

Irvine Unified School District

NORTHWOOD HIGH SCHOOL FIELD LIGHTING IMPROVEMENT PROJECT

September 2025 | Draft Environmental Impact Report

State Clearinghouse No. 2025051426



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for Irvine Unified School District

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Irvine Unified School District

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This executive summary has been prepared in compliance with the California Environmental Quality Act (CEQA) Guidelines Section 15123. This Draft Environmental Impact Report (DEIR) addresses the environmental effects associated with the implementation of the proposed Northwood High School Field Lighting Improvement Project (proposed project). CEQA requires that local government agencies consider the environmental consequences before acting on projects over which they have discretionary approval authority. An environmental impact report (EIR) analyzes potential environmental consequences to inform the public and support informed decisions by local and State governmental agency decision makers.

This DEIR has been prepared pursuant to the requirements of CEQA and the Irvine Unified School District's (IUSD or District) CEQA procedures. The District, 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 District technical personnel from other departments and review of all technical subconsultant reports.

ES.2 ENVIRONMENTAL PROCEDURES

This DEIR has been prepared pursuant to CEQA and the CEQA Guidelines 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.

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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.

ES.2.1 Draft EIR Organization

Executive Summary. Summarizes the background and description of the proposed project, the format of this DEIR, project alternatives, any critical issues remaining to be resolved, and the potential environmental impacts and recommended mitigation measures identified for the project.

Chapter 1: Introduction. Describes the purpose of this EIR, background on the project, the notice of preparation, the use of incorporation by reference, and Final EIR certification.

Chapter 2: Project Description. Provides a detailed description of the proposed project, including its objectives, location, approvals anticipated to be required as part of the project, necessary environmental clearances, and the intended uses of this EIR.

Chapter 3: Environmental Analysis. Each environmental topic is analyzed in a separate section that discusses: the applicable regulatory framework; existing conditions; the significance criteria used to determine if a significant impact would occur; the methodology to identify and evaluate the potential impacts of the project; the potential adverse and beneficial effects of the project; the level of impact significance with and without mitigation; and the potential cumulative impacts of the proposed project and other existing, approved, and proposed projects in the area.

Chapter 4: 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 Restricted Hours Alternative.

Chapter 5: Other CEQA Considerations. Provides a discussion of effects found not to be significant, significant and unavoidable impacts, significant irreversible changes to the environment, and growth-inducing effects.

Chapter 6: Report Preparers and Organizations Consulted. Includes a list of people and organizations that prepared or were contacted during the preparation of this Draft EIR.

Appendices. The appendices for this document include the following supporting documents:

- Appendix A: Notice of Preparation and Scoping Comments
- Appendix B: Musco Lighting Plans
- Appendix C: Air Quality and Greenhouse Gas Emissions Analysis
- Appendix D: Geotechnical Report
- Appendix E: Noise and Vibration Analysis
- Appendix F: Transportation Impact Assessment
- Appendix G: Tribal Consultation Letters

ES.2.2 Type and Purpose of this DEIR

As described in the CEQA Guidelines, different types of EIRs are used for varying situations and intended uses.

This Draft EIR has been prepared as a “Project EIR,” defined by CEQA Guidelines Section 15161 (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 DEIR shall examine all phases of the project, including planning, construction, and operation.

ES.3 PROJECT LOCATION

The Northwood High School campus (Northwood HS or campus) is located at 4515 Portola Parkway (Assessor’s Parcel Number 527-151-03) in the City of Irvine in Orange County. The project site is bounded by Yale Avenue to the east, Portola Parkway to the south, vacant land to the west, and Twisted Oak to the north. The campus is located approximately 1 mile to the east of State Route 261 (SR-261) and 2.2 miles north of Interstate 5 (I-5).

The City of Irvine is in close proximity to the cities of Tustin, Santa Ana, Costa Mesa, and Newport Beach on the west side and the cities of Lake Forest, Laguna Hills, and Laguna Woods and unincorporated Orange County on the east side.

ES.4 SUMMARY OF THE PROPOSED PROJECT

The proposed project would include the installation of new permanent field lights around the existing football field and infrastructure to allow for a future public address (PA) system. The football field is expected to be used until 10:00 p.m. and include new events/uses of the fields

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during light operating hours that would include band practice; football, lacrosse, and soccer games; and track and field events that are currently held off-campus.

ES.5 SUMMARY OF PROJECT ALTERNATIVES

The CEQA Guidelines Section 15126.6(a) states that an EIR must address “a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives.” The alternatives in this DEIR were based, in part, on their potential to reduce or eliminate the impacts determined to be potentially significant for implementation of the proposed project (see Table ES-1, *Summary of Significant Environmental Impacts and Mitigation Measures*). The project alternatives were not reviewed for financial feasibility. Project alternatives are assessed in further detail in Chapter 4, *Alternatives to the Proposed Project*.

ES.5.1 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 improvements at Northwood High School would not be implemented. The project site on campus would not have permanent lighting, and students would continue to practice and play home games at an off-site location during the evening and winter months. This alternative would not meet any of the project objectives.

ES.5.2 Restricted Hours Alternative

Under the Restricted Hours Alternative, the proposed Northwood High School Field Lighting Improvement Project would be implemented and would include the installation of four new athletic field lights around the existing football field and infrastructure to allow for a future public address (PA) system. Under this Alternative, the difference from the proposed project would be that field use would be required to stop at 9:00 p.m. and lights would turn off at 9:00 p.m. instead of 10:00 p.m. This alternative would result in similar impacts as the proposed project related to aesthetics, air quality, greenhouse gas emissions, noise, and transportation. However, this alternative would not meet two of the five objectives of the project (see Chapter 4).

ES.6 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. For 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.
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.

ES.7 AREAS OF CONTROVERSY

In accordance with Section 15123(b)(2) of the CEQA Guidelines, the Executive Summary must identify areas of controversy known to the lead agency, including issues raised by agencies and the public. Prior to preparation of the DEIR, the District issued a Notice of Preparation (NOP) on from May 28, 2025. The CEQA-mandated scoping period for this DEIR was between May 28, 2025, and June 26, 2025, during which interested agencies and the public could submit comments about the potential environmental impacts of the proposed project. During this time, the District received comment letters from the Department of Toxic Substances Control (DTSC), the Native American Heritage Commission (NAHC), and the Gabrieleño Band of Mission Indians–Kizh Nation. Appendix A, *Notice of Preparation and Scoping Comments*, of this DEIR contains the NOP as well as the comments received by the District in response to the NOP.

The following is a discussion of issues that are likely to be of particular concern to agencies and interested members of the public during the environmental review process. Though every concern applicable to the CEQA process is addressed in this DEIR, this list is not necessarily exhaustive but rather attempts to capture concerns that are likely to generate the greatest interest based on the input received during the scoping process.

- The Gabrieleño Band of Mission Indians–Kizh Nation requested government-to-government constitution with the District pursuant to Assembly Bill 52 (AB 52)

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ES.8 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Chapter 5, *Other CEQA Considerations*, concluded impacts to agriculture and forestry resources, biological resources, energy, greenhouse gas emissions, land use and planning, mineral resources, population and housing, public services, recreation, and wildfire would not be significant.

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

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Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
AESTHETICS			
Impact AES-a): The project would not have a substantial adverse effect on a scenic vista.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact AES-b): The proposed project would not substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.	No impact	No mitigation measures are required.	No impact
Impact AES-c): The project is in an urbanized area, and the project would not conflict with applicable zoning and other regulations governing scenic quality.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact AES-d): The proposed project would not expose people on- or off-site to substantial light or glare which would adversely affect day or nighttime views in the area.	Less Than Significant	No mitigation measures are required.	Less Than Significant
AIR QUALITY			
Impact AQ-a): The proposed project would not conflict with or obstruct implementation of the applicable air quality plan.	Less Than Significant	No mitigation measures are required.	Less Than Significant

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Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
Impact AQ-b): The proposed project would not 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.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact AQ-c): The proposed project would not expose sensitive receptors to substantial pollutant concentrations.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact AQ-d): The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Less Than Significant	No mitigation measures are required.	Less Than Significant
CULTURAL RESOURCES			
Impact CUL-a): The proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact CUL-b): The proposed project could cause a substantial adverse change in the significance of an archaeological resource	Potentially Significant	Mitigation Measure CUL-1: Prior to the commencement of grading activities, the District shall ensure that an archaeologist who meets the Secretary of the Interior's (SOI) standards for professional archaeology has been retained for the proposed project and will be on-call during	Less Than Significant

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
pursuant to CEQA Guidelines Section 15064.5.		<p>all grading and other significant ground-disturbing activities that would occur beneath the existing artificial fill. The qualified archaeologist shall ensure that the following measures are followed for the proposed project:</p> <ul style="list-style-type: none"> ■ Prior to any ground disturbance, the Qualified Archaeologist will conduct a preconstruction Cultural Resources Awareness Training (CRAT) to familiarize the members of the construction team overseeing or conducting ground-disturbing activities with the archaeological sensitivity of the project area, the potential to encounter archaeological resources, the types of archaeological material that could be encountered, and procedures to follow if archaeological deposits and/or artifacts are encountered during construction. The SOI-qualified archaeologist shall prepare and distribute a brochure describing the appropriate actions to take if any archaeological resources are encountered. ■ Prior to any ground disturbance, the (SOI)-qualified archaeologist shall prepare an Archaeological and Tribal Monitoring Plan that outlines the methods to be undertaken during monitoring and the steps to be taken in the event of an archaeological discovery. ■ In the event that a prehistoric archeological site indicators (such as obsidian and chert flakes and chipped stone tools; grinding and mashing implements [e.g., slabs and hand stones, and mortars and pestles]; bedrock outcrops and boulders with mortar cups; and locally darkened midden soils) or a historic-period archaeological site indicators (such as fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits [e.g., wells, privy pits, dumps]), is uncovered during grading or other construction activities, all ground-disturbing activity within 50 feet of the discovery shall be halted. The District shall be notified of the 	

EXECUTIVE SUMMARY

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
		<p>potential find and a qualified archeologist shall be retained to investigate its significance (CEQA Guidelines 15064.5[f]).</p> <ul style="list-style-type: none"> If significant Native American cultural resources are discovered for which a treatment plan must be prepared, the District or the archaeologist on-call shall contact the applicable Native American tribal representative(s). If requested by the Native American tribe(s), the District or archaeologist on call shall, in good faith, consult on the discovery and its disposition (e.g., avoidance, preservation, reburial, re-turn of artifacts to tribe). 	
Impact CUL-c): The proposed project could disturb any human remains, including those interred outside of dedicated cemeteries.	Less Than Significant	No mitigation measures are required.	Less Than Significant
GEOLOGY AND SOILS			
Impact GEO-a: The proposed project would not subject residents [or occupants, visitors, etc.] to potential seismic-related hazards, including the risk of loss, injury, or death involving: 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.)	Less Than Significant	No mitigation measures are required.	Less Than Significant

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
Strong seismic ground shaking. Seismic-related ground failure, including liquefaction. Landslides.			
Impact GEO-b): The proposed project would not result in substantial soil erosion or the loss of topsoil?	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact GEO-c): The proposed project would not 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	No mitigation measures are required.	Less Than Significant
Impact GEO-d): The proposed project would not be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact GEO-e): The proposed project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater	No Impact	No mitigation measures are required.	No Impact

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Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
disposal systems where sewers are not available for the disposal of wastewater?			
Impact GEO-f): The proposed project may indirectly destroy a unique paleontological resource.	Potentially Significant	Mitigation Measure GEO-1: In the event that fossils or fossil locality deposits are discovered during construction, excavations within 50-feet of the fossil locality shall be temporarily halted until removal of the fossil localities. The contractor shall notify a qualified paleontologist to investigate its significance. If the fossil locality is determined to be significant by the qualified paleontologist, the paleontologist shall work with the District to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the District determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important.	Less Than Significant
HAZARDS AND HAZARDOUS MATERIALS			
Impact HAZ-a): The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact HAZ-b): The proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and	Less Than Significant	No mitigation measures are required.	Less Than Significant

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Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
accident conditions involving the release of hazardous materials into the environment.			
Impact HAZ-c): The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substance, or waste within one-quarter mile of an existing or proposed school.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact HAZ-d): The proposed project would not be located on a site that is included on a list of hazardous materials compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact HAZ-e): The proposed project would not be 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 result in a safety hazard or excessive noise for people residing or working in the project area.	No Impact	No mitigation measures are required.	No Impact

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Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
Impact HAZ-f): The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact HAZ-g): The proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	Less Than Significant	No mitigation measures are required.	Less Than Significant
HYDROLOGY AND WATER QUALITY			
Impact HYDRO-a): The proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact HYDRO-b): The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less Than Significant	No mitigation measures are required.	Less Than Significant

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
Impact HYDRO-c): The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: Result in substantial erosion or siltation on- or off-site. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impede or redirect flood flows.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact HYDRO-d): The proposed project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.	Less Than Significant	No mitigation measures are required.	Less Than Significant

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Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
Impact HYDRO-e): The proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less Than Significant	No mitigation measures are required.	Less Than Significant
NOISE			
Impact NOI-a): The proposed project would not generate 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.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact NOI-b): The proposed project would not generate excessive groundborne vibration or groundborne noise levels.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact NOI-c): The proposed project is not 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	No Impact	No mitigation measures are required.	No Impact

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Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
residing or working in the project area to excessive noise levels.			
TRANSPORTATION			
Impact TRANS-a): The proposed project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact TRANS-b): The proposed project would not conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	Less Than Significant	No mitigation measures are required.	Less Than Significant

EXECUTIVE SUMMARY

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
Impact TRANS-c): The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).?	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact TRANS-d): The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).?	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact TRANS-e): The proposed project would not result in inadequate emergency access?	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact TRANS-f): The proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	Less Than Significant	No mitigation measures are required.	Less Than Significant

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
TRIBAL CULTURAL RESOURCES			
Impact TCR-a): The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource 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).	Potentially Significant	<p>Mitigation Measure TCR-1: Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities.</p> <p>(a) The Irvine Unified School District (IUSD) shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any “ground-disturbing activity” for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). “Ground-disturbing activity” shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.</p> <p>(b) A copy of the executed monitoring agreement shall be submitted to the Irvine Unified School District (IUSD) prior to the earlier of the commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.</p> <p>(c) The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts,</p>	Less Than Significant

EXECUTIVE SUMMARY

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
		<p>remains, places of significance, etc., (collectively, tribal cultural resources, or “TCR”), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the Irvine Unified School District (IUSD) upon written request to the Tribe.</p> <p>(d) On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the Irvine Unified School District (IUSD) that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the Irvine Unified School District (IUSD) that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.</p> <p>Mitigation Measure TCR-2: Unanticipated Discovery of Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial)</p> <p>(a) Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe’s sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.</p>	

EXECUTIVE SUMMARY

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
		<p>Mitigation Measure TCR-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects</p> <p>(a) Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute.</p> <p>(b) If Native American human remains and/or grave goods are discovered or recognized on the project site, then Public Resource Code 5097.9 as well as Health and Safety Code Section 7050.5 shall be followed.</p> <p>(c) Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2).</p> <p>(d) Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods.</p> <p>(e) Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.</p>	
Impact TCR-b): The proposed project could cause a substantial adverse change to 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	Potentially Significant	Mitigation Measures TCR-1, TCR-2, TCR-3 and CUL-1.	Less Than Significant

EXECUTIVE SUMMARY

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			
UTILITIES AND SERVICE SYSTEMS			
Impact ULT-a): The proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact ULT-b): The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact ULT-c): The proposed project would result in a determination by the wastewater treatment provider which serves	Less Than Significant	No mitigation measures are required.	Less Than Significant

Table ES-1 Summary of Significant Environmental Impacts and Mitigation Measures

Environmental Impact	Level of Significance without Mitigation	Mitigation Measures	Level of Significance with Mitigation
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.			
Impact ULT-d): The proposed project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	Less Than Significant	No mitigation measures are required.	Less Than Significant
Impact ULT-e): The proposed project would comply with federal, state, and local statutes and regulations related to solid waste.	Less Than Significant	No mitigation measures are required.	Less Than Significant

EXECUTIVE SUMMARY

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1. INTRODUCTION

1.1 PURPOSE OF THE EIR

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” (CEQA Section 21067). The Irvine Unified School District (IUSD or District) has the principal responsibility for approval of the Northwood High School Field Lighting Improvement Project (proposed project). For this reason, IUSD is the CEQA lead agency for this project. The District will review and consider this EIR in its decision to approve, revise, or deny the project.

The intent of the DEIR is to provide sufficient information on the potential environmental impacts of the proposed project to allow the District to make an informed decision regarding approval of the project. Specific discretionary actions to be reviewed by the District are described in Section 2.7, *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, Sections 21000 et seq.)
- State Guidelines for the Implementation of the CEQA of 1970 (CEQA Guidelines), as amended (California Code of Regulations, Sections 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

INTRODUCTION

adverse; evaluates alternatives to the project; and identifies mitigation measures to reduce or avoid adverse effects.

1.2 ENVIRONMENTAL REVIEW PROCESS

1.2.1 Notice of Preparation

The District determined that an EIR would be required for this project and issued a Notice of Preparation (NOP) on May 28, 2025, for a 30-day public review period from May 28, 2025, to June 26, 2025 (see Appendix A). They were distributed to federal, state, tribal, regional, local government, and utility agencies and other interested parties to solicit comments and inform the public of the potential environmental issues that the EIR would address. Comments received during the NOP public review period are provided in Appendix A. No additional comments were presented at the scoping meeting, held on June 3, 2025.

The NOP process helps determine the scope of the environmental issues to be addressed in the DEIR. Based on this process, certain environmental categories were identified as having the potential to result in significant impacts. Issues considered Potentially Significant are addressed in this DEIR, and issues identified to result in no impacts or less than significant impacts are addressed in Chapter 5, *Other CEQA Considerations*, of this DEIR.

1.2.2 DEIR

The scope of the DEIR was determined based on the NOP, comments received in response to the NOP, and comments received at the scoping meeting conducted by the District on June 3, 2025. 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 2, *Project Description*, establishes the basis for analyzing future, project-related environmental impacts.

IMPACTS CONSIDERED LESS THAN SIGNIFICANT

The District determined that 10 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
- Energy

- Greenhouse Gas Emissions
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Wildfire

POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

The District determined that 10 environmental factors have potentially significant impacts if the proposed project is implemented. These categories are discussed in detail in this DEIR.

- Aesthetics
- Air Quality
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems

UNAVOIDABLE SIGNIFICANT ADVERSE IMPACTS

Unavoidable adverse impacts may be considered significant on a project-specific basis, cumulatively significant, and/or potentially significant. However, this DEIR did not identify any significant and unavoidable adverse impacts, as defined by CEQA, that would result from implementation of the proposed project.

1.2.3 Final EIR Certification

This DEIR is being circulated for public review for 45 days, from September 29, 2025, to November 12, 2025. Interested agencies and members of the public are invited to provide written comments on the DEIR to the District address shown on the title page of this document. Upon completion of the 45-day review period, the District will review all written comments received and prepare written responses for each. A Final EIR (FEIR) will incorporate the received comments, responses to the comments, and any changes to the DEIR that result from

INTRODUCTION

comments. The FEIR will be presented to the IUSD Board of Education 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 IUSD Board of Education.

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

- Irvine Unified School District, Facilities Planning and Construction Services Department, 2015 Roosevelt, Irvine, CA 92620
- Northwood High School, 4515 Portola Pkwy, Irvine, CA 92620
- Irvine Unified School District website: <https://iusd.org/business-services/facilities-planning-construction-services/bidder-information-public-notice>

1.3 MITIGATION MONITORING

Public Resources Code Section 21081.6 requires that agencies adopt a Mitigation Monitoring and Reporting Program (MMRP) for any project for which it has made findings pursuant to Public Resources Code Section 21081 or adopted a Negative Declaration pursuant to Section 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 MMRP for the proposed project will be completed as part of the FEIR, prior to consideration of the project by the IUSD School Board of Education.

1.4 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 District Office.

- City of Irvine Municipal Code
- City of Irvine General Plan

2. PROJECT DESCRIPTION

2.1 INTRODUCTION

The purpose of this chapter is to describe the proposed field lighting improvements at Northwood High School (proposed project) to the public, reviewing agencies, and decision makers. Pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines (CEQA Guidelines, Section 15124), an Environmental Impact Report (EIR) should contain a description of the proposed project that includes:

- (a) The precise location and boundaries of the proposed project;
- (b) A statement of the objectives sought by the proposed project, including the underlying purpose of the project;
- (c) A general description of the proposed project's technical, economic, and environmental characteristics; and
- (d) A statement briefly describing the intended uses of the EIR, including a list of the agencies that are expected to use the EIR in their decision making, a list of permits and other approvals required to implement the proposed project, and a list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

This Draft Environmental Impact Report (DEIR) has been completed in accordance with CEQA, which requires that State and local public agencies analyze proposed projects to determine potential impacts on the environment and disclose any such impacts. The Irvine Unified School District (IUSD or District) is the lead agency for the environmental review of the proposed project.

An adequate project description should not supply extensive detail beyond that needed for evaluation and review of environmental impacts. Accordingly, this chapter describes the necessary details of the proposed project that are critical in assessing the direct, indirect, long-term, and temporary impacts associated with project implementation. This chapter provides a detailed description of the proposed project, including the location, setting, and characteristics of the project site, as well as the project objectives, the principal project components, and required permits and approvals.

PROJECT DESCRIPTION

2.2 PROJECT BACKGROUND

In Spring 2024, the IUSD Board of Education requested that District staff explore the addition of field lighting at Northwood High School (Northwood HS) to better serve after school activities and the community as a whole. The field lighting would be anticipated be utilized throughout the year for school-related activities and community sports groups.

On November 5, 2024, District staff held a Community Feedback meeting at Northwood HS regarding the potential new field lights. The intent of the meeting was to solicit feedback and gather information from the community related to comments, concerns, and desired uses that had not already been communicated by Northwood HS. Subsequent to the Community Feedback meeting, the District decided to pursue the proposed project.

2.3 PROJECT LOCATION

Northwood HS is located at 4515 Portola Parkway (Assessor's Parcel Numbers [APNs] 527-151-02 and 527-151-03) in the City of Irvine, California (see Figure 2-1, *Regional Location*). The Northwood High School Field Lighting Improvement Project (proposed project) would be developed within approximately 4.56 acres of the southern portion of the existing 43-acre high school campus (project site) (see Figure 2-2, *Local Vicinity*, and Figure 2-3, *Aerial Photograph*).

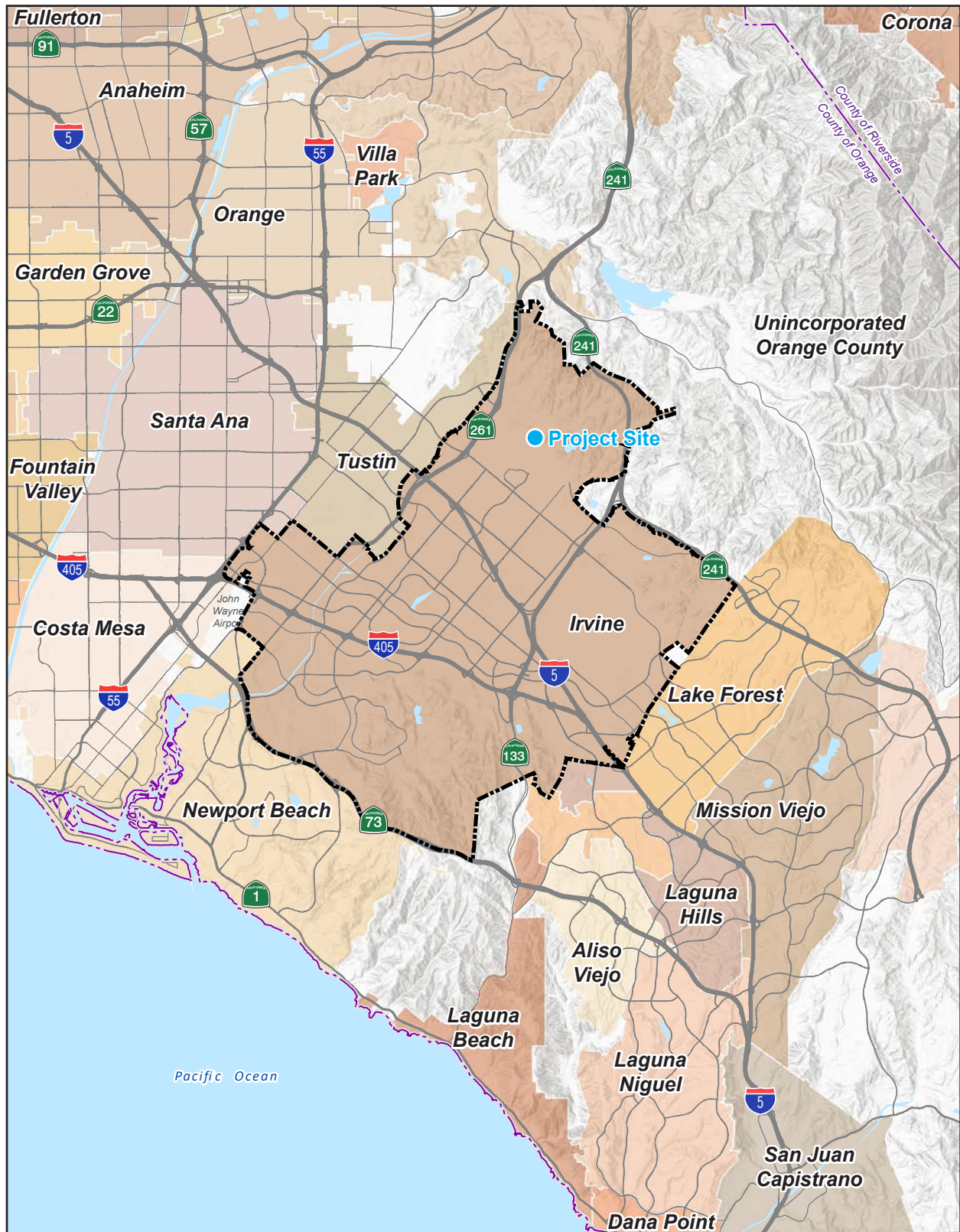
2.3.1 Regional Setting

The City of Irvine is bounded by the Cities of Santa Ana and Tustin and unincorporated Orange County to the north; the City of Newport Beach and unincorporated Orange County to the south; the Cities of Lake Forest and Laguna Hills and unincorporated Orange County to the east; and the City of Costa Mesa to the west. Regional access to the Northwood HS campus is provided by State Route 261 (CA-261), approximately 1 mile northwest of the campus (see Figure 2-1).

