construction contractor shall reestablish ground cover on the construction site through seeding and watering.
- During all construction activities, the construction contractor shall sweep streets with SCAQMD Rule 1186-compliant, PM₁₀-efficient vacuum units on a daily basis if silt is carried over to adjacent public thoroughfares or occurs as a result of hauling.
- During all construction activities, the construction contractor shall maintain a minimum 24-inch freeboard on trucks hauling dirt, sand, soil, or other loose materials and shall tarp materials with a fabric cover or other cover that achieves the same amount of protection.
- During all construction activities, the construction contractor shall limit onsite vehicle speeds on unpaved roads to no more than 15 miles per hour.

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- During all construction activities, the construction contractor shall water exposed ground surfaces and disturbed areas a minimum of every three hours on the construction site and a minimum of three times per day.
- During all construction activities, the construction contractor shall apply non-toxic soil stabilizer according to manufactures' specifications, to all inactive construction areas (previously graded areas inactive for ten days or more).

MM AQ-2 The construction contractor shall use equipment that meets the US Environmental Protection Agency (EPA) Tier 4 emissions standards for off-road diesel-powered construction equipment with more than 50 horsepower during ground-disturbing activities, unless it can be demonstrated to the City that such equipment is not available. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 4 diesel emissions control strategy for a similarly sized engine, as defined by the California Air Resources Board's regulations.

Prior to construction, the project engineer shall ensure that all demolition and grading plans clearly show the requirement for EPA Tier 4 or higher emissions standards for construction equipment over 50 horsepower. During construction, the construction contractor shall maintain a list of all operating equipment in use on the construction site for verification by the City. The construction equipment list shall state the makes, models, and numbers of construction equipment onsite. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations. Construction contractors shall also ensure that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with California Air Resources Board's Rule 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.

5.2.8 Level of Significance After Mitigation

Impact 5.2-3

Mitigation Measure AQ-1 and AQ-2 would reduce the proposed Project's localized construction emissions, as shown in Table 5.2-11, *Construction Emissions Compared to the Screening-Level Localized Significance Thresholds — Mitigated*. The results indicate that, the maximum daily NO_x, CO, and PM₁₀ construction emissions generated from onsite construction-related activities would continue to be less than their respective SCAQMD LSTs. Additionally, with mitigation, PM_{2.5} concentration which is identified as exceeding the LST, would be reduced to less than the SCAQMD's localized significance threshold during the site preparation phase. Therefore, Project-related construction activities would not have the potential to expose sensitive receptors to substantial pollutant concentrations. Impact 5.2-3 would be less than significant with mitigation.

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Table 5.2-11 Construction Emissions Compared to the Screening-Level Localized Significance Thresholds —Mitigated

Source	Pollutants(lbs/day) ^{1,2}			
	NO _x	CO	PM ₁₀	PM _{2.5}
2019 Asphalt Demolition + Haul	2	23	0.02	0.08
2019 Utility Trenching	<1	5	0.01	0.01
2019 Paving + Lighting Installation	2	20	0.07	0.07
2019 Architectural Coating	2	2	0.15	0.15
SCAQMD ≤1.00-acre LST	80	498	4.00	3.00
Exceeds LST?	No	No	No	No
2019 Grading + Haul	2	18	2.88	1.49
SCAQMD 2.50-acre LST	124	894	8.16	4.67
Exceeds LST?	No	No	No	No
2019 Site Preparation	2	21	7.78	4.30
SCAQMD 3.50-acre LST	143	1,110	10.49	6.00
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2016.3.2.25., SCAQMD 2008, and SCAQMD 2011.

Notes: In accordance with SCAQMD methodology, only onsite stationary sources and mobile equipment occurring on the proposed Project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the proposed Project site in Source Receptor Area (SRA) 7.

¹ The construction schedule is based on the preliminary information provided by the City. Where specific information regarding Project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.

² Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403 and Mitigation Measure AQ-1 and AQ-2, including watering disturbed areas a minimum of three times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, street sweeping with Rule 1186-compliant sweepers, using non-toxic soil stabilizers, and using Tier 4 construction equipment.

5.2.9 References

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5.3 GREENHOUSE GAS EMISSIONS

This section of the DEIR evaluates the impacts of the proposed Project to cumulatively contribute to greenhouse gas (GHG) emissions. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis. The analysis in this section is based on buildout of the proposed Project, as modeled using the California Emissions Estimator Model (CalEEMod) and trip generation provided in the Traffic Impact Analysis (see Appendix E to this DEIR). The GHG emissions modeling for construction and operational phases are included in Appendix C of this DEIR.

Terminology

The following are definitions for terms used throughout this section.

- **Greenhouse gases (GHG).** Gases in the atmosphere that absorb infrared light, thereby retaining heat in the atmosphere and contributing to a greenhouse effect.
- **Global warming potential (GWP).** Metric used to describe how much heat a molecule of a greenhouse gas absorbs relative to a molecule of carbon dioxide (CO₂) over a given period of time (20, 100, and 500 years). CO₂ has a GWP of 1.
- **Carbon dioxide-equivalent (CO₂e).** The standard unit to measure the amount of greenhouse gases in terms of the amount of CO₂ that would cause the same amount of warming. CO₂e is based on the GWP ratios between the various GHGs relative to CO₂.
- **MTCO₂e.** Metric ton of CO₂e.
- **MMTCO₂e.** Million metric tons of CO₂e.

5.3.1 Environmental Setting

5.3.1.1 GREENHOUSE GASES AND CLIMATE CHANGE

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO₂), methane (CH₄), and ozone (O₃)—that are the likely cause of an increase in global average temperatures observed in the 20th and 21st centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent are nitrous oxide (N₂O), sulfur hexafluoride (SF₆),

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hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).^{1,2} The major GHGs are briefly described below.

- **Carbon dioxide (CO₂)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH₄)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in landfills and water treatment facilities.
- **Nitrous oxide (N₂O)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.
- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high GWP gases.
 - **Chlorofluorocarbons (CFCs)** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down the ozone layer. These gases are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.
 - **Perfluorocarbons (PFCs)** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF₄] and perfluoroethane [C₂F₆]) were introduced as alternatives, along with hydrofluorocarbons (HFCs), to ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high GWP.
 - **Sulfur Hexafluoride (SF₆)** is a colorless gas soluble in alcohol and ether, and slightly soluble in water. SF₆ is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

¹ Water vapor (H₂O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant and would not be considered as part of GHG emissions because it feeds back into other ecological systems rather than a primary cause of change.

² Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017b). However, state and national GHG inventories do not include black carbon yet due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

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- **Hydrochlorofluorocarbons (HCFCs)** contain hydrogen, fluorine, chlorine, and carbon atoms. Although they are ozone-depleting substances, they are less potent than CFCs. They have been introduced as temporary replacements for CFCs.
- **Hydrofluorocarbons (HFCs)** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs. (IPCC 1995; USEPA 2017)

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high Global Warming Potential (GWP) gases. The GWP of GHG emissions are shown in Table 5.3-1, *GHG Emissions and Their Relative Global Warming Potential Compared to CO₂*. The GWP is used to convert GHGs to CO₂-equivalence (CO₂e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fourth Assessment Report (AR4) GWP values for CH₄, a project that generates 10 MT of CH₄ would be equivalent to 250 MT of CO₂.³

Table 5.3-1 GHG Emissions and Their Relative Global Warming Potential Compared to CO₂

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO ₂ ¹	Fourth Assessment Report Global Warming Potential Relative to CO ₂ ¹
Carbon Dioxide (CO ₂)	50 to 200	50 to 200	1	1
Methane ² (CH ₄)	12 (±3)	12	21	25
Nitrous Oxide (N ₂ O)	120	114	310	298
Hydrofluorocarbons:				
HFC-23	264	270	11,700	14,800
HFC-32	5.6	4.9	650	675
HFC-125	32.6	29	2,800	3,500
HFC-134a	14.6	14	1,300	1,430
HFC-143a	48.3	52	3,800	4,470
HFC-152a	1.5	1.4	140	124
HFC-227ea	36.5	34.2	2,900	3,220
HFC-236fa	209	240	6,300	9,810
HFC-4310mee	17.1	15.9	1,300	1,030
Perfluoromethane: CF ₄	50,000	50,000	6,500	7,390
Perfluoroethane: C ₂ F ₆	10,000	10,000	9,200	12,200
Perfluorobutane: C ₄ F ₁₀	2,600	NA	7,000	8,860
Perfluoro-2-methylpentane: C ₆ F ₁₄	3,200	NA	7,400	9,300
Sulfur Hexafluoride (SF ₆)	3,200	NA	23,900	22,800

³ CO₂-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

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Source: IPCC 1995; IPCC 2007.

Note: The IPCC has published updated GWP values in its Fifth Assessment Report (2013) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO₂. However, GWP values identified in the AR4 are used by SCAQMD to maintain consistency in statewide GHG emissions modeling. In addition, the 2014 Scoping Plan Update was based on the GWP values in AR4.

¹ Based on 100-year time horizon of the GWP of the air pollutant compared to CO₂.

² The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO₂ is not included.

California's GHG Sources and Relative Contribution

California is the 20th largest GHG emitter in the world and the second largest GHG emitter in the United States, surpassed only by Texas (CARB 2014a). However, California also has over 12 million more people than Texas. Because of more stringent air emission regulations, in 2014, California ranked third lowest in energy-related carbon emissions per capita (EIA 2018).

In 2019, the statewide GHG emissions inventory was updated for 2000 to 2017 emissions using the GWPs in IPCC's AR4. Based on these GWPs, California produced 424.10 MMTCO₂e GHG emissions in 2017. California's transportation sector was the single largest generator of GHG emissions, producing 40.1 percent of the state's total emissions. Industrial sector emissions made up 21.1 percent, and electric power generation made up 14.7 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (9.7 percent), agriculture and forestry (7.6 percent) high GWP (4.7 percent), and recycling and waste (2.1 percent) (CARB 2019a).

California's GHG emissions have followed a declining trend since 2007. In 2017, emissions from routine GHG emitting activities statewide were 424 MMTCO₂e, 5 MMTCO₂e lower than 2016 levels. This represents an overall decrease of 14 percent since peak levels in 2004 and 7 MMTCO₂e below the 1990 level and the state's 2020 GHG target. During the 2000 to 2017 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 MTCO₂e per capita to 10.7 MTCO₂e per capita in 2017, a 24 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 41 percent decline since the 2001 peak, while the state's GDP has grown 52 percent during this period. For the first time since California started to track GHG emissions, California uses more electricity from zero-GHG sources (hydro, solar, wind, and nuclear energy) (CARB 2019b).

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere that is attributable to human activities. The amount of CO₂ in the atmosphere has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million per year since 1960, mainly due to combustion of fossil fuels and deforestation (IPCC 2007). These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change

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pollutants (CAT 2006). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are also hard to predict. Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas.
- Warmer and more frequent hot days and nights over most land areas.
- An increase in frequency of warm spells/heat waves over most land areas.
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas.
- Larger areas affected by drought.
- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

Potential Climate Change Impacts for California

Observed changes over the last several decades across the western United States reveal clear signs of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada. By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase from 4.1 to 8.6°F, depending on emissions levels (CCCC 2012).

In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures; 2) a smaller fraction of precipitation falling as snow; 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones; 4) a shift in the timing of snowmelt of 5 to 30 days earlier in the spring; and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms (CAT 2006). Overall, California has become drier over time, with five of the eight years of severe to extreme drought occurring between 2007 and 2016, with unprecedented dry years occurring in 2014 and 2015 (OEHHA 2018). Statewide precipitation has become increasingly variable from year to year, with the driest consecutive four years occurring from 2012 to 2015 (OEHHA 2018). According to the California Climate Action Team—a committee of state agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency—even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.3-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from

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climate change are now considered unavoidable. Global climate change risks to California are shown in Table 5.3-2, *Summary of GHG Emissions Risks to California*, and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy.

Table 5.3-2 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	Heat waves will be more frequent, hotter, and longer Fewer extremely cold nights Poor air quality made worse Higher temperatures increase ground-level ozone levels
Water Resources Impacts	Decreasing Sierra Nevada snow pack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: CEC 2006; CEC 2009; CCCC 2012; CNRA 2014.

Specific climate change impacts that could affect the proposed Project include:

- **Water Resources Impacts.** By late this century, all projections show drying, and half of the projections suggest 30-year average precipitation will decline by more than 10 percent below the historical average. This drying trend is caused by an apparent decline in the frequency of rain and snowfall. Even in projections with relatively little or no decline in precipitation, central and southern parts of the state can be expected to be drier from the warming effects alone—because the spring snowpack will melt sooner, and the moisture in soils will evaporate during long dry summer months (CCCC 2012).
- **Wildfire Risks.** Earlier snowmelt, higher temperatures, unprotected utility lines, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced

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by potential climate-related changes in vegetation and ignition potential from lightning. Human activities will continue to be the biggest factor in ignition risk. The number of large fires statewide is estimated to increase by 58 percent to 128 percent above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57 percent to 169 percent, depending on location (CCCC 2012).

- **Health Impacts.** Many of the gravest threats to public health in California stem from the increase of extreme conditions, principally more frequent, more intense, and longer heat waves. Particular concern centers on the increasing tendency for multiple hot days in succession, and simultaneous and heat waves in several regions throughout the state. Public health could also be affected by climate change impacts on air quality, food production, the amount and quality of water supplies, energy pricing and availability, and the spread of infectious diseases. Higher temperatures also increase ground-level ozone levels. Furthermore, wildfires can increase particulate air pollution in the major air basins of California (CCCC 2012).
- **Increase Energy Demand.** Increases in average temperature and higher frequency of extreme heat events combined with new residential development across the state will drive up the demand for cooling in the increasingly hot and longer summer season and decrease demand for heating in the cooler season. Warmer, drier summers also increase system losses at natural gas plants (reduced efficiency in the electricity generation process at higher temperatures) and hydropower plants (lower reservoir levels). Transmission of electricity will also be affected by climate change. Transmission lines lose 7 percent to 8 percent of transmitting capacity in high temperatures while needing to transport greater loads. This means that more electricity needs to be produced to make up for the loss in capacity and the growing demand (CCCC 2012).

5.3.1.2 REGULATORY SETTING

This section describes the federal, state, and local regulations applicable to GHG emissions.

Federal Laws

The U.S. Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings did not themselves impose any emission reduction requirements, but allowed the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and SF₆—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions, and per South Coast Air Quality Management District

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(SCAQMD) guidance, they are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Reporting Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MTCO₂e or more are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2010/2012)

The current Corporate Average Fuel Economy standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers were required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with state requirements. The federal government issued new standards in 2012 for model years 2017 to 2025 that will require a fleet average of 54.5 miles per gallon in 2025. While the EPA is reexamining the 2017–2025 emissions and CAFE standards, a consortium of automakers and California have agreed on a voluntary framework to reduce emissions that can serve as an alternative path forward for clean vehicle standards nationwide. Automakers who agreed to the framework are Ford, Honda, BMW of North America and Volkswagen Group of America. The framework supports continued annual reductions of vehicle greenhouse gas emissions through the 2026 model year, encourages innovation to accelerate the transition to electric vehicles, and provides industry the certainty needed to make investments and create jobs. This commitment means that the auto companies party to the voluntary agreement will only sell cars in the United States that meet these standards (CARB 2019c).

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new, large stationary sources of emissions, such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule which became effective on August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence Executive Order. It officially rescinds the Clean Power Plan rule issued during the Obama Administration and sets emissions guidelines for states in developing plans to limit CO₂ emissions from coal-fired power plants.

State Laws

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Orders S-03-05 and B-30-15, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32), and SB 375.

Executive Order S-03-05

Executive Order S-03-05, signed June 1, 2005, set the following GHG reduction targets for the state:

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- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32, the Global Warming Solutions Act. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-03-05.

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by CARB on December 11, 2008. The 2008 Scoping Plan identified that GHG emissions in California are anticipated to be 596 MMTCO_{2e} in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 MMTCO_{2e} (471 million tons) for the state (CARB 2008). In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 MTCO_{2e} per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

First Update to the Scoping Plan

CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The First Update to the Scoping Plan, adopted at the May 22, 2014, board hearing, highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the 2008 Scoping Plan. As part of the update, CARB recalculated the 1990 GHG emission levels with the updated AR4 GWPs, and the 427 MMTCO_{2e} 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, are slightly higher at 431 MMTCO_{2e} (CARB 2014b).

As identified in the First Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the First Update also addresses the state's longer-term GHG goals in a post-2020 element. The post-2020 element provides a high level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the state to adopt a midterm target. According to the First Update to the Scoping Plan, local government reduction targets should chart a reduction trajectory that is consistent with or exceeds the trajectory created by statewide goals (CARB 2014b). CARB identified that reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit (CARB 2014b).

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions in the state to 40 percent below 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping

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Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaptation strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed Senate Bill 32 and Assembly Bill 197, making the Executive Order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 14, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update. The 2017 Climate Change Scoping Plan Update (2017 CCSP Update) includes the regulations and programs to achieve the 2030 target, including strategies consistent with AB 197 requirements. The 2017 Scoping Plan establishes a new emissions limit of 260 MMTCO_{2e} for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017a).

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero- and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables, such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning, to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for GHG reductions at stationary sources complement efforts by the local air districts to tighten criteria air pollutants and TACs emissions limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency and utilizes NZE technology and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy, which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.

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- Development of a Natural and Working Lands Action Plan to secure California’s land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the state’s long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 MTCO_{2e} or less per capita by 2030 and 2 MTCO_{2e} or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally appropriate goals that align with the statewide per capita targets and the state’s sustainable development objectives, and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the state’s 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have the discretion to develop evidence-based numeric thresholds (mass emissions, per capita, or per service population) consistent with the Scoping Plan and the state’s long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from vehicle miles traveled (VMT), and direct investments in GHG reductions in the project’s region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits (CARB 2017a).

The Scoping Plan scenario is set against what is called the business-as-usual yardstick—that is, what GHG emissions would look like if the state did nothing beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 5.5-3, *2017 Climate Change Scoping Plan Emissions Reductions Gap*. It includes the existing renewables requirements, advanced clean cars, the “10 percent” LCFS, and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. As shown in the table, the known commitments are expected to result in emissions that are 60 MMTCO_{2e} above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 5.3-3 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions MMTCO _{2e}
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	260
Gap to 2030 Target with Known Commitments	60

Source: CARB 2017a.

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Table 5.3-4, *2017 Scoping Plan Emissions Changes by Sector to Achieve the 2030 Target*, provides estimated GHG emissions by sector compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 5.3-4 2017 Scoping Plan Emissions Changes by Sector to Achieve the 2030 Target

Scoping Plan Sector	1990 MMTCO ₂ e	2030 Proposed Plan Ranges MMTCO ₂ e	% Change from 1990
Agricultural	26	24–25	-4% to -8%
Residential and Commercial	44	38–40	-9% to -14%
Electric Power	108	30–53	-51% to -72%
High GWP	3	8–11	267% to 367%
Industrial	98	83–90	-8% to -15%
Recycling and Waste	7	8–9	14% to 29%
Transportation (including TCU)	152	103–111	-27% to -32%
Net Sink ¹	-7	TBD	TBD
Cap-and-Trade Program	NA	34–79	NA
Total	431	260	-40%

Source: CARB 2017a.

Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.

¹ Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH₄. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also establishes targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Final Proposed Short-Lived Climate Pollutant Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s despite the tripling of diesel fuel use (CARB 2017b). In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. SCAQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces their particulate emissions by over 80 percent (CARB 2017b). Additionally, SCAQMD Rule 445 limits installation of new fireplaces in the South Coast Air Basin.

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range

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transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 MMTCO_{2e} of reductions by 2020 and 15 MMTCO_{2e} of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs. As proposed, CARB staff's proposed targets would result in an additional reduction of over 8 MMTCO_{2e} in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018). CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018 are subject to these new targets.

SCAG's RTP/SCS

SB 375 requires each MPO to prepare an SCS in their regional transportation plan. For the SCAG region, the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted on April 7, 2016, and is an update to the 2012 RTP/SCS (SCAG 2016). SCAG recently released the 2020-2045 RTP/SCS (Draft Connect SoCal Plan or Connect SoCal) on November 7, 2019 (SCAG 2019). In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network

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and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

The Draft Connect SoCal Plan focuses on the continued efforts of the previous RTP/SCS plans for an integrated approach in transportation and land uses strategies in development of the SCAG region through horizon year 2045 (SCAG 2019). Connect SoCal forecasts that the SCAG region will meet the GHG per capita reduction targets established for the SCAG region of 8 percent by 2020 and 19 percent by 2035. Additionally, Connect SoCal also forecasts that implementation of the plan would reduce VMT per capita for year 2045 by 4.1 percent compared to baseline condition for the year. Rooted in the 2008 and 2012 RTP/SCS plans, the Draft Connect SoCal Plan includes “Core Vision” that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together, and increasing investments in transit and complete streets (SCAG 2019).

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles (see also the discussion on the update to the Corporate Average Fuel Economy standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases with requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California’s Advanced Clean Car program, by 2025, new automobiles will emit 34 percent less global warming gases and 75 percent less smog-forming emissions. However, as of September 2019, the Trump administration has revoked state authority to limit auto emissions.

Executive Order S-01-07

On January 18, 2007, the state set a new low carbon fuel standard (LCFS) for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California’s transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the “fuel cycle” using the most economically feasible methods. The most current LCFS target is to achieve a reduction of 20 percent in carbon intensity of transportation fuels by 2030.

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Senate Bills 1078, 107, X1-2, and Executive Order S-14-08

A major component of California's Renewable Energy Program is the renewables portfolio standard (RPS) established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08, signed in November 2008, expanded the state's RPS to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects, because electricity production from renewable sources is generally considered carbon neutral. The most current interim target for all electricity retail sellers is to serve at least 27 percent of their load with RPS-eligible source by December 31, 2017. In general, retail sellers have either met or exceeded this target and are on track to achieve their compliance requirements.

Senate Bill 350

Senate Bill 350 (de Leon), was signed into law September 2015 and establishes tiered increases to the RPS of 44 percent by 2024, 52 percent by 2027, and 60 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100, which replaces the SB 350 requirement of 45 percent renewable energy by 2027 with the requirement of 50 percent by 2026 and also raises California's RPS requirements for 2050 from 50 percent to 60 percent. SB 100 also establishes RPS requirements for publicly owned utilities that consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Furthermore, the bill also establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO_{2e} from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

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Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directed the number of zero-emission vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions 80 percent below 1990 levels.

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2016 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards, which were recently adopted on May 9, 2018, went into effect on January 1, 2020.

The 2019 standards move towards cutting energy use in new homes by more than 50 percent and will require installation of solar photovoltaic systems for single-family homes and multi-family buildings of 3 stories and less. Four key areas the 2019 standards will focus on include 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings will be 30 percent more energy efficient compared to the 2016 standards while single-family homes will be 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.⁴ The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011. The CEC adopted the voluntary standards of the 2019 CALGreen on October 3, 2018. The 2019 CALGreen standards become effective January 1, 2020.

⁴ The green building standards became mandatory in the 2010 edition of the code.

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2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as “business as usual,” they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Regulations

California’s Integrated Waste Management Act of 1989 (AB 939, Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses.

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

Section 5.408 of the 2019 CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

In October of 2014 Governor Brown signed AB 1826, requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also required that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

Water Efficiency Regulations

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed “SBX7-7.” SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water

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providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or an equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Local Laws and Programs

City of Glendale Greener Glendale Plan

The Greener Glendale Plan (GGP) inventoried existing emissions in the City, adopted a target consistent with state goals, and developed an implementation plan to achieve a more sustainable Glendale. The Plan, adopted on November 9, 2010, assesses what actions the City and community have already taken to be more sustainable, and recommends how to build on these efforts. The GGP also provides an emissions inventory for the City, and provides policies to achieve the GHG reduction targets set by the state. The GGP includes sustainability measures for the following focus areas: Cross-Cutting Approaches, Economic Development, Urban Design, Waste, Energy, Urban Nature, Water, Transportation, and Environmental Health.

5.3.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

5.3.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

SCAQMD has adopted a significance threshold of 10,000 MTCO₂e per year for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) in September 2010, SCAQMD identified a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency (SCAQMD 2010).