2.3.2 Local Setting

The Northwood HS campus is bound by Twisted Oak to the north, Yale Avenue to the east, Portola Parkway to the south, and agricultural land to the west.

Figure 2-1 - Regional Location



----- Irvine City Boundary

Note: Unincorporated county areas are shown in white.
Source: Generated using ArcMap 2025.

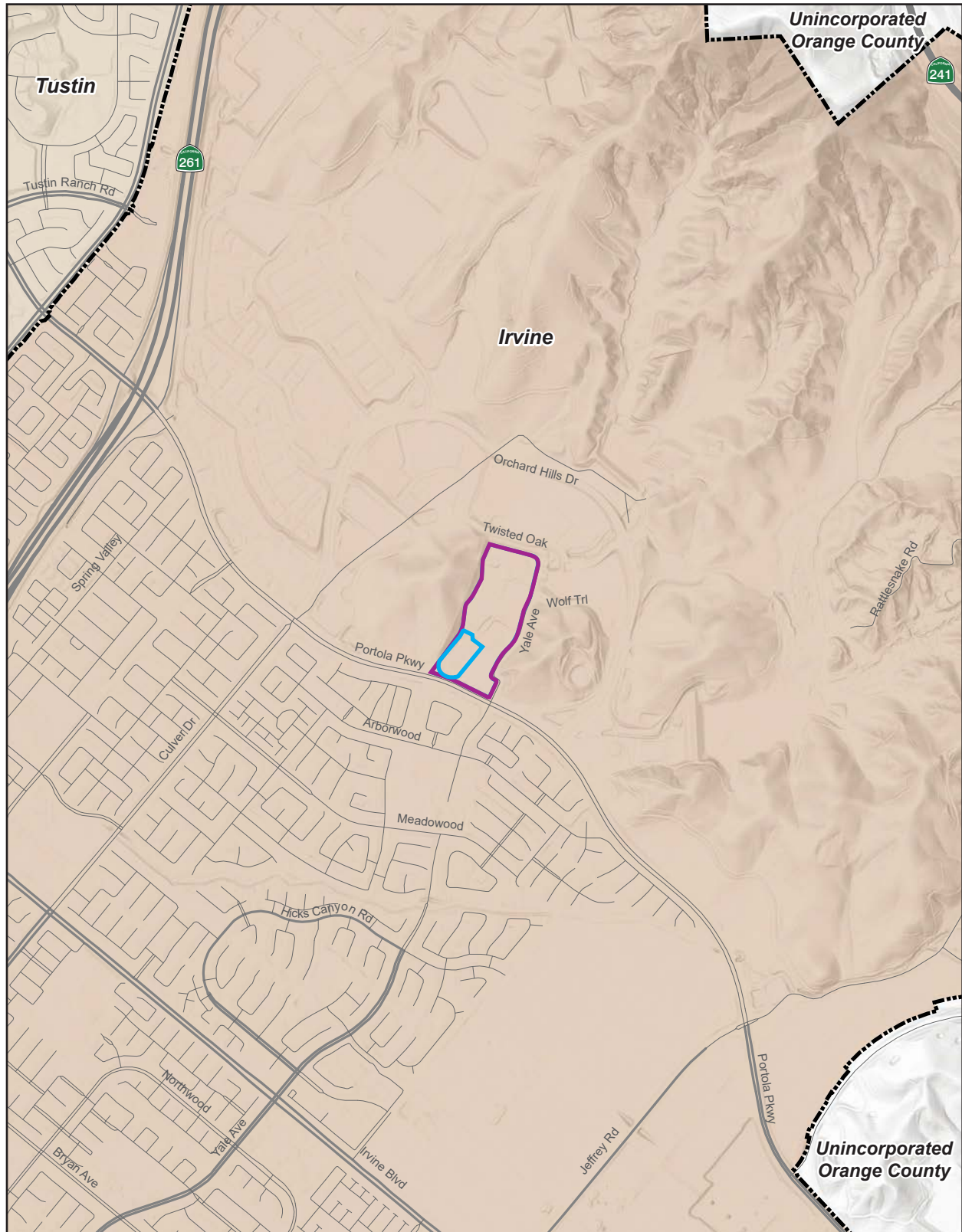
0 3
Scale (Miles)



PROJECT DESCRIPTION

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Figure 2-2 - Local Vicinity



--- Irvine City Boundary Project Site
Northwood High School Campus

Note: Unincorporated county areas are shown in white.
Source: Generated using ArcMap 2025.

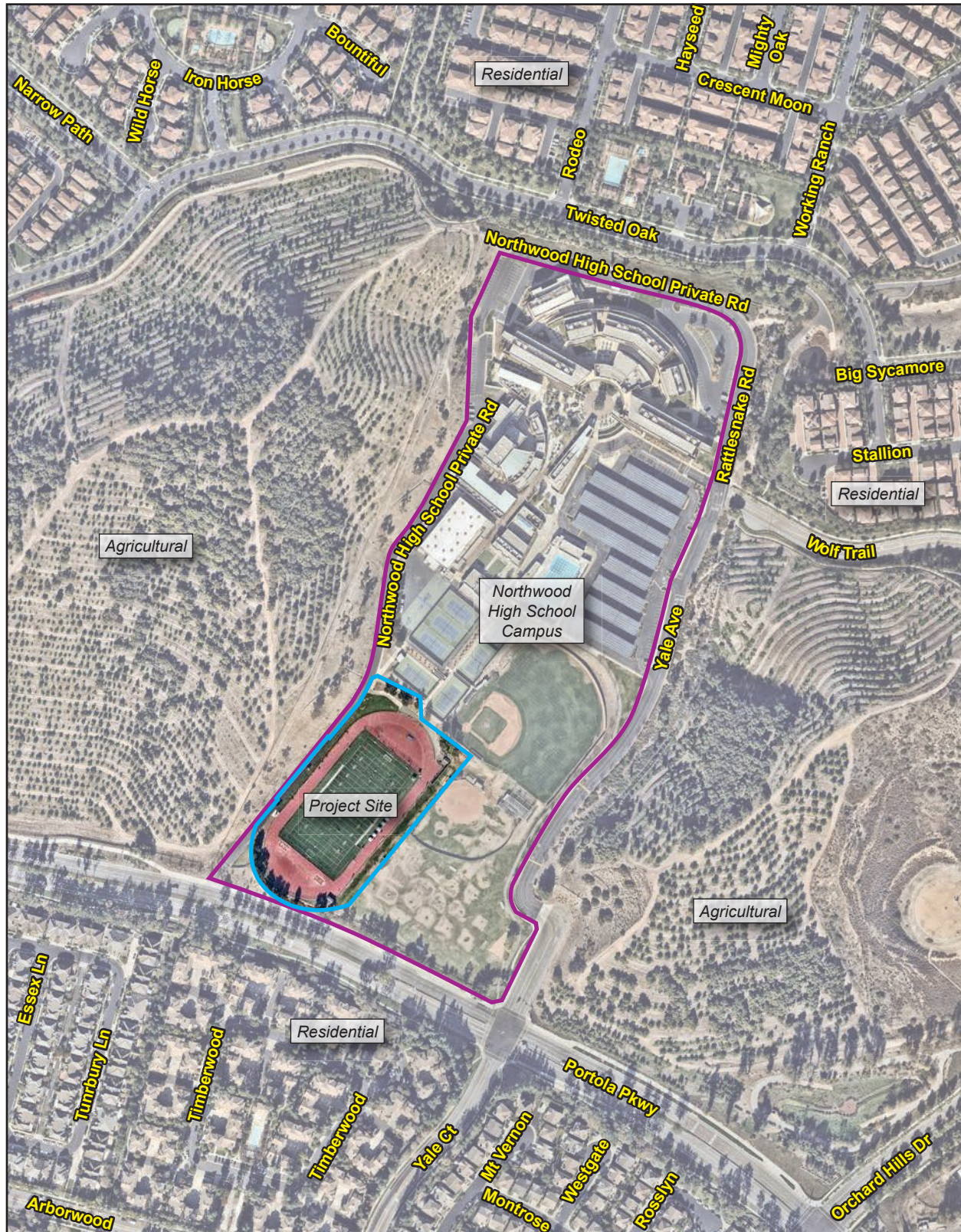
0 2,000
Scale (Feet)



PROJECT DESCRIPTION

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Figure 2-3 - Aerial Photograph



— Northwood High School Campus
— Project Site

Source: Nearmap 2025

0 400
Scale (Feet)



PlaceWorks

PROJECT DESCRIPTION

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2.4 ENVIRONMENTAL SETTING

2.4.1 General Plan Land Use and Zoning

The Northwood HS campus has a General Plan designation of Educational Facility and a zoning designation of Institutional. According to the City's zoning code, the Northwood HS campus is located within the Orchard Hills Planning Area. The Northwood HS campus is not located in any Focus Areas as designated by the 2045 Irvine General Plan.

The proposed project would be developed on the project site within the boundaries of the existing Northwood HS campus, and development of the proposed project would not require modification to the current General Plan designation or zoning.

2.4.2 Surrounding Land Use

The Northwood HS campus is surrounded by residential uses to the north; residential and agricultural uses to the east; residential uses to the south; and agricultural uses to the west (see Figure 2-3).

2.4.3 Existing Conditions

Existing Athletic Facilities

The project site consists of an existing track and field located in the southern portion of the Northwood HS campus that is surrounded by a chain link fence. The existing field consists of a synthetic turf field that currently used for football, soccer, and lacrosse games. The field also includes black netting along the northeastern and southwestern sides of the field, and aluminum benches for the athletes on the northern and southern sides of the field.

The track consists of an all-weather track that surrounds the synthetic turf field, along with track and field equipment. The track and field also includes an equipment storage building and scoreboard located in the southern portion of the track and field.

Athletic/Events Schedule

Northwood HS hosts various sports events and other school events. The existing sports events include tackle football, flag football, girls and boys soccer, girls and boys lacrosse, and track and field. The track and field also hosts band events. Table 2-1, *Northwood High School Existing*

PROJECT DESCRIPTION

Athletics/Events Schedule, shows the existing schedule for sports events and other school events.

Table 2-1 Northwood High School Existing Athletics/Events Schedule

Activity/Use	Anticipated Number of Home Events	Days of Week	Times		Maximum Number of Attendees
			Start	End	
Tackle Football (August to November)					
Freshman Football	5 per year	Tuesday or Wednesday	3:30 pm	6:00 pm	200
Junior Varsity Football	5 per year	Wednesday	3:30 pm	6:30 pm	200
Varsity Football	7 per year	Wednesday or Thursday	2:30 pm	6:00 pm	200
Flag Football (August to November)					
Junior Varsity Flag Football	6 per year	Monday or Wednesday	3:30 pm	6:00 pm	130
Varsity Flag Football	12 per year	Monday, Tuesday, Wednesday, or Friday	2:30 pm	6:00 pm	130
Band (August to November)					
Band	30 per year	Wednesday or Thursday	7:00 am	8:30 am	230
Soccer (November to February)					
Girls Junior Varsity Soccer	9 per year	Tuesday, Wednesday, Thursday, or Friday	3:15 pm	5:30 pm	140
Girls Varsity Soccer	8 per year	Tuesday, Wednesday, Thursday, or Friday	2:30 pm	5:30 pm	140
Boys Fresh/Soph Soccer	9 per year	Monday, Tuesday, Wednesday or Friday	3:15 pm	5:30 pm	140
Boys Junior Varsity Soccer	9 per year	Monday, Tuesday, Wednesday or Friday	3:15 pm	7:00 pm	140

Table 2-1 Northwood High School Existing Athletics/Events Schedule

Activity/Use	Anticipated Number of Home Events	Days of Week	Times		Maximum Number of Attendees
			Start	End	
Boys Varsity Soccer	12 per year	Monday, Tuesday, Wednesday Thursday, or Friday	2:30 pm	5:30 pm	140
Lacrosse (February to May)					
Girls Junior Varsity Lacrosse	5 per year	Monday, Tuesday, Wednesday, or Thursday	3:30 pm	7:15 pm	140
Girls Varsity Lacrosse	9 per year	Monday, Tuesday, Wednesday, or Thursday	2:30 pm	5:30 pm	140
Boys Junior Varsity Lacrosse	3 per year	Monday or Wednesday	4:45 pm	7:15 pm	140
Boys Varsity Lacrosse	8 per year	Monday, Wednesday, or Friday	2:30 pm	5:30 pm	140
Track and Field (February to May)					
Track and Field	4 per year	Wednesday, Thursday, or Saturday ¹	3:00 pm	6:00 pm	400

Source: Irvine Unified School District, 2025.

¹ Saturday Events start at 8:00 a.m.

Lighting and Public Address System

The track and field does not currently contain any permanent lighting or a Public Address (PA) system.

2.4.4 Parking and Circulation

One parking lot is located in the northeastern portion of the campus near the intersection between Yale Avenue and Wolf Trail. This parking lot includes a solar canopy and is used for visitor parking. Parking is also located along the northern perimeter of the campus on the

PROJECT DESCRIPTION

Northwood High School Private Road. The parking spaces are mainly used for staff parking. Access to the parking spaces along the northern perimeter of the campus is via Rattlesnake Road and Northwood High School Private Road.

Driveway access to the campus is provided via five driveways. One ingress driveway, one egress driveway, and two ingress and egress driveways exist along Yale Avenue and provide access to the parking lot located in front of the school. Access to the campus for students and staff is also provided via a driveway along Portola Parkway which provides access to the campus via a fire lane. This driveway also provides access to the project site and for busses to pick-up and drop-off students athletes.

2.5 STATEMENT OF PROJECT OBJECTIVES

Section 15124(b) of CEQA Guidelines requires a project description to include a statement of the objectives of a project that address the underlying purpose. The following specific objectives have been identified for the proposed project:

1. Provide adequate athletic facilities at Northwood HS to accommodate school sport games and other school events at the campus.
2. Provide lighting to allow night use of the track and field to accommodate school-related events and activities.
3. Utilize existing space to enhance opportunities for after-school athletic and extracurricular activities.
4. Enhance sense of community by allowing home games on campus.
5. Upgrade the athletic fields to increase school pride.

2.6 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)...enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Government Code Sections 65100–65700. (14 Cal. Code of Reg. Section 15378[a])

2.6.1 Description of the Project

The proposed project would consist of the installation of four new athletic field lights around the existing football field and infrastructure to allow for a future PA system.¹ The proposed project would also consist of trenching for the installation of an electrical line to provide electricity for the four athletic field lights and is anticipated to disturb approximately 1,500 square feet. The proposed project would allow for events occurring off-campus to be held on the Northwood HS campus. Events would consist of sports games and practices, other school events, and non-school events.

The proposed project would not require the demolition of any existing structures, and no new buildings would be constructed on the campus. Additionally, the proposed project would not increase the student capacity or enrollment at Northwood HS.

Athletic Field Lights

The proposed project includes the installation of four new athletic field lights located adjacent to the existing track and field. Two light poles with athletic field lights would be located on the northwest border of the track and field and two light poles with athletic field lights would be located on the southeast border of the track and field (see Figure 2-4, *Conceptual Site Plan*). Each light pole would be approximately 70 feet in height, include 12 light fixtures, and have a load capacity of 66.64 kilowatts (kW). The athletic field lighting would be directed toward the field and would be used to add lighting for nighttime sporting events, other school events, and non-school events.

Additionally, from the power distribution equipment and lighting control equipment, a single electrical conduit line would connect to a power system pullbox that would be installed to connect the electrical conduit line to the existing conduit line; see Figure 2-4.

PA System

The proposed project is anticipated to include the infrastructure to allow for a future permanent PA system. The future PA system would consist of four speakers with one speaker attached to each lighting pole. To accommodate this potential system, an electrical conduit line may be installed underneath the track and field to connect the speakers to the pullboxes located in the northern and southern portions of the project site. The speakers would be used during sporting events, other school events, and non-school events.

¹ Although the PA speakers are not currently proposed to be installed, this DEIR evaluates the potential impacts associated with full construction and operation of the PA system.

PROJECT DESCRIPTION

Hardscaping

The proposed project is anticipated to include expansion of hardscaping, which would be limited to the installation of the athletic field light poles and installation of the power distribution equipment and lighting control equipment. The light poles would be installed by setting the athletic field light poles in concrete. A concrete pad would be installed for the area that would include the power distribution equipment and lighting control equipment. Additionally, installation of the conduit lines would result in demolition and then the reinstallation of existing hardscaping. Installation of the conduit lines would not result in an expansion of hardscaping. No other areas would be hardscaped.

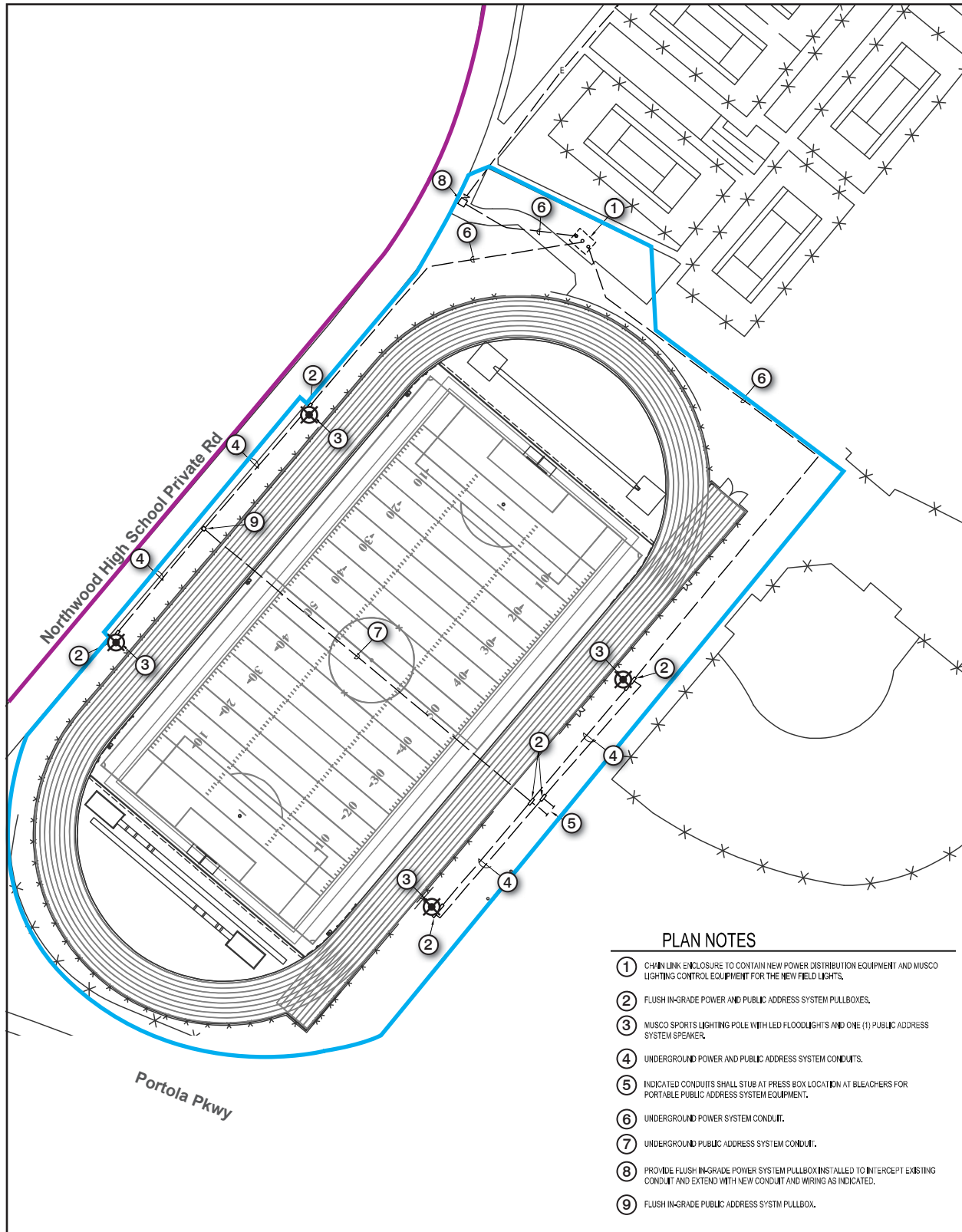
2.6.2 Event Scheduling

The proposed improvements at Northwood HS may be used for sporting events and practices, other school events, and non-school events. The proposed event scheduling is contingent upon District operational needs and may be modified at the District's discretion. Sporting events and practices are anticipated to consist of tackle football, flag football, girls and boys soccer, girls and boys lacrosse, track and field, and band. The track and field may also be used for other school events, such as graduation and non-school events. Table 2-2, *Northwood High School Proposed Athletics/Events Schedule*, shows the proposed sports activities, days, and times.

Similar to the existing athletics schedule, the tackle football season would begin in August and conclude in November. The Freshman tackle football is projected to include five home games that would be played on Tuesdays or Wednesdays from 3:30 pm to 6:00 pm and Junior Varsity tackle football would include five home games during the season on Wednesday nights which would occur from 3:30 pm to 6:30 pm. The Freshman and Junior Varsity schedules would be the same as the existing athletics schedule. The proposed Varsity tackle football schedule would include 10 home games per year on Thursdays or Fridays from 6:00 pm to 9:00 pm. This would be different than the existing schedule in which seven home games are played on Wednesday or Thursday from 2:30 pm to 6:00 pm and have 200 maximum attendees. Additionally, the maximum number of attendees is expected to increase under the proposed schedule by 50 attendees each for the Freshman, Junior Varsity, and Varsity games.

Similar to the existing athletics schedule, the flag football season is projected to begin in August and conclude in November. The Junior Varsity flag football team would play six home games per year on Mondays or Wednesdays, which would start at 4:30 pm and end at 6:00 pm. Additionally, the Varsity flag football team would play 12 home games per year on Mondays, Tuesdays, Wednesdays, or Fridays with start times at 2:30 pm and end times at 6:00 pm at the latest. The proposed Junior Varsity and Varsity flag football schedules would remain the same as the existing schedule, and the maximum number of attendees for the Junior Varsity and Varsity games would remain the same.

Figure 2-4 - Conceptual Site Plan

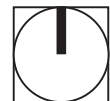


Northwood High School Campus

Light Pole Locations (4)

Project Site

0 100
Scale (Feet)



Source: Ruhnau Clarke Architects 2025.

PlaceWorks

PROJECT DESCRIPTION

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PROJECT DESCRIPTION

Band practices are anticipated to occur approximately 30 times per year and would occur from 4:30 pm to 7:30 pm. Band practices utilizing the track and field would start in August and end in November. The band practice schedule would remain the same as the existing schedule and the number of maximum attendees would remain the same.

Similar to the existing athletics schedule, the girls and boys soccer seasons are projected to begin in November and conclude in February. The girls Junior Varsity soccer team would play nine home games per year on Tuesdays, Wednesdays, Thursdays, or Fridays, which would start at 3:15 pm and end at 5:30 pm. The girls Junior Varsity soccer team's proposed schedule would remain the same as the existing schedule, however the maximum number of attendees is expected to increase from 140 to 175. The girls Varsity soccer team would play 10 home games per year on Tuesdays, Wednesdays, Thursdays, or Fridays, which would start at 5:00 pm and end at 9:00 pm. Compared to the existing events schedule, the days of the week would remain the same, but the proposed events schedule may change the times from 2:30 pm to 5:30 pm to 5:00 pm to 9:00 pm and the maximum number of attendees is expected to increase from 140 to 175.

The boys Fresh/Soph soccer team would play nine home games per year on Mondays, Tuesdays, Wednesdays, or Fridays, which would start at 3:15 pm and end at 5:30 pm. The boys Junior Varsity soccer team would play nine home games per year on Mondays, Tuesdays, Wednesdays, or Fridays, which would start at 3:15 pm and end at 7:00 pm. The existing events schedule for the Fresh/Soph and Junior Varsity boys would remain the same, but the number of attendees is expected to increase from 140 to 160. The boys Varsity soccer team would play 12 home games per year on Mondays, Tuesdays, Wednesdays, or Fridays, which would start at 5:00 pm and end at 9:00 pm. Compared to the existing events schedule, the number of proposed games would not change but the days of the week may change from Mondays, Tuesdays, Wednesdays, Thursdays or Fridays to Mondays, Tuesdays, Wednesdays, or Fridays. Additionally, the number of attendees is expected to increase from 140 to 160.

Similar to the existing athletics schedule, the girls and boys lacrosse seasons are projected to begin in February and end in May. The girls Junior Varsity lacrosse team would play five home games per year on Mondays, Tuesdays, Wednesdays, or Thursdays, which would start at 3:30 pm and end at 7:15 pm. The existing girls Junior Varsity lacrosse team schedule would not be different from the proposed events schedule, but the number of attendees is expected to increase from 140 to 150. The girls Varsity lacrosse team would play nine home games per year on Mondays, Tuesdays, Wednesdays, or Thursdays, which would start at 5:00 pm and end at 9:00 pm. Compared to the existing events schedule, the number of games and days of the week would remain the same under the proposed events schedule, but the times may change from 2:30 pm to 5:30 pm to 5:00 pm to 9:00 pm. Additionally, the number of attendees is expected to increase from 140 to 150.

PROJECT DESCRIPTION

The boys Junior Varsity lacrosse team would play three home games per year on Mondays or Wednesdays, which would start at 4:45 pm and end at 7:15 pm. The existing boys Junior Varsity lacrosse team schedule would not be different from the proposed events schedule, but the number of attendees is expected to increase from 140 to 150. The boys Varsity lacrosse team would play eight home games per year on Mondays, Wednesdays, or Fridays, which would start at 5:00 pm and end at 9:00 pm. Compared to the existing events schedule, the number of games and days of the week would remain the same under the proposed events schedule, but the times may change from 2:30 pm to 5:30 pm to 5:00 pm to 9:00 pm. Additionally, the number of attendees is expected to increase from 140 to 150.

The track and field season is projected to begin in February and end in May. The track and field team would have five home track and field events per year on Wednesdays, Thursdays, or Saturdays which would start at 3:00 pm and end at 6:00 pm. The proposed track and field schedule is expected to increase the number of events by one; however, the days of the week, the times for the events, and the maximum number of attendees would remain the same.

The athletic field lights are anticipated to be utilized throughout the year for school events and non-school events from dusk to 9:00 pm similar to the District's other high schools. As required by the Civic Center Act, the facilities would be available to outside user groups to utilize the athletic field lights from dusk to 10:00 pm, which aligns with the City of Irvine hours of operation. The hours of operation can be extended via a variance from the City of Irvine and approval by the District Use of Facilities Department. The proposed schedule offers flexibility and may be subject to change. The District would have the authority to use lights for practices and events based on specific needs; thus, the event schedule may be adjusted for different school and community events.

Table 2-2 Northwood High School Proposed Athletics/Events Schedule

Activity/Use	Anticipated Number of Home Events	Days of Week	Times		Maximum Number of Attendees
			Start	End	
Tackle Football (August to November)					
Freshman Football	5 per year	Tuesday or Wednesday	3:30 pm	6:00 pm	250
Junior Varsity Football	5 per year	Wednesday	3:30 pm	6:30 pm	250
Varsity Football	10 per year	Thursday or Friday	6:00 pm	9:00 pm	250
Flag Football (August to November)					
Junior Varsity Flag Football	6 per year	Monday or Wednesday	4:30 pm	6:00 pm	130

PROJECT DESCRIPTION

Table 2-2 Northwood High School Proposed Athletics/Events Schedule

Activity/Use	Anticipated Number of Home Events	Days of Week	Times		Maximum Number of Attendees
			Start	End	
Varsity Flag Football	12 per year	Monday, Tuesday, Wednesday, or Friday	2:30 pm	6:00 pm	130
Band (August to November)					
Band	30 per year	Wednesday	4:30 pm	7:30 pm	230
Soccer (November to February)					
Girls Junior Varsity Soccer	9 per year	Tuesday, Wednesday, Thursday, or Friday	3:15 pm	5:30 pm	175
Girls Varsity Soccer	10 per year	Tuesday, Wednesday, Thursday, or Friday	5:00 pm	9:00 pm	175
Boys Fresh/Soph Soccer	9 per year	Monday, Tuesday, Wednesday, or Friday	3:15 pm	5:30 pm	160
Boys Junior Varsity Soccer	9 per year	Monday, Tuesday, Wednesday, or Friday	3:15 pm	7:00 pm	160
Boys Varsity Soccer	12 per year	Monday, Tuesday, Wednesday, or Friday	5:00 pm	9:00 pm	160
Lacrosse (February to May)					
Girls Junior Varsity Lacrosse	5 per year	Monday, Tuesday, Wednesday, or Thursday	3:30 pm	7:15 pm	150
Girls Varsity Lacrosse	9 per year	Monday, Tuesday, Wednesday, or Thursday	5:00 pm	9:00 pm	150

PROJECT DESCRIPTION

Table 2-2 Northwood High School Proposed Athletics/Events Schedule

Activity/Use	Anticipated Number of Home Events	Days of Week	Times		Maximum Number of Attendees
			Start	End	
Boys Junior Varsity Lacrosse	3 per year	Monday or Wednesday	4:45 pm	7:15 pm	150
Boys Varsity Lacrosse	8 per year	Monday, Wednesday, or Friday	5:00 pm	9:00 pm	150
Track and Field (February to May)					
Track and Field	5 per year	Wednesday, Thursday, or Saturday	3:00 pm	6:00 pm	400

Source: Irvine Unified School District

2.6.3 Project Construction

Construction of the proposed project is anticipated to occur in a single phase and is anticipated to start in Spring 2026 and end in Summer 2026.

2.7 INTENDED USES OF THE EIR

2.7.1 Responsible and Trustee Agencies

Lead Agency

The Irvine Unified School District is the Lead Agency under CEQA and has the approval authority over the proposed project. Discretionary actions for the proposed project would include: (1) certification of the environmental document and (2) approval of the proposed project.

Other Agency Action Requested

The District would require approval and/or coordination from the following agencies to implement the proposed project.

State Agencies

The District would seek approval of the proposed project from the Division of the State Architect (DSA). Since the project would not receive state funding, California Department of Education (CDE) and DTSC approvals are not required.

Local Agencies

No local agency approval would be needed for the proposed project.

2.7.2 Required Permits and Approvals

This is a project DEIR that examines the environmental impacts of the proposed project. This DEIR also addresses various actions by the District 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 District, other responsible agencies, and interested parties to make informed decisions with respect to the requested entitlements. The anticipated discretionary actions required for this project are listed in Table 2-3, *Actions Required*.

The District is the lead agency under CEQA and is carrying out the proposed project; to approve the proposed project, the IUSD Board of Education must first certify the Final EIR (FEIR). The board would consider the information in the EIR when making its decision to approve or deny the proposed project, or in directing modifications to the proposed project in response to the EIR's findings and mitigation measures. The EIR is intended to disclose to the public the proposed project's details, analyses of the proposed project's potential environment impacts, and identification of feasible mitigation or alternatives that would lessen or reduce significant impacts to less than significant levels.

Table 2-3 Actions Required

Lead Agency	Action
Irvine Unified School District	Consider Final EIR for certification and project approval
Responsible Agencies	Action
Department of General Services, Division of the State Architect	Approval of construction drawings

2.7.3 Related Review and Consultation Requirements

In accordance with Public Resources Code Section 21080.1(d), a lead agency is required to provide formal notification of intended development projects to Native American tribes that have requested to be on the lead agency's list for receiving such notification. The formal

PROJECT DESCRIPTION

notification is required to include a brief description of the proposed project and its location, lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The proposed project is subject to Public Resources Code Section 21080.1(d) and would provide formal notification of the proposed project to Native American tribes that have requested to be on the lead agency's list for receiving notification.

3. ENVIRONMENTAL ANALYSIS

This chapter examines the environmental setting of the proposed project, analyzes the effects of the proposed project and the significance of its impacts, and recommends mitigation measures to reduce or avoid impacts. This chapter has a separate section for each environmental topic.

The proposed project is analyzed for potential significant impacts in accordance with Appendix F, *Energy Conservation*, and Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines. Environmental topics and their corresponding sections and abbreviations are:

3.1	Aesthetics (AES)	3.6	Hydrology and Water Quality (HYD)
3.2	Air Quality (AIR)	3.7	Noise (NOI)
3.3	Cultural Resources (CUL)	3.8	Transportation (TRA)
3.4	Geology and Soils (GEO)	3.9	Tribal Cultural Resources (TCR)
3.5	Hazards and Hazardous Materials (HAZ)	3.10	Utilities and Service Systems (USS)

ORGANIZATION OF ENVIRONMENTAL ANALYSIS

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

- **Regulatory Framework** offers an overview of applicable laws, regulations, plans, and policies relevant to each environmental topic.
- **Existing Conditions** offers a description of the existing environmental conditions, providing a baseline against which the impacts of the proposed project can be compared.
- **Standards for Analysis** refer to the quantitative or qualitative standards, performance levels, thresholds, or criteria used to evaluate whether an impact is significant. These standards are based primarily on the CEQA Guidelines unless otherwise noted. This section also provides an overview of key methods, assumptions, and considerations that inform the impact analysis.
- **Project Impact Analysis** provides a detailed discussion of the potential direct and indirect impacts of the proposed project. Mitigation measures are included as necessary.

ENVIRONMENTAL ANALYSIS

- **Cumulative Impact Analysis** provides an overview of the geographic setting and cumulative projects considered in the cumulative impact assessment. Significant cumulative impacts are identified, and mitigation measures are included as necessary.
- **References** are provided for all information relied upon in the development of the discussion.

LEVELS OF SIGNIFICANCE

The level of significance is identified for each impact in this Draft Environmental Impact Report (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 result in no adverse effect on the environment.
- **Less than significant.** The project would not exceed the established significance criteria.
- **Significant.** The project would exceed the established significance criteria. For each significant impact, the DEIR identifies mitigation measures to reduce, eliminate, or avoid the adverse effect. If one or more mitigation measures would reduce the impact to a less-than-significant level successfully, this is stated in the DEIR.
- **Significant and unavoidable.** The project would exceed the established significance criteria, and no feasible mitigation measures are available to reduce the impact to a less-than-significant level.

SCOPING COMMENTS RECEIVED

No comments were received during scoping meeting. Two comment letters were received during the scoping period, from the Department of Toxic Substance Control (DTSC) and the Native American Heritage Commission (NAHC) (used as the basis for Section ES.7, *Areas of Controversy*, in the Executive Summary).

EVALUATION METHODOLOGY

Under CEQA, the decision as to whether an environmental effect should be considered significant is reserved to the discretion of the lead agency, based on substantial evidence in the record as a whole, including views held by members of the public. An ironclad definition of significant effect is not always possible because the significance of an activity may vary based on the setting. Pursuant to CEQA Guidelines Section 15064(b), the analysis in this DEIR is based on

scientific and factual data that has been reviewed by the lead agency and represents the lead agency's independent judgment and conclusions.

Baseline

This DEIR evaluates the impacts of the proposed project relative to existing conditions, as required by CEQA Guidelines Section 15126.2. Unless otherwise noted, the baseline represents the existing conditions on the ground (i.e., physical conditions) at the time that the Notice of Preparation (NOP) was issued on May 28, 2025.

Potential Effects of the Project on the Environment

The California Supreme Court concluded in *California Building Industry Association vs. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 that "CEQA generally does not require an analysis of how existing environmental conditions will impact a project's future users or residents." The *CBIA vs. BAAQMD* ruling provided for several exceptions to the general rule where an analysis of the project on the environment is warranted:

1. If the project would exacerbate existing environmental hazards (such as exposing hazardous waste that is currently buried).
2. If the project qualifies for certain specified exemptions (certain housing projects and transportation priority projects pursuant to PRC Sections 21159.21 (f),(h); 21159.22 (a),(b)(3); 21159.23 (a)(2)(A); 21159.24 (a)(1),(3); or 21155.1 (a)(4),(6)).
3. If the project is exposed to potential noise and safety impacts on projects due to proximity to an airport (pursuant to PRC Section 21096).
4. School projects require specific assessment of certain environmental hazards (pursuant to PRC Section 21151.8).

Therefore, the evaluation of the significance of project impacts under CEQA focuses on the potential impacts of the proposed project on the environment, including whether the proposed project may exacerbate any existing environmental hazards. Existing environmental hazards in the project area include, but are not limited to, seismic hazards and hazardous materials. Therefore, while the effects of these hazards on the proposed project are generally not subject to CEQA review following the *CBIA vs. BAAQMD* case, a discussion of the project's potential to exacerbate these hazardous conditions is provided in Section 3.4, *Geology and Soils*, and Section 3.5, *Hazards and Hazardous Materials*, of this DEIR.

CUMULATIVE IMPACTS

A cumulative impact consists of an impact created as a result of the combination of the project evaluated in the DEIR, together with other reasonably foreseeable projects causing related impacts. CEQA Guidelines Section 15130 requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable." Cumulative effects could occur when future development under the project is combined with development in the surrounding area or, in some instances, in the entire region.

Pursuant to CEQA Guidelines Section 15130(a)(3), where a cumulative impact is significant when compared to baseline conditions, the analysis must address whether the project's contribution to the significant cumulative impact is "considerable." If the contribution of the project is considerable, then the EIR must identify potentially feasible measures that could avoid or reduce the magnitude of the project's contribution to a less-than-considerable level. If the project's contribution is not considerable, it is considered less than significant and no mitigation for the project's contribution is required.

CEQA Guidelines Section 15130[b][1] states that the information used in the analysis of cumulative impacts should come from one or 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; or
- B. A summary of projections contained in an adopted local, regional, or statewide plan, or related planning document that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

The cumulative impact analyses in this DEIR use a combination of methods A and B. The cumulative discussions in Sections 3.1 through 3.10 explain the geographic scope of the area affected by each cumulative effect (e.g., immediate project vicinity, county, watershed, air basin), which depends on the environmental topic being analyzed. For example, in assessing macroscale air quality impacts, all development in the air basin contributes to regional emissions of criteria pollutants, and basinwide projections of emissions are the best tool for determining the cumulative impact. In assessing aesthetic impacts, on the other hand, only development in the local area of change would contribute to a cumulative visual effect because the area of change is only visible near that area.

3.1 AESTHETICS

This section of the Draft Environmental Impact Report (DEIR) evaluates the Northwood High School Field Lighting Improvement Project's (proposed project) potential impacts on aesthetic and visual resources related to visual character, visual quality, and new sources of light and glare. The analysis in this section is based in part on the existing conditions of the current Northwood High School campus (Northwood HS or campus) and architectural renderings prepared for the proposed project.

During the Notice of Preparation (NOP) public review period, no comments were received regarding potential visual impacts associated with the. The NOP is included as Appendix A of this DEIR. Additionally, sports field lighting plans were prepared for the proposed project to determine if the proposed lighting result in lighting impacts to the surrounding areas. The sports field lighting plans are included in Appendix B to this DEIR.

3.1.1 Regulatory Framework

State and local laws, regulations, plans, or guidelines related to aesthetics that are applicable to the proposed project are summarized in this section.

STATE

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977 and most recently revised in 2018 (Title 24, Part 6, of the California Code of Regulations). The newly revised standards took effect on January 1, 2020. Title 24 requires the design of building shells and building components to conserve energy. It also requires outdoor lighting controls to reduce energy usage; in effect, this reduces outdoor lighting.

California Scenic Highway Program

The California legislature created the Scenic Highway Program to protect scenic highway corridors from changes that could diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260. A highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a scenic highway. Interstates, state highways, byways, and parkways are eligible for designation or for recognition as eligible for

AESTHETICS

designation. California Streets and Highways Code Section 263 allows the California State Legislature the authority to identify highways as eligible for designation as a scenic highway. State scenic highways in California are either formally recognized by the California Department of Transportation or meet the criteria outlined in the Streets and Highway Code, Section 260 of the California Scenic Highway Program.

Local

CITY OF IRVINE ZONING ORDINANCE

Chapter 3-16 (Lighting)

Chapter 3-16 of the City's Zoning Ordinance requires that outdoor lighting be designed and installed so that all direct rays are confined to the site and adjacent properties are protected from glare. The level of lighting on the site shall comply with the requirements of the City's Uniform Security Code.

Chapter 3-15 (Landscaping Standards)

This chapter of the Zoning Ordinance outlines the minimum requirements for site landscaping and maintenance. This chapter also outlines the screening and landscaping requirements for parking areas and parking structures.

Chapter 7.1 (Signs)

The intent of this division of the Zoning Ordinance, also known as the Sign Ordinance, is to promote and protect the public health, safety and welfare by regulating existing and proposed signs of all types within the City. This division outlines the standards and regulations that apply to the design and installation of signage, including quantity, location, dimensions, and lighting.

DESIGN GUIDELINES

Development within specific areas of the city is also regulated by adopted design guidelines, which regulate the architectural theme, character, and overall design of new development. These design guidelines are unique to the Planning Area for which they apply and are applied on an individual project basis. It should also be noted that the city is in the process of developing Objective Design Standards that would further regulate the development of residential projects throughout the city.

City of Irvine General Plan

The 2045 Irvine General Plan provides the basis for the City's policies and represents the community's basic values, ideals, and aspirations. The General Plan establishes policies to guide development and conservation through 2045. Key policies of the General Plan relevant to this chapter's analysis of the proposed project's potential aesthetic impacts are included below. The

set of policies listed is not an exhaustive list of all of the General Plan policies applicable to the proposed project; rather, it is a selection of policies relevant to the impact discussion in this chapter.

Land Use Element

Goal 1: Preserve and strengthen Irvine's Identity as a diverse and innovative community.

- **Policy (a).** Develop identifiable City edges, pathways, entry points, and landmarks, and conserve visual resources.
- **Policy (b).** Use building masses and landscaping to create a sense of unity throughout the City.
- **Policy (d).** Maintain and enhance the physical appearance of the City as the infrastructure ages.

Conservation and Open Space Element

Goal 3: Use and Preserve geophysical resources, including, but not limited to, ridgeline, hillsides, and waterways, as part of the City's land use pattern.

- **Policy (a).** Implement development strategies that prioritize the preservation and minimal disturbance of the City's hillsides through clustering, landscaping, and grading techniques.

Goal 8: Create visually attractive and efficient organized City.

- **Policy (f).** Provide visually rock and engaging street scenes along designated local and collector roads, encouraging pedestrian use, and adding aesthetic value to neighborhoods.

3.1.2 Existing Conditions

VIEWSHEDS AND SCENIC VISTAS

Scenic vistas are panoramic views of features such as mountains, forests, the ocean, or urban skylines. The city of Placentia is primarily developed with urban uses and also includes several prominent landforms, such as the Santiago Hills, northern flatlands, central flatlands, and San Joaquin Hills. The project site is not located within a scenic vista or scenic corridor. The nearest scenic areas are the Santiago Hills, which are approximately 3.7 miles northeast of the project site.

AESTHETICS

The project site is not located near or within a designated scenic highway. The nearest officially designated state scenic highway is State Route 91 (SR-91) from SR 55 to City of Anaheim eastern city limit, which is approximately 9 miles north of Northwood HS (Caltrans 2025).

VISUAL CHARACTER AND LANDFORM

The project site contains an existing developed high school campus, which includes existing outdoor athletic facilities including a track/field, baseball field, tennis courts, swimming pool, and soccer fields. The Northwood HS campus is surrounded by adjacent residential and agricultural uses and qualifies as an “urbanized area.” The Northwood HS campus is surrounded by residential uses to the north; residential and agricultural uses to the east; residential uses to the south; and agricultural uses to the west (see Figure 2-3, *Aerial Photograph*). Views around the project site include the other urbanized uses such as residential and commercial uses. The project site and surrounding uses are in a hilly area of the Orchard Hills area.

LIGHT AND GLARE

The two major causes of light pollution on the campus are spill light and glare from existing sources of light. Spill light is caused by misdirected light that illuminates areas outside the area intended to be lit. Glare occurs when a bright object is against (or reflects off) a dark background or shiny surface. Existing sources of light on the campus include light emanating from building interiors, building and security lights, and parking lot lights. The track and field does not currently contain any permanent lighting or a Public Address (PA) system. Off-site sources of light include street lighting, vehicular lighting, and exterior lighting on existing residential uses.

3.1.3 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that, “except as provided in Public Resources Code Section 21099,” the proposed project would result in a significant aesthetic impact if it would:

- a) Have a substantial adverse effect on a scenic vista.
- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- c) In nonurbanized areas, 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.) If the

project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.

- d) Expose people on- or off-site to substantial light or glare, which would adversely affect day or nighttime views in the area.

THRESHOLD GUIDANCE

To determine the impact significance of spill light (threshold d), an industry standard of 0.9 foot-candle (fc) during pre-curfew hours and a 0.2 fc during post-curfew hours were used for a significance determination. The 0.9 fc standard was selected because it is below the level of typical street lights (1.0 to 5.0 fc) and below the light level at twilight (1.0 fc), which ensures that bedrooms are not subjected to sleep-depriving light intrusion.

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. The District then reviewed the Irvine Municipal Code and industry standards to identify an appropriate lighting threshold (based on foot-candles [fc]). Using the District's Sports Field Lighting Plans prepared by Musco (see Appendix B, *Musco Lighting Plans*), the District compared the foot-candles measurements at the campus property line against the identified threshold to determine if the proposed lighting would exceed the threshold. 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. If the project has the potential to generate spill light on adjacent sensitive receptors or generate glare at receptors in the vicinity of the project site, mitigation measures can be provided to reduce potential impacts, as necessary. The following provides relevant lighting assessment terminology used in this analysis.

A lighting illumination summary was prepared for the proposed project based on computer calculations and includes a grid summary of the minimum and maximum maintained horizontal foot-candles for the track/field and immediately adjacent areas; this summary is included in Appendix B of the DEIR (Musco 2025).

Terminology

The **foot-candle (fc)** is a unit based on English measurements. Although foot-candles are considered obsolete in some scientific circles, they are nevertheless used because many existing light meters are calibrated in foot-candles. Moonlight produces approximately 0.01 fc, and sunlight can produce up to 10,000 fc. The general benchmarks for light levels are shown in Table 3.1-1, *General Light Levels Benchmark*.

AESTHETICS

Table 3.1-1 General Light Levels Benchmark

Outdoor Light	Foot-Candles
Direct Sunlight	10,000
Full Daylight	1,000
Overcast Day	100
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 and parking garage	1.0–5.0

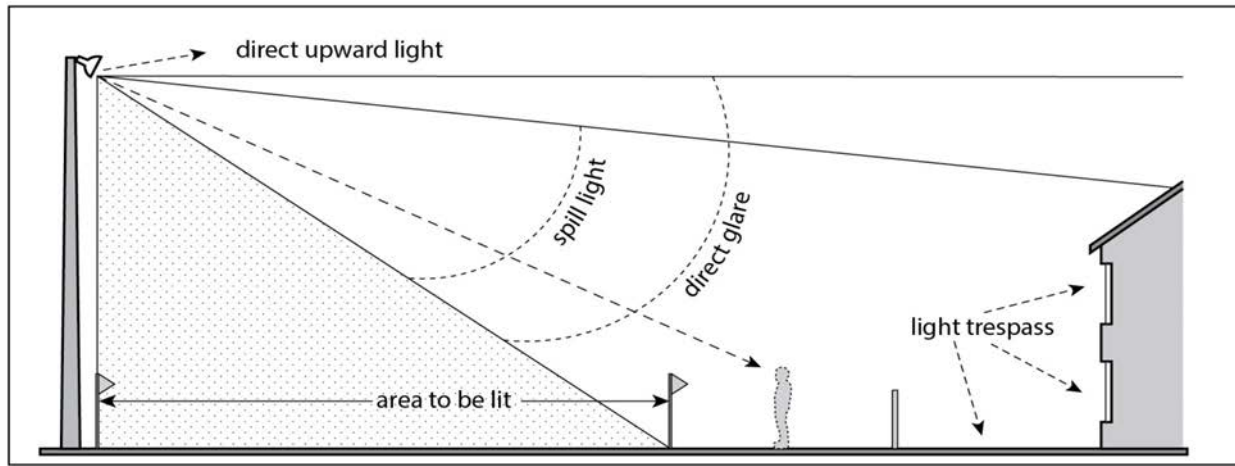
Horizontal foot-candle. The amount of light received on a horizontal surface such as a roadway or parking lot pavement.

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

Glare means lighting entering the eye directly from a light fixture or indirectly from reflective surfaces that causes visual discomfort or reduced visibility. Glare can be generated by building-exterior materials, surface-paving materials, vehicles traveling or parked on roads and driveways, and sports 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 Exhibit A, Spill Light, Direct Glare, and Light Trespass, adapted from the Institution of Lighting Engineers (ILE 2003).

Direct glare is caused by looking at an unshielded lamp or a light at maximum candlepower. Direct glare is dependent on the brightness of the light source, the contrast in brightness between the light source and the surrounding environment, the size of the light source, and its position.

Exhibit A: Spill Light, Direct Glare, and Light Trespass



Illuminance is the amount of light on a surface or plane, typically expressed in a horizontal plane (e.g., on the ground) or in a vertical plane (e.g., on the side of a building).

Lumen means the unit of measure used to quantify the amount of visible light produced by a light source or emitted from a luminaire (as distinct from “watt,” a measure of power consumption).