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

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- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (e.g., city or county), project-level and cumulative GHG emissions are less than significant.
- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. Project-related GHG emissions include on-road transportation, energy use, water use, wastewater generation, solid waste disposal, area sources, off-road emissions, and construction activities. The SCAQMD Working Group identified that because construction activities would result in a "one-time" net increase in GHG emissions, construction activities should be amortized into the operational phase GHG emissions inventory based on the service life of a building. For buildings in general, it is reasonable to look at a 30-year time frame, since this is a typical interval before a new building requires the first major renovation. SCAQMD identified a screening-level threshold of 3,000 MTCO_{2e} annually for all land use types or the following land-use-specific thresholds: 1,400 MTCO_{2e} for commercial projects, 3,500 MTCO_{2e} for residential projects, and 3,000 MTCO_{2e} for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

SCAQMD has identified an efficiency target for projects that exceed the bright-line threshold: a 2020 efficiency target of 4.8 MTCO_{2e} per year per service population (MTCO_{2e}/year/SP) for project-level analyses and 6.6 MTCO_{2e}/year/SP for plan-level projects (e.g., general plans). Service population is generally defined as the sum of residential and employment population of a project. The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.⁵

For projects that would be implemented beyond year 2020, the GHG emissions reduction target would need to be extrapolated based on the 2050 climate stabilization goals.

⁵ SCAQMD took the 2020 statewide GHG reduction target for "land use only" GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

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5.3.3 Environmental Impacts

Methodology

This GHG evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG impacts are likely to occur in conjunction with the proposed Project. SCAQMD has published guidelines that are intended to provide local governments with guidance for analyzing and mitigating environmental impacts and which were used in this analysis. Modeling of GHG was conducted using CalEEMod, version 2016.3.2. Life cycle emissions are not included in this analysis because not enough information is available for the proposed Project, and therefore life cycle GHG emissions would be speculative.⁶ Black carbon emissions are not included in the GHG analysis because CARB does not include this pollutant in the state's AB 32 inventory and treats this short-lived climate pollutant separately.⁷ GHG modeling is included in Appendix C of this Draft EIR.

The analysis in this section is based on buildout of the proposed Project as modeled using CalEEMod, version 2016.3.2, for the following sectors:

- **Transportation.** On-road transportation sources are based on trip generation rates provided in the traffic study (see Appendix E).
- **Energy Use.** Electricity and natural gas use is based on the usage rates identified in CalEEMod version 2016.3.2 and the carbon intensity for the City's Department of Water and Power as identified in the California Department of Energy's Power Content Label. New buildings would achieve the 2016 Building Energy Efficiency Standards at a minimum.
- **Water/Wastewater.** GHG emissions from this sector are associated with the embodied energy used to supply water, treat water, distribute water, and then treat wastewater and fugitive GHG emissions from wastewater treatment. Emissions are based on wastewater consumption rates identified in CalEEMod version 2016.3.2 for indoor water use for the proposed restroom facility. The proposed Project would not result in an increase in outdoor water use.
- **Construction.** GHG emissions from construction-related vehicle and equipment use are based on a worst-case emissions scenario for buildout of the proposed Project. Emissions are amortized over a 30-

⁶ Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the Proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

⁷ Particulate matter emissions, which include black carbon, are analyzed in Section 5.2, *Air Quality*. Black carbon emissions have sharply declined due to efforts to reduce on-road and off-road vehicle emissions, especially diesel particulate matter. The State's existing air quality policies will virtually eliminate black carbon emissions from on-road diesel engines within 10 years (CARB 2017b).

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year period and included as part of the overall operational phase inventory to account for short-term, one-time construction emissions of the proposed Project.

Impact Analysis

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.3-1: Development of the proposed Project would result in a substantial increase of GHG emissions. [Threshold GHG-1]

Impact Analysis: Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough greenhouse gas emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

Implementation of the proposed Project would contribute to global climate change through direct emissions of GHG from on-site area sources and vehicle trips generated by the proposed Project, and indirectly through off-site energy production required for on-site activities, water use, and waste disposal. The total and net annual GHG emissions associated with full buildout of the proposed Project are shown in Table 5.3-5, *Operational Phase GHG Emissions*.

Table 5.3-5 Operational Phase GHG Emissions

Sector	GHG Emissions MTCO ₂ e/Year	
	Proposed Project	Percent
Area	<1	<1%
Energy	3	1%
Stadium Lighting	10	4%
Mobile	264	93%
Water/Wastewater	<1	<1%
Amortized Construction ¹	6	2%
Total	283	100%
SCAQMD Bright-Line Threshold	3,000	N/A
Exceed Threshold?	No	N/A

Source: CalEEMod 2016.3.2. Based on IPCC's AR4 GWPs. Totals may not equal 100 percent due to rounding.

Notes: Totals may not add to 100 percent due to rounding. MTCO₂e: Metric Tons of Carbon Dioxide-Equivalent.

¹ Short-term (one time) total construction emissions during the 20-year buildout are amortized over a 30-year project lifetime in accordance with SCAQMD guidance and incorporated into the operational emissions analysis.

As shown in Table 5.3-6, the net increase in GHG emissions of 283 MTCO₂e annually would not exceed SCAQMD's draft bright-line screening threshold of 3,000 MTCO₂e. Therefore, the proposed Project's cumulative contribution to the long-term GHG emissions in the state would be considered less than significant and no mitigation measures are necessary.

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Impact 5.3-2: The proposed Project would not conflict with the plans adopted for the purpose of reducing GHG emissions. [Threshold GHG-2]

Impact Analysis: Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan, SCAG's 2016-2040 RTP/SCS, and the Greener Glendale Plan. A consistency analysis with these plans is presented below.

CARB Scoping Plan

The CARB Scoping Plan is applicable to state agencies, but is not directly applicable to cities/counties and individual projects (i.e., the Scoping Plan does not require the City to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the state agencies outlined in the Scoping Plan result in GHG emissions reductions at the local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down. Statewide strategies to reduce GHG emissions include the LCFS and changes in the corporate average fuel economy standards (e.g., Pavley I and Pavley California Advanced Clean Cars program).

Development projects accommodated under the proposed Project are required to adhere to the programs and regulations identified by the Scoping Plan and implemented by state, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32. These future individual development projects would comply with these statewide GHG emissions reduction measures. Project GHG emissions shown in Table 5.3-5 include reductions associated with statewide strategies that have been adopted since AB 32. Therefore, the proposed Project would not conflict with or obstruct implementation of the CARB Scoping Plan.

SCAG's 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

On November 7, 2019 SCAG recently released the 2020-2045 RTP/SCS (Draft Connect SoCal Plan) and anticipates adoption of the Connect SoCal Plan in May 2020 (SCAG 2019). The Connect SoCal Plan identifies that land use strategies that focus on new housing and job growth in areas rich with destinations and mobility options would be consistent with a land use development pattern that supports and complements the proposed transportation network. The overarching strategy in the Connect SoCal Plan is to provide for a plan that allows the southern California region to grow in more compact communities in transit priority areas and priority growth areas, provide neighborhoods with efficient and plentiful public transit, establish abundant and safe opportunities to walk, bike and pursue other forms of active transportation, and preserve more of the region's remaining natural lands and farmlands (SCAG 2019). The Connect SoCal Plan contains transportation projects to help more efficiently distribute population, housing, and employment growth, as well as forecasted development that is generally consistent with regional-level general plan data so as to promote active transport and reduce GHG emissions. The projected regional development, when integrated with the proposed regional transportation network identified in the Connect SoCal Plan, would reduce per capita vehicular travel-related GHG emissions and achieve the GHG reduction per capita targets for the SCAG region.

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The SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives for consistency for governments and developers. The proposed Project would maintain the site's current land use, and would not interfere with SCAG's ability to implement the regional strategies outlined in the RTP/SCS. No impact would occur and no mitigation measures are required.

Greener Glendale Plan

On November 9, 2010, the City adopted a resolution to address sustainability and climate change and to use the United Nations Urban Environmental Accords as a framework for sustainability actions. The Greener Glendale Plan (GGP) inventoried existing emissions in the City, adopted a target consistent with state goals, and developed an implementation plan to achieve a more sustainable Glendale. The GGP identified and evaluated feasible and effective policies to reduce GHG emissions in order to reduce energy costs, protect air quality, and improve the economy and the environment. The policies identified in the GGP represent the City's actions to achieve the GHG reduction targets of AB 32. The GGP includes sustainability measures for the following focus areas: Cross-Cutting Approaches, Economic Development, Urban Design, Waste, Energy, Urban Nature, Water, Transportation, and Environmental Health.

The Water chapter focuses on strategies on water conservation and water quality protection. The proposed athletic field replacement would include artificial turf fields, which will reduce water demand and waste from the school facilities. Similarly, the proposed Project would be consistent with the urban design and urban nature goals of the GGP by redesigning the current athletic space and creating a new recreational space for the community to enjoy. Specifically, Objective UN4 is to ensure there is accessible park and recreational open space to serve the residents. Energy is also a component of the GGP with increasing renewable energy and reducing energy consumption as two focal areas. Lighting associated with the field improvements will be energy efficient in compliance with the latest California regulations. Therefore, the proposed Project would be consistent with applicable portions of the GGP, and would not conflict with the GGP. Upon implementation of regulatory requirements, impacts to GHG plan adoption would be less than significant and no mitigation measures are required.

5.3.4 Cumulative Impacts

Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, impacts under Impact 5.3-1 are not project-specific impacts, but the proposed Project's contribution to the cumulative impact of global warming. Implementation of the proposed Project would not exceed the bright-line screening threshold; and would therefore, not result in a substantial increase in GHG emissions. Thus, the proposed Project's GHG emissions and contribution to global climate change impacts are considered less than significant.

5.3.5 Existing Regulations and Standard Conditions

State

- California Global Warming Solutions Act (AB 32)
- California Global Warming Solutions Act of 2006: Emissions Limit (SB 32)

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- Sustainable Communities and Climate Protection Act (SB 375)
- Greenhouse Gas Emission Reduction Targets (Executive Order S-03-05)
- Clean Car Standards – Pavley (AB 1493)
- Renewables Portfolio Standards (SB 1078)
- California Integrated Waste Management Act of 1989 (AB 939)
- California Mandatory Commercial Recycling Law (AB 341)
- California Advanced Clean Cars CARB (Title 13 CCR)
- Low-Emission Vehicle Program – LEV III (Title 13 CCR)
- Heavy-Duty Vehicle Greenhouse Gas Emissions Reduction Measure (Title 17 CCR)
- Low Carbon Fuel Standard (Title 17 CCR)
- California Water Conservation in Landscaping Act of 2006 (AB 1881)
- California Water Conservation Act of 2009 (SBX7-7)
- Statewide Retail Provider Emissions Performance Standards (SB 1368).
- Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools (13 CCR 2480)
- Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling (13 CCR 2485)
- In-Use Off-Road Diesel Idling Restriction (13 CCR 2449)
- Building Energy Efficiency Standards (Title 24, Part 6)
- California Green Building Code (Title 24, Part 11)
- Appliance Energy Efficiency Standards (Title 20)

5.3.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.3-1 and 5.3-2.

5.3.7 Mitigation Measures

No GHG emissions impacts were identified and no mitigation measures are required.

5.3.8 Level of Significance After Mitigation

No GHG emissions impacts were identified and no mitigation measures are required.

5.3.9 References

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5.4 NOISE

This section discusses the fundamentals of sound; examines federal, state, and local noise guidelines, policies, and standards; reviews noise levels at existing receptor locations; and evaluates potential noise impacts associated with the proposed Project; and provides mitigation to reduce noise impacts at sensitive residential locations. This evaluation uses procedures and methodologies as specified by Caltrans and the Federal Highway Administration (FHWA).

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the proposed Project to result in noise impacts in the City. The analysis in this section is based on the technical reports provided in Appendix D to this Draft EIR.

5.4.1 Environmental Setting

5.4.1.1 SOUND FUNDAMENTALS

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the level of sound is the decibel (dB). Changes of 1 to 3 dB are detectable under quiet, controlled conditions and changes of less than 1 dB are usually indiscernible. A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment whereas a 10 dB change is perceived as a doubling (or halving) of the sound.

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all and are “felt” more as a vibration. Similarly, while people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz. Since the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale is usually used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise is defined as unwanted sound, and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, the State of California, and many local governments have established criteria to protect public health and safety and to prevent disruption of certain human activities.

Sound Measurement

Sound intensity is measured through the A-weighted measure to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear’s de-emphasis of these frequencies.

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Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. On a logarithmic scale, an increase of 10 dB is 10 times more intense than 1 dB, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as “spreading loss.” For a single point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a Project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases by 4.5 dB for each doubling of distance.

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2 , L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. Other values typically noted during a noise survey are the L_{min} and L_{max} . These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, and thereby affecting blood pressure, functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA could result in permanent hearing damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. An instantaneous sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear.

5.4.1.2 VIBRATION FUNDAMENTALS

Vibration is a trembling, quivering, or oscillating motion of the earth. Like noise, vibration is transmitted in waves, but in this case through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is felt rather than heard.

Vibration can be either natural as in the form of earthquakes, volcanic eruptions, sea waves, landslides, or man-made as from explosions, the action of heavy machinery such as construction equipment or heavy

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vehicles such as trains. Both natural and man-made vibration may be continuous such as from operating machinery, or transient as from an explosion.

As with noise, vibration can be described by both its amplitude and frequency. Amplitude may be characterized in three ways including displacement, velocity, and acceleration. Particle displacement is a measure of the distance that a vibrated particle travels from its original position and for the purposes of soil displacement is typically measured in inches or millimeters. Particle velocity is the rate of speed at which soil particles move in inches per second or millimeters per second. Particle acceleration is the rate of change in velocity with respect to time and is measured in inches per second or millimeters per second. Typically, particle velocity (measured in inches per second) and/or acceleration (measured in gravities) are used to describe vibration. Table 5.4-1, *Human Reaction to Typical Vibration Levels*, presents the human reaction to various levels of peak particle velocity.

Table 5.4-1 Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of “architectural” (i.e., not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to “architectural” damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

Source: Caltrans 2002.

Vibrations also vary in frequency and this affects perception. Typical construction vibrations fall in the 10 to 30 Hz range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies; however, due to their suspension systems, buses often generate frequencies around 3 Hz at high vehicle speeds. It is less common, but possible, to measure traffic frequencies above 30 Hz.

The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Raleigh waves, travel along the ground’s surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a “push-pull” fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or “side-to-side and perpendicular to the direction of propagation.”

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As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

5.4.1.3 REGULATORY FRAMEWORK

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

Federal Regulations

US Federal Transit Administration (FTA)

The FTA provides criteria for acceptable levels of ground-borne vibration for various types of special buildings that are sensitive to vibration and these guidelines are often used to evaluate vibration impacts during construction. The construction-focused guidelines identify that an impact would occur if construction activities generate vibration that is strong enough to (a) physically damage buildings or (b) cause undue annoyance at sensitive receptors.

Vibration-Related Human Annoyance

The human reaction to various levels of vibration is highly subjective and varies from person to person. Table 5.4-2, *Groundborne Vibration Criteria: Human Annoyance*, shows the FTA's vibration criteria to evaluate vibration-related annoyance due to resonances of the structural components of a building. These criteria are based on extensive research that suggests humans are sensitive to vibration velocities in the range of 8 to 80 Hz. For construction activities—presumed to occur only during daytime hours—the threshold would be 78 VdB at residential land uses.

Table 5.4-2 Groundborne Vibration Criteria: Human Annoyance

Land Use Category	Maximum Vibration Level (VdB)	Description
Workshop	90	Distinctly felt vibration. Appropriate to workshops and non-sensitive areas
Office	84	Felt vibration. Appropriate to offices and non-sensitive areas.
Residential – Daytime	78	Barely felt vibration. Adequate for computer equipment.
Residential – Nighttime	72	Vibration not felt, but groundborne noise may be audible inside quiet rooms.

Source: FTA 2006.

Note: Maximum Vibration Level (in VdB) is the RMS velocity level in decibels, as measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hz. RMS is the abbreviation for root-mean-square.

Vibration-Related Architectural Damage

The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively. However, structures amplify groundborne vibration, and wood-frame buildings such as typical residential structures are more affected by ground vibration than heavier buildings. The most

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conservative estimates are reflected in the FTA standards, shown in Table 5.4-3, *Groundborne Vibration Criteria: Architectural Damage*. The Peak Particle Velocity (PPV) threshold of 0.2 inches/second will be applied to typical residential structures surrounding the Project site.

Table 5.4-3 Groundborne Vibration Criteria: Architectural Damage

Building Category	PPV (in/sec)	VdB
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2006.

Note: Lv (VdB): Lv is the velocity level in decibels, as measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hz.

State Regulations

California Building Code

The California Building Code (CBC), Title 24, Part 2, Volume 1, Chapter 12, Interior Environment, Section 1207.4, Allowable Interior Noise Levels, requires that interior noise levels attributable to exterior sources shall not exceed 45 dBA in any habitable room. The noise metric is evaluated as either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan.

The California Green Building Standards Code (CALGreen) has additional requirements for insulation that affect exterior-interior noise transmission for non-residential structures. Pursuant to Section 5.507.4.1, Exterior Noise Transmission, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite sound transmission class (STC) rating of at least 50 or a composite outdoor-indoor transmission class (OITC) rating of no less than 40 with exterior windows of a minimum STC of 40 or OITC of 30 within a 65 dBA CNEL or L_{dn} noise contour of an airport. Where noise contours are not readily available, buildings exposed to a noise level of 65 dBA $L_{eq-1-hour}$ during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum of STC 40 (or OITC 30).

Applicants for new residential projects are required to submit an acoustical analysis report showing that the structure has been designed to limit intruding noise to the prescribed allowable levels. The report is required to show the topographical relationship between noise sources and the dwelling site, identify noise sources and their characteristics, predict noise spectra at the exterior of the proposed dwelling structure considering present and future land usage and the basis for the prediction, identify noise attenuation measures to be applied, and analyze the effectiveness of the noise insulation of the proposed construction showing that the prescribed interior noise level requirements are met. If interior allowable noise levels are met by requiring that windows be unopenable or closed, the design for the structure must also specify how ventilation and cooling will be provided, if necessary, to create a habitable interior environment.

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Additionally, State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared according to guidelines adopted by the Governor's Office of Planning and Research. The purpose of the Noise Element is to "limit the exposure of the community to excessive noise levels" (OPR 2017). The State Noise Compatibility Guidelines, presented in Table 5.4-4, *Community Noise and Land Use Compatibility*, presents a land use compatibility chart for community noise prepared by the California Office of Noise Control. This table provides urban planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels, categorizing 'normally acceptable', 'conditionally acceptable', 'normally unacceptable' and 'clearly unacceptable' noise levels for various land uses. Additionally, the noise/land use compatibility table presented below corresponds with the compatibility guidelines found in the Glendale General Plan Noise Element.

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Table 5.4-4 Community Noise and Land Use Compatibility

Land Uses	CNEL (dBA)					
	55	60	65	70	75	80
Residential-Low Density Single Family, Duplex, Mobile Homes	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Residential- Multiple Family	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Transient Lodging: Hotels and Motels	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Schools, Libraries, Churches, Hospitals, Nursing Homes	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Auditoriums, Concert Halls, Amphitheaters	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Sports Arena, Outdoor Spectator Sports	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Playground, Neighborhood Parks	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Office Buildings, Businesses, Commercial and Professional	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Industrial, Manufacturing, Utilities, Agricultural	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded

Explanatory Notes

	Normally Acceptable: With no special noise reduction requirements assuming standard construction.		Normally Unacceptable: New construction is discouraged. If new construction does not proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
	Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.		Clearly Unacceptable: New construction or development should generally not be undertaken.

Source: California Office of Noise Control. *State of California, "General Plan Guidelines,"* 1998

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City of Glendale Noise Standards

Noise Element

The City's General Plan Noise Element describes the City's noise environment, proposes ways to lessen existing noise, and proposes methods for mitigating possible future noise impacts. The City applies a Land Use Noise Compatibility Matrix (consistent with Table 5.4-4) to assess the compatibility of new development with ambient noise. As with the state's guidelines, the land use noise compatibility matrix of the noise element identifies 'clearly acceptable', 'conditionally acceptable', 'normally unacceptable', and 'clearly unacceptable' noise levels for various land uses (with the associated requirement for a detailed analysis of the noise reduction requirements and needed noise insulation features) for projects proposed within conditionally acceptable or normally unacceptable noise zones. In no case would it be desirable for any land use to have noise exceeding the highest normally unacceptable noise level shown in Table 5.4-4.

Additionally, the Noise Element recognizes the challenges of regulating noise from construction activities and identifies that construction noise is appropriately regulated through the City's Noise Ordinance. 8.36.080. The noise ordinance exempts construction activities from compliance with the noise ordinance limits under certain circumstances.

Municipal Code

Exterior/Interior Noise Limits

The City's Municipal Code (GMC) Chapter 8.36, *Noise Control*, provides standards that prohibit unnecessary, excessive and annoying noise from all sources. Section 8.36.040 provides presumed ambient noise levels that shall be used in determining the appropriate noise limit for any given land use type. For residential zones, the presumed exterior noise level is 60 dBA; the presumed interior noise level is 55 dBA during the day or 45 dBA at night. Section 8.36.050 relates the presumed or measured ambient noise level to the applicable noise limit. In general, this section states that a violation would occur if a noise source exceeds the measured (or presumed) ambient, plus 5 dB. As such, any noise more than 5 dB(A) above the actual ambient noise level is considered a violation of the Noise Ordinance. Where the actual ambient noise level exceeds the presumed noise standard, the actual ambient noise level is used, and any noise more than 5 dB(A) above the actual ambient noise level is considered a violation of the Noise Ordinance. However, under the Noise Ordinance, the actual ambient noise levels are not allowed to exceed the presumed noise level by more than 5 dB(A). The ambient conditions around the Project site are discussed below.

Construction Noise

GMC Section 8.36.080 establishes the standard for construction noise control on buildings, structures and projects with the City. The City does not have regulations that establish maximum construction noise levels. The City realizes that the control of construction noise is difficult in a built out urban environment and therefore restricts construction activities to specific hours of the day, if they are within a denoted distance of noise-sensitive, residential receptors. Specifically, construction or repair work on projects within 500 feet of any residence, shall be limited to the hours of 7 a.m. to 7 p.m. on weekdays and Saturdays; construction

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activities are not allowed on Sundays or holidays). Construction noise generated during these times are exempt from the noise limits.

Exemptions

GMC Section 8.36.290 exempts certain activities from the City's Noise Ordinance. Per this section, activities conducted on public parks or playgrounds and public or private school grounds including, but not limited to, school athletic and school entertainment events or outdoor activities such as public dances, shows, sporting events, and entertainment events provided such events are conducted pursuant to a permit issued by the City where otherwise required, are exempt from the provisions of the noise ordinance.

Additionally, GMC, Section 8.36.290(K) provides an exemption from the Noise Ordinance for any activity, operation, or noise, that cannot be brought into compliance (with the Noise Ordinance) because it is technically infeasible to do so. "Technical infeasibility" for the purpose of this section means that noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or any other noise reduction devices or techniques during the operation of the equipment.

Vibration

GMC Section 8.36.210 states that operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at 150 feet from the source if on a public space or public right-of-way shall be a violation. The Noise Ordinance does not define the level of vibration deemed perceptible by an individual and does not establish maximum allowable vibration levels.

5.4.1.4 EXISTING NOISE ENVIRONMENT

The Project site is in a predominantly residential area and is subject to noise from transportation and stationary sources. The Project site is currently utilized by WMS for physical education purposes and school sports programs. In addition to these school uses, outside sporting groups have been individually permitted by Glendale Unified School District (GUSD) to use the practice field on weekends; generally between the hours of 8:30 a.m. and 6:00 p.m. on Saturdays and 8:00 a.m. and 6:00 p.m. on Sundays.

In addition to roadway noise and residential noise sources (i.e. property maintenance, light mechanical equipment, people talking, etc.), the Project vicinity is also subject to recurring events of athletic field noise from the existing Project site. However, all athletic events that take place at the Project site are associated with youth sports, which will be relatively low-attendance and non-competitive (as compared to, for example, high school sporting events, such as varsity football games). With such low-attendance and non-competitive events, project experience indicates that these kinds of events would not be expected to generate notable amounts of spectator noise.

Ambient Noise Measurements

To ascertain the existing noise at and adjacent to the sports field, noise monitoring was conducted by PlaceWorks staff in May of 2017. The existing field is currently available to operate until 6:00 p.m., while the proposed Project would extend this availability to 10:00 p.m. Short-term (ST) measurements were taken at

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five locations for a minimum period of 15 minutes, between the hours of 6:30 p.m. and 8:30 p.m. The measurement sessions focused on the weekday periods that would coincide with the most likely usage times for the Project's expected events. During the five measurements, the air temperature was between 66 and 72 °F; relative humidity was between 59 and 67 percent relative humidity (RH), and windspeed was less than 2 miles per hour. All these conditions are well within industry standards for making representative environmental noise measurements.

Noise monitoring was performed using Larson-Davis Model 820 integrating/logging sound level meter, which satisfies the American National Standards Institute (ANSI) standard for Type 1 general environmental noise measurement instrumentation. The meters were programmed to record noise levels with the "slow" time constant and using the "A" weighting filter network. The meters were field calibrated immediately prior to the first reading, and rechecked immediately after the conclusion of the readings. No notable meter "drift" was noted (i.e., less than ½ dB deviation) between these pre-session and post-session calibrations. For all measurements, the sound level meter and microphone were mounted on a tripod five feet above the ground and equipped with a windscreen. Noise measurement locations are described below and shown in Figure 5.4-1, *Ambient Noise Measurement Locations*. Results of the noise monitoring session are presented in Table 5.4-5, *Ambient Noise Measurements, dBA*.