Luminaire means outdoor electrically powered illuminating devices that include a light source, outdoor reflective or refractive surfaces, lenses, electrical connectors and components, and all parts used to mount the assembly, distribute the light, and/or protect the light source, whether permanently installed or portable. An important component of luminaires is their shielding:

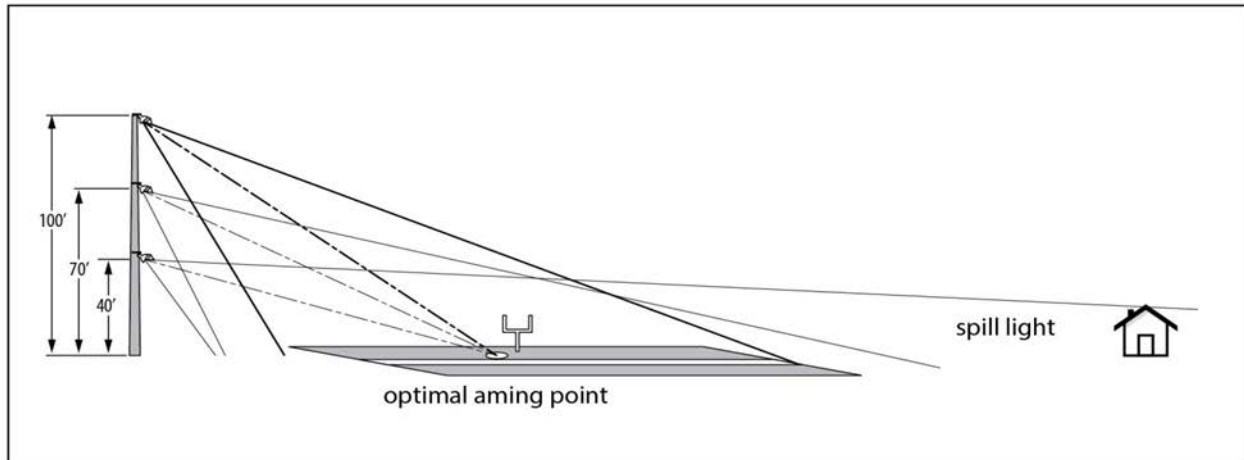
- Fully shielded. A luminaire emitting no light above the horizontal plane.
- Shielded. A luminaire emitting less than 2 percent of its light above the horizontal plane.
- Partly shielded. A luminaire emitting less than 10 percent of its light above the horizontal plane.
- Unshielded. A luminaire that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

Light trespass means light that falls beyond the property on which it originates. The amount of trespass is expressed in foot-candles and is measured in the vertical plane at five feet above grade at the property line of the site on which the light(s) is located. If the adjacent property is a street, alley, or sidewalk, the point at which trespassing light is measured is the center of the street, alley, sidewalk, or right-of-way. Field measurements to determine light trespass compliance do not include the effect of light produced by streetlights.

AESTHETICS

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, as shown in Exhibit B, Pole Heights and Lighting Angles.

Exhibit B: Pole Heights and Lighting Angles



Sky Glow is light that reflects into the night sky and reduces visibility of the sky and stars. It is a concern in many jurisdictions, especially those with observatories.

REGULATORY SETTING AND INDUSTRY STANDARD

Municipal Code

The City of Irvine does not establish a significant threshold for light spill for outdoor lighting near residential areas or for recreational areas. The Irvine Municipal Code (IMC) does identify minimum light thresholds for buildings as adopted by the California Building Code (CBC) (IMC CH5. Uniform Security Code).

A “Night Sky Ordinance” is a common policy set by local municipalities that regulates outdoor lighting to reduce light pollution and other adverse effects. A Night Sky Ordinance was also not found within the City’s General Plan, Municipal Code, and website.

The proposed project would include typical light and glare control practices, such as lights needing to be directed, controlled, screened or shaded so as not to shine directly on surrounding properties; lighting needing to be controlled to prevent glare; and prohibiting the use of unshaded clear bulbs in exterior lighting. These are typical light control practices, and it is assumed that the proposed project’s lighting would be directed, controlled, screened or shaded so as not to shine directly on surrounding properties.

Industry Standards

The International Commission on Illumination (CIE) *Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations* (2nd Edition) provides quantitative metrics to analyze the impact of light and glare (CIE 2017). The Guide identifies lighting thresholds based on five environmental lighting zones (E0, intrinsically dark, to E4, high district brightness). Environmental Lighting Zone E3, medium district brightness, (such as well inhabited rural and urban settlements) would be most applicable to the proposed project's urban context. Environmental Lighting Zone E3 establishes the following lighting thresholds:

- Pre-Curfew Mixed-Use/Suburban = 0.9 foot-candle
- Post-Curfew Mixed-Use/Suburban = 0.2 foot-candle

The Illuminating Engineering Society (IES) and the International Dark-Sky Association (IDA)'s *Model Lighting Ordinance* (MLO) provides guidance for communities to develop effective lighting control ordinances (IES 2011). The MLO provides the following light spill thresholds:

- Rural/Low Density = 0.1 foot-candle
- Mixed-use/Suburban Density = 0.3 foot-candle
- City/Urban = 0.8 foot-candle

Establishing an Appropriate Threshold

Since the City of Irvine does not identify a light spill threshold, the District referred to industry standards to establish an appropriate light spill threshold. Of the two industry standards identified above, the CIE's 0.9 fc pre-curfew threshold for Environmental Lighting Zone E3 most closely matches the urban context of the proposed project from among the thresholds presented above. In addition, this threshold was selected because it includes both pre- and post-curfew standards that consider the time of day at which lighting impacts would occur, which is an important consideration for lighting associated with the proposed project.

Curfew hours are defined by the IMC Chapter 3.14.303, Curfew hours, which sets a curfew of 11:00 PM to 6:00 AM the following day. The following discussion evaluates the potential for 0.9 fc; any residential/suburban property receiving a 0.9 fc or greater level of spill light would be considered impacted.

AESTHETICS

3.1.4 Project Impact Analysis

a) The project would not have a substantial adverse effect on a scenic vista.

The Santiago Hills are designated by the City of Irvine General Plan as Notable Visual Resources (Irvine 2024). However, the project site is not in the viewshed of Santiago Hills or any other scenic resources. Existing development on the project site does not currently obstruct or interfere with views of Santiago Hills. The project site is currently a built-out school with existing sports fields and the proposed four light poles would be visible from the surrounding neighborhood; however, the new development would not degrade background views of the Santiago Hills. Implementation of the proposed project would not result in the obstruction or degradation of existing scenic views. Therefore, impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

b) The proposed project would not substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.

The California Scenic Highway Program seeks to preserve and protect areas of outstanding natural beauty that are visible from state highways. The project site is not located within or near a Scenic Highway designated by the California Department of Transportation (Caltrans). There are no designated scenic highways within the City of Irvine. The nearest officially designated state scenic highway is SR-91, which is approximately 9 miles north of Northwood HS (Caltrans 2025). Due to the distance, topography, and intervening development, Northwood HS is not visible from a designated state scenic highway. The proposed project would not damage scenic resources within a state scenic highway. Therefore, **no impact** would occur.

Significance without Mitigation: No impact.

c) The project is in an urbanized area, and the project would not conflict with applicable zoning and other regulations governing scenic quality.

The project site is in an urbanized area. According to the US Census Bureau, the City of Irvine has a population of approximately 318,683 (US Census 2025), which meets the definition of an urbanized area (at least 100,000) as defined in the PRC section 21071, Urbanized Area. The existing vertical elements of the campus that are visible from the residential areas to the south, permanent sidewalk light poles near the tennis courts, score board, trees, fencing, basketball hoops, and school buildings. The proposed project includes the installation of four 70-foot light poles with 12 light fixtures. The project is consistent with the existing campus zoning and land

use designation. Implementation of the proposed project would not violate any regulations governing scenic quality. As the project site is already developed with school uses, the proposed light poles would not interfere with public views, including background views of Santiago Hills, and would not conflict with regulations governing scenic quality. Therefore, impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

d) The proposed project would not expose people on- or off-site to substantial light or glare which would adversely affect day or nighttime views in the area.

For the purposes of this analysis, a standard of 0.9 foot-candle (fc) was used for a significance determination because 0.9 fc would be close to twilight light levels. The 0.9 fc is selected as it sets the standard below the level of typical street lights (1.0 to 5.0 fc) and it is below twilight levels (1.0 fc), which assures that bedrooms are not subjected to sleep-depriving light intrusion. Additionally, industry best practices recommend that exterior lighting levels be further reduced to 0.2 fc or less after curfew hours, to further reduce impacts on human circadian rhythms, nighttime wildlife activity, and general skyglow (IDA 2020).

Existing on-site sources of artificial light include light emanating from building interiors, building and security lights, sidewalks, and parking lots. Existing off-site lighting sources include street lighting, vehicular lighting, and exterior lighting on existing residential uses. The nearest light sensitive receptors are the single-family residences south of the Northwood HS campus, across Portola Parkway.

The proposed project would install field lighting required to effectively illuminate the track/field for Northwood HS student and community use. The proposed maximum field illumination level would be approximately 58 fc. Illumination along the track/field be an average of approximately 30.55 fc, and 52.34 on football field (see Appendix B).

On June 3, 2025, existing conditions of the project site were documented (see Figure 3.1-1, *Visual Simulation Locations*). Location 1 is located at the intersection of Yale Lane and Portola Parkway facing northwest (see Figure 3.1-2, *Location 1 – Existing and Proposed Daytime Views* and Figure 3.1-3, *Location 1 – Existing and Proposed Nighttime Views*); Location 2 located along Portola Parkway facing northeast towards the football field (see Figure 3.1-4, *Location 2 – Existing and Proposed Daytime Views* and Figure 3.1-5, *Location 2 – Existing and Proposed Nighttime Views*), and Location 3 is located in the residential neighborhood north of the project site near the intersection of Stallion and Twisted Oak, facing southwest towards the campus (see Figure 3.1-6, *Location 3 – Existing and Proposed Daytime Views* and Figure 3.1-7, *Location 3 – Existing and Proposed Nighttime Views*).

AESTHETICS

Light Spill

Some of the design elements for light control and reduced spill lighting include mounting height and steep aiming angles, various lighting modes, visors and shielding, reflective housing around the luminaires, number of luminaires, and appropriate light levels. The proposed light poles incorporate all these elements, and each element can be arranged individually to control and minimize any potential spill lighting impacts. Additionally, there are existing street light poles in the surrounding area. The proposed project would not be inconsistent with the surrounding existing conditions during the daytime.

The Musco lighting plans measure fc lighting measurements within 150 feet of the field. As shown in Figure 3.1-8, *Musco Lighting Analysis*, the highest light level at that boundary is at and below 0.1 fc, which is below the 0.9 fc threshold of significance and below the 0.2 fc measurement for after curfew. Since the increased mounting heights of the proposed lights allow the lamps to be directed down to the playing surface and not at a right angle across the track/field, and the nearest residential property line across Portola Parkway to the south of the project site is located beyond the 150 feet boundary line, no residential properties will experience measurable increase in lighting as a result of the project. Therefore, the project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Impacts would be **less than significant**.

Generation of Glare

The design elements for glare control include mounting height, visors and shielding, aim, and reflective housing around the lamp. The project would also use 900W fixtures resulting in maximum spill control. As part of the proposed project, the lighting engineer would ensure that the lights are properly adjusted and maintained so that glare would not impact the surrounding community (see Figure 3-1.2 through 3.1-7). Additionally, the highest measured light level at 150 feet from the field remains at or below 0.1 fc, and the nearest residential property line to the south of the project site is located beyond the 150 feet boundary line. The proposed project would not cause any measurable increase in lighting at nearby residential properties. In general, all school activities are scheduled to end by 9:00 p.m., and community use would end by 10:00 p.m. The project would not result in a substantial new source of glare that would affect nighttime views in the area. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

Figure 3.1-1 - Visual Simulation Locations



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Figure 3.1-2 - Location 1 – Existing and Proposed Daytime Views



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Figure 3.1-3 - Location 1 – Existing and Proposed Nighttime Views



Location 1 - Existing Nighttime View



Location 1 - Proposed Nighttime View

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Figure 3.1-4 - Location 2 – Existing and Proposed Daytime Views



Location 2 - Existing Daytime View



Location 2 - Proposed Daytime View

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Figure 3.1-5 - Location 2 – Existing and Proposed Nighttime Views



Location 2 - Existing Nighttime View



Location 2 - Proposed Nighttime View

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Figure 3.1-6 - Location 3 – Existing and Proposed Daytime Views



Location 3 - Existing Daytime View



Location 3 - Proposed Daytime View

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Figure 3.1-7 - Location 3 – Existing and Proposed Nighttime Views



Location 3 - Existing Nighttime View



Location 3 - Proposed Nighttime View

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Figure 3.1-8 - Musco Lighting Analysis



Northwood High School Campus
Project Site

0 80
Scale (Feet)



Source: PlaceWorks 2025.

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Cumulative Impact Analysis

The proposed project would not have a cumulative effect related to aesthetics.

Development of the proposed project and related projects have the potential result in aesthetic impacts and generate light spill. However, similar to the proposed project, each related project would be expected to prepare a site-specific analysis of impacts, implement mitigation measures if needed, and comply with applicable regulatory compliance measures. The proposed project would not result in significant impacts related to nighttime light spill to the properties immediately to the north or to the west. Therefore, the project's contribution to cumulative nighttime lighting impacts would be less than cumulatively considerable, and the project's impacts would be **less than significant**.

Significance without Mitigation: Less than significant

3.1.5 References

- Caltrans (California Department of Transportation). 2025. California State Scenic Highway System.
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AESTHETICS

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3.2 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the Northwood High School Field Lighting Improvement Project (proposed project) to impact air quality in a local and regional context. This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (South Coast AQMD). The analysis focuses on air pollution from regional emissions and localized pollutant concentrations. Criteria air pollutant emissions modeling for the proposed project is included in Appendix C of this DEIR.

3.2.1 Environmental Setting

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, nitrogen dioxide (NO₂), PM₁₀, and PM_{2.5} are “criteria air pollutants,” which means that ambient air quality standards (AAQS) have been established for them. 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 NO₂ are the principal secondary pollutants.

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

- **Carbon Monoxide (CO)** is a colorless, odorless, toxic 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. Because CO is emitted directly from internal combustion engines and motor vehicles operating at slow speeds are the primary source of CO in the South Coast Air Basin (SoCAB), 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 (South Coast AQMD 2005, 2022; US EPA 2024a). The SoCAB is designated as being in attainment

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under the California AAQS and attainment (serious maintenance)¹ under the National AAQS (CARB 2024a).

- **Volatile Organic Compounds (VOC)** 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 (South Coast AQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O₃, South Coast AQMD has established a significance threshold (South Coast AQMD 2023a). The health effects for ozone are described later in this section.
- **Nitrogen Oxides (NO_x)** 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 (South Coast AQMD 2005, 2022; US EPA 2024a). The SoCAB is designated in attainment (maintenance) under the National AAQS and attainment under the California AAQS (CARB 2024a).
- **Sulfur Dioxide (SO₂)** 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 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.

¹ A maintenance area refers to a previously nonattainment area that has been redesignated to “maintenance” after it meets the standards and additional redesignation requirements in the Clean Air Act (Section 107(d)(3)(E)).

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 (South Coast AQMD 2005, 2022; US EPA 2024a). The SoCAB is designated as attainment under the California and National AAQS (CARB 2024a).

- **Suspended Particulate Matter (PM₁₀ and PM_{2.5})** 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., ≤0.01 millimeter). Inhalable fine particles, or PM_{2.5}, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤0.0025 millimeter). 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 US Environmental Protection Agency's (EPA) 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) (South Coast AQMD 2005, 2022). 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., ≤0.0001 millimeter) have human health implications because their toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (South Coast AQMD 2022). However, the EPA and the California Air Resources Board (CARB) have not adopted AAQS to regulate these particulates. Diesel particulate matter is classified by CARB as a carcinogen (CARB 1999, 2023d). Particulate matter can also cause environmental effects such as visibility impairment,² environmental damage,³ and aesthetic damage⁴ (South Coast AQMD 2005, 2022; US EPA 2023a). 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 2024a).⁵

² PM_{2.5} is the main cause of reduced visibility (haze) in parts of the United States.

³ Particulate matter can be carried over long distances by wind and then 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.

⁴ Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

⁵ CARB approved the South Coast AQMD'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

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- **Ozone (O₃)** is a key ingredient of “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 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 (South Coast AQMD 2005, 2022; US EPA 2024a). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2024a).
- **Lead (Pb)** 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 (South Coast AQMD 2005, 2022; US EPA 2024a). 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 more strict lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.⁶ As a result of these violations, the Los Angeles County portion of the SoCAB is designated as nonattainment under the National AAQS for lead (South Coast

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.

⁶ 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 (South Coast AQMD 2012).

AQMD 2012; CARB 2024a). However, lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011 (South Coast AQMD 2012). Because emissions of lead are found only in projects that are permitted by South Coast AQMD, lead is not a pollutant of concern for the Project.

Table 3.2-1, *Criteria Air Pollutant Health Effects Summary*, summarizes the potential health effects associated with the criteria air pollutants.

Table 3.2-1 Criteria Air Pollutant Health Effects Summary

Pollutant	Health Effects	Examples of Sources
Carbon Monoxide (CO)	<ul style="list-style-type: none"> ▪ Chest pain in heart patients ▪ Headaches, nausea ▪ Reduced mental alertness ▪ Death at very high levels 	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Ozone (O ₃)	<ul style="list-style-type: none"> ▪ Cough, chest tightness ▪ Difficulty taking a deep breath ▪ Worsened asthma symptoms ▪ Lung inflammation 	Atmospheric reaction of organic gases with nitrogen oxides in sunlight
Nitrogen Dioxide (NO ₂)	<ul style="list-style-type: none"> ▪ Increased response to allergens ▪ Aggravation of respiratory illness 	Same as carbon monoxide sources
Particulate Matter (PM ₁₀ and PM _{2.5})	<ul style="list-style-type: none"> ▪ Hospitalizations for worsened heart diseases ▪ Emergency room visits for asthma ▪ Premature death 	Cars and trucks (particularly diesels) Fireplaces and woodstoves Windblown dust from overlays, agriculture, and construction
Sulfur Dioxide (SO ₂)	<ul style="list-style-type: none"> ▪ Aggravation of respiratory disease (e.g., asthma and emphysema) ▪ Reduced lung function 	Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, and industrial processes
Lead (Pb)	<ul style="list-style-type: none"> ▪ Behavioral and learning disabilities in children ▪ Nervous system impairment 	Contaminated soil

Source: CARB 2024b.

TOXIC AIR CONTAMINANTS

CARB has identified other air pollutants as toxic air contaminants (TACs), which are pollutants that may cause serious, long-term effects. People exposed to TACs at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious

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health effects. These health effects can include damage to the immune system as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (US EPA 2025a). 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. There are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most relevant to the project being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) 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 lung.

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

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 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

Ambient air quality standards have been adopted at the state and federal levels for criteria air pollutants. In addition, both the state and federal government regulate the release of TACs. The proposed project is in the SoCAB and is subject to the rules and regulations imposed by the South Coast AQMD, the California AAQS adopted by CARB, and National AAQS adopted by the US EPA. Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized in this section.

3.2.2 Regulatory Framework

FEDERAL AND STATE

Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 CAA 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 as well as 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 CAA allows states to adopt more stringent standards or to include other pollution species. 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 3.2-2, *Ambient Air Quality Standards for Criteria Air Pollutants*. These pollutants are O₃, NO₂, CO, SO₂, PM₁₀, PM_{2.5}, and Pb. In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 3.2-2 Ambient Air Quality Standards for Criteria Air 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	

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Table 3.2-2 Ambient Air Quality Standards for Criteria Air Pollutants

Pollutant	Averaging Time	California Standard¹	Federal Primary Standard²	Major Pollutant Sources
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	
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	9 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.

Table 3.2-2 Ambient Air Quality Standards for Criteria Air Pollutants

Pollutant	Averaging Time	California Standard¹	Federal Primary Standard²	Major Pollutant Sources
Visibility-Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	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	No Federal Standard	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	No Federal Standard	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.

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Table 3.2-2 Ambient Air Quality Standards for Criteria Air Pollutants

Pollutant	Averaging Time	California Standard¹	Federal Primary Standard²	Major Pollutant Sources
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Source: CARB 2016.

Notes: ppm: parts per million; $\mu\text{g}/\text{m}^3$: 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 ambient air quality standards 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 $\mu\text{g}/\text{m}^3$ 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 February 7, 2024, the national annual PM_{2.5} primary standard was lowered from 12.0 $\mu\text{g}/\text{m}^3$ to 9.0 $\mu\text{g}/\text{m}^3$. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 $\mu\text{g}/\text{m}^3$, as was the annual secondary standard of 15 $\mu\text{g}/\text{m}^3$. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 $\mu\text{g}/\text{m}^3$ also were retained. 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:

- **Assembly Bill (AB) 1493: Pavley Fuel Efficiency Standards.** Pavley I is a clean-car standard that reduces greenhouse gas emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025.
- **Title 20 of California Code of Regulations (CCR): Appliance Energy Efficiency Standards.** The 2006 Appliance Efficiency Regulations (20 CCR Sections 1601–1608) were adopted by the California Energy Commission 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.

- **24 CCR, Part 6: Building and Energy Efficiency Standards.** Energy conservation standards for new residential and nonresidential buildings adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977.
- **24 CCR, Part 11: Green Building Standards Code.** Establishes 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.⁷

California Air Resources Board

CARB is a part of the California Environmental Protection Agency and responsible for the coordination and administration of both federal and state air pollution control programs in California. In this capacity, CARB conducts research, sets the California AAQS (see Table 3.2-2), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's State Implementation Plan (SIP), working closely with the federal government and the local air districts. The SIP is required for the state to take over implementation of the federal CAA from the EPA.

Nuisance Regulations

Health and Safety Code Section 41700 states,

... a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property.

This section also applies to objectionable odors.

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 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

⁷ The green building standards became mandatory in the 2010 edition of the code.

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pose a present or potential hazard to human health” (17 CCR Section 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 US Code Section 7412[b]) is a TAC. 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 Section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.** Regulation generally restricting on-road diesel-powered commercial motor vehicles with a gross vehicle weight rating of greater than 10,000 pounds from idling more than five minutes.
- **13 CCR Chapter 10 Section 2480: Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.** Generally, restricts a school bus or transit bus from idling for more than five minutes when within 100 feet of a school.
- **13 CCR Section 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. Regulations established to control emissions associated with diesel-powered TRUs.

REGIONAL

Air Quality Management Planning

The South Coast AQMD is the agency responsible for improving air quality in the SoCAB and ensuring that the National and California AAQS are attained and maintained. South Coast AQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in

coordination with the Southern California Association of Governments (SCAG). The AQMP is a regional strategy plan to achieve air quality standards by examining emissions, looking at regional growth projections, and the impact of existing and proposed control measures to provide healthful air in the long-term. Since 1979, a number of AQMPs have been prepared.

The Clean Air Act requires CARB to develop a SIP that describes how an area will attain National AAQS. The AQMP provides the framework for air quality basins to achieve attainment of the State and federal AAQS through the SIP. Areas are classified as attainment or nonattainment areas for a particular pollutant depending on whether they meet the AAQs.

2022 AQMP

South Coast AQMD adopted the 2022 AQMP on December 2, 2022, as an update to the 2016 AQMP. On October 1, 2015, the EPA strengthened the National AAQS for ground-level ozone, lowering the primary and secondary ozone standard levels to 70 parts per billion (ppb) (2015 Ozone National AAQS). The SoCAB is currently classified as an “extreme” nonattainment for the 2015 Ozone National AAQS. Meeting the 2015 federal ozone standard requires reducing NOX emissions, the key pollutant that creates ozone, by 67 percent more than is required by adopted rules and regulations by 2037. The only way to achieve the required NOX reductions is through extensive use of zero emission (ZE) technologies across all stationary and mobile sources. South Coast AQMD’s primary authority is over stationary sources which account for approximately 20 percent of NOX emissions. The overwhelming majority of NOX emissions are from heavy-duty trucks, ships, and other State and federally regulated mobile sources that are mostly beyond the South Coast AQMD’s control. The region will not meet the standard without significant federal action. In addition to federal action, the 2022 AQMP requires substantial reliance on future deployment of advanced technologies to meet the standard. The control strategy for the 2022 AQMP includes aggressive new regulations and the development of incentive programs to support early deployment of advanced technologies. The two key areas for incentive programs are (1) promoting widespread deployment of available ZE and low-NOX technologies and (2) developing new ZE and ultra-low NOX technologies for use in cases where the technology is not currently available. South Coast AQMD is prioritizing distribution of incentive funding in environmental justice areas and seeking opportunities to focus benefits on the most disadvantaged communities (South Coast AQMD 2022).

South Coast AQMD PM_{2.5} Redesignation Request and Maintenance Plan

In 1997, the EPA adopted the 24-hour fine PM_{2.5} standard of 65 µg/m³. In 2006, this standard was lowered to a more health-protective level of 35 µg/m³. The SoCAB is designated nonattainment for both the 65 µg/m³ and 35 µg/m³ 24-hour PM_{2.5} standards (24-hour PM_{2.5} standards). In 2020, monitored data demonstrated that the SoCAB attained both 24-hour PM_{2.5} standards. The South Coast AQMD developed the “2021 Redesignation Request and Maintenance Plan” for the 1997 and 2006 24 hour PM_{2.5} Standards for the SoCAB PM_{2.5} Redesignation Request and Maintenance Plan, demonstrating that the SoCAB has met the

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requirements to be redesignated to attainment for the 24-hour PM_{2.5} standards (South Coast AQMD 2021b).

Lead Implementation Plan

In 2008, the EPA designated the Los Angeles County (County) portion of the SoCAB as a nonattainment area under the federal lead (Pb) classification because of 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 county nonattainment area, remains in attainment of the new 2008 lead standard. On May 24, 2012, CARB approved the 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 and was approved in March 2014.

Assembly Bill 617, Community Air Protection Program

AB 617 (C. Garcia, Chapter 136, Statutes of 2017) requires local air districts to monitor and implement air pollution control strategies that reduce localized air pollution in communities that bear the greatest burdens. In response to AB 617, CARB established the Community Air Protection Program.