- **ST-1:** This monitoring location was located in the alleyway adjacent to the proposed Project site. The existing athletic field was located directly south of this location; several carports/garages were located directly to the north of this location. This monitoring location was affected by roadway noise from Verdugo Road and Glenoaks Boulevard, as well as distant noise from other roadways including SR-134. This monitoring location was also affected by occasional drive-bys within the alleyway.
- **ST-2:** This monitoring location was located north of the proposed Project site, directly south of Glenoaks Boulevard. This noise monitoring location was dominated by roadway noise along Glenoaks Boulevard.
- **ST-3:** This monitoring location was located east of the proposed Project site, directly east of Verdugo Road. This monitoring location was dominated by roadway noise along Verdugo Road.
- **ST-4:** This monitoring location was located to the south of the proposed Project site, at the southwest corner of Monterey Road and Galer Place. This monitoring location was controlled by local roadway noise from Monterey Road, and distant roadway noise from SR-134.
- **ST-5:** This monitoring location was located to the west of the proposed Project site, along Adams Street within a relatively quiet residential neighborhood. This monitoring location was affected by distant roadway noise, as well as typical neighborhood noise (light mechanical equipment, people talking, etc.).

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Table 5.4-5 Ambient Noise Measurements, dBA

Monitoring Site	L _{min}	L _{eq}	L _{max}
ST-1: Alleyway directly north of Project Site	55	57	64
ST-2: Along Glenoaks Boulevard	47	62	86
ST-3: Along Verdugo Road	50	64	76
ST-4: Along Monterey Road	58	63	74
ST-5 Along Adams Street	48	53	67

Noise monitoring conducted by PlaceWorks on May 31st during evening hours

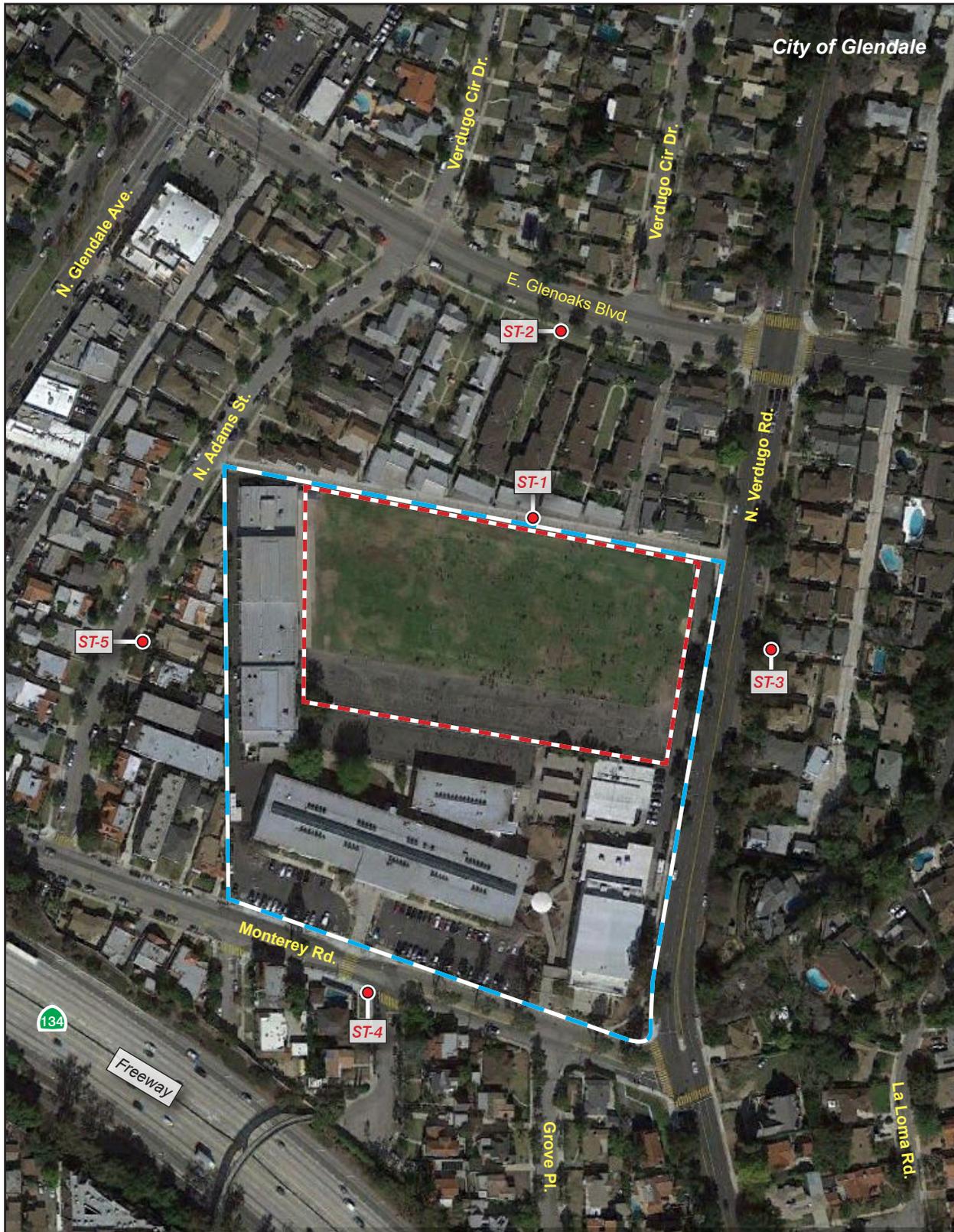
L_{min} is the lowest, moment-by-moment sound level observed during each 15-minute sample, L_{max} is the highest, moment-by-moment sound level observed during each 15-minute sample, and L_{eq} is the energy-average sound level over the entire 15-minute sample (as if there were a constant-level noise source).

During the evening hours, the time-averaged sound level in the vicinity of the Project site ranges from 53 to 64 dBA L_{eq}. For receivers that are directly exposed to roadway noise (i.e., ST-2, ST-3, and ST-4), the L_{eq} is in the range of 62 to 64 dBA. The noise environment around the Project site is generally higher than what would be expected as ‘typical’ for a medium-density residential area. This is mainly due to the relatively high number of transportation sources in proximity to the Project area.

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Figure 5.4-1 - Ambient Noise Measurement Locations
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— School Boundary

- - - Project Site



ST-1

Noise Measurement Locations (5)

0

300

Scale (Feet)



Source: Google Maps, 2017

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5.4.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would result in:

- N-1 Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- N-2 Generation of excessive groundborne vibration or groundborne noise levels.
- N-3 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, if the project would expose people residing or working in the project area to excessive noise levels.

The Initial Study, included as Appendix A1, substantiates that impacts associated with the following threshold would be less than significant:

- Threshold N-3: The proposed Project site is located approximately 7 miles southeast of the Bob Hope Airport, located at 2627 North Hollywood Way in the City of Burbank. Accordingly, implementation of the proposed Project would not expose people residing or working in the Project area to excessive noise levels from private or public airports, and no impact would occur.

These impacts, dealing with aircraft-related noise, will not be addressed in the following analysis.

NOISE THRESHOLD METRICS

Construction

As previously state, the City's Noise Ordinance does not have regulations that establish maximum construction noise levels. The City has identified that construction activities that occur during the hours between 7 a.m. and 7 p.m. as to be exempt from the noise limits established in Section 8.36.040; however, while construction noise may be exempt, noise generated by construction activities could exceed the City's allowable exterior residential noise limits of 65 dBA (60 dBA plus 5 dBA over the standard).

To determine a threshold for construction noise, worker noise safety standards of other agencies were reviewed. The rationale is that if a maximum construction noise level is generally safe for construction workers who are exposed to the noise all day, the noise level should be also be safe for adjacent residents who are typically farther from the noise source and exposed only briefly during the day. Noise standards from Caltrans, the American National Standards Institute (ANSI), the American Conference of Governmental Industrial Hygienists (ACGIH), the Federal Railroad Administration (FRA), and the California Department of Industrial Relations (DIR) were reviewed. Their limits are as follows:

- *Caltrans Standard Specifications Section 14-8*: Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.

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- *The American National Standards Institute: A10.46-2007, Hearing Loss Prevention in Construction and Demolition Workers.* Applies to all construction and demolition workers with potential noise exposures (continuous, intermittent, and impulse) of 85 dBA and above.
- *The American Conference of Governmental Industrial Hygienists: The ACGIH has established exposure guidelines for occupational exposure to noise in its Threshold Limit Values (TLVs) (85 dBA PEL with a 3 dBA exchange rate).*
- *Federal Railroad Administration: 49 CFR 227, Occupational Noise Exposure for Railroad Operating Employees.* Requires railroads to conduct noise monitoring and implement a hearing conservation program for employees whose exposure to cab noise equals or exceeds an 8-hour time-weighted-average of 85 dBA. This final rule became effective February 26, 2007.
- *California Department of Industrial Relations: Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary. The DIR also establishes time-based exposure limits to different noise levels; however, their table starts at the 90 dBA level.*

The policies and guidelines above suggest 85 dBA is a reasonable threshold of noise exposure for construction workers. It should be noted that this threshold is based on worker protection, which assumes continuous exposure for the worker. While 85 dBA would be a reasonable threshold, this would exceed the City's maximum allowable noise for any land use (Industrial) by 10 dBA, and thus not appropriate for this DEIR.

As shown in Table 5.4-5, ambient noise levels in the Project vicinity ranged between 53 to 64 dBA L_{eq} , with maximum noise levels of up to 86 dBA L_{max} measured. The City's Community Noise and Land Use Compatibility Table from the City's General Plan Noise Element identifies that residential land uses located in areas with ambient noise level lower than 60 dBA CNEL are normally acceptable, while residential uses located in areas with ambient noise levels between 55 dBA and 70 dBA CNEL as conditionally acceptable. The proposed Project site is located in an area that is considered conditionally acceptable based on the measured ambient noise levels. However, the GMC Section 8.36.060 clearly states that any noise that exceeds the exterior residential noise standard of 65 dBA as established in Section 8.36.050 would be a violation of the Noise Ordinance. Therefore, while construction activities would be temporary and would only occur during allowable hours, construction noise that would exceed 65 dBA at the property line of a noise sensitive receptor would create a potentially adverse and significant impact.

Transportation

To determine if a project would cause a substantial noise increase related to project-related traffic, consideration must be given to the magnitude of the increase and the affected receptors. In general, for community noise, a noise level increase of 3 dBA is considered barely perceptible, while an increase of 5 dBA is considered clearly noticeable. An increase of 3 dBA is often used as a threshold for a substantial increase. To evaluate offsite project-related noise impacts under CEQA, noise-sensitive receptors along a roadway segment must: (1) be exposed to ambient noise levels over 60 dBA CNEL; (2) experience a cumulative noise

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increase (future minus existing) over 3 dBA; and, (3) the project contribution must be 1 dBA or more. An increase of 3 dBA or greater in traffic noise level that occurs due to Project-related activities would be significant if the resulting noise levels would cause the City’s noise compatibility thresholds for “normally acceptable” exterior or interior noise levels to be exceeded, or result in a 3 dBA increase in noise to a land use experiencing levels above the City’s noise compatibility threshold for “normally acceptable.”

Stationary

As discussed in Section 5.4.1.3 *Regulatory Framework*, the GMC establishes presumed exterior noise standards and wherever the actual ambient noise is known, the actual noise ambient shall be used to determine a noise violation, if the presumed or actual ambient is exceeded by 5 dBA. For this analysis noise measurements were taken, therefore the noise measurements shall be used as the actual existing noise ambient to determine a significance impact for per Section 8.36.050 of the GMC.

VIBRATION THRESHOLDS

Vibration Annoyance

The GMC Section 8.36.210 states that it is unlawful to operate or permit the operation of any device, including construction equipment, that creates a vibration above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property. However, the GMC does not establish a perceptibility threshold, therefore the FTA groundborne vibration criterion for human annoyance of 78 VdB is used for this analysis. Operation or construction of the proposed Project would potentially result in an adverse and significant impact.

Architectural Damage

The City of Glendale does not have specific limits or thresholds for vibration-induced architectural damage related to construction activities. The FTA provides criteria for acceptable levels of groundborne vibration for various types of buildings, and the FTA criteria are used in this analysis. Table 5.4-6, *Groundborne Vibration Criteria: Architectural Damage*, summarizes FTA criterion below.

Table 5.4-6 Groundborne Vibration Criteria: Architectural Damage

	Building Category	PPV (in/sec)
I.	Reinforced concrete, steel, or timber (no plaster)	0.5
II.	Engineered concrete and masonry (no plaster)	0.3
III.	Non-engineered timber and masonry buildings	0.2
IV.	Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018.

PPV = peak particle velocity

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5.4.3 Environmental Impacts

5.4.3.1 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.4-1: Construction activities would result in temporary noise increases in the vicinity of the proposed Project. [Threshold N-1]

Impact Analysis: In general, for construction projects similar to the proposed Project, asphalt demolition and grading activities usually generate the highest noise levels since they involve the largest and most powerful equipment. In this case, though, construction equipment for the sports field and related athletic facilities would be limited to relatively small- to medium-sized construction equipment such as loaders/backhoes, paving equipment, scrapers, excavators, rubber-tired dozers, graders, concrete saws, forklifts, rollers, pavers, concrete trucks, and air compressors. A crane would be needed to install the new light poles. Construction of new facilities include the synthetic turf installation, light pole installation, construction of the restroom and storage/maintenance building, and resurfacing of the existing basketball courts. The proposed Project does not include installation of a Public Address (PA) system. Grading activities would result in the export approximately 13,400 cubic yards of soil. It is anticipated that the soils would be hauled to Scholl Canyon Landfill. The total duration for Project construction would be approximately three months, and it is anticipated to begin in the summer of 2021.

The City recognizes that the control of construction noise is difficult and therefore limits construction activities to the hours of 7 a.m. to 7 p.m., Monday through Saturday (with construction activities not being allowed on Sundays or holidays) if residential land uses are within 500 feet of the construction zone(s). For the proposed Project, construction activities would generate temporary noise and existing land uses surrounding the Project site would be exposed to construction noise. Two types of short-term noise impacts could occur during construction: (1) mobile-source noise from transport of workers, material deliveries, and debris and soil haul and (2) stationary-source noise from use of construction equipment.

Construction Vehicles

Individual construction vehicle pass-bys may create momentary noise levels of up to approximately 85 dBA (L_{max}) at 50 feet from the vehicle, but these occurrences would generally be infrequent and short lived.

The transport of workers and equipment to and from the construction site would incrementally increase noise levels along site access roadways. The highest construction related traffic increases would occur during the soil haul phase, which is expected to last approximately 16 total days and which would generate approximately 105 truck trips per day. This increase due to construction trips would be negligible compared to the existing vehicle flows along Monterey Road, which has average daily traffic of approximately 5,260 (PlaceWorks, 2017). When comparing the existing volumes to the addition of 105 construction-related trips, the result would be a traffic noise increase less than approximately 0.1dBA, which is less than 3 dBA. Therefore, impacts would be less than significant.

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Construction Equipment

Noise generated by onsite construction equipment is based on the type of equipment used, its location relative to sensitive receptors, and the timing and duration of noise-generating activities. Each stage of construction involves different kinds of equipment and has distinct noise characteristics. Noise levels from construction activities are typically dominated by the loudest piece of equipment. The dominant equipment noise source is the engine, although work-piece noise (such as dropping of materials) can also be noticeable.

The noise produced at each construction stage is determined by combining the L_{eq} contributions from each piece of equipment used at a given time, while accounting for the on-going time-variations of noise emissions (commonly referred to as the usage factor). Heavy equipment, such as a dozer or a loader, can have maximum, short-duration noise levels in excess of 80 to 85 dBA at 50 feet. However, overall noise emissions vary considerably, depending on what specific activity is being performed at any given moment. Noise attenuation due to distance, the number and type of equipment, and the load and power requirements to accomplish tasks at each construction phase would result in different noise levels from construction activities at a given sensitive receptor. Since noise from construction equipment is intermittent and diminishes at a rate of at least 6 dB per doubling distance (conservatively ignoring other attenuation effects from air absorption, ground effects, and/or shielding/scattering effects), the average noise levels at noise-sensitive receptors could vary considerably, because mobile construction equipment would move around the site with different loads and power requirements.

Using information provided by the City and methodologies and inputs employed in the air quality assessment, the expected construction equipment mix was estimated and categorized by construction activity. Construction activities are projected to last approximately three months. Construction activities are planned to commence in summer of 2021, and are therefore not expected to overlap with educational activities at the other parts of the school campus (to the south and west).

The sensitive receptors surrounding the proposed Project site consist of residential uses. Project-related construction noise levels were calculated by modeling simultaneous use of all applicable construction equipment per activity from the spatially average distance (i.e., from the acoustical center of each construction phase location) to the property line of the nearest receptors. The analysis has two designated acoustical centers that best represents the potential average construction-related noise levels at the various sensitive receptors. For example, the asphalt demolition and paving phases were measured from the center of the existing parking lot location, whereas the grading and site preparation phases were measured from the center of the existing field location. Thus, this analysis used two receptor locations to represent the nearest residences to the north, and one location to represent the nearest sensitive receptor to the north.

The associated, aggregate sound levels—grouped by construction activity—are summarized in Table 5.4-7, *Project-Related Construction Noise, Energy-Average (L_{eq}) Sound Levels, dBA*. The asphalt paving phase and the landscaping/field lighting phase are expected to occur at the same time, therefore expected noise levels for these phases were acoustically combined in the RCNM model.

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Table 5.4-7 Project-Related Construction Noise, Energy-Average (L_{eq}) Sound Levels, dBA

Construction Activity Phase	Projected Timeframe	Sound Level at Various Distances from Construction Activities, dBA L_{eq}	
		Residences to North ¹ Distance as noted	Residences to East 250 feet
Asphalt Demolition	6/1/21 – 6/28/21	66 (at 315 feet)	73
Site Preparation	6/29/21 – 7/5/21	70 (at 150 feet)	70
Rough Grading	7/6/21 – 7/27/21	70 (at 150 feet)	71
Utility Trenching	7/28/21 – 8/6/21	63 (at 150 feet)	63
Asphalt Paving and Landscaping/Field Lighting	8/7/21 – 8/30/21	67 (at 315 feet for paving and at 150 feet for landscaping)	73

Notes: Calculations performed with the FHWA's RCNM software and included in Appendix D.

1. A 5 dB attenuation was applied to residences to the north to account for the intervening parking structures

2. Distances were measured to the applicable area for each phase (see associated narrative above table)

Construction activities would temporarily increase noise levels in the vicinity of the Project site and near the proposed area of improvements. Based on the distances to the nearest sensitive receptors, the nearest sensitive receptors would experience construction-related noise levels of up to approximately 73 dBA. In addition, all construction activities would occur during the City of Glendale's allowable hours of construction. Construction activities are anticipated to be relatively short-term and temporary. However, construction noise levels would exceed the 65 dBA L_{eq} threshold identified for this EIR and would potentially expose noise sensitive receptors to adverse levels of construction noise.

Level of Significance before Mitigation: Because construction of the proposed Project would exceed the 65 dBA L_{eq} significance thresholds, Impact 5.4-1 would be potentially significant and mitigation measures are required.

Impact 5.4-2 The proposed Project would not create short-term groundborne vibration and groundborne noise. [Threshold N-2]

Impact Analysis: Groundborne vibration and groundborne noise may be of concern during the construction phase, which is discussed below. Section 8.36.210 of the Municipal Code states that no groundborne vibrations shall be perceptible by any individual. In lieu of numerical municipal code vibration level limits, the vibration thresholds used herein will refer to the guidelines provided by the FTA (presented in Tables 5.4-2 & 5.4-3 above, for annoyance and damage effects, respectively). The two construction vibration effects at the Project – architectural damage and annoyance – are discussed separately below.

Vibration Annoyance

Groundborne vibration is rarely annoying to people who are outdoors, so it is usually evaluated in terms of indoor receivers. For annoyance, vibration is typically noticed nearby when objects in a building generate noise from rattling windows or picture frames. Since construction activities are typically distributed throughout the Project site, vibration annoyance impacts are typically based on average vibration levels (levels that would be experienced by sensitive receptors the majority of the time). For calculation purposes, annoyance impacts are based on the distance to the nearest building from the center of the general construction zone.

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For vibration annoyance, a vibration level limit of 78 VdB will apply to the surrounding residential receptors. Since construction activities are not expected to overlap with educational activities at the campus; vibration perception/annoyance within classrooms is not applicable and annoyance effects will only be analyzed with respect to the nearby residential receptors.

Vibration Damage

Beyond annoyance effects, higher levels of vibration can result in architectural damage at receptor buildings. The term ‘architectural damage’ is defined as minor surface cracks (in plaster, drywall, tile, or stucco) or the sticking of doors and windows. This is below the severity of ‘structural damage’ which entails the compromising of structural soundness or the threatening the basic integrity of the building shell.

Since the potential architectural damage to structures is directly related to the amount of vibrational energy being transmitted through the ground to the receptor structure, this assessment uses the maximum vibration velocity – in terms of the Peak Particle Velocity (PPV) metric [in inches/second] – at a specific distance to the receptor from the vibratory source (rather than the average vibration level, in VdB, on an area-wide basis; as with the vibration annoyance assessment above).

Residential structures generally relate to the FTA’s classification of ‘non-engineered timber and masonry buildings’; while institutional structures such as the WMS buildings generally relate to the FTA’s classification of ‘engineered concrete and masonry structures’. Therefore, in terms of architectural damage due to vibration, a 0.2 inches/sec Peak Particle Velocity (PPV) limit will be applied to residential structures, and a 0.3 inches/sec PPV limit will be applied to the buildings on the adjacent portions of the middle school campus.

Vibration during Operations

Operation of the Project, including full-capacity events at the Multi-Purpose Field, would not generate substantial levels of vibration because there are no notable sources of vibrational energy associated with the Project. Thus, operations of the proposed Project would not result in significant groundborne vibration impacts for either damage or annoyance effects.

Vibration during Construction

Construction activities generate varying degrees of ground vibration, depending on the construction procedures, construction equipment used, and proximity to vibration-sensitive uses. The generation of vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight damage at the highest levels.

Table 5.4-8, *Reference Vibration Levels from Common Construction Equipment*, lists reference vibration levels for different types of commonly used construction equipment.

Table 5.4-8 Reference Vibration Levels from Common Construction Equipment

Equipment	Approximate VdB ¹ level at 25 feet	Approximate PPV ² at 25 feet
Vibratory Roller	94	0.210

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Table 5.4-8 Reference Vibration Levels from Common Construction Equipment

Equipment	Approximate VdB ¹ level at 25 feet	Approximate PPV ² at 25 feet
Large Bulldozer	87	0.089
Loaded Trucks	86	0.076
Jackhammer	79	0.035
Small Bulldozer	58	0.003

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, May 2006.

¹ VdB – vibration level using the reference of 1 microinch/second.

² PPV – peak particle velocity measured in inches/second

The conversion between PPV and VdB assumes a crest factor of 4, per FTA methodologies.

Demolition of the existing asphalt would be required, and would include concrete saws, excavators, and dozers. The proposed Project would also include grading, which would include excavators, dozers, backhoes, and graders. Paving activities may also generate high levels of construction vibration, and would include backhoes, pavers, and rollers. There are some items that are expected to be employed on the construction site that are not listed in the following table (i.e. excavator, backhoe). The vibration levels produced by such items are estimated to be comparable to the items in the following table (i.e. excavator levels comparable to large bulldozer). Some of these equipment types may generate substantial levels of vibration at close distances.

Vibration-Induced Structural/Architectural Damage

The Peak Particle Vibration (PPV) threshold at which there is a risk of architectural damage to typical timber houses with plastered walls and ceilings is 0.2 in/sec, or 0.3 in/sec for engineered concrete and masonry buildings (FTA, 2006). Building damage is typically not a concern for most projects, with the occasional exception of blasting and pile driving during construction (FTA, 2006). No blasting, pile driving, or hard rock ripping/crushing activities will be required during project construction. Small construction equipment generates vibration levels less than 0.1 PPV in/sec at 25 feet away. Since vibration-induced architectural damage could result from an instantaneous vibration event, distances are measured from the receptor façade to the nearest location of potential construction activities.

The nearest off-site residential receptors to construction activities are the residences approximately 50 feet to the north of the Project boundary, and the residences approximately 100 feet east of the Project boundary. Additionally, there are several WMS buildings that border the Project site, and may be closer than 25 feet from high-vibration construction activities. Table 5.4-9, *Architectural Damage Vibration Levels from Construction Equipment*, shows the peak particle velocities of some common construction equipment and (loaded) haul trucks in terms of the nearest receptors.