Air districts are required to host workshops to help identify disadvantaged communities disproportionately affected by poor air quality. Once the criteria for identifying the highest priority locations have been identified and the communities have been selected, new community monitoring systems are installed to track and monitor community-specific air pollution goals. In 2018 CARB prepared an air monitoring plan (Community Air Protection Blueprint) that evaluates the availability and effectiveness of air monitoring technologies and existing community air monitoring networks. Under AB 617, the Blueprint is required to be updated every five years.

Under AB 617, CARB is also required to prepare a statewide strategy to reduce TACs and criteria pollutants in impacted communities; provide a statewide clearinghouse for best available retrofit control technology; adopt new rules requiring the latest best available retrofit control technology for all criteria pollutants for which an area has not achieved attainment of California AAQS; and provide uniform, statewide reporting of emissions inventories. Air districts are required to adopt a community emissions reduction program to achieve reductions for the communities impacted by air pollution that CARB identifies.

South Coast AQMD Rules and Regulations

All projects are subject to South Coast AQMD rules and regulations in effect at the time of activity, including:

- **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 US 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.
- **Rule 445, Wood Burning Devices.** In general, the rule prohibits new developments from installing wood-burning devices. This rule is intended to reduce the emission of particulate matter from such devices and applies to manufacturers and sellers of wood-burning devices, commercial sellers of firewood, and property owners and tenants that operate a wood-burning device.
- **Rule 1113, Architectural Coatings.** This rule serves to limit the VOC content of architectural coatings used on projects in the South Coast AQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the South Coast AQMD must comply with the current VOC standards in this rule.
- **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

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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.

- **Rule 1166, Volatile Organic Compound Emissions from Decontaminated Soil.** Under this rule, an excavation plan is required, and excavation operations are required to be monitored for VOC concentrations.
- **Rule 1466, Control of Particulate Emissions from Soils with Toxic Air Contaminants,** to minimize the amount of off-site fugitive dust emissions containing TACs by reducing particulate emissions in the ambient air as a result of earthmoving activities, including excavating, grading, handling, treating, stockpiling, transferring, and removing soil that contains applicable TACs. Components of the fugitive dust control plan are required to include the following measures: fencing that is a minimum of six feet tall and at least as tall as the height of the tallest stockpile, with a windscreen with a porosity of 50 ± 5 percent; monitoring; notification; signage; and recordkeeping.

3.2.3 Existing Conditions

SOUTH COAST AIR BASIN

The project site is in the South Coast Air Basin (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 and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent 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 (South Coast AQMD 2005).

METEOROLOGY

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 lowest average temperature is reported at 45.4°F in December and the highest average temperature is 84.3°F in August (USA.Com 2025).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from October 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 13.58 inches per year in the vicinity of the area (USA.Com 2025).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of a shallow marine layer. This "ocean effect" is dominant except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds. Periods of heavy fog are frequent, especially along the coast. 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 (South Coast AQMD 2005).

Wind

Wind patterns across the southern coastal region are characterized by westerly or southwesterly onshore winds during the day and 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 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 inhibit the eastward transport and diffusion of pollutants. 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 (South Coast AQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the "mixing height." The combination of winds and inversions are critical

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determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the Project area (South Coast AQMD 2005).

SOCAB NONATTAINMENT AREAS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards 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 ozone nonattainment range in magnitude from marginal, moderate, and serious to 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.
- **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 3.2-3, *Attainment Status of Criteria Air Pollutants in the South Coast Air Basin*.

Table 3.2-3 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 ¹
CO	Attainment	Attainment
NO ₂	Attainment	Attainment
SO ₂	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only) ²
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2025a.

¹ The SoCAB is pending a resignation request from nonattainment to attainment for the 24-hour federal PM_{2.5} standards. The 2021 PM_{2.5} Redesignation Request and Maintenance Plan demonstrates that the South Coast

Table 3.2-3 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
meets the requirements of the CAA to allow US EPA to redesignate the SoCAB to attainment for the 65 $\mu\text{g}/\text{m}^3$ and 35 $\mu\text{g}/\text{m}^3$ 24-hour $\text{PM}_{2.5}$ standards. CARB submitted the 2021 $\text{PM}_{2.5}$ Redesignation Request to the US EPA as a revision to the California SIP (CARB 2021).		
² 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 for lead in the SoCAB are unclassified. However, lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011 (South Coast AQMD 2012). CARB's SIP revision was submitted to the US EPA for approval.		

MULTIPLE AIR TOXICS EXPOSURE STUDY V

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on existing ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In April 2021, South Coast AQMD released the latest update to the MATES study, MATES V. The first MATES analysis, MATES I, began in 1986 but was limited because of the technology available at the time. Conducted in 1998, MATES II was the first MATES iteration to include a comprehensive monitoring program, an air toxics emissions inventory, and a modeling component. MATES III was conducted in 2004 to 2006, with MATES IV following in 2012 to 2013.

MATES V uses measurements taken during 2018 and 2019, with a comprehensive modeling analysis and emissions inventory based on 2018 data. The previous MATES studies quantified the cancer risks based on the inhalation pathway only. MATES V includes information on the chronic noncancer risks from inhalation and non-inhalation pathways for the first time. Cancer risks and chronic noncancer risks from MATES II through IV measurements have been reexamined using current Office of Environmental Health Hazards Assessment (OEHHA) and California Environmental Protection Agency (CalEPA) risk assessment methodologies and modern statistical methods to examine the trends over time.

The MATES V study showed that cancer risk in the SoCAB decreased to 454 in a million from 997 in a million in the MATES IV study. Overall, air toxics cancer risk in the SoCAB decreased by 54 percent since 2012 when MATES IV was conducted. MATES V showed the highest risk locations near the Los Angeles International Airport and the Ports of Long Beach and Los Angeles. DPM continues to be the major contributor to air toxics cancer risk (approximately 72 percent of the total cancer risk). Goods movement and transportation corridors have the highest cancer risk. Transportation sources account for 88 percent of carcinogenic air toxics emissions, and the remainder is from stationary sources, which include large industrial operations such as refineries and power plants as well as smaller businesses such as gas stations and chrome-plating facilities (South Coast AQMD 2021a).

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MATES V identifies that the maximum cancer risk in the project area is 388 per million, which is 15 percent lower than that of the South Coast AQMD population (South Coast AQMD 2025).

EXISTING AMBIENT AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project area are best documented by measurements taken by the South Coast AQMD. The proposed project is located within Source Receptor Area (SRA) 19 – Saddleback Valley.⁸ The air quality monitoring station with the most recent data closest to the proposed project is the Anaheim-Pampas Lane Monitoring Station, which is one of 31 monitoring stations South Coast AQMD operates and maintains within the SoCAB.⁹ This station monitors one-hour and eight-hour O₃, NO₂, PM₁₀, and PM_{2.5}. Table 3.2-4, *Ambient Air Quality Monitoring Summary*, shows that the area occasionally exceeds the state and federal one-hour and eight-hour O₃ standards, state PM₁₀ standards and the federal PM_{2.5} standards within the last three years.

Table 3.2-4 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations ^{1,2}		
	2021	2022	2023
Ozone (O₃)			
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	0	1	0
State & Federal 8-hour ≥ 0.070 ppm (days exceed threshold)	0	1	2
Max. 1-Hour Conc. (ppm)	0.089	0.102	0.089
Max. 8-Hour Conc. (ppm)	0.068	0.076	0.076
Nitrogen Dioxide (NO₂)			
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0
Max. 1-Hour Conc. (ppb)	0.0671	0.0530	0.0509
Coarse Particulates (PM₁₀)			
State 24-Hour > 50 $\mu\text{g}/\text{m}^3$ (days exceed threshold)	1	1	1
Federal 24-Hour > 150 $\mu\text{g}/\text{m}^3$ (days exceed threshold)	0	0	0
Max. 24-Hour Conc. ($\mu\text{g}/\text{m}^3$)	63.6	67	99.4

⁸ Per South Coast AQMD Rule 701, an SRA is defined as follows: “A source area is that area in which contaminants are discharged, and a receptor area is that area in which the contaminants accumulate and are measured. Any of the areas can be a source area, a receptor area, or both a source and receptor area.” There are 37 SRAs within the South Coast AQMD’s jurisdiction.

⁹ Locations of the SRAs and monitoring stations are shown here: <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf>.

Table 3.2-4 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations ^{1,2}		
	2021	2022	2023
Fine Particulates (PM_{2.5})			
Federal 24-Hour > 35 µg/m ³ (days exceed threshold)	10	0	1
Max. 24-Hour Conc. (µg/m ³)	54.4	33.1	45.6

Source: CARB 2025d.

Notes: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; * = Data not available

¹ Data for O₃, NO₂, PM_{2.5}, and PM₁₀ from Anaheim-Pampas Lane Monitoring Station.

² Most recent data available as of March 2025.

EXISTING EMISSIONS

The existing high school operations currently generate criteria air pollutant emissions from area sources (e.g., use of landscaping equipment, maintenance activities such as architectural coating), energy use (i.e., natural gas used for heating), and mobile sources (i.e., student and staff trips to the campus).

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution (i.e., TACs) 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, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent because the majority of the workers tend to stay indoors most of the time. In addition, the workforce is generally the healthiest segment of the population.

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The nearest off-site sensitive receptors are the residences approximately 200 feet south of the project site along Portola Parkway.

3.2.4 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that, “except as provided in Public Resources Code Section 21099,” the proposed project would result in a significant air quality impact if it would:

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

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

CEQA allows the significance criteria established by the applicable air quality management district or air pollution control district to be used to assess impacts of a project on air quality. South Coast AQMD has established thresholds of significance for air quality for construction activities and project operation in the SoCAB, as shown in Table 3.2-5, *South Coast AQMD Regional Significance Thresholds*. Table 3.2-5 lists thresholds that are applicable for all projects uniformly, regardless of size or scope. As previously discussed, there is growing evidence that although ultrafine particulate matter contributes a very small portion of the overall atmospheric mass concentration, it represents a greater proportion of the health risk from PM exposure. However, because the US EPA and CARB have not adopted AAQS to regulate ultrafine particulate matter, South Coast AQMD has not developed thresholds for them.

Table 3.2-5 South Coast AQMD Regional Significance Thresholds

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

Source: South Coast AQMD 2023.

Health Outcomes Associated with the South Coast AQMD Regional Significance Thresholds

Projects that exceed the South Coast AQMD's 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 determined to not result in adverse health effects. 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}) (South Coast AQMD 2015a)

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. In addition, University of Southern California scientists, in a 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 (South Coast AQMD 2015b).

South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals exposed to elevated concentrations of air pollutants in the SoCAB and has

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established thresholds that would be protective of these individuals. To achieve the health-based standards established by the EPA, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS. Mass emissions thresholds shown in Table 3.2-5 are not correlated with concentrations of air pollutants, but mass emissions still contribute to the cumulative air quality impacts in the SoCAB. The thresholds are based on the trigger levels for the federal New Source Review Program, which was created to ensure projects are consistent with attainment of health-based federal AAQS. 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 previously. Projects that do not exceed the South Coast AQMD regional significance thresholds in Table 3.2-5 would not violate regional air quality standards or contribute substantially to an existing or projected air quality violation.

If projects exceed the emission levels presented in Table 3.2-5, then those emissions would cumulatively contribute to the nonattainment status of the air basin and would contribute to elevating health effects associated with these criteria air pollutants regionally. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions in Table 3.2-5, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment because mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health effects cited previously.

South Coast AQMD has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health to address the issue raised in *Sierra Club v. County of Fresno* (Friant Ranch, L.P.) (2018) 6 Cal.5th 502, Case No. S21978. South Coast AQMD currently does not have methodologies that would provide the District with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a proposed project's mass emissions.¹⁰ Ozone concentrations are dependent on a variety of

¹⁰ In April 2019, the Sacramento Metropolitan Air Quality Management District (SMAQMD) published an Interim Recommendation on implementing *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 ("Friant Ranch") in the review and analysis of Proposed Projects under CEQA in Sacramento County. Consistent with the expert opinions submitted to the court in Friant Ranch by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and South Coast AQMD, the SMAQMD guidance confirms the absence of an acceptable or reliable quantitative methodology that would correlate the expected criteria air pollutant emissions of projects to likely health consequences for people from project-generated criteria air pollutant emissions. The SMAQMD guidance explains that while it is in the process of developing a methodology to assess these impacts, lead agencies should follow the Friant Court's advice to explain in meaningful detail why this analysis is not yet feasible. Since

complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National and California AAQS, and the absence of modeling tools that could provide statistically valid data and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects, it is not possible to link specific health risks to the magnitude of emissions exceeding the significance thresholds. However, if a project in the SoCAB exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until the attainment standards are met in the SoCAB.

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 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to the AAQS 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. With the turnover of older vehicles and introduction of cleaner fuels, as well as implementation of control technology on industrial facilities, CO concentrations in the SoCAB and the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for attainment by South Coast AQMD did not predict a violation of CO standards at the busiest intersections in Los Angeles during the peak morning and afternoon periods.¹¹ As identified in South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide, peak carbon monoxide concentrations in the SoCAB in years before the 2007 redesignation were a result of unusual meteorological and topographical conditions and not of congestion at a particular intersection. Since South Coast AQMD currently does not have adopted CO hotspot screening criteria, Bay Area Air District's recommended threshold was used in this analysis. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection to more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—to generate a significant CO impact (Bay Area Air District 2023).¹²

this interim memorandum SMAQMD has provided methodology to address health impacts. However, a similar analysis is not available for projects within the South Coast AQMD region.

¹¹ The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

¹² The CO hotspot analysis refers to the modeling conducted by the Bay Area Air District for its CEQA Guidelines because it is based on newer data and considers the improvement in mobile-source CO emissions. Although

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Localized Significance Thresholds

South Coast AQMD identifies localized significance thresholds (LST), shown in Table 3.2-6, *South Coast AQMD Localized Significance Thresholds*. Emissions of NO₂, CO, PM₁₀, and PM_{2.5} generated at a project site could expose sensitive receptors to substantial concentrations of criteria air pollutants. Off-site mobile-source emissions are not included in the LST analysis. A project would generate a significant impact if it generates emissions that, when added to the local background concentrations, violate the AAQS.

Table 3.2-6 South Coast AQMD 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 (South Coast AQMD) ¹	10.4 µg/m ³
24-Hour PM _{2.5} Standard – Construction (South Coast AQMD) ¹	10.4 µg/m ³
24-Hour PM ₁₀ Standard – Operation (South Coast AQMD) ¹	2.5 µg/m ³
24-Hour PM _{2.5} Standard – Operation (South Coast AQMD) ¹	2.5 µg/m ³
Annual Average PM ₁₀ Standard (South Coast AQMD) ¹	1.0 µg/m ³

Source: South Coast AQMD 2023.

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

¹ Threshold is based on South Coast AQMD 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.

meteorological conditions in the Bay Area differ from those in the Southern California region, the modeling conducted by BAAQMD demonstrates that the net increase in peak hour traffic volumes at an intersection in a single hour would need to be substantial. This finding is consistent with the CO hotspot analysis South Coast AQMD prepared as part of its 2003 AQMP to provide support in seeking CO attainment for the SoCAB. Based on the analysis prepared by South Coast AQMD, no CO hotspots were predicted for the SoCAB. As noted in the preceding footnote, the analysis included some of Los Angeles' busiest intersections, with daily traffic volumes of 100,000 or more peak hour vehicle trips operating at LOS E and F (South Coast AQMD 2003).

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (pounds per day) of emissions generated on-site that would trigger the levels shown in Table 3.2-6 for projects under five acres. These “screening-level” LST thresholds are the LSTs for all projects of five acres and less and are based on emissions over an 8-hour period; however, they can be used as screening criteria for larger projects to determine whether dispersion modeling may be required.

In accordance with South Coast AQMD’s LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. The screening-level construction LSTs for the project site in SRA 19 are shown in Table 3.2-7, *South Coast AQMD Screening-Level LSTs*, for sensitive receptors within 350 feet (107 meters) for NO_x and CO, and 200 feet (61 meters) for PM₁₀ and PM_{2.5}.

Table 3.2-7 South Coast AQMD Screening-Level LSTs

Acreage Disturbed	Threshold (lbs./day) ¹			
	NO _x	CO	PM ₁₀	PM _{2.5}
≤1.00-acre Disturbed Per Day	91	696	4	3

Source: South Coast AQMD 2008, 2011, and 2023a.

Notes:

¹ LSTs are based on sensitive receptors within 350 feet (107 meters) for NO_x and CO, who are not assumed to have 24-hour exposure, and residences within 200 feet (61 meters) for PM₁₀ and PM_{2.5}, which are assumed to have 24-hour exposure in SRA 19.

Health Risk

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD Rule 1401, placed on CARB’s air toxics list pursuant to AB 1807, or placed on the EPA’s National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the South Coast AQMD. Table 3.2-8, *South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for construction and operation of a project. The type of land uses that typically generate substantial quantities of criteria air pollutants and TACs from operations include industrial (stationary sources) and warehousing (truck idling) land uses (CARB 2005). Educational and recreational land uses do not use substantial quantities of TACs; thus, these thresholds are typically applied to new industrial projects’ operations only. Additionally, the purpose of this environmental evaluation is to identify the significant effects of the project on the environment, not the significant effects of the environment on the project (California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369 (Case No. S213478)).

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Table 3.2-8 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk (Project-Level)	≥ 10 in 1 million
Cancer Burden (in areas ≥ 1 in 1 million)	> 0.5 excess cancer cases
Hazard Index (project increment)	≥ 1.0
Source: South Coast AQMD 2023.	

Draft Operational Cumulative Health Risk Thresholds

South Coast AQMD initiated a Working Group to identify cumulative health risk thresholds for development projects in order to address community concerns of health risk impacts of new projects being developed in areas where there is a higher pollution burden. The cumulative health risk threshold methodology first utilizes a screening approach to identify whether projects can qualitatively address cumulative health risk or quantitatively address health risk:

- **Low Cancer Risk Project Types:** Residential, commercial, recreational, educational, and retail.
- **Medium Cancer Risk Project Types:** Truck yards, gas stations, small industrial projects, and linear projects.
- **High Cancer Risk Project Types.** Industrial, major transportation projects (airports, port, railyard, bus/train station), and major planning projects.

For projects with low and medium cancer risks, like the proposed project, a quantitative analysis is not warranted. For projects with the potential to cause high cancer risk impacts, a quantitative is recommended. The initial cumulative threshold is based on MATES V cancer risk percentile, which identifies a gradient of the effects of air pollution on cancer risk in the South Coast AQMD Region. If the project triggers additional criteria, then the initial cumulative threshold should be adjusted as shown in Table 3.2-9, *MATES V Adjusted Cumulative Significant Cancer Risk Thresholds*.

Table 3.2-9 MATES V Adjusted Cumulative Significant Cancer Risk Thresholds

Project's Background MATES V Cancer Risk ¹	Revised Initial Thresholds based on Cancer Risk
Most Stringent	≥ 1 in 1 million
>90th Percentile	≥ 3 in 1 million
90th Percentile to 50th Percentile	≥ 5 in 1 million
50th Percentile to 30th Percentile	≥ 7 in 1 million
< 30th Percentile	≥ 10 in 1 million

Source: South Coast AQMD 2024.

Notes:

¹ Most current MATES V is based on 2018 data.

As stated previously, South Coast AQMD has identified that the initial thresholds in Table 3.2-9 should be adjusted if any of the following criteria apply:

- **Criteria #1 – Post-2018 Projects with High Volume Diesel Fueled Trucks.** Post-2018 projects are not accounted for in MATES V. Therefore, if new warehousing projects along the truck route¹³ have been constructed, then the initial thresholds will be adjusted to the next, more stringent level (e.g., cumulative threshold will adjust from 10 in one million to 7 in one million).
- **Criteria #2 – Health Sensitive Population.** If the project site is within SB 535 or AB 617 community, then the initial thresholds will be adjusted to the next, more stringent level (e.g., cumulative threshold will adjust from 7 in one million to 5 in one million).

This type of project would be considered low to medium cancer risks; thus, an operational cancer risk analysis for the proposed project would not be warranted.

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 in conjunction with future development that would be accommodated by the proposed project. South Coast AQMD's CEQA Air Quality Handbook and updates on its website are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs and were used in this analysis.

Regional air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only). The following is a summary of the assumptions used for the proposed project's analysis.

Construction

Construction would entail site preparation, field lighting installation, and utility trenching activities across approximately 1,500 square feet. The proposed project's construction would occur over 6 months, from Spring 2026 through Summer 2026.

¹³ Truck route is from the project site to major freeway, within certain distance to sensitive receptors, add all diesel-fueled trucks from post-2018 projects.

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Operation

As identified stated in Section 2.6.1, *Description of the Project*, the proposed project would entail the installation of four athletic field lights around the existing football field, utility trenching for the electrical lines, and infrastructure to allow for a future Public Address (PA) system. The proposed project would allow for events occurring off-campus to be held on the Northwood HS campus and would not impact student or staff capacity at Northwood HS.

The new field lighting would allow for evening use of the field by various games and events that currently take place during daytime hours. It is also anticipated to increase the maximum number of attendees at most events (refer to Table 2-2, *Northwood High School Proposed Athletics/Events Schedule*). The proposed project would result in 102 new average daily vehicle trips (85 additional attendees), including 51 new pre-event peak hour trips (Appendix F). Therefore, the proposed project would generate an increase in new vehicle trips when compared to existing conditions. The athletic field lights are anticipated to be utilized throughout the year for school events and non-school events from dusk to 9:00 pm similar to the District's other high schools.

3.2.5 Project Impact Analysis

a) The proposed project would not conflict with or obstruct implementation of the applicable air quality plan.

South Coast AQMD is directly responsible for reducing emissions from area, stationary, and mobile sources in the SoCAB to achieve the National and California AAQS and has responded to this requirement by preparing an AQMP. The South Coast AQMD Governing Board adopted the 2022 AQMP, which is a regional and multiagency effort (South Coast AQMD, CARB, SCAG, and EPA).

A consistency determination with the AQMP plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration early enough 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 the clean air goals in the AQMP.

The two principal criteria for conformance with an AQMP are:

1. Whether the project would exceed the assumptions in the AQMP.

2. Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timeline attainment of air quality standards.

SCAG is South Coast AQMD's partner in the preparation of the AQMP, providing the latest economic and demographic forecasts and developing transportation measures. Regional population, housing, and employment projects developed by SCAG are based, in part, on general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP.

Criterion 1: Consistency with Regional Growth Assumptions

Section 15206(b)(2) of the CEQA Guidelines states that a project is of statewide, regional, or area-wide significance if the project would constitute a proposed residential development of more than 500 dwelling units; a proposed shopping center or business establishment employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space; a proposed hotel/motel development of more than 500 rooms; or a proposed industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 50 acres of land, or encompassing more than 650,000 square feet of floor area.

The proposed project would entail the renovation of the existing track and field with the addition of field lighting and infrastructure to allow for a future PA system to accommodate Northwood HS sports activities, other school activities, and non-school events. Implementation of the proposed project would not involve any residential development and would not have a direct impact on local resident growth assumptions for the City. In addition, the proposed project would involve improvements to an existing campus without increasing student or employment capacity and would not substantially influence the employment growth forecasts for the City. Thus, the proposed project is not anticipated to substantially affect demographic projections beyond what is accounted for in the current 2022 AQMP. Therefore, the proposed project would be consistent with the AQMP under the first criterion.

Criterion 2: Consistency with Regional Air Quality Standards

The SoCAB is designated nonattainment for O₃ and PM_{2.5} under the California and National AAQS,¹⁴ nonattainment for PM₁₀ under the California AAQS, and nonattainment for lead (Los Angeles County only) under the National AAQS (CARB 2025a). Long-term emissions generated by the proposed project would not produce criteria air pollutants that exceed the South Coast

¹⁴ The SoCAB is pending a resignation request from nonattainment to attainment for the 24-hour federal PM_{2.5} standards. The 2021 PM_{2.5} Redesignation Request and Maintenance Plan demonstrates that the South Coast meets the requirements of the CAA to allow the EPA to redesignate the SoCAB to attainment for the 65 µg/m³ and 35 µg/m³ 24-hour PM_{2.5} standards. CARB will submit the 2021 PM_{2.5} Redesignation Request to the EPA as a revision to the California SIP (CARB 2021).

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AQMD regional significance thresholds for the proposed project operations (see Impact b). South Coast AQMD's significance thresholds identify whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations. Because the proposed project would not exceed the South Coast AQMD's regional significance thresholds (see Impact b), the proposed project would not contribute to an increase in frequency or severity of air quality violations or delay attainment of the AAQS and would be consistent with the AQMP under the second criterion.

SUMMARY

The proposed project is not anticipated to result in population or employment growth that would exceed the demographic growth forecasts in the 2022 AQMP. Moreover, the proposed project would not result in exceedances of South Coast AQMD regional significance thresholds and would not contribute to existing or projected AAQS violations. Therefore, the proposed project would be considered consistent with the AQMP.

Significance without Mitigation: Less than significant.

-
- b) The proposed project would not 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.**
-

Construction

Construction activities produce combustion emissions from various sources, such as on-site heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew.

Construction of the proposed project would generate criteria air pollutants associated with construction equipment exhaust and fugitive dust from site preparation, field lighting installation, and utility trenching. Air pollutant emissions from construction activities on-site would vary daily as construction activity levels change. Table 3.2-10, *Proposed Project Maximum Daily Regional Construction Emissions*, shows maximum daily construction emissions associated with the proposed project.