Table 5.4-9 Architectural Damage Vibration Levels from Construction Equipment

Equipment	Peak Particle Velocity in inches per second		
	Residences to the North (50 ft.) with limit of 0.20	Residences to the East (100 ft.) with limit of 0.20	WMS Buildings (<25 ft.) with limit of 0.30
Vibratory Roller ¹	0.074	0.026	<0.210
Large Bulldozer	0.031	0.011	<0.089
Loaded Trucks	0.027	0.010	<0.076

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Jackhammer	0.012	0.004	<0.076
Small Bulldozer	0.001	<0.001	<0.003

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment, 2006.

Bold numbers indicate values that exceed FTA architectural damage criteria.

Distances are from the nearest portion of potential construction activity to the nearest receptor building within each land use type.

1. This analysis shows a "vibratory roller", which may be more vibration-intensive than the roller used during the paving phase

The maximum construction-related vibration level at off-campus receptors would be 0.074 PPV in/sec, which is below the 0.2 PPV in/sec criteria for vibration-induced architectural damage. Therefore, architectural-damage vibration impacts from construction would be less than significant for off-campus receptors.

Since construction activities may occur within 25 feet of the existing WMS buildings, high-vibration equipment could result in vibration-induced architectural damage at these buildings. However, since coordination with the construction contractor is the responsibility of the school district, and since a Project cannot impact itself, any construction-related damage to the existing WMS buildings is under the responsibility of the District. It is recommended that the District—in coordination with a qualified structural engineer—perform a survey of the existing foundation and structural integrity of the WMS buildings prior to commencement of construction activities. After the Project-related vibration-generating activities, the qualified structural engineer shall assess the WMS buildings for any Project-related damage.

Since all off-site receptors would be well below damage thresholds (due to large, intervening distances from construction activities), and since a project cannot impact itself, architectural-damage vibration impacts from construction would be less than significant.

Vibration Annoyance

While not presenting potential impacts relative to architectural damage, some construction activities may be perceptible at the nearest sensitive receptors due to proximity to the activities. However, vibration-related construction activities would occur in the daytime during the year 2021, when it is anticipated that residential land uses are least susceptible to vibration levels, since many people would be away from their residences during the day. No on-campus assessment is applicable, since construction activities are not expected to overlap with educational activities at the campus.

Construction activities are typically distributed throughout the Project site and would only occur for a relatively limited duration when equipment would be working in close proximity. Therefore, to represent the average vibration level, distances to the nearest receptor buildings are measured from the center of the construction site. Table 5.4-10, *Average Annoyance Vibration Levels from Construction Equipment*, shows the vibration levels from typical earthmoving construction equipment at the nearest receptors.

Table 5.4-10 Average Annoyance Vibration Levels from Construction Equipment

Equipment	Residences to North (150 ft.) with limit of 78 VdB	Residences to East (250 ft.) with limit of 84 VdB
Vibratory Roller	71	64
Large Bulldozer	64	57

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Loaded Trucks	63	56
Jackhammer	56	49
Small Bulldozer	35	28

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, May 2006.

Bold numbers indicate values that exceed the FTA annoyance criteria.

Distances are from the center of the overall construction zone to the nearest receptor building within each land use type.

Construction-generated vibration levels would not exceed 78 VdB at any nearby sensitive residential receptors. As such, no sensitive receptors would experience vibration levels in excess of the Glendale Municipal Code perception threshold. Therefore, impacts related to construction vibration annoyance would not be significant and mitigation is not necessary.

Impact 5.4-3: Project implementation would result in long-term operation-related noise that would not exceed local standards. [Thresholds N-1 and N-3]

Impact Analysis:

A significant stationary-source impact would occur if the activities or equipment at the Project site produces noise levels at nearby sensitive receptors in excess of local standards.

A significant roadway noise impact depends on the magnitude of increase. “Audible” increases in general community noise levels generally refer to a change of 3 dB or more since this level has been found to be the threshold of perceptibility in exterior environments. “Potentially audible” impacts refer to a change in noise level between 1 and 3 dB. Noise level increases of less than 1 dB that are typically “inaudible” to the human ear except under quiet conditions in controlled environments. Only “audible” changes in noise levels at sensitive receptor locations (i.e., 3 dB or more) are considered potentially significant. Note that a 3 dB increase in traffic-generated noise levels would require a doubling of traffic flows (i.e., 5,000 vehicles per day to 10,000 per day). An increase of 3 dB is used as a threshold for a significant increase.

Roadway Noise

The proposed multi-purpose field would generate additional vehicle trips along the traveled roadway segments around the Project site. To determine if a project would cause a substantial noise increase from Project-related traffic, consideration must be given to the magnitude of the increase and the affected receptors. The existing Project site is currently available for use until 6:00 p.m. Following the buildout of the proposed Project, the multi-purpose field will be available until 10:00 p.m. It is assumed that the greatest traffic increase would likely occur during the weekday evening peak hour, when spectators are traveling to the field prior to the beginning of an event. Approximately the same level of traffic would be generated at the end of an event when spectators are exiting, but this would be well after the evening peak traffic period.

A traffic study was conducted by PlaceWorks that analyzed increases in traffic flow at intersections around the proposed Project site during the peak period. The proposed Project is not expected to generate a significant number of vehicle trips during the weekday AM peak hour because the field will be used during weekday evenings. Therefore, the worst-case time period selected for analysis in this study was the weekday PM peak period (4:00 p.m. to 6:00 p.m.).

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The traffic noise analysis derived average daily segment traffic from p.m. peak hour intersection turning movements. Six different roadway segments were evaluated for traffic noise as shown in Table 5.4-11, *Existing and Future Roadway Noise Level Estimates*. A noise level increase of 3 dB or more would signify a potential impact.

Table 5.4-11 Existing and Future Roadway Noise Level Estimates

Roadway Segment	CNEL at 50 feet from Roadway (dBA)		Overall Increase (dB)	Potential Impact?
	Existing	Future + Project		
Monterey Road between Glendale Ave and Verdugo Rd	61.1	61.4	0.3	No
Verdugo Road between Glenoaks Blvd and Monterey Rd	65.8	67.1	1.3	No
Glendale Avenue between Glenoaks Blvd and Monterey Rd	69.1	69.2	0.2	No
Glenoaks Boulevard between Glendale Ave and Verdugo Rd	61.0	63.2	2.2	No
Adams Street between Glenoaks Blvd and Monterey Rd	n/a	n/a	0.3	No
Verdugo Circle north of Glenoaks Blvd	n/a	n/a	2.5	No

Data from PlaceWorks Traffic Study, June 2017.

Levels calculated by FHWA Traffic Noise Modeling methodologies

Note: for segments that list "n/a", average daily traffic was too low to estimate ambient conditions; only the overall increase was estimated.

Segments would experience negligible or inaudible long-term traffic noise due to Project implementation. Based on this traffic noise analysis, the worst-case roadway noise increase will result from traffic increases on Verdugo Circle north of Glenoaks Boulevard, and on Glenoaks Boulevard between Glendale Avenue and Verdugo Road. Traffic increases along these roadway segments are expected to result in a roadway noise increase of 2.5 dB, and 2.2 dB, respectively. All increases in noise levels at road segments in the vicinity of the Project site will fall below the threshold of human perceptibility. Thus, it is not anticipated that implementation of the proposed Project would result in audible increases (3 dB or greater) in traffic-related noise along the surrounding roadways. Exposure of persons to Project-related roadway noise would be less than significant.

Mechanical Equipment Noise

The proposed Project includes the construction of a restroom and storage/maintenance building, which is expected to include the installation of some type of mechanical/HVAC equipment. Mechanical equipment on top of the proposed building would be similar to equipment being used at the existing WMS buildings. Additionally, this equipment is expected to be placed within appropriate sound enclosures or parapets such that the operations would not be notably different than existing conditions in and around the proposed area of development and would not exceed the City's exterior noise standards. As such, new mechanical equipment noise would be less than significant.

Multi-Purpose Field Noise

Applicable Noise Standards / Sensitive Receptors

GMC Section 8.36.290 exempts certain activities from the provisions of the Noise Ordinance. Per this code section, activities conducted on public parks and public or private school grounds including school athletic and school entertainment events or outdoor activities such as sporting events, and entertainment events

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provided such events are conducted pursuant to a permit issued by the City where otherwise required, are exempt from the provisions of this noise ordinance.

Regardless of this exemption, the proposed Project would elevate the ambient noise levels within the vicinity of the Multi-Purpose Field, and event noise would be readily audible at the nearest sensitive receptors. Therefore, in terms of impact significance of the noise generated by the proposed Multi-Purpose Field, this analysis will use the exterior noise limits provided in Section 8.36.050. This section states that a violation would occur if a noise source exceeds the measured ambient noise level by 5 dB or more.

The most sensitive receptors in terms of noise generated from the proposed Multi-Purpose Field would be the multi-family residences to the north, the single-family residence to the northeast¹, and the single-family residences to the east. To ascertain the ambient noise levels at these locations, this analysis will use the monitoring locations ST-1 (for the multi-family residences to the north) and ST-3 (for the single-family residences to the northeast and to the east). Therefore, for the purposes of this analysis, the existing ambient noise level at the multi-family residences to the north is 57 dBA L_{eq} , and the existing ambient noise level at the single-family residences to the northeast and east is 64 dBA L_{eq} . These ambient measurements were conducted on a weekday between 6:30 p.m. and 8:30 p.m., which is representative of future events at the proposed Multi-Purpose Field.

Project Sports Field Modeling Results

The future Multi-Purpose Field event noise was modeled using SoundPLAN sound propagation analysis software. The modeling calculations account for classical sound wave divergence (spherical spreading loss from point sources) and reflections, plus attenuation factors due to air absorption, ground effects, and barrier/shielding. Applicable reference noise levels were taken from the SoundPLAN (global) Emissions Library, which includes reference noise levels for soccer fields, and spectator areas. The noise model created for this Project used an aggregate of individual source noise reference levels at precise locations to estimate the total Project-related noise.

The Project site is in an area that is mostly flat, with a gradual, but pronounced increase in elevation beyond Verdugo Road to the east. Elevation changes throughout the Project area were included in the modeling process, since these notable topographical characteristics will affect noise propagation. The modeling accounted for the relatively tightly spaced buildings surrounding the WMS campus, including the campus buildings to the west, the carports and multi-family housing to the north, and the single-family homes to the east. Some of these surrounding buildings are non-sensitive (e.g. Wilson MS buildings, carports), and would generally provide considerable sound attenuation (due to barrier effects) for more distant receptors. However, in certain situations, sound would be able to propagate through “canyons” between certain structures. The multi-family residences to the north, and the single-family residences to the east, are expected to be the most affected by the proposed Project.

The proposed Project includes two fields; a main field and a practice field. The proposed Project would not include any spectator seating; spectators are expected to stand or bring their own portable seating. It is

¹ The residence to the northeast refers to the single-family home at 809 N Verdugo Road.

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assumed that the multi-purpose field would be in use approximately 340 days out of the year. Additional Project details and site plans are included in Chapter 3 of this document. The event-noise analysis assumed soccer games occurring at both fields, with spectator areas to the south of the main field and to the east of the practice field. Event noise is highly variable, depending on the type and level of activities; both in the spectator areas and on the field. These variables include:

- Player noise is variable depending on the level of play (i.e. age of players), and/or intensity of the game.
- Cheering is highly variable depending on the moment-to-moment activity, the number of home or visitor team attendees, and the occurrence of “cheer worthy” events (e.g., goals).
- Other noise sources during a special event include referee whistles and, occasionally, horns and bells.

The noise sources included in the noise model are expected to conservatively account for a worst-case situation. The numerical results of the predictive modeling process for the proposed Project are shown in Table 5.4-12, *Predicted Community Noise Levels due to Multi-Purpose Field*. The table provides the predicted L_{eq} noise levels produced by athletic events occurring at both fields (including spectators). To conservatively present the modeled data in Table 5.4-12, the most affected receiver to the north and to the east will be representative of all multi-family residences to the north, and all single-family residences to the east, respectively. The single-family residence northeast of the proposed Multi-Purpose Field, along Verdugo Road, is representative of this residence alone. Residences to the west and south of the proposed Project site are not expected to experience high levels of Project-generated noise, due to the existing WMS buildings that would provide considerable barrier attenuation for these more distant receptors. Details on the source noise reference levels and modeling procedures are in Appendix D to the DEIR.

Table 5.4-12 Predicted Community Noise Levels due to Multi-Purpose Field

Receiver Location	Predicted Sound Level Contributions	Measured Ambient Sound Level b/t 6:30 PM to 8:30 PM		Project-related Sound Level + Ambient Sound Level ¹	Applicable Noise Limit ²	Calculated Change due to Project
	dBA L_{eq}	dBA $L_{eq-15\ min}$	Location ³	dBA L_{eq}	dBA $L_{eq-15\ min}$	dB
Multi-family residences to north	52.9	57.1	ST-1	58.5	62.1	1.4
Single-family residence to northeast	54.2	64.3	ST-3	64.7	69.3	0.4
Single-family residences to east	49.7	64.3	ST-3	64.5	69.3	0.2

Source: SoundPLAN 8.0

Notes:

¹ This is the predicted sound level contribution from the sports field added to the measured ambient sound levels in logarithmic function.

² Municipal Code Exterior Noise Limits: Ambient Noise Level plus 5 dB

³ Represents the Nearest Measurement Location

Although event noise from the proposed multi-purpose field may be readily audible at many of the nearby sensitive receptors, Table 5.4-12 shows that Project-generated noise is not expected to significantly exacerbate the total noise environment at nearby sensitive receptors since the projected noise increments are well below the plus-5 dB threshold. Therefore, noise impacts related to the proposed Multi-Purpose Field would not result in a violation in the municipal code noise ordinance and are considered less than significant. No mitigation measures are needed.

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5.4.4 Cumulative Impacts

Construction Noise and Vibration

Construction noise and vibration impacts are confined to a localized area and would last for a period of approximately 3 months. Noise from construction activities would be temporary and would not be significant for any given project. Cumulative impacts would only occur if other projects were being constructed in the vicinity of the Project at the same time as the Project. Since the adjoining areas are already built out and since only residential re-modeling would be reasonably foreseeable in these areas, there would be a very low probability of simultaneous and notable construction projects. Thus, the Project impacts would not be cumulatively considerable.

Mobile-Source Noise

The cumulative traffic noise levels would not increase by a noticeable amount (+3 dB) along the roadways analyzed. Therefore, significant cumulative increases in traffic noise levels would not occur, and impacts would be less than cumulatively considerable.

Stationary-Source Noise

Unlike transportation noise sources, whose effects can extend well beyond the limits of the Project site, stationary-source noise generated by the Project is limited to noise impacts to noise-sensitive receptors in relatively close proximity to the Project site. Cumulative noise levels from the Multi-Purpose Field and other Project-related stationary sources would be negligible at the nearest residences. Consequently, stationary noise associated with the daytime use of the school would not be cumulatively considerable and would not result in a significant cumulative noise impact.

5.4.5 Existing Regulations and Standard Conditions

General Plan Noise Element

Municipal Code

- Chapter 8.36, Noise Control
- Section 8.36.050, Minimum and Maximum Ambient Noise Levels
- Section 8.36.080, Construction on Buildings, Structures, and Projects
- Section 8.36.290, Exemptions

5.4.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.4-2, and 5.4-3. Cumulative impacts (item 5.4-4) would also be less than significant.

Without mitigation, these impacts would be **potentially significant**:

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- **Impact 5.4-1** Construction associated with the proposed Project would generate noise levels that would exceed the 65 dBA L_{eq} significance thresholds and would have the potential to expose sensitive receptors to substantial noise levels.

5.4.7 Mitigation Measures

Impact 5.4-1

MM NOI-1 **Construction Noise:** Prior to initiation of grading, the City shall incorporate the following measures as a note on the grading plan cover sheet to ensure that the greatest distance between noise sources and sensitive receptors during construction activities has been achieved, and that construction noise has been reduced.

- During construction activities, all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers, consistent with manufacturers' standards. All stationary construction equipment shall be placed so that emitted noise is directed away from the noise-sensitive receptors nearest the proposed Project site boundaries.
- Sound Blankets. Sound blankets shall be used on construction equipment where technically feasible.
- Equipment shall be staged in areas that will create the greatest distance between construction-related noise sources and the noise-sensitive receptors nearest the proposed Project site during all Project construction.
- All construction-related activities shall be restricted to the construction hours outlined in the City's Noise Ordinance (GMC Section 8.36.080).
- Haul truck and other construction-related trucks traveling to and from the proposed Project site shall be restricted to the same hours specified for the operation of construction equipment. To the extent feasible, haul routes shall not pass directly by sensitive land uses or residential dwellings.
- Where construction will occur adjacent to any developed/occupied noise-sensitive uses, a construction-related noise mitigation plan that demonstrates that noise levels at the sensitive uses shall be below the 65 dBA threshold shall be submitted to the City of Glendale for review and approval. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the Project, through the use of such methods as: (1) temporary noise attenuation fences; (2) preferential location of equipment; and (3) use of current technology and noise-suppression equipment.

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5.4.8 Level of Significant After Mitigation

Construction operations are exempt when limited to daytime hours and recommended mitigation measures are provided to reduce noise levels; however, it should be noted that construction operations are expected to result in a temporary or periodic increase in ambient noise levels in the Project vicinity above the 65 dBA residential exterior noise standard established by the GMC. Mitigation measure MM NOI 1 would be required to reduce significant short-term impacts related to construction-generated noise. Therefore, impacts related to short-term construction-generated noise levels would be significant and unavoidable.

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5.5 TRANSPORTATION

This section of the draft environmental impact report (DEIR) evaluates the potential for implementation of the proposed Project to result in transportation and traffic impacts in the City. The analysis in this section is based in part on the following technical report:

- *Wilson Middle School Multipurpose Revised Field Traffic Impact Analysis*, PlaceWorks, June 2020

A complete copy of this study is in the technical appendices to this Draft EIR (Appendix E)

5.5.1 Environmental Setting

5.5.1.1 REGULATORY BACKGROUND

State

Sustainable Communities and Climate Protection Act

The Sustainable Communities and Climate Protection Act of 2008 or Senate Bill (SB) 375 was signed into law on September 30, 2008. The SB 375 regulation provides incentives for cities and developers to bring housing and jobs closer together and to improve public transit. The goal behind SB 375 is to reduce automobile commuting trips and length of automobile trips, thus helping to meet the statewide targets for reducing greenhouse gas emissions set by AB 32. SB 375 requires each metropolitan planning organization to add a broader vision for growth, called a “Sustainable Communities Strategy” (SCS), to its transportation plan. The SCS must lay out a plan to meet the region’s transportation, housing, economic, and environmental needs in a way that enables the area to lower greenhouse gas emissions. The SCS should integrate transportation, land-use, and housing policies to plan for achievement of the emissions target for their region.

Senate Bill 743

On September 27, 2013, SB 743 was signed into law. The Legislature found that with adoption of the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the state had signaled its commitment to encourage land use and transportation planning decisions and investments that reduce vehicle miles traveled (VMT) and thereby contribute to the reduction of greenhouse gas emissions (GHG), as required by the California Global Warming Solutions Act of 2006 (AB 32). Additionally, AB 1358, described above, requires local governments to plan for a balanced, multimodal transportation network that meets the needs of all users.

SB 743 started a process that could fundamentally change transportation impact analysis as part of CEQA compliance. These changes will include the elimination of auto delay, level of service (LOS), and similar measures of vehicular capacity or traffic congestion as the basis for determining significant impacts under CEQA. As part of the new CEQA Guidelines, the new criteria “shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” OPR developed alternative metrics and thresholds based on VMT. The guidelines were certified by the Secretary of the Natural Resources Agency in December 2018, and automobile delay, as described solely by level of service of similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on

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the environment. There is an opt-in period until July 1, 2020, for agencies to adopt new VMT-based criteria. As such, automobile delay is still considered a significant impact, and the City will continue to use the established LOS criteria for determining significant impacts.

Regional

SCAG's 2016 RTP/SCS

Every four years, the Southern California Association of Governments (SCAG) updates the Regional Transportation Plan (RTP) for the six-county region that includes Los Angeles, San Bernardino, Riverside, Orange, Ventura, and Imperial counties. On April 7, 2016, the SCAG's Regional Council adopted the 2016-2040 Regional Transportation Plan / Sustainable Communities Strategy (2016 RTP/SCS). The SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce greenhouse gas emissions from transportation (excluding goods movement). Current and recent transportation plan goals generally focus on balanced transportation and land use planning that:

- Maximize mobility and accessibility for all people and goods in the region.
- Ensure travel safety and reliability for all people and goods in the region.
- Preserve and ensure a sustainable regional transportation system.
- Maximize the productivity of our transportation system.
- Protect the environment and health of residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).
- Encourage land use and growth patterns that facilitate transit and active transportation.

Through implementation of the strategies in the RTP/SCS, SCAG anticipates lowering greenhouse gas emissions below 2005 levels by 8 percent by 2020, 18 percent by 2035, and 22 percent by 2040. Land use strategies to achieve the region's targets include planning for new growth around high quality transit areas and "livable corridors," and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles (SCAG 2016).

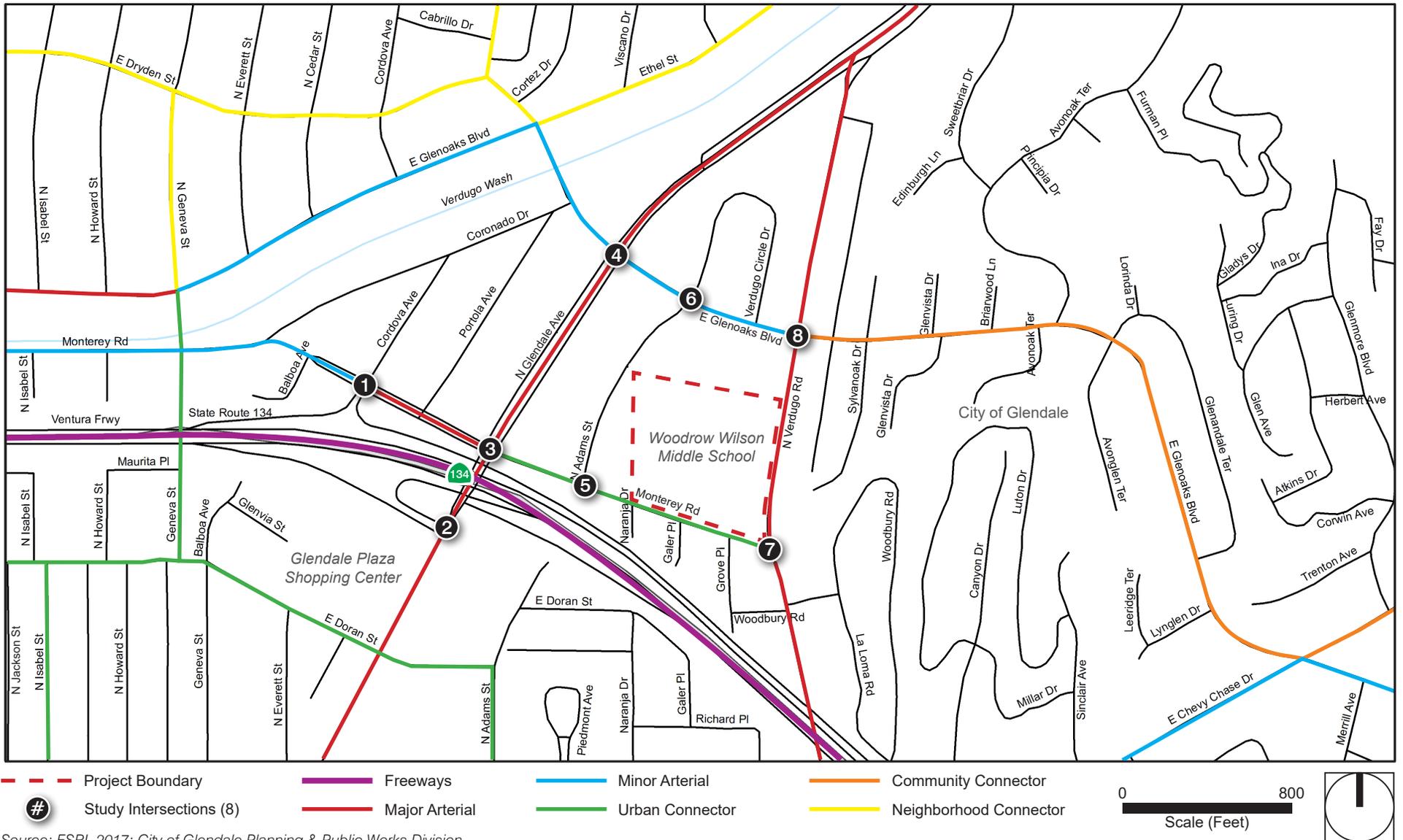
5.5.1.2 EXISTING ROADWAY NETWORK

The Project site is approximately 0.13 mile south of State Route (SR) 134 and is designated as Public/Semi-Public by the Glendale General Plan. Adjacent uses are defined by the general plan as Medium-Density Residential.

Study Area

Major roadways in the Project traffic study area are described below. The discussion focuses on roadways that are approaches to the study intersections or directly affected by the proposed Project. The descriptions of the lane configurations are based on designations in the general plan circulation element and may not reflect existing configurations. Street classifications in the study area are represented in Figure 5.5-1, *City of Glendale Street Classification Map*.

Figure 5.5-1 - City of Glendale Street Classification Map
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Source: ESRI, 2017; City of Glendale Planning & Public Works Division

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- **State Route 134 (SR-134).** SR-134, also known as Ventura Freeway is a ten-lane east-west freeway that provides regional access to the Project site via the on/off ramps at Monterey Avenue and Glendale Avenue. SR-134 is a part of the Congestion Management Program (CMP) highway network.
- **Glendale Avenue.** This north-south roadway has six lanes at the segment nearest to the Project site. Glendale Avenue is classified as a Major Arterial in the City's General Plan Circulation Element.
- **Glenoaks Boulevard.** This east-west roadway has two lanes at the segment nearest to the Project site. In the vicinity of the site it is classified as a Minor Arterial.
- **Monterey Road.** This east-west roadway is the southern boundary of the Wilson MS property, and provides the primary site access to the campus. At the segment nearest to the Project site, this roadway varies from one to two lanes in each direction. Between Verdugo and Glendale Avenue it is classified as an Urban Collector.
- **Verdugo Road.** This north-south roadway is the eastern boundary of Wilson MS. This roadway has four lanes at the segment nearest to the Project site and is classified as a Major Arterial.
- **Adams Street.** This north-south roadway has two lanes at the segment nearest to the Project site. It is classified as a Local Street.
- **Verdugo Circle Drive.** This short two-lane Local Street extends from Adams Street, and creates a loop road north of Glenoaks Boulevard that provides access to residences.

Traffic Study Intersections

Eight study area intersections were selected for traffic analysis based on calculated Project trip generation and distribution, and input from the City's Transportation Engineering Division staff. All but two intersections are under the City's jurisdiction. The two intersections along the Ventura Freeway Ramps at Monterey Road and Glendale Avenue are under Caltrans' jurisdiction. The study area intersections and roadway geometries are illustrated in Figure 5.5-2, *Study Area Roadway Network and Intersections*.

1. WB Ventura Freeway (SR-134) Ramps at Monterey Road
2. Glendale Avenue at EB Ventura Freeway (SR-134) Ramps
3. Glendale Avenue at Monterey Road
4. Glendale Avenue at Glenoaks Boulevard
5. Adams Street at Monterey Road
6. Adams Street at Glenoaks Boulevard
7. Verdugo Road at Monterey Road
8. Verdugo Road at Glenoaks Boulevard

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Neighborhood Street Segments

Neighborhood street segment analysis was conducted on the following roadway segments to evaluate environmental capacity:

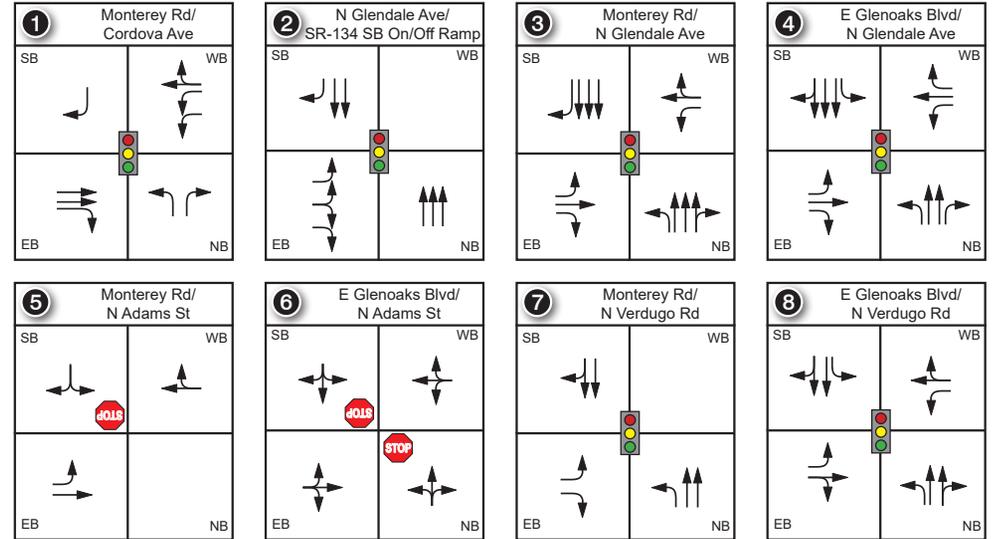
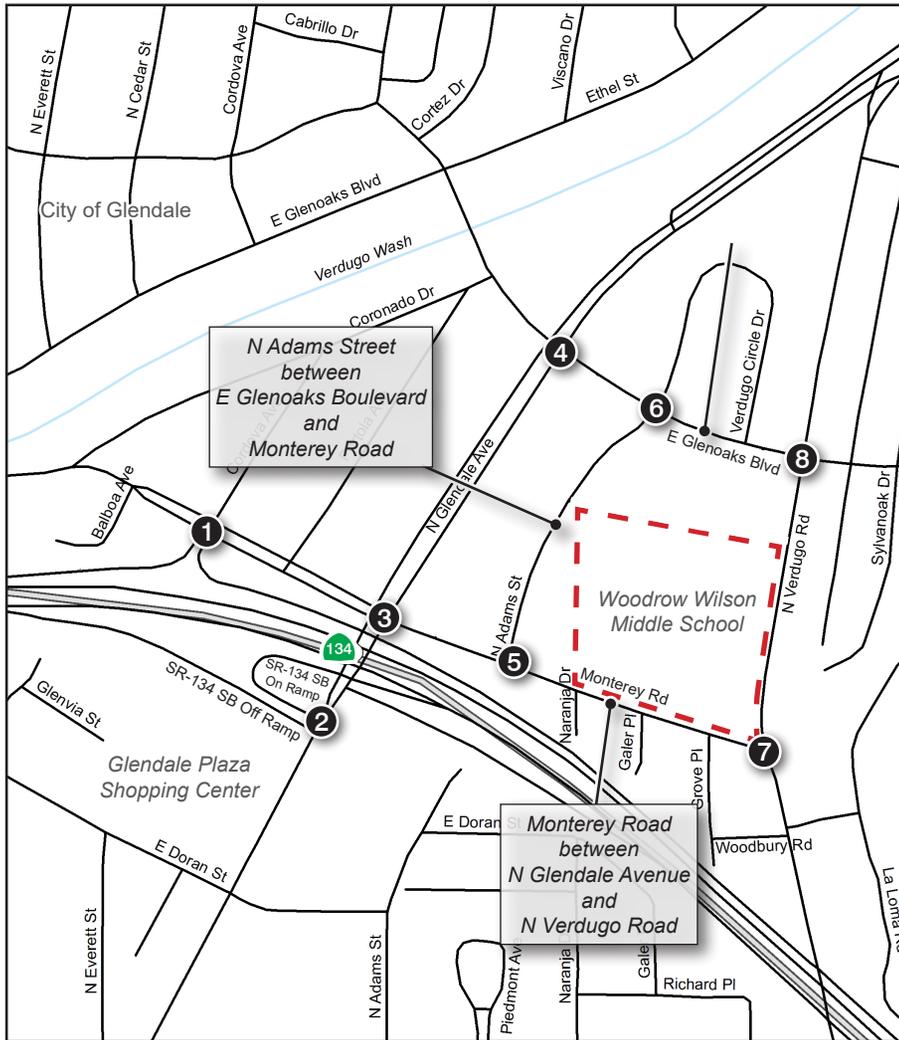
1. Monterey Road between Glendale Avenue and Verdugo Road
2. Adams Street between Glenoaks Boulevard and Monterey Road

Existing Public Transportation

Glendale Beeline and Metro Buses serve the Project site. The Glendale Transportation Center (GTC) is approximately 2.5 miles to the southwest. The following is a description of the bus routes passing near the Project site:

- **Glendale Beeline Route 3:** Has approximately 45- to 60-minute frequencies during peak hours on weekdays until approximately 6:30 P.M. The route is from Glendale Galleria to Jet Propulsion Laboratory. Near the site the bus travels along North Glendale Avenue. A stop is near the site on North Glendale Avenue and Monterey Road.
- **Glendale Beeline Route 7:** Has approximately 30-minute frequencies during peak hours on weekdays until approximately 6:30 P.M. and approximately 45-minute frequencies during peak hours on Saturdays until approximately 6:00 P.M. The route is from Riverside Rancho to Glendale Community College. Near the site the bus travels along North Glendale Avenue and turns West on Monterey Road. A stop is near the site on North Glendale Avenue and Monterey Road.
- **Glendale Beeline Route 31:** Has approximately 20- to 40-minute frequencies during peak hours on Saturdays until approximately 6:00 P.M. The route is from Glendale Galleria to La Cresenta. Near the site the bus travels along North Glendale Avenue. A stop is near the site on North Glendale Avenue and Monterey Road.
- **Glendale Beeline Route 32:** Has approximately 45- to 60-minute frequencies during peak hours on weekdays until approximately 6:30 P.M. The route is from Glendale Galleria to Glendale Community College. Near the site the bus travels along North Glendale Avenue. A stop is near the site on North Glendale Avenue and Monterey Road.
- **Metro Route 90/91:** Has approximately 15-minute frequencies during peak hours on weekdays and approximately 30-minute frequencies during peak hours on weekends. The route is from Sylmar to Downtown Los Angeles. Near the site the bus travels along North Glendale Avenue. A stop is near the site on North Glendale Avenue and Monterey Road.
- **Metro Route 685:** Has approximately 30-minute frequencies during peak hours on weekdays. The route is from Glassell Park to Glendale Community College. Near the site the bus travels along North Verdugo Road. A stop is near the site on Verdugo Road and Monterey Road.

Figure 5.5-2 - Study Area Roadway Network and Intersections
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--- Project Boundary

Study Intersections (8)

STOP One-Way Stop Intersection

Traffic Signal

0 800
Scale (Feet)



Source: ESRI, 2017

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Existing Parking

Wilson MS has two parking lots along Monterey Road, with a total of 69 parking spots. The two parking lots are separated by a walkway that leads to a crosswalk that crosses Monterey Road. Each parking lot has two entrances/exits that allow two-way flow. School staff controls and facilitates onsite circulation, usually restricting the parking lots to one-way circulation, especially during peak periods.

Additionally, off-site parking is available on public streets in the vicinity of the school. Parking demand along 26 roadway segments were analyzed for the proposed Project. Figure 5.5-3, *Off-Site Parking Locations*, shows the study area parking locations evaluated in this study.

1. Briarwood Lane north of Glenoaks Boulevard
2. Glenoaks Boulevard from Briarwood Lane to Sylvanoak Drive
3. Glenoaks Boulevard from Sylvanoak Drive to Glendale Avenue
4. Glenvista Drive south of Glenoaks Boulevard
5. Glenvista Drive north of Glenoaks Boulevard
6. Sylvanoak Drive south of Glenoaks Boulevard
7. Sylvanoak Drive north of Glenoaks Boulevard
8. Verdugo Road from Glendale Avenue to south edge of lot
9. Verdugo Circle Drive north of Glenoaks Boulevard
10. Glendale Avenue from Verdugo Road to Monterey Road
11. Monterey Road from Glendale Avenue to Cordova Avenue
12. Monterey Road from Verdugo Road to Glendale Avenue
13. Woodbury Road from Grove Place to La Loma Road
14. Grove Place south of Monterey Road
15. Galer Place south of Monterey Road
16. Naranja Drive south of Monterey Road
17. Adams Street from Glenoaks Boulevard to Monterey Road
18. Portola Avenue from Monterey Road to Coronado Drive
19. Glenoaks Boulevard from Coronado Drive to Glendale Avenue
20. Doran Street from Glendale Avenue to Adams Street (accessible by bridge over SR-134)
21. Adams Street north of Lexington Drive (accessible by bridge over SR-134)
22. Doran Street from Adams Street to Galer Place (accessible by bridge over SR-134)
23. Naranja Drive from Doran Street to Lexington Drive (accessible by bridge over SR-134)
24. Galer Place from Naranja Drive to Richard Place (accessible by bridge over SR-134)
25. Richard Place from Naranja Drive to Grove Place (accessible by bridge over SR-134)
26. Grove Place north of Lexington Drive (accessible by bridge over SR-134)

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5.5.1.3 METHODOLOGY

The traffic analysis for the proposed Project includes an assessment of traffic conditions at the adjacent and surrounding circulation network for the following analysis time frames:

- Existing (2019)
- CEQA Analysis Year (2021)

The traffic study was prepared in conformance with the Los Angeles County Congestion Management Plan (CMP) Transportation Impact Analysis Guidelines, City of Glendale's General Plan Circulation Element LOS standards, and based on the anticipated level of traffic from full-capacity athletic events at the Project site. A memorandum of understanding (MOU or scoping agreement) was submitted to the City's Public Works Department on May 12, 2017. The MOU included the methodologies that would be used in the Project traffic impact analysis, including trip generation estimates, trip distribution, a list of study area intersections to be evaluated, identification of an ambient growth rate and scenarios to be evaluated, criteria to evaluate levels of service, and thresholds of significance. The City's traffic engineer reviewed the memorandum of understanding and provided comments on May 19, 2017 (see Appendix E). This traffic impact analysis is consistent with the methodologies and assumptions in the MOU. In 2019, changes of the lane configuration at one of the study intersections occurred. The City of Glendale traffic engineer requested this study be updated to reflect these lane changes and to update the study with more recent traffic and parking counts taken in the Fall of 2019. As a result, this study was updated in December 2019 with new traffic counts, parking counts, and cumulative projects. (see Appendix E). This traffic impact analysis is consistent with the methodologies and assumptions in the MOU.

Intersection LOS

Roadway capacity is generally limited by the ability to move vehicles through intersections. Level of service is a standard performance measurement to describe the operating characteristics of a street system in terms of the level of congestion or delay experienced by motorists. Service levels range from A through F, that is, from the best traffic conditions (uncongested, free-flowing conditions) to the worst (total breakdown with stop-and-go operation). Table 5.5-1 describes the level of service concept and the operating conditions expected under each level of service for signalized and unsignalized intersections.

The Intersection Capacity Utilization (ICU) method is used to calculate levels of service (LOS) for signalized intersections in the City of Glendale. The ICU signalized intersection methodology presents LOS in terms of volume to capacity ratio. Signalized intersections under the California Department of Transportation (Caltrans) jurisdiction are evaluated using delay-based methodology consistent with the procedures outlined in the Highway Capacity Manual 6th Edition (HCM)

For unsignalized intersections, the Highway Capacity Manual (HCM) methodology is used to calculate LOS. The HCM unsignalized intersection methodology presents LOS in terms of control delay (in seconds per vehicle). Vistro software was used to determine the LOS at the study area intersections.

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The intersection LOS analysis uses traffic volumes observed during the peak hour conditions. The peak hours selected for the analysis are the highest volumes that occur in four consecutive 15-minute periods from 4:00 PM to 6:00 PM on weekday evenings.

Table 5.5.1 Intersection Level of Service Descriptions

LOS	Description	ICU Methodology (Signalized)	HCM Methodology (Signalized)	HCM Methodology (Unsignalized)
		V/C Ratio	Delay (seconds)	Delay (seconds)
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.000–0.600	≤ 10.00	≤ 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	0.601–0.700	> 10 – 20	>10 to 15
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	0.701–0.800	> 20 – 35	>15 to 25
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	0.801–0.900	> 35 – 55	>25 to 35
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	0.901–1.000	> 55 – 80	>35 to 50
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	Over 1.000	> 80	>50

Source: HCM 6th Edition, and 2010 Congestion Management Program for Los Angeles County.

Neighborhood Street Segment Analysis

The street segment level of service analysis was conducted by calculating the daily volume-to-capacity (V/C) ratio for each study roadway segment. Traffic volumes were calculated based on turn movement counts at intersections converted to 2-way roadway traffic volumes and applying a typical a peak to daily factor of 10. The environmental capacity for each roadway segment was obtained from the City of Glendale Circulation Plan according to the functional roadway classification and their characteristics. The LOS letter grade was assigned using the corresponding V/C values shown in Table 5.5-1.

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Parking Analysis

A parking analysis was prepared to review the parking conditions in the vicinity of the school and to estimate the parking impacts from the proposed Project. Parking counts were taken at the school parking lots and along 26 roadway segments on a weekday evening and on a Saturday. Parking demand was based on published parking generation rates for a soccer complex. To calculate the expected Project-related parking demand, the ITE Parking Generation rates for soccer complexes were multiplied by the anticipated number of fields.

5.5.1.4 EXITING TRAFFIC CONDITIONS

The proposed Project is anticipated to be utilized during weekday PM hours and peak weekend midday hours. Turn movement volumes for weekday PM peak hour were collected at all the study intersections on Tuesday, October 8, 2019. Parking counts were analyzed at the existing Wilson MS on-site parking lots and along all off-site parking locations in 30-minute intervals from 5:00 to 10:00 PM on Tuesday October 8 and from 8:00 AM to 10:00 PM on Saturday, October 5, 2019. All counts occurred on typical weekdays while the school was in session, in the AYSO soccer fall season, and outside holidays and major events. The full vehicle, pedestrian, and bicycle counts are available in Appendix E.

Currently, the project site is used on the weekends by American Youth Soccer Organization (AYSO) from 8:00 a.m. to 6:00 p.m. on Saturdays, and 10:00 a.m. to 6:00 p.m. on Sundays. The proposed Project would not increase capacity of the existing Wilson MS field for AYSO use, rather, the proposed Project would allow for evening uses of the field. As such, the proposed Project would not change the number of vehicle trips during the Saturday mid-day peak period. Therefore, and the project would not add trips during the Saturday midday peak hours and is not further evaluated in this analysis.

Existing Intersection LOS

Level of service analyses were conducted to evaluate existing intersection operations during the weekday PM peak hour using Vistro software. Table 5.5-2, *Existing Intersection LOS, Weekday PM Peak Hour* summarize the existing LOS at the traffic study area intersections. As shown, all study area intersections operate at acceptable LOS under Existing conditions. The traffic analysis worksheets for existing conditions are provided in Appendix E.

Table 5.5-2 Existing Intersection Levels of Service, Weekday PM Peak Hour

Intersection	Intersection Control	Acceptable LOS	Weekday PM Peak Hour	
			ICU (V/C) or Average Delay (sec/veh)	LOS
1. WB Ventura Freeway Ramps at Monterey Road	Signal	E	0.849	D
2. Glendale Avenue at EB Ventura Freeway Ramps	Signal	E	0.675	B
3. Glendale Avenue at Monterey Road	Signal	E	0.876	D
4. Glendale Avenue at Glenoaks Boulevard	Signal	E	0.757	C
5. Adams Street at Monterey Road	CCS	D	14.28	B
6. Adams Street at Glenoaks Boulevard	CCS	D	12.79	B
7. Verdugo Road at Monterey Road	Signal	E	0.614	B
8. Verdugo Road at Glenoaks Boulevard	Signal	E	0.511	A

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Notes: CSS = Cross-Street Stop.
LOS worksheets are included in Appendix E.

Neighborhood Street Segment Analysis

Neighborhood street segments were analyzed for existing conditions along two study area roadways, as presented in Table 5.5-3, *Existing Street Segment Volumes*. The daily volumes were calculated based on the intersection PM peak hour turn movement volumes using a peak to daily factor of ten. All study segments operate with volumes well below their daily capacity, with an acceptable LOS of A and B.

Table 5.5-3 Existing Street Segment Volumes

Street Segment	Functional Classification	Street Layout	Environmental Capacity (vehicles/day) ¹	Day	ADT	V/C	LOS
Monterey Road (Glendale Av to Verdugo Rd)	Urban Collector	2U	10,000	Weekday	6,020	0.602	A
Adams Street (Glenoaks Blvd to Monterey Rd)	Local	2D	2,500	Weekday	560	0.224	A

¹ 2U= 2-lane undivided road, 2D= 2-lane divided road.

² Functional Classifications and Environmental Capacity daily volumes obtained from the City of Glendale General Plan Circulation Element.

Existing Parking Options Serving the Project Site

Parking analysis is presented in Table 5.5-5, *Existing Parking Occupancy*. Table 5.5-4 shows the parking occupancy on weekday and on Saturdays at the hours of lowest occupancy and highest occupancy. On weekdays, the period in which the highest overall occupancy was observed started at 10 PM, and the lowest occupancy period started at 5PM. On a Saturday, the period in which the highest overall occupancy was observed started at 8:30 AM, and the lowest occupancy period started at 6:00 PM. As shown in Table 5.5-4, the overall parking occupancy ranges from 59 percent to 75 percent. The school lot has plenty of parking available on weekdays after 5PM and on weekends. In addition, there is unused parking available in several public streets in the vicinity of the school. Parking survey results are provided in Appendix E.

Table 5.5-4 Existing Parking Occupancy

Parking Locations		Weekday		Saturday	
		Highest Occupancy (10PM)	Lowest Occupancy (5PM)	Highest Occupancy (6 PM)	Lowest Occupancy (12:30 PM)
1	Briarwood Lane north of Glenoaks Boulevard	36%	45%	36%	64%
2	Glenoaks Boulevard from Briarwood Land to Sylvanoak Drive	20%	7%	50%	20%
3	Glenoaks Boulevard from Sylvanoak Drive to Glendale Avenue	84%	57%	93%	80%
4	Glenvista Drive south of Glenoaks Boulevard	13%	13%	17%	17%
5	Glenvista Drive north of Glenoaks Boulevard	43%	21%	64%	57%
6	Sylvanoak Drive south of Glenoaks Boulevard	35%	30%	39%	39%
7	Sylvanoak Drive north of Glenoaks Boulevard	53%	32%	42%	47%
8	Verdugo Road from Glendale Avenue to south edge of lot	94%	66%	99%	87%
9	Verdugo Circle Drive north of Glenoaks Boulevard	74%	62%	76%	58%
10	Glendale Avenue from Verdugo Road to Monterey Road	43%	37%	51%	46%

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Table 5.5-4 Existing Parking Occupancy

Parking Locations		Weekday		Saturday	
		Highest Occupancy (10PM)	Lowest Occupancy (5PM)	Highest Occupancy (6 PM)	Lowest Occupancy (12:30 PM)
11	Monterey Road from Glendale Avenue to Cordova Avenue	40%	20%	30%	40%
12	Monterey Road from Verdugo Road to Glendale Avenue	40%	40%	44%	40%
13	Woodbury Road from Grove Place to Woodbury Road	72%	61%	72%	94%
14	Grove Place south of Monterey Road	50%	38%	50%	38%
15	Galer Place south of Monterey Road	53%	35%	18%	35%
16	Naranja Drive south of Monterey Road	71%	14%	71%	29%
17	Adams Street from Glenoaks Boulevard to Monterey Road	97%	71%	97%	92%
18	Portola Avenue from Monterey Road to Cordova Avenue	100%	69%	83%	87%
19	Glenoaks Boulevard from Cordova Avenue to Glendale Avenue	100%	67%	83%	83%
20	Doran Street from Glendale Avenue to Adams Street	80%	77%	80%	83%
21	Adams Street north of Lexington Drive	88%	82%	89%	92%
22	Doran Street from Adams Street to Galer Place	97%	61%	76%	74%
23	Naranja Drive from Doran Street to Lexington Drive	96%	78%	98%	76%
24	Galer Place from Naranja Drive to Richard Place	34%	13%	21%	23%
25	Richard Place from Naranja Drive to Grove Place	87%	55%	74%	87%
26	Grove Place north of Lexington Drive	83%	58%	63%	92%
27	School Campus Lot	4%	47%	42%	7%
Overall Occupancy		71%	71%	59%	75%

5.5.1.5 FUTURE TRAFFIC CONDITIONS

The Los Angeles County Guidelines for CMP Transportation Impact Analysis includes ambient growth rates for the City of Glendale in 5-year increments. To estimate future traffic conditions, opening year scenarios are based on the year 2021 traffic growth factor of 1.027 percent over a 5-year period. To conservatively estimate future year buildout conditions, this analysis used a total ambient growth of 2 percent over the 2-year period from 2019 to 2021.