Table 3.2-10 Proposed Project Maximum Daily Regional Construction Emissions

Construction Phase	Pollutants (lbs./day) ^{1, 2}					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Year 2026						
Site Preparation	1	9	8	<1	2	1
Field Lighting Installation	<1	4	7	<1	<1	<1
Utility Trenching	<1	2	3	<1	<1	<1
Impact Analysis						
Maximum Daily Construction Emissions	1	9	8	<1	2	1
South Coast AQMD Regional Significance Threshold	75	100	550	150	150	55
Significant?	No	No	No	No	No	No

Source: CalEEMod Version 2022.1. South Coast AQMD 2023. Highest winter or summer emissions are reported. (See Appendix C)

¹ Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 25 miles per hour on unpaved surfaces, and street sweeping with Rule 1186-compliant sweepers.

² Based on the preliminary information provided by the District. Where specific information regarding proposed project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast AQMD of construction equipment.

As shown in Table 3.2-10, construction of the proposed project would not result in an exceedance of the regional significance thresholds for any criteria air pollutant. This impact would be **less than significant**.

Significance without Mitigation: Less than significant.

Operation

Buildout of the proposed project would generate an increase in criteria air pollutant emissions mainly from transportation (i.e., vehicle trips). As mentioned previously, the anticipated increase in attendance for games and increase in number of events at the project site would result in 102 average daily vehicle trips (85 additional attendees) (refer to Appendix F). The results for the maximum daily emissions below account for the maximum number of new daily trips to project site during from 85 additional attendees. While an increase in the number of events and number of attendees at events would occur under the proposed project, no new or existing events would result in an increase in attendance above the existing 400 maximum attendees at track and field events.

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As shown in Table 3.2-11, *Proposed Project Maximum Daily Regional Operation Emissions*, the maximum daily emissions from operation-related activities would be less than their respective South Coast AQMD regional significance threshold values. Therefore, impacts to the regional air quality associated with operation of the proposed project would be **less than significant**.

Table 3.2-11 Proposed Project Maximum Daily Regional Operation Emissions

Source	Pollutants (lbs./day) ¹					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Mobile	<1	<1	3	<1	1	<1
Area	0	0	0	0	0	0
Energy	0	0	0	0	0	0
Impact Analysis						
Maximum Daily Operation Emissions	<1	<1	3	<1	1	<1
South Coast AQMD Regional Significance Threshold	55	55	550	150	150	550
Significant?	No	No	No	No	No	No

Source: CalEEMod Version 2022.1. South Coast AQMD 2023. Highest winter or summer emissions are reported. (See Appendix C)

¹ Mobile emissions based on new average daily trips for events with 85 new attendees provided by Garland & Associates as conservative estimate for average day vehicle trips (Appendix F).

Significance without Mitigation: Less than significant.

c) The proposed project would not expose sensitive receptors to substantial pollutant concentrations.

The proposed project could expose nearby receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevated levels. Unlike the mass emissions shown in the regional emissions analysis in Table 3.2-10, which are 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.

Construction

Construction-Phase Localized Significance Thresholds

Screening-level LSTs (pounds per day) are the amount of Project-related mass emissions at which localized concentrations (ppm or µg/m³) could exceed the AAQS for criteria air pollutants for which the SoCAB is designated nonattainment. They are based on the acreage disturbed, distance to the nearest sensitive receptor, and SRA. Thresholds are based on the California

AAQS, which are the most stringent, established to provide a margin of safety in the protection of the public's 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 illness, and persons engaged in strenuous work or exercise. The nearest off-site sensitive receptors are the residences approximately 200 feet south of the project site along Portola Parkway. The nearest onsite receptors are the students and staff attending Northwood HS at the campus buildings north of the project site.

Air pollutant emissions generated by construction activities would cause temporary increases in air pollutant concentrations. Table 3.2-12, *Construction Emissions Compared to the Screening-Level LSTs*, shows the maximum daily construction emissions (pounds per day) generated during on-site construction activities at the Project area compared with the South Coast AQMD's screening-level LSTs thresholds for sensitive receptors within 82 feet (25 meters) for NO_x and CO, and 200 feet (61 meters) for PM₁₀ and PM_{2.5} in SRA 19: Saddleback Valley.

As shown in Table 3.2-12, the maximum daily NO_x, CO, PM₁₀, and PM_{2.5} construction emissions from on-site construction-related activities would be less than their respective South Coast AQMD screening-level LSTs, and this impact would be **less than significant**.

Table 3.2-12 Construction Emissions Compared to the Screening-Level LSTs

	Pollutants(lbs./day) ¹			
	NO _x	CO	PM ₁₀ ²	PM _{2.5} ²
South Coast AQMD ≤1.00-acre LST	91	696	4.00	3.00
Site Preparation	4	6	0.72	0.22
Field Lighting Installation	4	6	0.30	0.15
Utility Trenching	2	3	0.22	0.08
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2022.1 and South Coast AQMD 2008 and 2011.

Notes: In accordance with South Coast AQMD methodology, only onsite stationary sources and mobile equipment occurring on the project area are included in the analysis. LSTs are based on sensitive receptors within 82 feet (25 meters) for NO_x and CO, who are not assumed to have 24-hour exposure, and residences within 200 feet (61 meters) for PM₁₀ and PM_{2.5}, which are assumed to have 24-hour exposure in SRA 19.

¹ Based on information provided or verified by the District. Where specific information regarding project-related construction activities or processes was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by the South Coast AQMD.

² Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 25 miles per hour on unpaved surfaces, and street sweeping with Rule 1186-compliant sweepers.

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Construction Health Risk

Emissions from construction equipment primarily consist of diesel particulate matter (DPM). In 2015, the Office of Environmental Health Hazards Assessment (OEHHA) adopted guidance for preparation of health risk assessments, which included the development of a cancer risk factor and non-cancer chronic reference exposure level for DPM over a 30-year time frame (OEHHA 2015). Currently, South Coast AQMD does not require the evaluation of long-term excess cancer risk or chronic health impacts for a short-term project. The proposed project is anticipated to be completed in approximately 6 months, which would limit the exposure to onsite and offsite receptors. Furthermore, construction activities would not generate onsite exhaust emissions that would exceed the screening-level construction LSTs. Thus, construction emissions would not pose a health risk to onsite and offsite receptors, and project-related construction health impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

Operation

Operation LSTs

Operation of the proposed project would not generate substantial emissions from onsite stationary sources. Land uses that have the potential to generate substantial stationary sources of emissions include industrial land uses, such as chemical processing and warehousing operations where truck idling would occur onsite and would require a permit from South Coast AQMD. The proposed project would entail the renovation of the existing track and field with addition of field lighting and infrastructure to allow for a future PA system, which does not fall within these categories of uses. Localized air quality impacts related to operation-related emissions would be **less than significant**.

Carbon Monoxide Hotspots

Since South Coast AQMD currently does not have adopted CO hotspot screening criteria, Bay Area Air District's recommended threshold was used in this analysis. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection to more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—to generate a significant CO impact (Bay Area Air District 2023).

The proposed project would result in a maximum of 150 new peak hour trips during football games and a maximum of 2,460 intersection turning counts at the intersection of Portola Parkway and Yale Avenue (refer to Appendix F). As such, the proposed project would not add vehicle trips to the regional roadway network to cause an exceedance of 44,000 vehicles per hour or 24,000 vehicle per hour where vertical and/or horizontal mixing is substantially limited at an intersection. Therefore, implementation of the proposed project would not have the

potential to substantially increase CO hotspots at intersections in the vicinity of the project area. Impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

d) The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The threshold for odor is if a project creates an odor nuisance pursuant to South Coast AQMD Rule 402, Nuisance, which states:

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

Construction

During construction activities, construction equipment exhaust and application of asphalt and architectural coatings would generate odors. Any construction-related odor emissions would be temporary and intermittent. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment. By the time such emissions reached any sensitive receptor sites, they would be diluted to well below any level of air quality concern. Furthermore, short-term construction-related odors are expected to cease upon the drying or hardening of odor-producing materials. Therefore, impacts associated with construction-generated odors are considered **less than significant**.

Operation

The type of facilities that are considered to have objectionable odors include wastewater treatment plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The project site is within an existing campus; the proposed project would include recreational uses and would not include the types of land uses that create objectionable odors. Additionally, the proposed project would be required to comply with South Coast AQMD Rule 402, which would minimize and provide a control for objectionable or offensive odors that are reported to the South Coast AQMD. The proposed project would not generate potentially

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significant odor impacts affecting a substantial number of people. Therefore, impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

3.2.6 Cumulative Impact Analysis

The proposed project would not have a cumulative effect related to air quality.

In accordance with the South Coast AQMD 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 in the project area. The greatest source of emissions in the SoCAB is mobile sources. Due to the extent of the area potentially impacted by cumulative project emissions (i.e., the SoCAB), the South Coast AQMD considers a project cumulatively significant when project-related emissions exceed the South Coast AQMD regional emissions thresholds shown in Table 3.2-5. In addition, per the draft guidelines released by the South Coast AQMD cumulative risk Working Group, projects that result in project risk impacts are also considered to result in cumulative risk impacts.

Construction

The SoCAB (Riverside County portion) is designated nonattainment for O₃ and PM_{2.5} under the California and National AAQS and nonattainment for PM₁₀ under the California AAQS.¹⁵ Construction of cumulative projects would further degrade the regional and local air quality. Air quality would be temporarily impacted during construction activities. As previously discussed, construction activities associated with the development of the proposed project would not exceed regional or localized significance thresholds. Therefore, the proposed project's construction-related emissions would not result in cumulative construction-related emissions or health risk impacts. Moreover, odor-related impacts resulting from construction would be temporary and confined to the immediate vicinity of the construction equipment, which would occur in the interior of the project site away from nearby receptors. As such, construction-related impacts would not be cumulatively considerable, and impacts would be **less than significant**.

¹⁵ CARB approved the South Coast AQMD'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 has not violated federal 24-hour PM₁₀ standards during the period from 2004 to 2007. In June 2013, 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.

Operation

For operational air quality emissions, any project that does not exceed or can be mitigated to less than the daily regional and/or cancer risk threshold values is not considered a substantial source of air pollution by the South Coast AQMD and does not add significantly to a cumulative impact. As discussed in Impact 5.2-3, implementation of the proposed project would not result in additional vehicle trips to the local roadway network or related emissions that would exceed the South Coast AQMD regional significance thresholds. In addition, emissions of criteria air pollutants would not result in localized impacts that exceed the South Coast AQMD localized significance thresholds and cancer risk threshold. Finally, odors resulting from operation of the proposed project would not change from existing conditions as no new odor-generating land uses are proposed as part of the project. As such, operational impacts would not be cumulatively considerable. Therefore, the air pollutant emissions associated with the proposed project would not be cumulatively considerable, and impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

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3.3 CULTURAL RESOURCES

Cultural resources consist of archaeological and historical resources. Archaeology studies human artifacts, such as places, objects, and settlements that reflect group or individual religious, cultural, or everyday activities. Historical resources include sites, structures, objects, or places that are at least 50 years old and are significant for their engineering, architecture, cultural use or association, etc. In California, historic resources cover human activities over the past 12,000 years. Cultural resources provide information on scientific progress, environmental adaptations, group ideology, or other human advancements. This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Northwood High School Field Lighting Improvement Project (proposed project) to impact cultural resources.

During the Notice of Preparation (NOP) public review period, no comments were received regarding cultural and historic impacts associated with the proposed project. A CEQA scoping meeting was conducted on June 3, 2025, where no concerns regarding these issues were raised. The NOP and all scoping comment letters are included as Appendix A of this document.

3.3.1 Regulatory Framework

Federal, state, and local laws related to cultural resources that are applicable to the proposed project are summarized below.

FEDERAL

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) coordinates public and private efforts to identify, evaluate, and protect the nation's historic and archaeological resources. The act authorized the National Register of Historic Places, which lists districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.

Section 106 (Protection of Historic Properties) of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. Section 106 Review ensures that historic properties are considered during federal project planning and implementation. The Advisory Council on Historic Preservation, an independent federal agency, administers the review process with assistance from state historic preservation offices.

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National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's official list of buildings, structures, objects, sites, and districts worthy of preservation because of their significance in American history, architecture, archaeology, engineering, and culture. The NRHP recognizes resources of local, state, and national significance that have been documented and evaluated according to uniform standards and criteria.

Authorized under the NHPA, the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archaeological resources. The NHP is administered by the National Park Service, which is part of the U.S. Department of the Interior.

To be eligible for listing in the NRHP, a resource must meet at least one of the following criteria:

- A. Is associated with events that have made a significant contribution to the broad patterns of our history.
- B. Is associated with the lives of persons significant in our past.
- C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- D. Has yielded, or may be likely to yield, information important in history or prehistory.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979 regulates the protection of archaeological resources and sites on federal and Indian lands.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) is a federal law passed in 1990 that mandates museums and federal agencies to return certain Native American cultural items—such as human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants or culturally affiliated Indian tribes.

STATE

The California Office of Historic Preservation (OHP), a division of the California Department of Parks and Recreation, is responsible for carrying out the duties described in the California Public Resource Code (PRC) and maintaining the California Historic Resources Inventory and the California Resources of Historical Resources (CRHR). The state-level regulatory framework also includes CEQA, which required the identification and mitigation of substantial adverse impacts that may affect the significance of eligible historical and archaeological resources.

California Environmental Quality Act

CEQA requires a lead agency to analyze whether historic and/or archaeological resources may be adversely impacted by a proposed project. Under CEQA, a “project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment” (PRC Section 21084.1). Answering this question is a two-part process. First, the determination must be made as to whether the proposed project involves cultural resources. Second, if cultural resources are present, the proposed project must be analyzed for a potential “substantial adverse change in the significance” of the resource.

Historical Resources

According to CEQA Guidelines Section 15064.5, for the purposes of CEQA, historical resources are:

- A resource listed in, or formally determined eligible...for listing in the California Register of Historical Resources (PRC 5024.1, Title 14 California Code of Regulations [CCR], Section 4850 et seq.)
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significance in a historic resources survey meeting the requirements of Section 5024.1(g) of the PRC.
- Any object, building, structure, site, area, place, record, or manuscript that the lead agency determines to be eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historic resource under CEQA if the resource meets the criteria for listing on the California Register (as defined in PRC Section 5024.1, Title 14 CCR, Section 4852).

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity (as defined above) does not meet NRHP criteria may still be eligible for listing in the CRHR.

According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be a historical resource (PRC Section 5024.1). Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (State CEQA Guidelines, Section 15064.5[b]).

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Substantial Adverse Change and Indirect Impacts to Historical Resources

CEQA Guidelines specify that a “substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (State CEQA Guidelines, Section 15064.5). Material impairment occurs when a project alters in an adverse manner or demolishes “those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion” or eligibility for inclusion in the NRHP, CRHR, or local register. In addition, pursuant to State CEQA Guidelines Section 15126.2, the “direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.”

The following guides and requirements are of relevance to this study’s analysis of indirect impacts to historic resources. Pursuant to CEQA Guidelines Section 15378, study of a project under CEQA requires consideration of “the whole of an action, which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.” State CEQA Guidelines (Section 15064(d)) further define direct and indirect impacts:

1. A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project.
2. An indirect physical change in the environment is a physical change in the environment, which is not immediately related to the project, by which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment.
3. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

Archaeological Resources

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a proposed project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2[a], [b], and [c]). CEQA notes that, if an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of the project on those resources shall not be considered to be a significant effect on the environment (State CEQA Guidelines Section 15064.5[c][4]).

California Public Resources Code

Archaeological, paleontological, and historical sites are protected under a wide variety of state policies and regulations in the PRC. In addition, cultural and paleontological resources are recognized as nonrenewable resources and receive protection under the PRC and CEQA.

PRC Sections 5020 to 5029.5 continued the former Historical Landmarks Advisory Committee as the State Historical Resources Commission. The commission oversees the administration of the California Register of Historical Resources and is responsible for designating State Historical Landmarks and Historical Points of Interest.

PRC Sections 5079 to 5079.65 define the functions and duties of the OHP, which administers federal- and state-mandated historic preservation programs in California as well as the California Heritage Fund.

PRC Sections 5097.9 to 5097.991 provide protection to Native American historical and cultural resources and sacred sites; identify the powers and duties of the Native American Heritage Commission (NAHC); require that descendants be notified when Native American human remains are discovered; and provide for treatment and disposition of human remains and associated grave goods.

Requirements for paleontological resource management are included in California PRC Division 5, Chapter 1.7, Section 5097.5, which states:

A person shall not knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.

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These statutes prohibit the removal, without permission, of any paleontological site or feature from land under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC Section 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others. PRC Section 5097.5 also establishes the removal of paleontological resources as a misdemeanor and requires reasonable mitigation of adverse impacts to paleontological resources from developments on public (i.e., state, county, city, and district) land.

California Register of Historical Resources

Created in 1992 and implemented in 1998, the CRHR is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest (CPHI) program, identified as significant in historical resources surveys, or designated by local landmarks programs, may be nominated for inclusion in the CRHR.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historical integrity and are historically significant at the local, state, or national level under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
2. It is associated with the lives of persons important in our past;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to prehistory or history.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR.

California State Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have been determined to have statewide historical significance by meeting at least one of the criteria listed below:

- The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California).
- Associated with an individual or group having a profound influence on the history of California.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best-surviving work in a region of a pioneer architect, designer, or master builder.

The resource also must have written consent of the property owner; be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks.

California State Points of Historical Interest

California Points of Historical Interest (CPHI) are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historical resource may be designated as both a Landmark and a Point. If a Point is subsequently granted status as a Landmark, the Point designation will be retired. To be eligible for designation as a Point of Historical Interest, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type within the local geographic region (City or County).
- Associated with an individual or group having a profound influence on the history of the local area.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer or master builder.

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LOCAL

2045 Irvine General Plan

The 2045 Irvine General Plan provides the basis for the City's policies and represents the community's basic values, ideals, and aspirations. The General Plan establishes policies to guide development and conservation through 2045. Key policies of the General Plan relevant to this chapter's analysis of the proposed project's potential impact on cultural resources are included below. The set of policies listed is not an exhaustive list of all of the General Plan policies applicable to the proposed project; rather, it is a selection of policies relevant to the impact discussion in this chapter.

Conservation and Open Space Element

Goal 4: Use and maintain societal resources, including, but not limited to, archaeological, historical, and paleontological resources, as part of the City's land use pattern.

Objective COS-4. To effectively utilize and preserve societal resources, encompassing archaeological, historical, and paleontological assets, within the City's land use framework, ensuring their integration and maintenance in alignment with conservation and open space goals.

Implementation Measures

- Coordinate General Plan level resource information to determine the level and type of resource(s) potentially within any proposed development.

City of Irvine Municipal Code

The Irvine Municipal Code outlines the local laws and regulations governing land use, development, and environmental protection within the City. Among its provisions, the municipal code includes specific measures to identify, evaluate, and preserve cultural resources, such as archaeological sites, and historic structures.

Title 3, Division 4, Chapter 1, Section 3-4-132: prohibits any person from possessing, destroying, injuring, defacing, removing, digging or disturbing from its natural state any of the following: plants, wildlife, artifacts, minerals, landscape structures, improvements, wood, and natural products. Except for those persons engaged in sanctioned trail development, other construction or interpretative activities at the discretion of the Director of Community Services, or for emergency personnel in the performance of their duties.

3.3.2 Existing Conditions

This information is based on the Irvine General Plan, which provides a comprehensive overview of the city’s historical and cultural context, including known archaeological and paleontological resources, and historic-era structures.

HISTORIC OVERVIEW

Cultural resources in the City of Irvine encompass both historical and archaeological elements. Historical sites, dating from post-1542 AD, are valued for their historical, architectural, or cultural significance, while archaeological sites provide evidence of human activity predating 1750 AD. The highest concentrations of archaeological sites—primarily linked to the Gabrieleño and Acjachemen (Juaneño) peoples—are located in areas such as Upper Newport Bay and the Santiago and San Joaquin Hills. Within or near the City, hundreds of cultural resources have been identified, including some of the oldest sites in Orange County (Irvine 2024a).

Spanish Exploration

Juan Cabrillo was the first European to sail along the coast of California in 1542 and was followed in 1602 by Sebastian Vizcaino. The Spanish colonization of what was then known as Alta California began with the 1769 overland expedition led by Gaspar de Portolá. Between 1769 and 1822, the Spanish had colonized California and established missions, presidios, and pueblos and documented the people and landscape along the way. Portola and his expedition crossed the area north of Lake Forest in July 1769, naming the perennial creek that empties from the Santa Ana Mountains “aliso”.

During the Mission period, many of the trees along the creek, including alder, oak, sycamore, and other species were cut down for the construction of ships and structures, charcoal production, and other uses.

Portions of the City lie within the boundaries of Rancho Santiago de Santa Ana, which was given to Jose Antonio Yorba and his nephew Pablo Peralta in 1810 by Governor José Joaquín de Arrillaga on behalf of the Spanish Government (Irvine 2024a).

Mexican Period

In addition to the land granted for the Rancho Santiago de Santa Ana under the Spanish Government, additional land grants were given by the Mexican government, including Rancho San Joaquin and Rancho Lomas de Santiago. The Rancho San Joaquín land grant was a combination of the Rancho Cienega de las Ranas and the Ranch La Bolsa de San Joaquín. This land grant was issued to José Antonio Andrés Sepúlveda in 1837 and 1842, respectively. Rancho Lomas de Santiago was granted to Teodosio Yorba by the Mexican Governor Pío Pico in 1846.

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Teodosio was the son of Jose Antonio Yorba, who was granted Rancho Santiago de Santa Ana (Irvine 2024a).

American Period

Following the cession of California to the United States after the Mexican-American War, the Treaty of Guadalupe Hidalgo in 1848 ensured that the land grants would be honored. In 1864 Sepúlveda sold his lands to Benjamin and Thomas Flint, Llewellyn Bixby, and James Irvine. In 1876, James Irvine bought out his partners and became the sole owner of the Irvine Ranch, which continued largely a ranching operation for many years. When Irvine died in 1886, James Irvine II took control of the ranch and increased its agricultural production. In 1894, James Irvine II incorporated the land holdings as the Irvine Company.

In 1899, the newly formed San Joaquin School District approached James Irvine II with the intent to build a school for the children of his ranch tenant. In 1911, the school and land upon which it resided was donated by Irvine II to Orange County. By the beginning of the twentieth century, Irvine II set aside 320 acres at the intersection of the Santa Fe Railroad tracks and Central Avenue for the purpose of developing a town for the residence of both his permanent and seasonal workers. In 1914, the Orange County town of Myford was renamed “Irvine” (Irvine 2024a).

Modern Period

As a result of the Second World War, pressure mounted towards the development of urban areas in California. Under the guidance of Myford Plum, Irvine, Cameo Highlands, Irvine Terrace, Harbor View Hills, Cameo Shores, Westcliff Baycrest, and Irvine Cove in Laguna were developed.

In 1960, the Irvine Company gifted 1,000 acres of land to the University of California with a provision for the sale of an additional 500 acres. The establishment of the university on the Irvine Ranch provided a central focus around which the company would create a master plan for Irvine Ranch, centering around both the City and University of California, Irvine. To create this master plan, the Irvine Company hired William Pereira & Associates, who divided the ranch into three sections (north, central, and south). The central section consisted of prime agricultural land, while the northern section consisted of a remote mountainous region, and the southern section consisted of a basin that was considered the top priority of urban development, as it ran from the coast to the alignment of the Interstate 405 (I-405) Freeway. Development of each community underwent meticulous planning, as each “village” would include its own churches, shopping centers, and schools. The same attention to detail was utilized in master land-use plan in the development of the Irvine Industrial Complex and the Newport “downtown” Center. Pereira’s plan for the university outlined the campus as a large wheel with a park at the center that would include a lake and an amphitheater as “the focus of university life”. The University of California, Irvine was dedicated on June 20, 1964. In 1965, much of the agricultural land on the

ranch was being converted into housing tracts. In 1971, the City of Irvine was incorporated (Irvine 2024a).

Project Site History

Prior to the construction of the Northwood HS campus in 1999, the project site was used for agricultural uses. The 1974 Tustin United States Survey (USGS) topographic quadrangle map shows the entirety of project site was developed for agricultural uses. No other historic uses were mapped for the project site. Historically, the project site was surrounded by avocado groves. According to DOC's Farmland Mapper Over Time, which classifies agricultural land from 1984 to 2022, the project site was classified as Prime Farmland from 1984 to 1998 (DOC 2025). The surrounding land is now Orchard Hills, a residential community extending north from the community of Northwood Pointe.

Historic Resources Near the Project Site

According to Table 4.4-3 in the Irvine General Plan EIR, the City's historic resources include four buildings listed on both the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR), along with eight properties recorded on the California Historical Resources Inventory (CHRI). Additionally, one site features a California Historical Landmark (CHL) plaque, and three sites have California Point of Historical Interest (CPHI) plaques. Orange County Parks recognizes the Irvine Ranch Historic Park as a historic resource, while the City designates 19 properties as historically significant (Irvine 2024b).

These resources encompass both current and former locations of historic buildings, historical archaeological sites—often near past-use areas—and existing historic homes over 45 years old. Old Town Irvine contains the highest concentration of historic buildings. Notable resources north of I-405 include the railroad, a eucalyptus windbreak, the Valencia Growers Packing House, and the Irvine Agricultural Headquarters Complex. South of I-405, key historic sites include the Rancho San Joaquin Adobe, the San Joaquin Gun Club, Phineas Banning House, Bommer Canyon Cattle Camp, and Barton's Mound.

The Northwood HS campus is not officially designated as a historical resource on a local, state, or federal level, and was not identified in the General Plan as a historical site (Irvine 2024b; NPS 2025a, 2025b; OHP 2025a, 2025b).