In addition to ambient, growth, the traffic study identified cumulative traffic in the Project study area. Cumulative traffic is the traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by the City. Sixty five projects were provided for consideration to be included in the traffic forecasts by the City of Glendale Planning Department. The list of cumulative projects screened to have a potential to affect traffic volumes in the vicinity of the school are included in Appendix E. For these cumulative projects, trip generation values were extracted from the ITE Trip Generation Manual. Based on a review of the circulation system, the trip generation, location, and land use type, the cumulative projects would have the potential for directly adding measurable traffic to the study area street system. The cumulative development projects assumed in this traffic analysis are estimated to generate 41,183 average daily trips (ADT) on weekdays, 1,670 trips during the weekday AM peak hour, and 1,586 trips during the weekday PM peak hour.

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Intersection Level of Service

To assess Opening Year No Project traffic conditions, existing traffic was combined with ambient growth and cumulative traffic. The intersection operations for the No Project traffic conditions are shown in Tables 5.5-5, *Opening Year Without Project Intersection LOS, Weekday PM Peak Hour*. Intersection volumes, Delay, and LOS worksheets are included in Appendix E. All intersections are forecast to operate at acceptable LOS under Opening Year Without Project conditions on Weekday PM.

Table 5.5-5 Opening Year Without Project Intersection LOS, Weekday PM Peak Hour

Intersection	Intersection Control	Weekday PM Peak Hour	
		ICU (V/C) or Average Delay (sec/veh)	LOS
1. WB Ventura Freeway Ramps at Monterey Road	Signal	0.884	D
2. Glendale Avenue at EB Ventura Freeway Ramps	Signal	0.689	B
3. Glendale Avenue at Monterey Road	Signal	0.902	E
4. Glendale Avenue at Glenoaks Boulevard	Signal	0.775	C
5. Adams Street at Monterey Road	CCS	14.71	B
6. Adams Street at Glenoaks Boulevard	CCS	12.93	B
7. Verdugo Road at Monterey Road	Signal	0.615	B
8. Verdugo Road at Glenoaks Boulevard	Signal	0.516	A

Notes: CSS = Cross-Street Stop.

Bold show intersections operating at unacceptable LOS.

Intersection volumes, Delay and LOS worksheets are included in Appendix E.

Neighborhood Street Segment Analysis

To assess Opening Year Without Project traffic conditions, cumulative project traffic and ambient growth was added onto the existing traffic levels along two Project study area roadways. LOS for these conditions are summarized in Table 5.5-6, *Opening Year Without Project Street Segment Analysis*. As shown in Table 5.5-6, all study segments operate with volumes well below their daily capacity, with a corresponding LOS A or LOS B, which is acceptable.

Table 5.5-6 Opening Year Without Project Street Segment Analysis

Street Segment	Functional Classification	Street Layout	Environmental Capacity (vehicles/day) ¹	Day	ADT	V/C	LOS
Monterey Road (Glendale Av to Verdugo Rd)	Urban Collector	2U	10,000	Weekday	6,200	0.620	B
Adams Street (Glenoaks Blvd to Monterey Rd)	Local	2D	2,500	Weekday	570	0.228	A

¹ 2U= 2-lane undivided road, 2D= 2-lane divided road.

² Functional Classifications and Environmental Capacity daily volumes obtained from the City of Glendale General Plan Circulation Element.

5.5.2 Thresholds of Significance

According to Appendix G of the Updated 2020 CEQA Guidelines, a project would normally have a significant effect on the environment if the project could:

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- T-1 Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- T-2 Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).
- T-3 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- T-4 Result in inadequate emergency access.
- T-5 Result in inadequate parking capacity. (Optional: this threshold was deleted from the 2010 CEQA Guidelines)

The Initial Study, included as Appendix A1 to this DEIR, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold T-3: No off-site improvements are proposed or required to implement the proposed Project. The main access points would be from the south side of the school site where existing surface parking lots are present. No new access drives or roadway improvements are proposed to provide access to the Project site; therefore, no improvements that may result in hazardous conditions would occur. Additionally, the proposed Project would not change the existing land use of the site, as the property currently is developed as sporting fields.

These impacts will not be addressed in the following analysis.

5.5.2.1 STANDARD OF SIGNIFICANCE

The study area includes intersections under the jurisdictions of the City of Glendale, and the California Department of Transportation (Caltrans).

City of Glendale Intersections

According to the City's General Plan Circulation Element, the City evaluates zoning in the commercial and industrial areas of the City and establishes floor area ratios based on the availability of existing or proposed street capacity to accommodate future growth. A minimum desired level of service is "D" during afternoon peak hours, except at intersections along major arterials, where a minimum desired level of service is "E".

In Glendale, impacts at signalized intersections are considered significant if the project-related increase in the volume-to-capacity (V/C) ratio equals or exceeds 0.02 at intersections that have LOS D or worse. For unsignalized intersections, the impact is considered significant if the project-related increase in the delay equals or exceeds 3 seconds at intersections that have LOS D, or worse.

Caltrans Intersections

Caltrans traffic impact analysis guidelines do not explicitly define a significant impact in terms of existing level of service and change in that level of service. For intersections under Caltrans' jurisdiction, a significant impact would occur at a signalized study intersection when the project-related traffic causes:

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- An intersection to degrade from an acceptable LOS to an unacceptable LOS¹; or
- Any increase in delay for intersections already operating at an unacceptable LOS;

Neighborhood Street Segments

As discussed above, LOS D is the minimum desired level of service. The City's Circulation Element identifies two conditions that typically apply when evaluating local collector street impacts:

- If the addition of Project average daily trips (ADTs) to a residential street does not cause the street's capacity to be exceeded (regardless of how great an increase), the Project would result in no impacts.
- If the street's capacity is exceeded with or without the Project, no impacts occur if the Project increases the existing conditions ADT by less than 10 percent.

SB 743 Vehicle Miles Travels Impact

As stated in Section 5.5.1.1, Regulatory Setting, SB 743 started a process that could fundamentally change transportation impact analysis as part of CEQA compliance. These changes in many parts of California (if not statewide) will include the elimination of auto delay, LOS, and similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099(b)(1)). While the updated CEQA Guidelines went into effect in December 2018, the update provides agencies with an opt-in period until July 1, 2020 to adopt the new VMT-based criteria under the updated CEQA Guidelines. Since the City of Glendale has not yet opted to adopt the new VMT-based criteria, the City still considers automobile delay as a significant impact, and the City will continue to use the established LOS criteria.

5.5.3 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.5-1: The proposed Project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including roadway facilities.[Threshold T-1]

Impact Analysis:

Project Trip Generation

The proposed Project would not expand the school's enrollment capacity but is expected to increase traffic and parking demand around the Project site due to new public use and city programming on weekday evenings and weekends. Currently, the project site is used on the weekends by AYSO from 8:00 a.m. to 6:00 p.m. on Saturdays,

¹ The Caltrans Transportation Concept Report states that Caltrans strives for LOS C/D, but generally accepts up to LOS E in urban environments.

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and 10:00 a.m. to 6:00 p.m. on Sundays. The proposed Project would not increase capacity of the existing Wilson MS field for AYSO use, rather, the proposed Project would allow for evening uses of the field. As such, the proposed Project would not change the number of vehicle trips during the Saturday mid-day peak period. Therefore, and the proposed Project would not add trips during the Saturday midday peak hours and it is not further evaluated in this analysis. The trip generation rates for soccer fields during the weekday AM and PM peak hours were obtained from the latest version of the ITE Trip Generation Manual, 10th Edition. The ITE Trip Generation Manual is the most widely recognized resource for estimating the number of trips generated by a land use or project type.

To calculate the expected Project-related trip generation, the ITE rates were multiplied by the proposed number of fields. The proposed Project includes development of two fields, and estimated Project-related trips are shown in Table 5.5-7, *ITE Trip Generation Estimates for Soccer Complex*. Using the average rates, the proposed Project would generate two trips in the AM peak hour and 33 trips in the PM peak hour. Using the highest rates, the proposed Project would generate four trips in the AM peak hour and 49 trips in the PM peak hour. As shown in Table 5.5-7, the proposed Project would generate a negligible number of trips in the weekday AM peak hour. In addition, public use of the fields would not be allowed on weekdays in the AM peak hour. Therefore, the AM peak hour traffic will not be further evaluated in this analysis.

Table 5.5-7 ITE Trip Generation Estimates for Soccer Complex

Rate Type	Weekday						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Average Rate	143	1	1	2	22	11	33
Highest Rate	182	2	2	4	33	16	49

Trip generation rates for peak hour of adjacent streets, based on Soccer Complex Land Use (ITE Code 488) per the ITE Trip Generation Manual, 10th edition.

The sample size that the ITE utilized to support these rates is relatively small—less than ten samples. Therefore, PlaceWorks also reviewed the proposed use of the fields to calculate vehicular trips based on estimates for players, spectators, and supporting personnel (coaches, referees, etc.). PlaceWorks consulted with the City’s Parks and Recreation Department to obtain anticipated usage estimates. To verify the trip generation based on ITE trip rates, trip generation was also calculated based on usage estimates assuming a number of players, coaches, and referees at the soccer fields for adult soccer and youth soccer. The estimates were provided for both adult and youth because of different ridership characteristics and because they have different team sizes. Table 5.5-8, *Project Trip Generation Based on Usage Estimates* shows the estimated Project trip generation for the two proposed fields based on usage estimates. It should be noted that under the usage estimate methodology, a 20 percent trip reduction was applied to account for carpool and walk/bike/transit modes. The Project trip generation based on usage estimates is highest for youth games. As shown on Table 5.5-8, the highest trip generation would occur while two youth games occurring concurrently. This would result in 40 peak hour trips and during the weekday PM peak hour.

In conclusion, utilizing the ITE Trip Rates using the high range provide a reasonable and technically defensible estimate to calculate trip generation for the proposed Project. Therefore, for the purpose of this analysis, the proposed Project would generate four trips in the AM peak hour and 49 trips in the PM peak hour

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Table 5.5-8 Project Trip Generation Based on Usage Estimates

Land Use	Variable Type	Players/Referee/Coaches	Fields	Trip Generation-PM Peak Hour		
				In	Out	Total
Youth Game	Youth Players	16	2	26	13	39
	Referee	1	1	1	0	1
	Total	17	3	27	13	40
Adult Game	Players	22	2	35	0	35
	Referees	3	1	2	0	2
	Total	25	3	37	0	37

¹ For Youth Games it is assumed that each team has 8 players. Each coach is also a parent that has a child in the team.

² For Adult Games it is assumed that each team has 11 players.

³ Referees are needed only in one field, as one of the fields is for practices only.

Existing Traffic Conditions With Project

Intersection Analysis

A summary of the LOS analysis results for the Existing (2019) With Project conditions is presented in Table 5.5-9, *Existing With Project Intersection LOS, Weekday PM Peak Hour*. As shown, all study intersections operate at acceptable LOS during the Weekday PM Peak hour for the Existing With Project traffic conditions. Under the proposed Project, Existing (2019) With Project traffic would not cause any intersections to deteriorate to an unacceptable LOS during the Weekday PM peak hour, and impacts would be less than significant.

Table 5.5-9 Existing With Project Intersection LOS, Weekday PM Peak Hour

Intersection	Traffic Control	Without Project		With Project		Change	Significant?
		ICU / Delay	LOS	ICU / Delay	LOS		
1. WB Ventura Freeway Ramps at Monterey Road	Signal	0.849	D	0.850	D	0.001	No
2. Glendale Avenue at EB Ventura Freeway Ramps	Signal	0.675	B	0.678	B	0.003	No
3. Glendale Avenue at Monterey Road	Signal	0.876	D	0.882	D	0.006	No
4. Glendale Avenue at Glenoaks Boulevard	Signal	0.757	C	0.758	C	0.001	No
5. Adams Street at Monterey Road	CCS	14.28	B	14.69	B	0.410	No
6. Adams Street at Glenoaks Boulevard	CCS	12.79	B	12.79	B	0.000	No
7. Verdugo Road at Monterey Road	Signal	0.614	B	0.625	B	0.011	No
8. Verdugo Road at Glenoaks Boulevard	Signal	0.511	A	0.513	A	0.002	No

Notes: CCS = Cross-Street Stop

Bold show intersections operating at unacceptable LOS.

Intersection volumes, Delay and LOS worksheets are included in Appendix E.

Neighborhood Street Segment Analysis

To assess Existing (2019) With Project traffic conditions along neighborhood streets, Project traffic was added to the existing traffic levels along the two Project study area roadways. The Existing (2010) With Project LOS conditions are summarized in Table 5.5-10, *Existing With Project Street Segment Volumes*. As shown in Table 5.5-10, all study segments operate with volumes well below their daily capacity, with a corresponding LOS A, which is acceptable. Therefore, impacts would be less than significant.

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Table 5.5-10 Existing With Project Street Segment Volumes

Street Segment	Functional Classification	Street Layout	Environmental Capacity (vehicles/day) ¹	Day	Without Project			With Project			Significant ?
					ADT	V/C	LOS	ADT	V/C	LOS	
Monterey Road (Glendale Av to Verdugo Rd)	Urban Collector	2U	10,000	Weekday	6,020	0.602	B	6,410	0.641	A	No
Adams Street (Glenoaks Blvd to Monterey Rd)	Local	2D	2,500	Weekday	560	0.224	A	570	0.228	A	No

¹ 2U= 2-lane undivided road, 2D= 2-lane divided road.
² Functional Classifications and Environmental Capacity daily volumes obtained from the City of Glendale General Plan Circulation Element.

Future Traffic Conditions

Opening Year With Project Traffic Conditions

Intersection Analysis

A summary of the LOS analysis results for the Opening Year (2021) With Project conditions is presented in Table 5.5-11, *Opening Year With Project Intersection LOS, Weekday PM Peak Hour*. Under the proposed Project, the Opening Year (2021) With Project traffic conditions would not cause any intersections to deteriorate to an unacceptable LOS during the Weekday PM peak hour, and impacts would be less than significant.

Table 5.5-11 Opening Year With Project Intersection LOS, Weekday PM Peak Hour

Intersection	Traffic Control	Without Project		With Project		Change	Significant?
		ICU / Delay	LOS	ICU / Delay	LOS		
1. WB Ventura Freeway Ramps at Monterey Road	Signal	0.884	D	0.886	D	0.002	No
2. Glendale Avenue at EB Ventura Freeway Ramps	Signal	0.689	B	0.692	B	0.003	No
3. Glendale Avenue at Monterey Road	Signal	0.902	E	0.909	E	0.007	No
4. Glendale Avenue at Glenoaks Boulevard	Signal	0.775	C	0.776	C	0.001	No
5. Adams Street at Monterey Road	CCS	14.71	B	15.13	C	0.42	No
6. Adams Street at Glenoaks Boulevard	CCS	12.93	B	12.93	B	0	No
7. Verdugo Road at Monterey Road	Signal	0.615	B	0.625	B	0.01	No
8. Verdugo Road at Glenoaks Boulevard	Signal	0.516	A	0.518	A	0.002	No

Notes: CCS = Cross-Street Stop

Bold show intersections operating at unacceptable LOS.

Intersection volumes, Delay and LOS worksheets are included in Appendix E.

Neighborhood Street Segment Analysis

To assess Opening Year (2021) With Project traffic conditions, cumulative project traffic, ambient growth, and Project trip generation was added to the existing traffic levels along two Project study area roadways. LOS for these conditions are summarized in Table 5.5-12, *Opening Year With Project Street Segment Volumes*. As shown, with the addition of Project traffic there would be a minimal increase in the V/C ratio for each study segment. All study segments would operate with volumes well below their daily capacity with a corresponding LOS A, which is acceptable. Therefore, impacts would be less than significant.

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Table 5.5-12 Opening Year With Project Street Segment Volumes

Street Segment	Functional Classification	Street Layout	Environmental Capacity (vehicles/day) ¹	Day	Without Project			With Project			Significant?
					ADT	V/C	LOS	ADT	V/C	LOS	
Monterey Road (Glendale Av to Verdugo Rd)	Urban Collector	2U	10,000	Weekday	6,200	0.620	B	6,410	0.641	B	No
Adams Street (Glenoaks Blvd to Monterey Rd)	Local	2D	2,500	Weekday	570	0.228	A	570	0.228	A	No

¹ 2U= 2-lane undivided road, 2D= 2-lane divided road.

² Functional Classifications and Environmental Capacity daily volumes obtained from the City of Glendale General Plan Circulation Element.

Impact 5.5-2: The proposed project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, bicycle, and pedestrian facilities. [Threshold T-1]

Impact Analysis:

Construction Phase

During construction, the proposed Project may have the potential to cause temporary closure of the sidewalks adjacent the athletic field, or increase safety hazards, due to construction vehicles entering and exiting the Project site. Construction of the proposed project would temporarily generate additional traffic on the existing area roadway network and potentially impact student pick-up/drop-off traffic flow along Monterey Avenue. These vehicle trips would include construction workers traveling to the site as well as soil hauling and delivery trips associated with construction equipment and materials. As discussed in Section 5.4, *Noise*, the highest construction related traffic increases would occur during the soil haul phase, which is expected to last approximately 16 total days and would generate approximately 105 truck trips per day.

Project construction would potentially have an adverse effect on the current pickup/drop-off zones, bike lanes, and sidewalks. It will do so by potentially rerouting traffic, slowing it down, or closing off access to these areas. B Impacts would be potentially significant.

Operation Phase

All roads in the vicinity of the school have paved sidewalks on both sides of the street. In addition, crosswalks are painted on all major intersections in the study area such as intersections along Glendale Avenue and Verdugo Road. Signalized intersections include actuated pedestrian signal heads. A Class III bikeway is designated along Verdugo Road. The existing sidewalk and crosswalks would provide adequate pedestrian travel in the area for accessing the site on foot or parking on public streets and walking to the school. Pedestrian and bicycle facilities would not be impacted due to the proposed Project.

The proposed Project site is primarily surrounded by residential uses and the attendees of the multi-purpose field would continue to use the designated pedestrian routes that they currently use. While implementation of the proposed Project would increase vehicular and pedestrian travel to the site during athletic events, the

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proposed Project improvements would not include any new features which would introduce new hazards to pedestrian safety as no changes to existing roadways or pedestrian/bicycle accommodations would occur.

Therefore, operation of the proposed Project would not conflict with a program, plan, ordinance, or policy regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Impacts would be less than significant.

Impact 5.5-3: The proposed Project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). [Threshold T-2]

On September 27, 2013, SB 743 was signed into law. SB 743 started a process that could fundamentally change transportation impact analysis as part of CEQA compliance. These changes include the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts in many parts of California (if not statewide). As part of the updated CEQA Guidelines, the new criteria “shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses” (Public Resources Code Section 21099(b)(1)). On January 20, 2016, OPR released revisions to its proposed CEQA guidelines for the implementation of SB 743. Final review and rulemaking for the new guidelines were completed in December 28, 2018 when the California Natural Resource Agency certified and adopted the CEQA Guidelines update package, including guidelines section implementing SB 743. OPR allows agencies an opt-in period to adopt the guidelines; they become mandatory on July 1, 2020. Vehicle miles traveled (VMT) is an indicator of the travel levels on the roadway system by motor vehicles. It corresponds to the number of vehicles multiplied by the distance traveled in a given period over a geographical area. In other words, VMT is a function of (1) number of daily trips and (2) the average trip length ($VMT = \text{daily trips} \times \text{average trip length}$).

The City is in the process of updating their CEQA Guidelines to adopt the appropriate VMT thresholds; however, at the time of publication of this DEIR, no such thresholds have been adopted and continues to use LOS as the threshold for determining transportation related impacts under CEQA.

The proposed Project represents an improvement to an existing middle school athletic field and is designed to serve the existing and future residents that live within the WMS neighborhood. There is currently no lighted soccer field within close proximity of the Project site, as the closest lighted soccer field is located at Pacific Park, approximately 2 miles southwest from the Project site. Residents would have to travel a longer distance to play a park with the needed amenities if the proposed Project is not implemented. Therefore, the proposed Project would result in an increase in VMT if the proposed Project is not implemented. The proposed Project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). Impacts would be less than significant.

Impact 5.5-4: Project circulation improvements have been designed to adequately address potentially hazardous conditions (sharp curves, etc), potential conflicting uses, and emergency access. [Threshold T-3 and T-4]

Impact Analysis: No offsite improvements are proposed as part of the Project. No new access drives or roadway improvements are proposed to provide access to the Project site; therefore, no improvements that

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may result in hazardous conditions would occur. Main access to the proposed fields would remain at the pedestrian gate (which also serves as emergency vehicle access) along Verdugo Road at the northeast portion of the Wilson MS campus. Parking for the field is located in parking lots along Monterrey Road in addition to on-street parking in the surrounding neighborhoods. Additionally, the proposed Project would not change the land use of the site, as the property currently supports sporting fields. The proposed Project would not substantially increase hazards due to a design feature or incompatible uses.

Construction of the proposed Project would temporarily generate additional traffic on the existing area roadway network. These vehicle trips would include construction workers traveling to the site as well as delivery trips associated with construction equipment and materials. Delivery of construction materials to the site would likely require a number of oversized vehicles that may travel at slower speeds than existing traffic.

Because of the limited nature of the proposed improvements, a significant number of construction trips to/from the site is not anticipated. Once materials are delivered to the site, all construction activities would occur on-site within the existing boundaries of the school campus and would not disrupt off-site traffic flows. Lane closures are not anticipated, and no off-site roadway improvements are required or proposed that would have the potential to interrupt area circulation or redirect traffic. As such, Project construction is not anticipated to substantially disrupt area traffic or cause a significant increase in daily traffic on area roadways or at local intersections, thereby adversely affecting existing conditions. Per standard construction procedures, the construction contractor would prepare and implement a traffic control plan to ensure that public safety and emergency access are maintained during the construction phase. Implementation of the traffic control plan would ensure that existing conditions are not adversely affected or substantially degraded by Project construction.

No on-site improvements for purposes of vehicular access are proposed. The existing access lane is located on the northeast edge of the Project site. As such, emergency access to the sporting field and associated improvements would be similar to that which occurs under existing conditions and would be adequate to serve the site. Impacts would be less than significant.

Impact 5.5-5: Adequate parking would be provided for the proposed Project. [Threshold T-5]

Impact Analysis: Parking demand for the proposed Project is based on ITE's Parking Generation manual for a "soccer complex" (ITE land use code 488), as shown in Table 5.5-13, *Parking Demand Rates for Soccer Complex*. According to ITE's Parking Manual, the peak parking rate per soccer complex field during the weekday is 38.3.

To calculate the expected Project-related parking demand, the rates shown above were multiplied by the anticipated number of fields, which is two. The peak parking demand for the two proposed fields would be 77 during the weekday. As discussed previously, the Project site is currently used on the weekends by AYSO from 8:00 a.m. to 6:00 p.m. on Saturdays, and 10:00 a.m. to 6:00 p.m. on Sundays. The proposed Project would not increase capacity of the existing Wilson MS field for AYSO use, rather, the proposed Project would allow for evening uses of the field. As such, the proposed Project would not change parking demand during the Saturday mid-day peak period and it is not further evaluated in this analysis

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The proposed Project would increase parking demand around the Project vicinity during use of the multipurpose field for non-school use on weekdays after 5:00 PM. There would be no increase in parking demand with the project during the daytime on weekdays and weekends, as the fields and courts are already in use during those times. There are 69 parking spots available at the school parking lots off Monterey Road, as well as off-site parking along the public streets. Table 5.5-13, *Parking Demand in Terms of Available Parking* shows the anticipated parking demand during the weekday PM peak hour. Parking counts were conducted along the roadways identified in Section 5.5.1.3.

Table 5.5-14 presents a worst-case scenario for a weekday, where the peak parking demand for the proposed Project would coincide with the least amount of parking supply that was observed at any time during the field surveys at the school lot and along public streets. As shown in Table 5.5-13, on weekdays there is expected to be approximately 66 available spaces at the school lot and an additional 308 curbside spaces on public streets. The available supply of 374 spaces in the study area will be able to absorb the anticipated parking demand of 77 spaces.

Table 5.5-13 Parking Demand in Terms of Available Parking

	Weekday Peak Hour
Parking Demand Estimate	77
Available On-site Parking	66
Available Off-site Parking	308
Total Available Parking	374
Available minus Demand	297

Therefore, the parking demand from the proposed Project can be absorbed by the available parking supply at the school lots and on public streets, and impacts to parking would be less than significant.

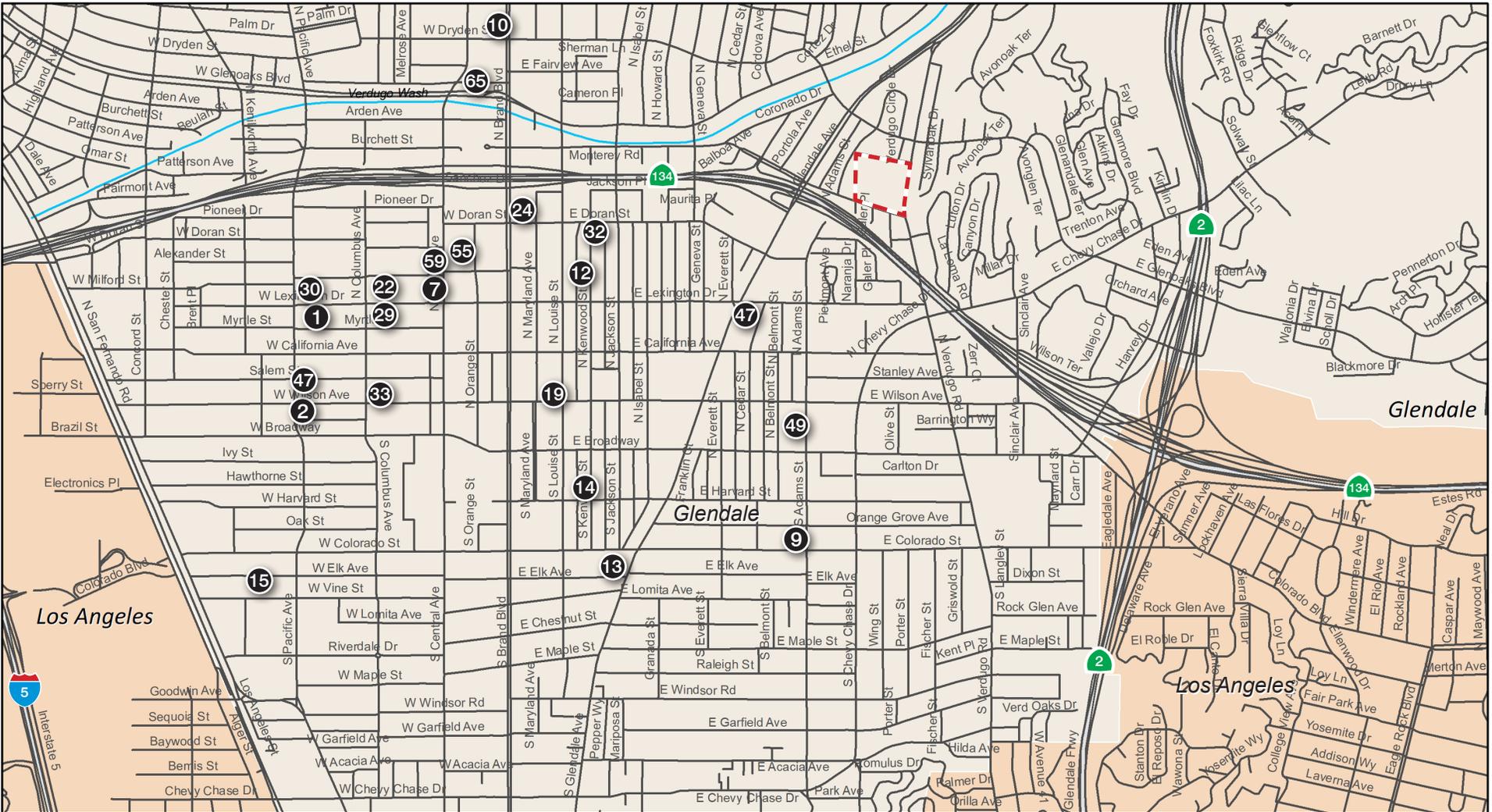
5.5.4 Cumulative Impacts

The committed and cumulative projects lists are discussed in Section 3.4 of the Traffic Study (Appendix E to the DEIR), Chapter 4.4 of this EIR, and illustrated in Figure 5.5-4, *Cumulative Projects Map*. Cumulative project impacts were analyzed when the proposed Project was combined with other future developments to evaluate the overall traffic impacts. A significant cumulative impact is identified when a facility is projected to operate below the LOS standards and exceeds the established threshold due to cumulative future traffic and project-related traffic. The proposed Project’s incremental effect to intersections would not result in any intersection that operates at a level below the LOS standards or exceeds the established significance threshold.

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Figure 5.5-4 - Cumulative Developments Location Map
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--- Project Boundary # Cumulative Project Location (20)



Source: ESRI, 2017

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5.5.5 Existing Regulations and Standard Conditions

The analysis above assumes compliance with the following codes, rules, and regulations pertain to Transportation were described in detail in Section 5.5.1.1 of this DEIR.

- Senate Bill 375
- Senate Bill 743
- Glendale General Plan Circulation Element

5.5.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impact would be potentially significant: 5.5-2.

5.5.7 Mitigation Measures

Impact 5.6-2

MM T-1 **Construction Staging and Traffic Management Plan.** Prior to construction of the proposed Project, the construction contractor shall prepare and submit a Construction Staging and Traffic Management Plan to the City for approval. The plan shall mitigate construction impacts during each phased activity. The plan shall include the following specific elements:

- In order to reduce vehicle and pedestrian conflicts resulting from construction of the proposed Project, all construction related truck traffic, including those utilized for exporting soil material, shall access the Project site from Verdugo Road.
- The construction contract shall require that construction workers park in designated staging area(s) to provide adequate parking for all employees and visitors to the campus throughout the duration of construction activities of the proposed Project. In the event that adequate parking cannot be provided at the proposed Project site due to displacement of parking spaces by construction activities, a satellite parking area shall be designated, and a shuttle bus shall be operated to transfer employees and visitors to and from the campus.
- In order to eliminate any impacts to the local traffic in and around the Proposed Project site, all construction related trucks, including those utilized for exporting soil material shall not do so during the drop-off/pick-up hours of 7:30 to 8:30 a.m. and 2:15 to 3:15 p.m. during the school year.
- The construction contractor shall be required to maintain a minimum sidewalk width of 5 feet during the construction period.
- A flag person shall be provided whenever trucks entering or leaving the Proposed Project site may impede the flow of pedestrian, bicycle, or automotive traffic.

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5.5.8 Level of Significance After Mitigation

Upon the implementation of mitigation measures MM T-1, impact 5.6-2 would be less than significant.

5.5.9 References

Glendale, City of. 1998. City of Glendale General Plan Circulation Element.
<http://www.glendaleca.gov/home/showdocument?id=4497>

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In accordance with Appendix F of the State CEQA Guidelines, this Draft EIR includes relevant information and analyses that address the energy implications of the proposed Project. This section represents a summary of the proposed Project's anticipated energy needs, impacts, and conservation measures. Information found herein, as well as other aspects of the Project's energy implications, are discussed in greater detail elsewhere in this Draft EIR, including Chapter 4, *Project Description*, and Sections 5.2, *Air Quality*, 5.3, *Greenhouse Gas Emissions*, and 5.5, *Transportation*. This section also relies on the results of a CalEEMod estimation of fuel for construction found in Appendix C of this DEIR. Operation-related transportation fuel and energy use calculations are included as Appendix F of this EIR.

5.6.1 Environmental Setting

5.6.1.1 REGULATORY BACKGROUND

Federal

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (Public Law 110-140) seeks to provide the nation with greater energy independence and security by increasing the production of clean renewable fuels; improving vehicle fuel economy; and increasing the efficiency of products, buildings, and vehicles. It also seeks to improve the energy performance of the federal government. The act sets increased corporate average fuel economy standards; the renewable fuel standard; appliance energy-efficiency standards; building energy-efficiency standards; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration.

State

Renewables Portfolio Standard

The California Renewables Portfolio Standard ("RPS") was established in 2002 under Senate Bill (SB) 1078 and was amended in 2006, 2011, and 2015 and was most recently amended by SB 100 on September 10, 2018. The RPS program requires utilities, including publicly owned utilities such as Glendale Water & Power, to increase the percentage of eligible renewable energy resources used to provide electricity to its customers. SB 100 accelerates the State's RPS target from 50% by 2030 to 60% by 2030. SB 100 further establishes a State policy that eligible renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers by December 31, 2045.

State Alternative Fuels Plan

Assembly Bill 1007 requires the California Energy Commission (CEC) to prepare a plan to increase the use of alternative fuels in California. The State Alternative Fuels Plan was prepared by the CEC with the California Air Resources Board (CARB) and in consultation with other federal, state, and local agencies to reduce

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petroleum consumption, increase use of alternative fuels (e.g., ethanol, natural gas, liquefied petroleum gas, electricity, and hydrogen), reduce greenhouse gas (GHG) emissions, and increase in-state production of biofuels. The State Alternative Fuels Plan recommends a strategy that combines private capital investment, financial incentives, and advanced technology that will increase the use of alternative fuels, result in significant improvements in the energy efficiency of vehicles, and reduce trips and vehicle miles traveled through changes in travel habits and land management policies. The Alternative Fuels and Vehicle Technologies Funding Program legislation (Assembly Bill 118, Statutes of 2007) proactively implements this plan (CEC 2007).

In 2009, California adopted the Low Carbon Fuel Standard Program (LCFS), which incentivizes adoption of low carbon transportation fuels based upon based on the fuel's lifecycle GHG emissions per unit of energy—or carbon intensity (CI) as rated by the program. The regulation established declining CI benchmarks for the average transportation fuel mix from 2011 through 2020. In September 2018, the extended the LCFS for an additional ten years and established a target of 20% CI reduction from 2010 levels by 2030 (CARB 2020).

Zero-Emission Vehicle Programs

The State of California has adopted a number of laws designed to support the deployment of zero-emission vehicles (ZEVs). For example, SB 350, the Clean Energy and Pollution Reduction Act of 2015, establishes a state policy of encouraging transportation electrification as a means to achieve ambient air quality standards and the state's climate goals. ZEVs include pure battery plug-in electric vehicles, plug-in hybrid electric vehicles, and hydrogen fuel cell electric vehicles. ZEV programs include utility rebates and charging infrastructure.

In March of 2012, Executive Order B-16-12 set a goal of 1.5 million ZEVs in California by 2025. On January 26, 2018, Executive Order B-48-18 increased the state's ZEV goal to 5 million cars by 2030. It also establishes a goal of 250,000 ZEV charging stations, including 10,000 direct-current fast chargers, and 200 hydrogen fueling facilities in the state by 2025 (CPUC 2020).

Appliance Efficiency Regulations

California's Appliance Efficiency Regulations (California Code of Regulations [CCR], Title 20, Parts 1600–1608) contain energy performance, energy design, water performance, and water design standards for appliances that are sold or offered for sale in California (e.g., refrigerators, vending machines, water heaters, boilers, pool equipment, plumbing fittings). These standards are updated regularly to allow consideration of new energy efficiency technologies and methods.

Building Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings (24 CCR Part 6) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The CEC adopted the 2008 changes to the Building Energy Efficiency Standards in order to (1) "Provide California with an adequate, reasonably-priced, and environmentally-sound supply of energy" (CEC 2008) and (2) Respond to Assembly Bill 32, the Global Warming Solutions Act of 2006, which mandates that California must reduce its GHG emissions to 1990 levels by 2020. In addition, SB 350 also requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030.

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Most recently, the CEC adopted the 2019 Building and Energy Efficiency Standards, which went into effect on January 1, 2020. The 2019 standards improve upon the 2016 standards for new construction of and additions and alterations to residential and nonresidential buildings. The 2016 standards do not achieve zero net energy, but they get very close to the state's goal and make important steps toward changing residential building practices in California. The 2019 standards will take the final step to achieve zero net energy for electricity use in newly constructed residential buildings throughout California (CEC 2018).

Green Building Standards

The California Green Building Standards Code (24 CCR Part 11), also known as CALGreen, has mandatory requirements for new residential and nonresidential buildings throughout California. CALGreen is intended to (1) reduce GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the governor. In short, the code is established to reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impacts during and after construction. CALGreen contains requirements for construction site selection, stormwater control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency (ICC 2017).

Local

City of Glendale Greener Glendale Plan

The Greener Glendale Plan (GGP) inventoried existing consumption and emissions in the City, adopted a target consistent with state goals, and developed an implementation plan to achieve a more sustainable Glendale. The Plan, adopted on November 9, 2010, assessed what actions the City and community have already taken to be more sustainable, and recommends how to build on these efforts. The GGP also provides an emissions inventory for the City, and provides policies to achieve the GHG reduction targets set by the state. The GGP includes sustainability measures for the following focus areas: Cross-Cutting Approaches, Economic Development, Urban Design, Waste, Energy, Urban Nature, Water, Transportation, and Environmental Health. As of 2018, 36% of Glendale Water and Power's energy portfolio was from renewable sources and 51% was from zero carbon resources (Glendale 2019). Glendale Water and Power continues to support renewable energy objectives, as well as to implement strategies to reduce energy consumption (Glendale 2012).

Glendale Water & Power Integrated Resource Plan

In 2019, Glendale Water and Power adopted an Integrated Resource Plan ("IRP") in accordance with the requirements of SB 350. The IRP is a 20-year planning document that outlines GWP's proposed strategy to supply power and meet regulatory requirements, including energy efficiency, emission reduction, and renewable energy requirements. GWP's objective in developing the IRP was to meet power reliability requirements with the cleanest resource portfolio possible while also keeping the rates low. GWP's plan establishes GWP as a

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clean energy leader. It outlines GWP's proposal to replace the aging Grayson Power Plant with a diverse mix of energy resources, with a goal of providing the cleanest power possible while maintaining reliability at reasonable cost in a transmission-constrained location (GWP 2019b). The IRP was approved by the California Energy Commission in February of 2020. The major procurement decisions set forth in the IRP are subject to further approval of the Glendale City Council.

5.6.1.2 EXISTING CONDITIONS

Electricity

Electricity is quantified using kilowatts (kW) and kilowatt-hours (kWh). A kW is a measure of 1,000 watts of electrical power and a kWh is a measure of electrical energy equivalent to a power consumption of 1,000 watts for 1 hour. The kWh is commonly used as a billing unit for energy delivered to consumers by electric utilities. According to the CEC's "Tracking Progress" regarding statewide energy demand, total electric energy usage in California was 285,701 gigawatt hours in 2016 (CEC 2017). A gigawatt is equal to one billion (10^9) watts or 1,000 megawatts (1 megawatt = 1,000 kW).

The electricity supply for the city is provided by Glendale Water and Power (GWP). GWP provided over 1,610,018 megawatt-hours of electricity in Fiscal Year 2018-2019; approximately 59 percent was provided by purchased power, 36% by jointly governed organizations, and 5% by Glendale owned generating facilities. Approximately 10% of electricity was sold to other utilities, 34% utilized for residential, 26% for industrial, 30% for commercial, and 1% used for street lighting (GWP 2019a).

Natural Gas

Gas is typically quantified using "therms", which is a unit of heat energy equal to 100,000 British thermal units (Btu) and is the energy equivalent of burning 100 cubic feet of natural gas. The Southern California Gas Company (SCGC) provides natural gas to the Project site. SCGC's service area spans much of the southern half of California, from Imperial County on the southeast to San Luis Obispo County on the northwest to part of Fresno County on the north to Riverside County and most of San Bernardino County on the east (CEC 2015). Total natural gas supplies available to SCGC are forecast to remain constant at 3,775 million cubic feet per day (MMCF/Day) from 2015 through 2035. Total natural gas consumption in SoCalGas's service area is forecast to be 2.625 bcf/d in 2018 and 2.313 bcf/d in 2035 (CGEU 2018).

5.6.2 Thresholds of Significance

In accordance with State CEQA Guidelines, the effects of a project are evaluated to determine whether they would result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts. The criteria used to determine the significance of impacts may vary depending on the nature of the project. According to Appendix F of the State CEQA Guidelines Update approved in December 2018, the proposed project would have a significant impact related to energy consumption if it would:

- E-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

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E-2 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

5.6.3 Environmental Impacts

5.6.3.1 METHODOLOGY

The impact analysis focuses on the three sources of energy that are relevant to the proposed Project: electricity, transportation fuel for vehicle trips associated with new development, and the fuel necessary for Project construction. The analysis of electricity/natural gas usage is based on California Emissions Estimator Model (CalEEMod) GHG emissions modeling, which quantifies energy use for occupancy (see Appendix C).

The amount of operational fuel use was estimated using CARB's Emissions Factor 2019 (EMFAC2019) computer program, which provides projections for typical daily fuel usage in Los Angeles County. The results of EMFAC2019 modeling and operational fuel estimates are included in Appendix F.

5.6.3.2 IMPACT ANALYSIS

Energy impacts were not originally assessed in the Initial Study. The following impact analysis addresses thresholds of significance for which energy impacts could be potentially significant.

Impact 5.6-1: Construction activities would not result in wasteful, inefficient, or unnecessary consumption of energy or have excessive energy requirements.

Impact Analysis: Construction of the proposed Project would require the use of construction equipment for grading, hauling, and building activities. Equipment proposed for these types of activities can be found in Appendix C. Electricity use during construction would vary during different phases of construction—the majority of construction equipment during grading would be gas powered or diesel powered, and the later construction phases would require gas and electricity-powered equipment for construction and installation of Project components. Construction also includes the vehicles of construction workers traveling to and from the Project site and haul trucks for the export of materials from site clearing and demolition and the export and import of soil for grading.

The construction activities are typical for projects of this nature and would not require any construction techniques that would require substantial amounts of energy. The surrounding area is already served by electrical infrastructure provided by GWP. The proposed Project will connect to these existing lines on North Verdugo Road. Adequate infrastructure capacity in the vicinity of the site would be available to accommodate the electricity and natural gas demand for construction activities and would not require additional or expanded infrastructure.

The construction contractors are also expected to minimize idling of construction equipment during construction as required by state law (see Section 5.2, *Air Quality*), and reduce construction and demolition waste by recycling. These required practices would limit wasteful and unnecessary electrical energy and gas consumption. Furthermore, there are no unusual Project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts

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of the state. Therefore, the proposed short-term construction activities would not result in inefficient, wasteful, or unnecessary fuel consumption.

Transportation

Short-term Construction Impacts

Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. Transportation energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would fluctuate according to the phase of construction and would be temporary. The majority of construction equipment during demolition and grading would be gas powered or diesel powered, and the later construction phases would require electricity-powered equipment. Impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure. Impacts would be less than significant and no mitigation measures are required.

Impact 5.6-2: Operation of the proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Impact Analysis:

Electricity

Project operation would use approximately 9,768 kWh/yr for associated Project buildings, and 58,650 kWh/yr for field lighting operation as shown in Table 5.6-1, *Estimated Project Electricity Demands*, below.

Table 5.6-1 Estimated Project Electricity Demands

Land Use	Electricity Demands, kWh/yr
	Total
Proposed Project²	
Project Buildings	9,768
Field Lighting	58,650
Total	68,418

According to the Glendale Water and Power Annual Report, GWP's total system supply for Fiscal Year 2018-2019 was 1,610,018 MWh (GWP 2019a). Therefore, energy demand as a result of operation would be less than 0.004 percent of the annual service area supply. In addition, because the proposed Project would be subject to the more stringent 2019 Title 24 standards, and would also exceed energy efficiency code requirements through Project design, the Project's electricity demand could potentially be lower than the calculations presented in Table 5.6-1. Project development would not require GWP to obtain new or expanded electricity supplies, and impacts would be less than significant.

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Renewable Energy

Project development would not interfere with achievement of the 60 percent Renewable Portfolio Standard set forth in SB 100 for 2030 or the 100 percent zero carbon energy goal for 2045. These goals apply to GWP and other electricity retailers. As electricity retailers reach these goals, emissions from end user electricity use will decrease from current emission estimates.

Transportation

Vehicle Miles Traveled and Fuel Consumption

Transportation energy use depends on the type and number of trips, vehicle miles traveled (VMT), fuel efficiency of vehicles, and travel mode. Transportation energy used during operation of the site would come from delivery, employee, and visitor vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would be temporary and would fluctuate throughout the lifespan of the Project. According to the Traffic Impact Analysis prepared for the proposed Project (see Appendix E), the Project would generate 143 average weekday daily trips, with two (2) AM peak hour and 36 PM peak hour trips, and would generate 235 average weekend daily trips, with 61 peak hour trips.

The CalEEMod program estimates average trips associated with construction emissions. CARB publishes the EMFAC2019 Web Database, which was used to calculate fuel consumption for the Project-generated VMT. Table 5.6-2, *Operation-Related Vehicle Fuel and Energy Usage*, shows the calculated VMT and fuel consumption based on the Project-generated operational trips.

Table 5.6-2 Operation-Related Vehicle Fuel and Energy Usage

Year	Gas		Diesel		CNG		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	Gallons	VMT	kWh
Proposed Project	695,106	28,511	12,635	353	0	0	5,648	1,898
Total	695,106	28,511	12,635	353	0	0	5,648	1,898

Notes: The full calculations are in Appendix F of the DEIR.

The gas consumption estimates in Table 5.6-2 would be a conservative figure, because of fuel efficiency increases in passenger cars and electric vehicle use expansion over time. According to the SCAG Draft PEIR for the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, estimated fuel consumption for 2045 would be 6.7 billion gallons per year. The calculated fuel use represents less than 0.0004 percent of the total fuel usage for light automobiles and light duty vehicles in the region. (SCAG 2019). This increase in fuel usage represents a conservative estimate, with the real use likely being less than calculated. The increase in fuel usage associated with this Project is considered negligible when compared to the region as a whole.

Additionally, implementation of the Project would serve the existing neighborhood. As currently participants in nighttime sporting events travel to use lighted sporting fields, implementation of the proposed Project is expected to use of transportation related fuel to access the Project over current field locations throughout the City. Impacts would be less than significant.

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5.6.4 Cumulative Impacts

The proposed Project will have a stable energy use over time and, as shown in Tables 5.6-1, and 5.6-2, would not result in significant energy use from construction or operation. Project design and operation would comply with state Building Energy Efficiency Standards, appliance efficiency regulations, and green building standards. Project development would not cause inefficient, wasteful and unnecessary energy consumption or conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts from the proposed Project would be less than cumulatively considerable.

5.6.5 Existing Regulations and Standard Conditions

Federal

- Energy Independence and Security Act of 2007

State

- Renewables Portfolio Standard (SB 1078; SB 350; SB 100)
- State Alternative Fuels Plan (AB 1007)
- Low Carbon Fuel Standard Program (17 California Code of Regulations Section 95480 *et seq.*; California Health & Safety Code Section 38500 *et seq.*)
- Zero Emission Vehicle Programs (*e.g.* Executive Order B-48-18)
- Appliance Efficiency Regulations (Title 20 CCR 1600-1608)
- Building Energy Efficiency Standards (Title 24 CCR, Part 6)

Local

- City of Glendale Greener Glendale Plan

5.6.6 Mitigation Measures

Impacts would be less than significant, and no mitigation measures are necessary.

5.6.7 Level of Significance After Mitigation

Impacts would be less than significant.

5.6.8 References

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6. Significant Unavoidable Adverse Impacts

At the end of Chapter 1, *Executive Summary*, is a table that summarizes the impacts, mitigation measures, and levels of significance before and after mitigation. Mitigation measures would reduce the level of impact, but the following temporary impact would remain significant, unavoidable, and adverse after mitigation measures are applied.

6.1 AESTHETICS

Impact 5.1-1

Light levels would exceed the 0.5 foot-candle threshold and the proposed Project would result in new lighting that would intrude on neighboring residential uses and could affect nighttime views. The mitigation measure identified above would reduce potential impacts associated with light trespass to the extent feasible. The requirement that the light be shielded and aimed to reduce light trespass to the greatest extent possible would minimize the impact; however, significant levels of light from the proposed Project would still spill onto adjoining residential uses and would result in a significant unavoidable adverse impact.

6.2 NOISE

Impact 5.4-1

Construction-generated noise levels would exceed the 65 dBA L_{eq} significance threshold and the proposed Project would result in temporary noise levels near sensitive receptors. The mitigation measure identified above would reduce potential impacts associated with construction activities to the extent feasible. Limiting construction operation, using sound blankets, and staging equipment away from sensitive receptors would minimize the impact; however, short-term construction-generated noise levels would still exceed the established threshold and would result in a temporary significant and unavoidable impact.

6. Significant Unavoidable Adverse Impacts

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7. Alternatives to the Proposed Project

7.1 INTRODUCTION

7.1.1 Purpose and Scope

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) include a discussion of reasonable project alternatives that would “feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any significant effects of the project, and evaluate the comparative merits of the alternatives” (CEQA Guidelines § 15126.6[a]). As required by CEQA, this chapter identifies and evaluates potential alternatives to the proposed project.

Section 15126.6 of the CEQA Guidelines explains the foundation and legal requirements for the alternatives analysis in an EIR. Key provisions are:

- “[T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.” (15126.6[b])
- “The specific alternative of ‘no project’ shall also be evaluated along with its impact.” (15126.6[e][1])
- “The no project analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” (15126.6[e][2])
- “The range of alternatives required in an EIR is governed by a ‘rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.” (15126.6[f])
- “Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries..., and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent)” (15126.6[f][1]).

7. Alternatives to the Proposed Project

- “Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.” (15126.6[f][2][A])
- “An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.” (15126.6[f][3])

For each development alternative, this analysis:

- Describes the alternative.
- Analyzes the impact of the alternative as compared to the proposed project.
- Identifies the impacts of the project that would be avoided or lessened by the alternative.
- Assesses whether the alternative would meet most of the basic project objectives.
- Evaluates the comparative merits of the alternative and the project.