ARCHAEOLOGICAL RESOURCES

The City is within the traditional tribal territory of the Gabrieleño Tribe. The traditional tribal territory of the Gabrieleño includes large portions of Los Angeles County, the northern part of Orange County, small sections of Riverside and San Bernardino counties as well as the southern Channel Islands of Santa Barbara, San Clemente, San Nicolas, and Santa Catalina. Gabrieleño houses were domed, circular structures thatched with tule or similar materials. The best-known

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artifacts were made of steatite and were highly prized. Many common everyday items were decorated with inlaid shell or carvings reflecting an elaborately developed artisanship. Villages were located near water sources.

The traditional tribal territory of the Acjachemen (Juaneño) Tribe is located immediately south of the City. The traditional tribal territory of the Acjachemen includes northern San Diego County and southern Orange County. Houses were typically conical in shape and thatched with locally available plant materials. Work areas were often shaded by rectangular brush-covered roofs (ramada). Adults in the tribe were actively involved in making tools including nets, arrows, bows, traps, food preparation items, pottery and ornaments (Irvine 2024a).

According to the General Plan, artifacts from the Native American era and fossils of plants and animals have been discovered in various locations throughout the City. Only two historical archaeological sites have been recorded in City; both are in the eastern portion of the City and consist of historic domestic refuse (Irvine 2024b).

3.3.3 Standards for Analysis

SIGNIFICANCE CRITERIA

CEQA Guidelines Section 15064.5 provides direction on determining significance of impacts to archaeological and historical resources. Generally, a resource shall be considered “historically significant” if the resource meets the criteria for listing on the California Register of Historical Resources:

- Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history. (PRC § 5024.1; 14 CCR § 4852)

The fact that a resource is not listed in the California Register of Historical Resources, not determined to be eligible for listing, or not included in a local register of historical resources does not preclude a lead agency from determining that it may be a historical resource.

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that the proposed project would result in a significant impact on cultural resources if it would:

- a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5.
- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
- c) Disturb any human remains, including those interred outside of dedicated cemeteries.

METHODOLOGY

To determine the presence or absence of historical or archaeological resources on the project site, a review was conducted of the City of Irvine General Plan and General Plan Environmental Impact Report, as well as relevant federal, state, and local databases, including the National Register of Historic Places and the California Register of Historical Resources. These sources were evaluated to assess whether the project site has been previously identified as containing or being eligible for historical or archaeological resources.

3.3.4 Project Impact Analysis

a) The proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5.

Section 15064.5 defines historic resources as resources listed or determined to be eligible for listing by the State Historical Resources Commission, a local register of historical resources, or the lead agency. Generally, a resource is considered “historically significant” if it meets one of the following criteria:

- i) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- ii) Is associated with the lives of persons important in our past;
- iii) Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual, or possesses high artistic values;
- iv) Has yielded, or may be likely to yield, information important in prehistory or history.

CULTURAL RESOURCES

ON-CAMPUS HISTORIC RESOURCES

The proposed project would be implemented within the existing Northwood HS campus. Northwood HS is not listed as a historical resource in the NRHP, CHL, or CRHR (NPS 2025a, 2025b; OHP 2025a, 2025b). The Irvine General Plan EIR provides a list of historical resources within the City and does not list the Northwood HS campus (Irvine 2024b). The property did not play a significant role in the development and expansion of the City as it was constructed in 1999. As such, the property does not qualify as a historical resource under CEQA.

OFF-CAMPUS HISTORIC RESOURCES

Historic resources within the City include four buildings listed on the NRHP and the CRHR, eight properties listed on the CHRI, one area with a CHL plaque, and three areas with a CPHI plaque (Irvine 2024b). The nearest historical resource is the Frances Packing House, which is approximately 1.5 miles southwest of the project site (NPS 2025b). The proposed project would be confined to the boundaries of the Northwood HS campus. Project construction would be limited in scope and would involve minimal demolition activities. Given the nature of the proposed project, the distance, and intervening development, the proposed project would not impact this historical resource or any others. Therefore, there are no resources on the project site that would be considered historically significant, and this impact would be **less than significant**.

Significance without Mitigation: Less than significant.

b) The proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.

Only two historical archaeological sites have been recorded in City of Irvine; both are in the eastern portion of the City and consist of historic domestic refuse (Irvine 2024a). The proposed project would be confined to the boundaries of the Northwood HS campus. Project construction would be limited in scope and would involve minimal ground-disturbing activities. Excavation would disturb approximately 1,500 square feet and would include utility trenching and the installation of light poles. The project site is surrounded by development and is not near any creeks, thereby decreasing the chance that any previously undiscovered prehistoric archaeological deposits are located on the project site. However, there is still a potential for discovery of buried archeological resources that have not previously been encountered. Therefore, this impact would be considered **potentially significant**.

Mitigation Measure CUL-1 would be implemented for the proposed project to address the potential to encounter any additional artifacts or subsurface archaeological resources during project-related ground-disturbing activities. With the implementation of MM CUL-1, potential impacts to archaeological resources would be reduced to **less than significant**.

Impact CUL-1: Project development would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.

Mitigation Measure CUL-1: Prior to the commencement of grading activities, the District shall ensure that an archaeologist who meets the Secretary of the Interior's (SOI) standards for professional archaeology has been retained for the proposed project and will be on-call during all grading and other significant ground-disturbing activities that would occur beneath the existing artificial fill. The qualified archaeologist shall ensure that the following measures are followed for the proposed project:

- Prior to any ground disturbance, the Qualified Archaeologist will conduct a preconstruction Cultural Resources Awareness Training (CRAT) to familiarize the members of the construction team overseeing or conducting ground-disturbing activities with the archaeological sensitivity of the project area, the potential to encounter archaeological resources, the types of archaeological material that could be encountered, and procedures to follow if archaeological deposits and/or artifacts are encountered during construction. The SOI-qualified archaeologist shall prepare and distribute a brochure describing the appropriate actions to take if any archaeological resources are encountered.
- Prior to any ground disturbance, the (SOI)-qualified archaeologist shall prepare an Archaeological and Tribal Monitoring Plan that outlines the methods to be undertaken during monitoring and the steps to be taken in the event of an archaeological discovery.
 - In the event that a prehistoric archeological site indicators (such as obsidian and chert flakes and chipped stone tools; grinding and mashing implements [e.g., slabs and hand stones, and mortars and pestles]; bedrock outcrops and boulders with mortar cups; and locally darkened midden soils) or a historic-period archaeological site indicators (such as fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits [e.g., wells, privy pits, dumps]), is uncovered during grading or other construction activities, all ground-disturbing activity within 50 feet of the discovery shall be halted. The District shall be notified of the potential find and a qualified archeologist shall be retained to investigate its significance (CEQA Guidelines15064.5[f]).
 - If significant Native American cultural resources are discovered for which a treatment plan must be prepared, the District or the archaeologist on-call shall contact the applicable Native American tribal representative(s). If requested by the Native American tribe(s), the District or archaeologist on call shall, in good faith, consult on the discovery and its disposition (e.g., avoidance, preservation, reburial, re-turn of artifacts to tribe).

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Significance with Mitigation: Less than significant.

c) The proposed project could disturb any human remains, including those interred outside of dedicated cemeteries.

There are no known cemeteries or human burials at the project site. However, the proposed project has the potential to uncover previously unknown human remains during the construction phase which would consist of excavation of a hole for installation of the proposed light poles and utility trenching on the project site.

If human remains are encountered during ground-disturbing activities, California Health and Safety Code Section 7050.5 requires that disturbance of the site shall halt and remain halted. The Orange County Coroner shall investigate the circumstances, manner, and cause of any death and recommend the treatment and disposition of the human remains to the person responsible for the excavation or to his or her authorized representative, in the manner provided in Section 5097.98 of the California Public Resources Code. The coroner is required to determine, within two working days of being notified of the discovery of the human remains. If the coroner determines that the remains are not subject to his or her authority or has reason to believe they are Native American, he or she shall contact, by telephone within 24 hours, the NAHC, who will contact the “most likely descendant.” The most likely descendant shall receive access to the discovery and provide recommendations or preferences for treatment of the remains within 48 hours of accessing the discovery site. Disposition of human remains and any associated grave goods, if encountered, shall be treated in accordance with procedures and requirements in Sections 5097.94 and 5097.98 of the Public Resources Code, Section 7050.5 of the California Health and Safety Code, and CEQA Guidelines Section 15064.5 (PRC § 5097.9; AB 389, 2023).

Although soil-disturbing activities associated with the proposed project could result in the discovery of human remains, compliance with existing law would ensure that impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

3.3.5 Cumulative Impact Analysis

The proposed project would not have a cumulative effect related to cultural resources.

As defined in Section 15130 of the State CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for utilities and services. The study area for the assessment of cumulative impacts related to utilities and

services is the Northwood HS campus. There are currently no other projects proposed to occur within the campus.

Development of the proposed project and related projects have the potential to encounter and potentially degrade historic resources and cultural resources. However, similar to the proposed project, each related project would be expected to comply with PRC Section 15064.5, perform site-specific cultural analyses, implement mitigation measures if needed, and comply with other applicable regulatory compliance measures. The proposed project would not result in an adverse change in the significance of a historical resource. The project site does not contain known archeological resources or human remains. However, because the proposed project would conduct ground-disturbing activities, the proposed project would require a mitigation measure to minimize its impact to potential archeological materials to a less than significant level and reduce the potential for the project to contribute to cumulative impacts to cultural resources. No other projects are currently planned for the project site.

Overall, the proposed project would not introduce new uses to the campus and would not significantly alter the campus. Minimal construction activities are proposed that would not result in substantial changes to the campus compared to existing conditions. Therefore, the proposed project would not have a cumulative effect related to cultural resources and would be **less than significant**.

Significance without Mitigation: Less than significant.

3.3.6 References

California Department of Conservation (DOC). 2025, March 14 (accessed). *California Important Farmland: 1984-2022*. <https://maps.conservation.ca.gov/dlrp/ciftimeseries/>.

City of Irvine. 2024a. *2045 Irvine General Plan*. <https://cityofirvine.org/community-development/current-general-plan>.

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California Office of Historic Preservation (OHP). 2025a, April 30 (accessed). *California Historical Landmarks by County*. https://ohp.parks.ca.gov/?page_id=21445.

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3.4 GEOLOGY AND SOILS

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Northwood High School Field Lighting Improvement Project (proposed project) to impact geological and soil resources, paleontological resources, or unique geologic features. The analysis in this section is based in part on the following technical report:

- *Geotechnical Investigation Report, New Light Poles at the Football Field Northwood High School, 4515 Portola Parkway, Irvine, CA 92620*, Southwest Inspection and Testing, Inc., September 2025

A complete copy of this technical report is provided in Appendix D of this DEIR.

During the Notice of Preparation (NOP) public review period, no comments were received regarding geology and soils including paleontological resources. A CEQA scoping meeting was conducted on June 3, 2025, where no concerns regarding these issues were raised. The NOP and all scoping comment letters are included as Appendix A of this DEIR.

3.4.1 Regulatory Framework

Federal, state, and local laws, regulations, plans, or guidelines that are related to the protection and preservation of geologic and paleontological resources and applicable to the proposed project are summarized below.

FEDERAL

Clean Water Act

Under the Clean Water Act (CWA) of 1977, the United States Environmental Protection Agency (EPA) seeks to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The statute employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the EPA to implement water quality regulations. Please see Chapter 3.6, *Hydrology and Water Quality*, of this DEIR for more detail.

National Pollution Discharge Elimination System

The NPDES permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems.

GEOLOGY AND SOILS

Paleontological Resources Preservation Act of 2009

The federal Paleontological Resources Preservation Act of 2009 (PRPA) directs the Department of Agriculture (U.S. Forest Service) and the Department of the Interior (National Park Service, Bureau of Land Management, Bureau of Reclamation, and Fish and Wildlife Service) to manage and protect paleontological resources on Federal land using scientific principles and expertise. PRPA distinguishes between casual fossil collecting (allowed without a permit in some federal lands under strict limits) and scientific collection (which requires qualified permit holders, curation in approved repositories, and confidentiality of site data). It also establishes criminal and civil penalties for unauthorized excavation, sale, or falsification of fossil records and preserves sensitive location information to prevent theft or vandalism.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was signed into state law in 1972, with its primary purpose being to mitigate the hazard of fault rupture by prohibiting the location of structures for human occupancy across the trace of an active fault.

The act requires the State Geologist of the California Geologic Survey to delineate regulatory zones known as “earthquake fault zones” along faults that are “sufficiently active” and “well defined” and to issue and distribute appropriate maps to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction.

Pursuant to this act and as stipulated in the California Code of Regulations (CCR), Title 14, Section 3603(a), structures for human occupancy are not permitted to be placed across the trace of an active fault. The act also prohibits structures for human occupancy within 50 feet of the trace of an active fault, unless proven by an appropriate geotechnical investigation and report that the development site is not underlain by active branches of the active fault, as stipulated in 14 CCR Section 3603(a). Furthermore, the act requires that cities and counties withhold development permits for sites within an earthquake fault zone until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting, as stipulated in 14 CCR Section 3603(d).

Seismic Hazard Mapping Act of 1990

The Seismic Hazard Mapping Act (SHMA) was adopted by the state in 1990 to protect the public from the effects of earthquake hazards other than surface fault rupture, such as strong ground shaking, liquefaction, seismically induced landslides, or other ground failure. The goal of the act is to minimize loss of life and property by identifying and mitigating seismic hazards. The California Geologic Survey prepares and provides local governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced

landslides, and other ground failures. Section 2697(a) of the Act states that “cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard.”

California Building Code

Current law states that every local agency enforcing building regulations, such as cities and counties, must adopt the provisions of the California Building Code (CBC) within 180 days of its publication. The publication date of the CBC is established by the California Building Standards Commission, and the code is under Title 24, Part 2, of the CCR. The CBC provides minimum standards to protect property and public safety by regulating the design and construction of excavations, foundations, building frames, retaining walls, and other building elements to mitigate the effects of seismic shaking and adverse soil conditions. The CBC contains provisions for earthquake safety based on factors including occupancy type, the types of soil and rock on-site, and the strength of ground shaking with a specified probability at a site.

California General Plan Law

State law (Government Code Section 65302) requires cities and counties to adopt a comprehensive long-term general plan that includes a safety element. The safety element is intended to provide guidance for protecting the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; other seismic hazards identified by Public Resources Code Sections 2691 et. Seq.; and other geologic hazards known to the legislative body. The safety element must also include mapping of known seismic and geologic hazards from the California Geological Survey and a series of responsive goals, policies, and implementation programs to improve public safety.

Public Resources Code Section 5097.5 and Section 30244

State requirements for management of paleontological resources are included in Public Resources Code (PRC) Section 5097.5 and Section 30244. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts on paleontological resources from developments on public (e.g., State, county, city, or district) lands.

Paleontological Assessment Standards

The California Environmental Quality Act (CEQA) also directs agencies to assess whether a project would have an adverse effect on unique paleontological resources. The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources. Most practicing

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paleontologists in the United States adhere closely to the SVP's assessment, mitigation, and monitoring requirements as outlined in these guidelines, which were approved through a consensus of professional paleontologists. The SVP has helped define the value of paleontological resources and, in particular, indicates that geologic units of high paleontological potential are those from which vertebrate or significant invertebrate or plant fossils have been recovered in the past (i.e., are represented in institutional collections). Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant. Geologic units of low paleontological potential are those that are not known to have produced a substantial body of significant paleontological material. As such, the sensitivity of an area with respect to paleontological resources hinges on its geologic setting and whether significant fossils have been discovered in the area or in similar geologic units.

Soils Investigation Requirements

Requirements for soils investigations for new construction are in California Health and Safety Code Sections 17953 to 17955, and in Section 1803 of the California Building Code. Testing samples from subsurface investigations is required, such as from borings or test pits. Studies must be done as needed to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness which are included as part of the geotechnical evaluation required by the California Building Code.

California Public Resources Code

Paleontological sites are protected under a wide variety of state policies and regulations in the California Public Resources Code (PRC). In addition, paleontological resources are recognized as nonrenewable resources and receive protection under the PRC and CEQA. PRC Division 5, Chapter 1.7, Section 5097.5, and Division 20, Chapter 3, Section 30244 states:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

This statute prohibits the removal, without permission, of any paleontological site or feature from lands under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. As a result, local agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others. PRC Section 5097.5 establishes the removal of paleontological resources as a misdemeanor and requires reasonable mitigation of

adverse impacts to paleontological resources from developments on public (state, county, city, and district) lands.

Statewide General Construction Permit

Construction projects of one acre or more are regulated under the General Construction Permit, Order No. 2012-0006-DWQ, issued by the State Water Resources Control Board in 2012.

Projects obtain coverage by developing and implementing a Stormwater Pollution Prevention Plan estimating sediment risk from construction activities to receiving waters and specifying best management practices (BMPs) that would be used by the project to minimize pollution of stormwater.

LOCAL

2045 Irvine General Plan

The 2045 Irvine General Plan provides the basis for the City's policies and represents the community's basic values, ideals, and aspirations. The General Plan establishes policies to guide development and conservation through 2045. Key policies of the General Plan relevant to this chapter's analysis of the proposed project's potential geologic impacts are included below. The set of policies listed is not an exhaustive list of all of the General Plan policies applicable to the proposed project; rather, it is a selection of policies relevant to the impact discussion in this chapter.

Safety Element

Goal 2: Improve the community's resilience to seismic and geologic hazards by ensuring the integrity of the built environment.

Objective S-2: Seismic and Geologic Hazards

Policy (a). Coordinate with Irvine Ranch Water District and Orange County Water District on emergency water storage and distribution following a liquefaction or landslide event.

Policy (b). Coordinate groundwater management with Orange County Water District to avoid subsidence impacts in Irvine.

Policy (c). Promote the strengthening of planned utilities, the retrofit and rehabilitation of existing weak structures and lifeline utilities, and the relocation or strengthening of certain critical facilities to increase public safety and minimize potential damage from seismic and geologic hazards.

GEOLOGY AND SOILS

City of Irvine Local Hazard Mitigation Plan

The City developed the Local Hazard Mitigation Plan (LHMP), most recently updated in 2020, to identify the hazards, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term natural or man-made hazard risks to human life and property for the City and its residents. The goals of the LHMP are to:

1. Protect against threats from natural hazards to life, injury, and property damage.
2. Increase public awareness of potential hazard events.
3. Preserve critical services and functions by protecting key facilities and infrastructure.
4. Protect natural systems from current and future hazard conditions.
5. Coordinate mitigation activities among City departments, neighboring jurisdictions, and federal agencies.
6. Prepare for long-term change in hazard regimes.

The LHMP identifies local faults that may generate earthquakes and identifies potential vulnerabilities within the City that could be adversely affected by seismic events. The LHMP also identifies a mitigation strategy for reducing losses associated with seismic events (Irvine 2020).

3.4.2 Existing Conditions

GEOLOGIC SETTING

Regional Geology

The City of Irvine is situated in the northern region of the Peninsular Ranges, a geomorphic province of California that stretches from Mount San Jacinto in the north to the southern tip of Baja, Mexico. These ranges are characterized by northwest-trending valleys, aligned with faults branching from the San Andreas Fault. The region's geology features granitic rock intrusions into older metamorphic formations. The Peninsular Ranges extend into Baja California and are bordered to the east by the Colorado Desert. This province also encompasses the Los Angeles Basin, several offshore islands—including Santa Catalina, Santa Barbara, San Clemente, and San Nicolas—as well as the surrounding continental shelf, which is marked by deep submarine fault troughs. The northwest movement of the Pacific Plate has played a key role in shaping these ranges and their associated valleys (Irvine 2024b; CGS 2002).

SEISMIC SETTING

Regional Faulting

The shifting and movement of the Earth's tectonic plates are responsible for seismic events. The location at which two tectonic plates join is called a fault line. Any buildings or infrastructure situated around, on top of, or across a fault line are subject to severe seismic shaking and could potentially be severely damaged or destroyed.

The City of Irvine is affected by both local and regional active faults. According to the U.S. Geological Survey and California Geological Survey, there are several regional faults within Alquist-Priolo Special Study Zones near the project site that could result in seismic hazards should an earthquake occur along one of them, including Newport-Inglewood-Rose Canyon fault zone (approximately 14 miles west of the project site) and Elsinore fault zone (approximately 10.5 miles north of the project site) (DOC 2025b).

The San Joaquin Hills blind thrust fault is the only known fault within the City of Irvine. It travels in an east-west/southeasterly direction through the City, running just north of the San Joaquin Hills, located approximately 5 miles southwest of the project site. If an earthquake were to occur on the San Joaquin blind thrust fault, the likelihood of surface rupture would occur underground (Irvine 2024a).

Fault Rupture

Historically, ground surface displacements closely follow the trace of geologically young faults. The project site is not within an Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults exist on the project site (DOC 2025a). The probability of fault offset at the project site from a known active fault is very low. In a seismically active area, the remote possibility exists for future faults in areas where no faults previously existed; however, the probability of surface faulting and consequent secondary ground failure from previously unknown faults is also very low.

According to Figure 4, *Fault Rupture Physical Threat*, of the Irvine 2045 General Plan Safety Element (Safety Element), the project site is not identified as a Critical Facility or Facility of Concern¹ and is not considered to experience potential losses associated with fault rupture (Irvine 2024a).

Seismic Shaking

Ground shaking is the effect of surface motion generated by an earthquake that results in the majority of damage during seismic events. Several factors control how ground motion interacts

¹ Critical Facilities or Facilities of Concern are properties and structures that play important roles in government operations and the services they provide to the community.

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with structures, making the hazard of ground shaking difficult to predict. Seismic waves propagating through the Earth's crust are responsible for the ground vibrations normally felt during an earthquake. The seismicity of the project site is governed by the activity of the Newport-Inglewood-Rose Canyon and Elsinore faults. The intensity of earthquake ground motion at the site would depend upon the characteristics of the generating fault, distance to the earthquake epicenter, and magnitude and duration of the earthquake. Strong to very strong ground shaking could occur at the project site during a large earthquake on one of the nearby faults.

The City of Irvine, including the project site, is in Seismic Zone 4, as identified in the Uniform Building Code. This zone indicates the highest classification of the four zones in the United States, with the most stringent requirements for building design. As the project site is located within proximity to faults, the City could be subject to significant ground shaking which could damage buildings or infrastructure (Irvine 2024b). According to Figure 6, *Seismic Shaking Physical Threat in Irvine*, in the Safety Element, the project site is within an area of 0.76g to 1.05g shaking potential (2 percent in 50 years).²

The City's Local Hazard Mitigation Plan (LHMP) includes a summary of the 2015 Third Uniform California Earthquake Rupture Forecast which provides the most recent assessment of the probability of a major earthquake on various faults between 2015 to 2044. The San Joaquin Hills Fault has a 40 percent probability of a major earthquake occurring while the Newport-Inglewood Fault has a 95 percent probability of occurring. However, the likelihood of a powerful earthquake occurring along these faults per the 2015 Third Uniform California Earthquake Rupture Forecast within the next 25 years is exceptionally low (Irvine 2024b; Irvine 2020).

Liquefaction

Liquefaction refers to loose, saturated sand or gravel deposits that lose their load-supporting capability when subjected to intense shaking. Liquefaction potential varies based upon three main contributing factors:

1. Cohesionless, granular soils with relatively low densities (usually of Holocene age).
2. Shallow groundwater (generally less than 50 feet).
3. Moderate to high seismic ground shaking.

Cohesionless and granular soils are sand or gravel, typically with little or no clay content. Soil liquefaction generally occurs in submerged granular soils and non-plastic silts during or after strong ground shaking. Portions of the City are located within Liquefaction zones. The project

² The values 0.76g to 1.05g represent peak ground acceleration (PGA), indicating the expected earthquake shaking intensity as a fraction of Earth's gravity. The 2 percent in 50 years probability means there is a low chance (2 percent) of experiencing this level of shaking within a 50-year period.

site is not within a liquefaction hazard zone, and the nearest liquefaction zone is located approximately 0.3 miles to the east (CGS 2025a). Additionally, the Irvine General Plan does not identify the project site as within a liquefaction hazard zone (Irvine 2024b).

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Landslides

Landslides occur when earth on slopes become destabilized, typically after heavy rains, when the precipitation saturates the soil and makes it less stable, or when significant erosion from rainfall destabilizes the ground. Slopes that have recently burned face a greater risk from rain-induced landslides, as the fires burn up many of the trees, brush, and other vegetation that help stabilize the earth. Earthquakes may also be a source of landslides as the shaking can destabilize already loosened soils (Irvine 2024b).

The project site is not within a landslide zone (CGS 2025b), but the nearest one is located directly adjacent to the Northwood HS campus to the east. Additionally, Figure 7, *Landslide Hazards in Irvine*, in the Irvine Safety Element identifies the project site as within an area exposed to landslide hazards (Irvine 2025a).

Subsidence

Subsidence occurs when the level of the ground decreases, as if the surface is sinking. Subsidence can either be sudden (as in a sinkhole) or happen gradually over time. It can be caused by mining, groundwater pumping, or fossil fuel extraction, creating empty underground spaces that can collapse and cause the soil above to drop. Erosion, natural cave collapses, and seismic activity can also cause subsidence. The City does not have a history of seismically induced subsidence (City of Irvine 2025a). In terms of extent, subsidence is typically measured by the distance that the ground has sunk from its original elevation (i.e., in feet or inches) or by using the rate of subsidence (i.e., inches or centimeters per year).