According to Section 15126.6(d) of the CEQA Guidelines, “[i]f an alternative would cause...significant effects in addition those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.”

7.1.2 Project Objectives

As described in Section 3.2, the following objectives have been established for the proposed project and will aid decision makers in their review of the project, the project alternatives, and associated environmental impacts.

- Provide a recreational multi-purpose athletic field for the City of Glendale residents
- Utilize existing space to enhance opportunities for after-school athletic and extracurricular activities
- Allow use of the facility by District-approved community groups
- Respond to City of Glendale residents’ request for youth athletic playing fields
- Conserve water resources by replacing natural turf field with no water/non-living artificial turf field
- Provide lighting to allow night use of the sports field

7.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Pursuant to CEQA Guidelines Section 15126.6[b], alternatives to the proposed project include those that are capable of avoiding or substantially lessen any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. Therefore, based on the analysis contained in Chapter 5, *Environmental Analysis*, the proposed project would result in significant environmental effects prior to mitigation on the topics of air quality, aesthetics, greenhouse gas emissions, noise, transportation and traffic, and energy. Following mitigation, however, all impacts with the exception of light trespass and construction noise would be reduced to less than significant levels. With mitigation, the proposed project would have two significant and unavoidable operational nighttime lighting and temporary construction noise impacts.

7. Alternatives to the Proposed Project

7.3 ALTERNATIVES CONSIDERED AND REJECTED DURING THE SCOPING/PROJECT PLANNING PROCESS

The following is a discussion of the alternatives considered during the scoping and planning process and the reasons why they were not selected for detailed analysis in this EIR.

7.3.1 Alternative Development Areas

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR (CEQA Guidelines § 15126[5][B][1]).

7.3.1.1 EXISTING CITY / COMMUNITY PARKS & FIELDS

Alternative locations presented at community meetings and in comment letters addressed the use of existing City-owned land to be developed and/or utilized for recreational programming in lieu of the proposed project site. Locations presented are assessed for feasibility below:

- **Glendale Community College:** The stadium at Glendale Community College is utilized by the football, soccer, and track and field teams for practices and home games. Additional youth and/or adult programming would encroach on current activity programming. As such, this site was rejected from further analysis.
- **Glendale High School:** The stadium at Glendale High School is currently utilized by soccer, lacrosse and Glendale Unified School District football teams for both practices and home games. Utilizing the field space for additional youth programming would displace current users of the site. No additional developable spaces are located on the project site. As such, this site was rejected from further analysis.
- **John Ferraro Athletic Fields:** Lighted turf soccer fields currently exist north of the L.A. Zoo in the City of Los Angeles. Utilizing this space would not meet the project objective of developing spaces for youth athletic playing fields within the City. As such, this site was rejected from further analysis.
- **Stengel Field:** Stengel Field is a 3.50-acre area located within Verdugo Park, adjacent to Glendale Community College, and is currently developed as a softball/baseball diamond. Grass fields adjacent to the diamond are already developed as recreation and picnic spaces. Development of any portion of Verdugo Park would reduce existing amenities available to the residents of Glendale. While playfields could be developed in the areas utilized for picnics and passive recreation, which contains a large grove of mature sycamore trees, numerous oaks, and a young stand of redwoods, as well as a small dry stream. Development of this site for youth playing fields potentially would result in significant impacts relating to

7. Alternatives to the Proposed Project

aesthetics and biological resources that would not occur under the proposed Project. As such, this site was rejected from further analysis.

7.3.1.2 OPEN SPACE

Several city-owned parcels were identified by members of the public during the project scoping process as options to be converted to multipurpose fields in lieu of the proposed project location. Sites considered in the evaluation process are shown in Table 7-1, *City Owned Open Space Sites*.

Table 7-1 City Owned Open Space Sites

Name	Size	Location	Deed Recorded	GP/Zoning
Murchison Property	146.1 ac	San Rafael Hills	May 20, 2004	SR
Paulson Property	78.61 ac	San Rafael Hills (Glenoaks Blvd)	December 15, 2003	SR
Trammel Property	6.74 ac	San Rafael Hills (Chevy Oaks Cir)	December 8, 2004	SR
Flint Property	70.61 ac	San Rafael Hills (Cornwall Pl)	December 8, 2004	ROS III
Oakmont Open Space Area	253.1 ac	Verdugo Mtns (Oakmont View Dr)	Dec. 19, 2002 (City and Conservancy bought property) & March 21, 2003 (to State)	SR
Mountain Street/SR-2 Open Space Area	28.78 ac	San Rafael Hills (Glenmore Blvd)	August 30, 2002	SR

All of these parcels are located within the Verdugo Mountains or San Rafael Hills area of the City. The sites are undeveloped and were deeded to the City of for designated open space areas. Development of any of these sites that would require extensive grading and construction to make suitable for use as soccer fields. Environmental impacts of developing these areas would far exceed those of the proposed project. The use of these spaces as soccer fields is not permitted as part of the General Plan Open Space designation. The sites are infeasible with regards to economic viability due to the extensive construction and potential environmental disruption to natural hillside areas that would be necessary to use them as playfields and related infrastructure, including access roads, parking and new sources of noise and lighting. Access issues are present due to the remote and/or undeveloped nature of the sites. Grading and alteration of the slopes on these parcels would likely result in greater impacts with regard to aesthetics, air quality, biological resources, energy geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, noise (on both nearby residential uses and the natural resources that utilize these sites), public services, transportation and traffic, tribal cultural resources and utilities. Development of these sites for active recreational uses would not be consistent with the policies set forth in the City's General Plan or the conditions of the deeds in which these properties were granted to the City. Therefore, the sites will not be further analyzed for use as a viable project site alternative.

7.3.1.3 SITE "A".

The City owns an approximately six-acre parcel that could potentially be developed as a sports complex as shown in Figure 7-1, *Alternative Development Site "A" Aerial*, and Figure 7-2, *Alternative Development Site "A" Boundary*. Site "A" is an undeveloped Open Space site in the San Rafael Hills, mostly comprised of gently

7. Alternatives to the Proposed Project

sloping artificially compacted fill placed by Caltrans in the late 70's in association with the construction of the adjacent Glendale Freeway. The City acquired the site from Caltrans in 1983. It has the potential to be developed for active recreation similar to the nearby Glendale Sports Complex, but is constrained by the limited access on Fern Lane, a residential street already serving the Sports Complex. The site is currently utilized by the Glendale RC airplane club and community based beekeeping. Further, uphill from the site the Glendale Police Department operates an outdoor police shooting range. The site can only be accessed via a narrow two-lane street through residential neighborhoods. Therefore, development of the site for youth soccer fields would potentially result in significant traffic impacts. Additionally, the site would require extensive grading and construction to make suitable for use as soccer fields, which would result to greater impacts related to air quality resources and greenhouse gas emissions. Due to the traffic and construction related impacts, the environmental impacts of developing this site would be greater than those of the proposed project and the site will not be further analyzed for use as a viable project site alternative.

7.4 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

Based on the criteria listed above, the following two alternatives have been determined to represent a reasonable range of alternatives which have the potential to feasibly attain most of the basic objectives of the project, but which may avoid or substantially lessen any of the significant effects of the project. These alternatives are analyzed in detail in the following sections.

- No Project/Existing General Plan Alternative
- Multi-Purpose Field with No Lighting Alternative

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Figure 7-1 - Alternative Development Site "A" Aerial
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— — Alternative Project Site

0 450
Scale (Feet)



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Figure 7-2 - Alternative Development Site "A" Boundary
7. Alternatives to the Proposed Project



— Alternative Project Site



Source: City of Glendale

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An EIR must identify an “environmentally superior” alternative and where the No Project Alternative is identified as environmentally superior, the EIR is then required to identify as environmentally superior an alternative from among the others evaluated. Each alternative's environmental impacts are compared to the proposed project and determined to be environmentally superior, neutral, or inferior. However, only those impacts found significant and unavoidable are used in making the final determination of whether an alternative is environmentally superior or inferior to the proposed project. Of the impacts assessed involving aesthetics, air quality, greenhouse gas emissions, noise, and traffic, two, nighttime light trespass and construction noise impacts was found to be significant and unavoidable. Section 7.7 identifies the Environmentally Superior Alternative.

7.5 NO PROJECT/EXISTING GENERAL PLAN ALTERNATIVE

The CEQA Guidelines requires the analysis of a No Project Alternative. This analysis must discuss the existing site conditions as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved.

Under the No Project Alternative, the proposed synthetic turf field and track, 60-foot light poles, and restroom/storage building would not be constructed. The existing playfield would continue to be used only during the day time by WMS physical education and school sports programs, and by permitted outside sporting groups on weekends. This alternative would not meet any of the project objectives.

7.5.1 Aesthetics

Under this alternative, no structural or any other visual changes to the existing WMS campus facilities would occur, and no nighttime lighting would be installed. There would be no changes to the physical environment and no light and glare impacts would occur. This alternative is environmentally superior to the proposed project.

7.5.2 Air Quality

No construction would be required under this alternative; therefore, no construction-related air quality impacts would occur. The No Project Alternative is environmentally superior to the project during construction, and comparable during operation.

7.5.3 Greenhouse Gas Emissions

Under this alternative, no restroom/storage building, turf field and track, or lighting systems would be developed. Therefore, the projected GHG emissions from construction and on-site energy uses would be less than the proposed project. This alternative is environmentally superior to the proposed project.

7.5.4 Noise

No construction noise impact would occur under this alternative. Construction noise impacts resulting from the proposed project would be a temporary significant and unavoidable impact and would cease upon

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completion of construction. Under this alternative, field use would continue only during daytime hours, and noise would not increase at the residences adjacent to WMS. Because the proposed project would expose residences to increased nighttime noise and construction noise, this alternative is environmentally superior to the proposed project.

7.5.5 Transportation and Traffic

All study intersections are projected to operate at an acceptable LOS with the proposed project. The No Project Alternative would eliminate additional traffic volumes and parking demands on streets surrounding WMS presented as part of the proposed project. No changes to parking capacity would occur under this alternative. Because of the reduction in localized traffic, the No Project Alternative is considered environmentally superior to the proposed project.

7.5.6 Conclusion

This alternative would lessen environmental impacts in the areas of construction air quality, greenhouse gas emissions, noise, and transportation and traffic, and avoid the nighttime lighting impact. This alternative would be considered environmentally superior to the proposed project. However, the No Project alternative does not meet any of the project objectives.

7.6 MULTI-PURPOSE FIELD WITH NO LIGHTING

This alternative would provide a synthetic turf field as shown in Figure 7-3, *Multi-Purpose Field with No Lights Alternative Plan*, with no nighttime lighting. All other aspects of the proposed project including the redevelopment of the existing grass field and paved basketball courts with a joint use multi-purpose synthetic all-weather sports field with football, soccer, and lacrosse markings and surrounding five-lane all-weather rubberized surface jogging track, fitness equipment, perimeter security fence with privacy screening, restroom and storage/maintenance building(s), walkways, landscaping, irrigation, re-grading of the existing basketball court surface would remain the same. Operation of the WMS field would continue as under the existing joint use agreement, and outside sporting groups would continue to be individually permitted by Glendale Unified School District (GUSD) to use the practice field on weekends generally between the hours of 8:30 AM and 6:00 p.m. on Saturdays and 8:00 a.m. and 6:00 p.m. on Sundays, or as available lighting permits. This alternative would eliminate any aesthetic impacts from the 70-foot lights, as well as reduce greenhouse gas, noise, and traffic impacts due to decreased field usage. The multi-purpose field would be utilized by outside groups after school hours and on weekends, however, no nighttime usage would occur under this alternative.

7.6.1 Aesthetics

This alternative would eliminate the installation of 70-foot tall field lights. The overall character of the site would be similar to that of the proposed project but because there would be no nighttime lighting, no light spill and glare impacts would occur, and the nighttime views from surrounding sensitive receptors would not change. This alternative would primarily update and replace the existing WMS athletic facilities without adding nighttime use. This alternative would result in an improvement to the overall quality of the WMS

7. Alternatives to the Proposed Project

sports field without causing any spill light or glare impacts. This alternative would be environmentally superior compared to the proposed project, as it would avoid the identified significant and unavoidable impact of the proposed project due to new sources of nighttime lighting.

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Figure 7-3 - Multi-Purpose Field with No Lights Alternative Plan
7. Alternatives to the Proposed Project



— School Boundary

- - - Project Site



Source: Google Earth Pro, 2017

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7.6.2 Air Quality

Construction of the multi-purpose field under this alternative would be of similar duration to that of the proposed project. Therefore, temporary construction related emissions of criteria pollutants would be similar to the proposed project. Development of the multi-purpose field without lights would not allow for evening usage, reducing the frequency that users travel to access the field. Emissions from mobile sources would be reduced from those evaluated for the proposed project as a reduction of vehicle miles travelled (VMT) related to this decrease in field usage. Impacts would be less than significant and reduced from the proposed project. However, operational air quality impacts were not identified as significant for the proposed project.

7.6.3 Greenhouse Gas Emissions

This alternative would generate a reduced amount of GHG emissions from vehicle trips and would eliminate emissions from lighting system operation (indirectly from purchased electricity use). Construction of the multi-purpose field under this alternative would be of similar duration to that of the proposed project. Therefore, temporary greenhouse gas emissions impacts during construction would be similar to the proposed project. The greatest project-related GHG emission source is from vehicle trips, and electricity used for lighting is also an emission source. VMT related to field usage would be reduced compared to the proposed project due to the decrease in available field accessibility. This alternative would have similar but slightly reduced GHG-related impacts as compared to the proposed project and would therefore be considered environmentally superior. However, GHG impacts were not identified as significant for the proposed project.

7.6.4 Noise

This alternative would result in similar construction noise impacts as the proposed project from synthetic turf installation and from construction of the restrooms and other supporting facilities. During operation, noise impacts would be significantly reduced as no evening practices, games or field usage would occur under this alternative. As such, this alternative is environmentally superior to the proposed project, and this alternative would have similar construction impacts with implementation of the mitigation measures identified for the proposed Project, and reduced operation impacts from the proposed project. Construction noise impacts would remain significant and unavoidable. Therefore, this alternative is environmentally superior to the proposed project. However, operational noise impacts were found to be less than significant for the proposed project.

7.6.5 Transportation and Traffic

This alternative would reduce the amount of traffic on the nearby street system compared to the proposed project. The proposed project traffic study analyzed a usage rate that would generate a total of 49 peak hour trips during a weekday evening youth game and 215 during the weekend peak hour. This alternative would result in a similar number of trips as under the existing conditions, and a reduction from the proposed project as evening use of the field would not occur at the project site. However, the proposed project would not result in significant impacts to any of the study intersections, and no mitigation measures have been

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identified. Under this alternative, it is assumed that parking for youth soccer games could be accommodated with existing on-campus parking. Under this alternative, the absence of field lighting would not allow for nighttime use of the field and would result in a decrease in traffic and parking impacts during nighttime hours as compared to the proposed project. This alternative is environmentally superior to the proposed project.

7.6.6 Energy

While construction energy impacts under this alternative would be similar to those of the proposed project, no operational energy resources would be used for field lighting. Under this alternative, operational energy usage would not increase at WMS. Because implementation of the proposed project would use operational energy resources, this alternative is considered environmentally superior to the proposed project.

7.6.7 Conclusion

The No Lighting alternative would have reduced environmental impacts in the areas of aesthetics, construction air quality, greenhouse gas emissions, noise, and transportation and traffic. This alternative would be considered environmentally superior to the proposed project. However, the No Lighting alternative does not meet the project objectives of utilizing the existing space to enhance opportunities for after-school athletic and extracurricular activities and providing lighting to allow night use of the sports field.

7.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires a lead agency to identify the “environmentally superior alternative” and, in cases where the “No Project” Alternative is environmentally superior to the proposed project, the environmentally superior development alternative must be identified. One alternative has been identified as “environmentally superior” to the proposed project:

- Multi-Purpose Field with No Lighting

The No Lighting Alternative has been identified as the environmentally superior alternative. This alternative would reduce impacts associated with air quality, greenhouse gas emissions, operational noise, and transportation and traffic, and eliminate the significant and unavoidable nighttime lighting impact. Construction noise impacts would remain significant and unavoidable and the remaining impacts are generally the same as the proposed project. Elimination of the significant aesthetic impact and elimination of light and glare mitigation would warrant this alternative as the superior alternative. However, it would not achieve some of the project objectives and would not meet the project objectives to the degree achieved by the proposed project.

As stated in Section 7.1.2, the main objective of the project is to provide a recreational multi-purpose athletic field for the City residents by enhancing the existing space and extending opportunities for use. The No Lighting Alternative would only allow day usage to occur on the WMS campus. Therefore, the objective to provide lighting to allow night use of the sports field would not be met. While this alternative would enhance opportunities for after-school athletic and extracurricular activities on the WMS campus, the opportunities would only be for daytime. Among the factors that may be used to eliminate alternatives from detailed

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consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts” (Guidelines Sec. 15126.6[c]). Because this alternative would not meet the most basic project objectives to allow nighttime practices and games to occur on the W MS multi-purpose field, this alternative is not a preferred alternative to the proposed project.

7. Alternatives to the Proposed Project

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8. Impacts Found Not to Be Significant

California Public Resources Code Section 21003 (f) states: "...it is the policy of the state that...[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical, and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." This policy is reflected in the State California Environmental Quality Act (CEQA) Guidelines (Guidelines) Section 15126.2(a), which states that "[a]n EIR [Environmental Impact Report] shall identify and focus on the significant environmental impacts of the proposed project" and Section 15143, which states that "[t]he EIR shall focus on the significant effects on the environment." The Guidelines allow use of an Initial Study to document project effects that are less than significant (Guidelines Section 15063[a]). Guidelines Section 15128 requires that an EIR contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant, and were therefore not discussed in detail in the Draft EIR.

8.1 ASSESSMENT IN THE INITIAL STUDY

The Initial Study prepared for the proposed Project in August 2017 determined that impacts listed below would be less than significant. Consequently, they have not been further analyzed in this Draft EIR (DEIR). Please refer to Appendix A1 for explanation of the basis of these conclusions. Impact categories and questions below are summarized directly from the CEQA Environmental Checklist, as contained in the Initial Study.

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues	Initial Study Determination
I. AESTHETICS. Would the project:	
a) Have a substantial adverse effect on a scenic vista?	Less Than Significant Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No Impact
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	Less Than Significant Impact
II. AGRICULTURE AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	

8. Impacts Found Not to Be Significant

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues	Initial Study Determination
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	No Impact
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	
e) Create objectionable odors affecting a substantial number of people?	Less Than Significant Impact
IV. BIOLOGICAL RESOURCES. Would the project:	
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	No Impact
V. CULTURAL RESOURCES. Would the project:	
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Less Than Significant Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less Than Significant Impact
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	Less Than Significant Impact
VI. GEOLOGY AND SOILS. Would the project:	
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	

8. Impacts Found Not to Be Significant

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues	Initial Study Determination
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	No Impact
ii) Strong seismic ground shaking?	Less Than Significant Impact
iii) Seismic-related ground failure, including liquefaction?	Less Than Significant Impact
iv) Landslides?	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	Less Than Significant Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Less Than Significant Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	Less Than Significant Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:	
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less Than Significant Impact
b) Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Less Than Significant Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Less Than Significant Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	No Impact
IX. HYDROLOGY AND WATER QUALITY. Would the project:	
a) Violate any water quality standards or waste discharge requirements?	Less Than Significant Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	Less Than Significant Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site	Less Than Significant Impact

8. Impacts Found Not to Be Significant

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues	Initial Study Determination
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	Less Than Significant Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	Less Than Significant Impact
f) Otherwise substantially degrade water quality?	Less Than Significant Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	No Impact
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	No Impact
j) Inundation by seiche, tsunami, or mudflow?	No Impact
X. LAND USE AND PLANNING. Would the project:	
a) Physically divide an established community?	No Impact
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	No Impact
XI. MINERAL RESOURCES. Would the project:	
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	No Impact
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	No Impact
XII. NOISE. Would the project result in:	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No Impact
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	No Impact
XIII. POPULATION AND HOUSING. Would the project:	
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	No Impact
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	No Impact
XIV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	
a) Fire protection?	Less Than Significant Impact
b) Police protection?	Less Than Significant Impact

8. Impacts Found Not to Be Significant

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues	Initial Study Determination
c) Schools?	No Impact
d) Parks?	No Impact
e) Other public facilities?	No Impact
XV. RECREATION.	
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	No Impact
XVI. TRANSPORTATION/TRAFFIC. Would the project:	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	No Impact
XVII. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	Less Than Significant Impact
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Less Than Significant Impact
XVIII. UTILITIES AND SERVICE SYSTEMS. Would the project:	
a) Exceed waste water treatment requirements of the applicable Regional Water Quality Control Board?	Less Than Significant Impact
b) Require or result in the construction of new water or waste water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Less Than Significant Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Less Than Significant Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources or are new or expanded entitlements needed?	Less Than Significant Impact
e) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Less Than Significant Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	Less Than Significant Impact
g) Comply with federal, state, and local statutes and regulations related to solid waste?	Less Than Significant Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE.	

8. Impacts Found Not to Be Significant

Table 8-1 Impacts Found Not to Be Significant

Environmental Issues	Initial Study Determination
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	Less Than Significant Impact

9. Significant Irreversible Changes Due to the Proposed Project

Section 15126.2(c) of the CEQA Guidelines requires that an EIR describe any significant irreversible environmental changes that would be caused by implementation of the proposed Project. Specifically, the CEQA Guidelines state:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highways improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The proposed Project would entail the commitment of nonrenewable and/or slowly renewable energy sources such as gasoline, diesel fuel, and electricity; human resources; and natural resources such as lumber and other forest products; sand and gravel; asphalt; steel, copper, lead, other metals; and water. A very minor increased commitment of social services and public maintenance services (e.g., police, fire, sewer, water, solid waste, natural gas, and electricity services) would also be required. Such commitments are currently required for the operation of the existing 6th-8th grade school, but would be slightly increased due to the proposed Project.

However, given the low likelihood that the Project site would revert to a less intense land use requiring less services, energy, or physical resources in the future, implementation of the proposed Project would generally commit future generations to the same environmental changes associated with the current school use.

9. Significant Irreversible Changes Due to the Proposed Project

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10. Growth–Inducing Impacts of the Proposed Project

Pursuant to Sections 15126(d) and 15126.2(d) of the CEQA Guidelines, this section is provided to examine ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Also required is an assessment of other projects that would foster other activities which could affect the environment, individually or cumulatively. To address this issue, potential growth-inducing effects will be examined through analysis of the following questions:

- Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?
- Would this project result in the need to expand one or more public services to maintain desired levels of service?
- Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?
- Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

Please note that growth-inducing effects are not to be construed as necessarily beneficial, detrimental, or of little significance to the environment. This issue is presented to provide additional information on ways in which this project could contribute to significant changes in the environment, beyond the direct consequences of developing the land use concept examined in the preceding sections of this EIR.

Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?

Implementation of the proposed Project would not require extension of major infrastructure to places currently unserved by such facilities. The Project site is already developed as a grass field and paved basketball courts on a middle school campus, located within a residential neighborhood, served by infrastructure such as water and sewer mains and electricity and natural gas services. The proposed Project would not change the underlying land use of the Project site and would not change the existing regulations pertaining to land development.

10. Growth-Inducing Impacts of the Proposed Project

Would this project result in the need to expand one or more public services to maintain desired levels of service?

The proposed Project would serve the existing WMS campus athletic programs and would not increase total campus enrollment or capacity in the District. The proposed Project would not require expansion of facilities and personnel for fire protection or police services to maintain desired levels of service. Additionally, the City would have a Community Services & Parks Department employee on site during permitted field times when the school is not in use. Expanded police services would not be required to maintain desired levels of service. The proposed Project would not result in growth-inducing impacts related to public services.

Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?

Construction would generate short-term employment. However, considering the size and scale of the proposed Project, it would not encourage or facilitate economic effects that could result in other activities that could affect the environment. It is anticipated that construction employment could be absorbed from the regional labor force and would not attract new workers into the city permanently. Operation of the proposed Project would not increase total employment at the Wilson MS campus since it would accommodate the existing school programs, and would not introduce new uses to the Project site. A City employee would be on-site during evening field use. The proposed Project would not result in growth inducing impacts in this regard.

Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

The proposed Project involves the redevelopment of the existing grass field and paved basketball courts at an existing school campus. There is no precedent-setting action that could encourage and/or facilitate other activities that could significantly affect the environment. No growth-inducing impact would occur in this regard.

11. Organizations and Persons Consulted

Glendale Unified School District

Tony Barrios, Executive Director of Planning, Development and Facilities

Glendale Fire Department

Jeff Halpert

Glendale Police Department

Lieutenant John Gilkerson

11. Organizations and Persons Consulted

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12. Qualifications of Persons Preparing EIR

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