Subsidence of the ground surface has been reported in alluvial basins where significant amounts of groundwater (often in an overdraft condition) or petroleum are withdrawn over long periods. The primary cause of nontectonic subsidence has been the alluvial compaction by closing of porosity due to removal of large quantities of groundwater or petroleum and a significant lowering of the groundwater levels. Ground cracking from subsidence would be expected to occur along the boundaries of groundwater basins, such as a contact between alluvium and bedrock, or overprominent geologic structures, i.e., faults.

The City of Irvine has not experienced any acute subsidence events, and it is unlikely to occur in the City's future (Irvine 2025). Furthermore, the project site is not identified as within an area of land subsidence (USGS 2025a).

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Erosion

Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed, or dissolved; removed from one place; and transported to another. Precipitation, running water, and wind are all agents of erosion. Ordinarily, erosion proceeds imperceptibly, but when the natural equilibrium of the environment is changed, the rate of erosion can be greatly accelerated. Accelerated erosion in a developed area can cause damage by undermining structures; blocking storm drains; and depositing silt, sand, or mud on roads and in tunnels. Eroded materials can eventually be deposited in local waters, where the carried silt remains suspended in the water for some time, constituting a pollutant and altering the normal balance of plant and animal life.

Erosion can occur when rainfall or other sources result in the placement of a significant amount of water on a sloping, bare-earth surface. Eroded soils can cause damage if they enter a waterway or a storm drain facility that deposits the collected water and entrained sediment into bodies of water. Soils throughout the project site are developed and paved or already vegetated, leading to minimal erosion.

PALEONTOLOGICAL SETTING

The paleoenvironmental history of the City began during the Mesozoic Era (the “Age of Dinosaurs”), about 93 million years ago. The past 93 million years ago has seen the City transition from deep water marine in the Late Cretaceous, to coastal lowlands during the Paleocene to Oligocene, to shallow marine during the early Miocene, to deep marine during the early to early-late Miocene, back to shallow marine in the latest Miocene through the Pliocene, and finally to increasingly arid terrestrial deposits from the Pleistocene to the Holocene. In addition, younger sediments have been washed into the ocean by action of streams (Irvine 2025b; DOC 2025c).

Paleontological resources are fossils, or recognizable remains or evidence of past life on Earth, including bones, shells, leaves, tracks, burrows, and impressions. Paleontological resources are generally found within sedimentary rock formations.

According to Figure 4.5-3, *Paleontological Sensitivity*, of the Irvine 2045 General Plan EIR, the project site is located in an area of Moderate Paleontological Sensitivity. Records from the University of California Museum of Paleontology (UCMP) database, the PaleoBiology Database, were reviewed for fossil records near the project site. The UCMP database did not report any fossil localities at or near the project site (UCMP 2025).

3.4.3 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that the proposed project would result in a significant impact related to geology if it would:

- a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - 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.)
 - ii) Strong seismic ground shaking.
 - iii) Seismic-related ground failure, including liquefaction.
 - iv) Landslides.
- b) Result in substantial soil erosion or the loss of topsoil.
- 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.
- d) Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
- e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.
- f) Directly or indirectly destroy a unique paleontological resource, site, or unique geologic feature.

METHODOLOGY

To evaluate the potential for geological hazards or paleontological resources on the project site, a review was conducted of the City of Irvine General Plan and General Plan Environmental Impact Report, along with relevant federal, state, and local databases, including those maintained by the California Department of Conservation, the U.S. Department of Agriculture,

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and the U.S. Geological Survey. The geotechnical report conducted by Southwest Inspection and Testing, Inc. in June 2025 provided recommendations for the proposed project based on existing geologic conditions. These sources were reviewed to assess whether the site is subject to geologic hazards or may contain paleontological resources.

3.4.4 Project Impact Analysis

- a) **The proposed project would not subject residents [or occupants, visitors, etc.] to potential seismic-related hazards, including the risk of loss, injury, or death involving:**
- 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.)**
 - ii) **Strong seismic ground shaking.**
 - iii) **Seismic-related ground failure, including liquefaction.**
 - iv) **Landslides.**
-

FAULT RUPTURE

An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years (DOC 2025a). Based on the California Department of Conservation (DOC) fault activity map of California, the proposed project site is not within an Alquist-Priolo Earthquake Fault Zone for fault rupture hazard for fault rapture hazard, and no known active or potentially active faults exist on the project site (DOC 2025b). The closest Alquist-Priolo Earthquake Fault Zones are the Newport-Inglewood-Rose Canyon fault zone (approximately 14 miles west of the project site) and Elsinore fault zone (approximately 10.5 miles north of the project site) (DOC 2025b). The probability of fault offset at the project site from a known active fault is very low. In a seismically active area, the remote possibility exists for future faults in areas where no faults previously existed; however, the probability of surface faulting and consequent secondary ground failure from previously unknown faults is also very low. Therefore, impacts related to fault rupture would be **less than significant**.

SEISMIC SHAKING

The project site is not located within an established Alquist-Priolo Earthquake Fault Zone (DOC 2025b). However, the project site, like most areas in California, is subject to ground movement associated with earthquakes along the active faults. The degree of ground shaking and earthquake-induced damage is dependent on multiple factors, such as distances to causative faults, earthquake magnitudes, and expected ground accelerations.

According to the U.S. Geological Survey and California Geological Survey, there are several regional faults within Alquist-Priolo Special Study Zones near the project site that could result in seismic hazards should an earthquake occur along one of them, including the Newport-Inglewood-Rose Canyon fault zone (approximately 14 miles west of the project site) and Elsinore fault zone (approximately 10.5 miles north of the project site) (DOC 2025b). As stated in Section 3.4.2, the San Joaquin Hills blind thrust fault is the only known fault within the City of Irvine and is located approximately 5 miles southwest of the project site (Irvine 2024a).

The proposed project would be required to comply with the seismic design parameters of the California Building Code (CBC), which regulates all building and construction projects and implements a minimum standard for building design and construction that includes specific requirements for seismic safety and evacuation. Additionally, the Division of State Architects (DSA) would be required to review and approve the project plans which will ensure that the structures are sufficiently designed to withstand ground shaking. Therefore, impacts related to seismic shaking would be **less than significant**.

LIQUEFACTION

According to the California Department of Conservation Liquefaction Zones Mapper, the proposed project is not within an identified liquefaction zone; the nearest liquefaction zone is located approximately 0.3 miles to the east (DOC 2025d). Additionally, the Irvine General Plan does not identify the project site as within a liquefaction hazard zone (Irvine 2024b). Additionally, the proposed project would be designed and constructed to withstand liquefaction potential consistent with CBC and DSA review, which would ensure that impacts related to liquefaction would be reduced to less than significant. Therefore, impacts related to liquefaction would be **less than significant**.

LANDSLIDES

The project site is flat and developed with the existing Northwood HS campus. According to the US Geological Survey United States Landslide Inventory and Susceptibility map, the project site is not within an identified landslide susceptibility zone; the nearest landslide susceptibility zone is located directly adjacent to the Northwood HS campus to the east (USGS 2025b). As stated in Section 3.4.2, according to the General Plan Safety Element, the project site is within a landslide hazards area (Irvine 2025a). However, because the site is already developed, relatively flat, and would be designed and constructed to withstand liquefaction potential consistent with the geotechnical report's recommendations, CBC and DSA review, the potential for landslide-related impacts would be low. Therefore, impacts related to landslides would be **less than significant**.

Significance without Mitigation: Less than significant.

GEOLOGY AND SOILS

b) The proposed project would not result in substantial soil erosion or the loss of topsoil.

The project site contains flat terrain, which decreases the project's potential to accelerate erosion. The project site is developed with the existing Northwood HS campus. Implementation of the proposed project would require limited earthwork, which includes site clearing, drill holes for installation of proposed light poles, shallow excavation and grading for site work, and utility trenching. The proposed project does not contain any subterranean levels and would not require extensive excavation, which could expose more soils to erosion. According to Websoil survey by the United States Department of Agriculture (USDA), the project site is primarily located within Sorrento loam, 2 to 9 percent slopes. Sorrento loam has low erosion potential (USDA 2025). Additionally, the geotechnical report (Appendix D) determined that the project site is suitable for the proposed project following the recommendations presented. Therefore, the proposed project would not result in substantial soil erosion or loss of topsoil, and impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

c) The proposed project would not 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.

As discussed above, the project site is not in a liquefaction zone or a landslide susceptibility zone. Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the earthquake inertial forces may cause the mass to move downslope toward a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements, and such movement typically damages pipelines, utilities, bridges, and structures. Due to the project site not being in an identified liquefaction susceptibility zone, the potential for lateral spreading is considered low (Caltrans 2020).

According to the United States Geological Survey Areas of Land Subsidence in California, the project site is not within an area subject to subsidence (USGS 2025a). The collapse of soils occurs with (1) an open, partially unstable, partially saturated fabric; (2) sufficient total stress to make the soil structure metastable; (3) the presence of a bonding agent or sufficient soil suction to stabilize the soil in the metastable condition; and (4) the addition of water, which reduces soil suction or softens/destroys the bonding agent, thereby causing shear failures at the inter-aggregate or inter-particle contacts (Caltrans 2024). Additionally, the City of Irvine has not experienced any acute subsidence events, and it is unlikely to occur in the City's future (Irvine 2025a). Further, the geotechnical report (Appendix D) determined that the project site is suitable for the proposed project following the recommendations presented. As discussed

above, the proposed project would be designed and constructed to withstand landslide, liquefaction, lateral spreading, subsidence, liquefaction, or collapse potential. With adherence to the CBC and with DSA's review and recommendations presented in the geotechnical report, the proposed project would not result in or contribute to on- or off-site impacts. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

d) The proposed project would not be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

Expansive soils contain certain types of clay minerals that shrink when they dry out and swell when soils become wet, resulting in the potential for cracking building foundations and in some cases, structural distress of the buildings themselves. According to Websoil survey by the USDA, the project site is primarily located within Sorrento loam, 2 to 9 percent slopes. Sorrento loam is well-drained and has low erosion and shrink-swell potential (USDA 2025). Additionally, the geotechnical report indicates that the project site has a low expansion potential (Appendix D). Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

e) The proposed project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

The proposed project would not require the installation or use of a septic tank or alternative wastewater disposal system. Therefore, **no impacts** would occur.

Significance without Mitigation: No impact.

f) The proposed project may indirectly destroy a unique paleontological resource.

Paleontological resources or fossils are remains of ancient plants and animals that can provide scientifically significant information about the history of life on earth. This sensitivity is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities that are recorded from that unit. According to the Irvine 2045 General Plan EIR, the project site is located in an area of Moderate Paleontological Sensitivity. As stated in Section 3.4.2, the UCMP database did not report any fossil localities at or near the project site (UCMP 2025; Irvine 2025a).

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The project site is developed with an existing football field on the Northwood HS campus; though paleontological resources are not expected to be discovered during project construction, it is possible that unknown paleontological resources could be discovered during grading activities and utility trenching for the proposed light poles. Therefore, this impact would be considered **potentially significant**.

Implementation of Mitigation Measure GEO-1 to address the potential to encounter any paleontological resources during project-related ground-disturbing activities. With the implementation of MM GEO-1, potential impacts to paleontological resources would be reduced to **less than significant**.

Impact GEO-1: Construction of the proposed project could encounter unique paleontological resources during ground-disturbing activities.

Mitigation Measure GEO-1: In the event that fossils or fossil locality deposits are discovered during construction, excavations within 50-feet of the fossil locality shall be temporarily halted until removal of the fossil localities. The contractor shall notify a qualified paleontologist to investigate its significance. If the fossil locality is determined to be significant by the qualified paleontologist, the paleontologist shall work with the District to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the District determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important.

Significance with Mitigation: Less than significant.

3.4.5 Cumulative Impact Analysis

The project would not have a cumulative effect related to geological resources.

As defined in Section 15130 of the State CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for utilities and services. The study area for the assessment of cumulative impacts related to utilities and services is the Northwood HS campus. There are currently no other projects proposed to occur within the campus.

Geologic and paleontological impacts related to the proposed project would be specific to the Northwood HS campus and would not combine to result in cumulative impacts. Compliance with State and local regulations would be required of all developments in the City and within

the District. Similarly, all development projects would also require site-specific geological and paleontological analysis that could lead to mitigation requiring monitoring and recovery, identification, and curation of any resources discovered. The proposed project has included a mitigation measure that would reduce the potential for project-related activities to contribute to cumulative impacts to paleontological resources.

Overall, the proposed project would not introduce new uses to the campus and would not substantially alter the campus beyond compared to existing conditions. Therefore, the proposed project would not have a cumulative effect related to geology and soils, and cumulative impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

3.4.6 References

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3.5 HAZARDS AND HAZARDOUS MATERIALS

This section evaluates the potential impacts of the Northwood High School Field Lighting Improvement Project (proposed project) on human health and the environment due to exposure to hazardous materials or conditions associated with the project site, project construction, and project operations. Potential project impacts and appropriate mitigation measures or standard conditions are included as necessary.

During the Notice of Preparation (NOP) public review period, one comment letter was received from the Department of Toxic Substances Control regarding hazardous impacts associated with the proposed project. A CEQA scoping meeting was conducted on June 3, 2025, where no additional concerns regarding these issues were raised. The NOP and all scoping comment letters are included as Appendix A of this document.

3.5.1 Regulatory Framework

Hazardous materials refer to hazardous substances that exhibit corrosive, poisonous, flammable, and/or reactive properties and have the potential to harm human health and/or the environment. Hazardous materials can include petroleum, natural gas, synthetic gas, acutely toxic chemicals, and other toxic chemicals that are used in agriculture, commercial, and industrial uses; businesses; hospitals; schools; and households (such as cleaners, solvents, paints, and pesticides). Accidental releases of hazardous materials can occur from a variety of causes, including traffic accidents, shipping accidents, and industrial/warehouse incidents.

Federal, State, and local laws, regulations, plans, or guidelines related to hazardous materials that are applicable to the Proposed Project are summarized below.

FEDERAL

United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is the primary federal agency that regulates hazardous materials and waste. In general, the EPA works to develop and enforce regulations that implement environmental laws enacted by Congress. The agency is responsible for researching and setting national standards for a variety of environmental programs and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. EPA programs promote handling hazardous waste safely, cleaning up contaminated land, and reducing trash. Under the authority of the Resource Conservation and Recovery Act (RCRA) and in cooperation with state and tribal partners, the EPA's Waste Management Division manages a hazardous waste program, an underground storage tank (UST)

HAZARDS AND HAZARDOUS MATERIALS

program, and a solid waste program that includes development of waste reduction strategies such as recycling.

Title 26, Part 1926 of the Code of Federal Regulations

Title 26, Part 1926 of the Code of Federal Regulations (CFR) establishes standards for general safety and health provisions, occupational health and environmental controls, demolition, toxic and hazardous substances, and other aspects of construction work. For example, it establishes standards for general safety and health, such as development and maintenance of an effective fire protection and prevention program at jobsites. It also establishes standards for occupational health and environmental controls, such as for exposure to lead and asbestos.

Resource Conservation and Recovery Act

Federal hazardous waste laws are generally promulgated under the Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984. These laws provide for the “cradle to grave” regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed. The Department of Toxic Substances Control (DTSC) is responsible for implementing the RCRA program as well as California’s own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law. Under the Unified Program, the California Environmental Protection Agency (CalEPA) has in turn delegated enforcement authority to the Irvine Fire Department for state law regulating hazardous waste producers or generators. A certified Unified Program agency (CUPA) is a local agency that has been certified by CalEPA to implement the local Unified Program. The CUPA can be a county, city, or joint powers authority. A participating agency is a local agency that has been designated by the local CUPA to administer one or more Unified Programs within their jurisdiction on behalf of the CUPA. A designated agency is a local agency that has not been certified by CalEPA to become a CUPA but is the responsible local agency that would implement the six Unified Programs until they are certified. Currently, there are 81 CUPAs in California.

Emergency Planning Community Right-to-Know Act

The Emergency Planning Community Right-to-Know Act (EPCRA), also known as Title III of the Superfund Amendments and Reauthorization Act, was enacted in October 1986. This law requires any infrastructure at the state and local levels to plan for chemical emergencies. Reported information is made publicly available so that interested parties can be informed about potentially dangerous chemicals in their community. EPCRA Sections 301 through 312 are administered by the EPA’s Office of Emergency Management. The EPA’s Office of Information Analysis and Access implements the program in EPCRA Section 313. In California, Superfund Amendments and Reauthorization Act Title III is implemented through the California Accidental Release Prevention program.

Hazardous Materials Transportation Act

The US Department of Transportation regulates hazardous materials transportation under CFR Title 49. State agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation. The California State Fire Marshal's Office has oversight authority for hazardous materials liquid pipelines. The California Public Utilities Commission has oversight authority for natural gas pipelines. These agencies also govern permitting for hazardous materials transportation.

Federal Response Plan

The Federal Response Plan of 1999 is a signed agreement among 27 federal departments and agencies and other resource providers, including the American Red Cross, that: (1) provides the mechanism for coordinating delivery of federal assistance and resources to augment efforts of state and local governments overwhelmed by a major disaster or emergency; (2) supports implementation of the Robert T. Stafford Disaster Relief and Emergency Act as well as individual agency statutory authorities; and (3) supplements other federal emergency operations plans developed to address specific hazards. The Federal Response Plan is implemented in anticipation of a significant event likely to result in a need for federal assistance or in response to an actual event requiring federal assistance under a Presidential declaration of a major disaster or emergency. The Federal Response Plan is part of the National Response Framework, which was most recently updated in October 2019.

Occupational Safety and Health Administration

The federal Occupational Safety and Health Act of 1970 authorizes each state (including California) to establish its own safety and health programs with the U.S. Department of Labor, Occupational Safety and Health Administration's (OSHA) approval. The California Department of Industrial Relations regulates implementation of worker health and safety in California. Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices. California standards for workers dealing with hazardous materials are in Title 8 of the California Code of Regulations (CCR); they include practices for all industries (General Industrial Safety Orders) and specific practices for construction and other industries. Workers at hazardous waste sites (or working with hazardous wastes that might be encountered during excavation of contaminated soil) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response regulations.

OSHA Regulation 29 CFR Standard 1926.62 regulates the demolition, renovation, or construction of buildings involving lead materials. Federal, state, and local requirements also govern the removal of asbestos or suspected asbestos-containing materials (ACM), including the demolition of structures where asbestos is present. All friable (crushable by hand) ACMs, or

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nonfriable ACMs subject to damage, must be abated following all applicable regulations and prior to demolition.

STATE

California Environmental Protection Agency

CalEPA was created in 1991 by Governor's Executive Order. Under the CalEPA umbrella are six boards and departments—Air Resources Board, Department of Resources Recycling and Recovery, Department of Pesticides Regulations, DTSC, Office of Environmental Health Hazard Assessment, and State Water Resources Control Board—to create a cabinet-level voice for the protection of human health and the environment and to ensure the coordinated deployment of state resources. CalEPA oversees the unified hazardous waste and hazardous materials management regulatory program.

California Department of Toxic Substances Control

The DTSC is a department of CalEPA, which authorizes DTSC to administer the RCRA program in California to protect people from exposure to hazardous waste. The department regulates hazardous waste, cleans up existing contamination, and implements regulations to control and reduce the hazardous waste produced in California, primarily under the authority of RCRA and in accordance with the California Hazardous Waste Control Law (California Health and Safety Code [HSC], Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (22 CCR Divisions 4 and 4.5). Permitting, inspection, compliance, and corrective action programs ensure that people who manage hazardous waste follow state and federal requirements and other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

DTSC's Brownfields Restoration and School Evaluation Branch is responsible for assessing, investigating, and cleaning up proposed school sites and existing school sites. The oversight is to ensure that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school. All proposed school sites and existing school sites that will receive State funding for acquisition or construction are required to go through an environmental review and cleanup process under DTSC's oversight.

Government Code Section 65962.5 (Cortese List)

Government Code Section 65962.5 requires, among other items, that the DTSC compiles and updates as appropriate, but at least annually, a list (Cortese List) of the following sites and shall submit the list to the Secretary for Environmental Protection, including:

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- (1) All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
- (2) All land designated as hazardous waste property or border zone property pursuant to former Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
- (3) All information received by the Department of Toxic Substances Control pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
- (4) All sites listed pursuant to Section 25356 of the Health and Safety Code.

Government Code Section 65962.5 also requires that:

- (b) The State Department of Health Services shall compile and update as appropriate, but at least annually, and shall submit to the Secretary for Environmental Protection, a list of all public drinking water wells that contain detectable levels of organic contaminants and that are subject to water analysis pursuant to Section 116395 of the Health and Safety Code.
- (c) The State Water Resources Control Board shall compile and update as appropriate, but at least annually, and shall submit to the Secretary for Environmental Protection, a list of all of the following:
 - (1) All underground storage tanks for which an unauthorized release report is filed pursuant to Section 25295 of the Health and Safety Code.
 - (2) All solid waste disposal facilities from which there is a migration of hazardous waste and for which a California regional water quality control board has notified the Department of Toxic Substances Control pursuant to subdivision (e) of Section 13273 of the Water Code.
 - (3) All cease and desist orders issued after January 1, 1986, pursuant to Section 13301 of the Water Code, and all cleanup or abatement orders issued after January 1, 1986, pursuant to Section 13304 of the Water Code, which concern the discharge of wastes that are hazardous materials.
 - (d) The local enforcement agency, as designated pursuant to Section 18051 of Title 14 of the California Code of Regulations, shall compile as appropriate, but at least annually, and shall submit to the Department of Resources Recycling and Recovery, a list of all solid waste disposal facilities from which there is a known migration of hazardous waste. The Department of Resources

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Recycling and Recovery shall compile the local lists into a statewide list, which shall be submitted to the Secretary for Environmental Protection and shall be available to any person who requests the information.

California Occupational Health and Safety Administration

Occupational safety standards in federal and state laws minimize worker safety risks from both physical and chemical hazards in the workplace. Cal/OSHA is responsible for developing and enforcing workplace safety standards and ensuring worker safety in the handling and use of hazardous materials.

California Building Code

The State of California provides a minimum standard for building design through the California Building Code (CBC), which is in 24 CCR Part 2. The 2022 CBC is based on the 2021 International Building Code but has been modified for California conditions. It is updated every three years, most recently in July 2022 with an effective date of January 1, 2023. The CBC, as adopted by local cities or counties, may be further modified based on local conditions. Typical fire safety requirements of the CBC include the installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

California Department of Forestry and Fire Protection

California Department of Forestry and Fire Protection (CAL FIRE) is dedicated to the fire protection and stewardship of over 31 million acres of California's wildlands. The Office of the State Fire Marshal (OSFM) supports CAL FIRE's mission to protect life and property through fire prevention engineering programs, law and code enforcement, and education. OSFM provides for fire prevention by enforcing fire-related laws in state-owned or -operated buildings; investigating arson fires; licensing those who inspect and service fire protection systems; approving fireworks for use in California; regulating the use of chemical flame retardants; evaluating building materials against fire safety standards; regulating hazardous liquid pipelines; and tracking incident statistics for local and state government emergency response agencies. The California Fire Plan is the state's road map for reducing the risk of wildfire through planning and prevention to reduce firefighting costs and property losses, increase firefighter safety, and contribute to ecosystem health. The California Fire Plan is a cooperative effort between the State Board of Forestry and Fire Protection and CAL FIRE.

California Fire Code

The California Fire Code (CFC) is in 24 CCR Part 9. It is also updated every three years, most recently in 2022 with an effective date of January 1, 2023. The 2022 CFC is based on the 2021 International Fire Code but has been modified for California conditions. The CFC includes

provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Similar to the CBC, the CFC is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions.

California Governor's Office of Emergency Services

Through Assembly Bill (AB) 38, the Governor's Office established the California Emergency Management Agency (CalEMA) on January 1, 2009. The agency merged the duties, powers, purposes, and responsibilities of the former Governor's Office of Emergency Services with those of the Governor's Office of Homeland Security. CalEMA was responsible for the coordination of overall state agency response to major disasters in support of local government, for ensuring the state's readiness to respond to and recover from all hazards—natural, human-made, emergencies, and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts. On July 1, 2013, Governor Edmund G. Brown Jr.'s Reorganization Plan #2 eliminated CalEMA and restored it to the Governor's Office as Cal OES, merging it with the Office of Public Safety Communications.

Hazardous Materials Management Act

A hazardous material is any substance that possesses qualities or characteristics that could produce physical damage to the environment and/or cause deleterious effects upon human health (Title 22 of the CCR). The Hazardous Materials Management Act (Title 22 of the CCR) requires that businesses and public entities handling or storing certain amounts of hazardous materials prepare a hazardous materials business plan that includes an inventory of hazardous materials stored on-site (above specified quantities), an emergency response plan, and an employee training program. Businesses that use, store, or handle 55 gallons of liquid, 500 pounds of solid, or 200 cubic feet of compressed gas at standard temperature and pressure require a hazardous materials business plan. Plans must be prepared prior to facility operation and are reviewed/updated biennially (or within 30 days of a change).

California Accidental Release Prevention Program

California Accidental Release Prevention Program includes the Federal Accidental Release Prevention Program with certain additions specific to California and pursuant to HSC Article 2, Chapter 6.95. The purpose of this program is to prevent the accidental release of regulated substances. Businesses using regulated substances exceeding a threshold quantity are evaluated under this program to determine the potential for and impacts of accidental releases. Depending on the potential hazards, business owners may be required to develop and submit a risk management plan.

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Regulations for Hazardous Materials in Structures

Asbestos is regulated as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of the federal Occupational Safety and Health Administration. Cal/OSHA considers ACM a hazardous substance when a bulk sample contains more than 0.1 percent asbestos by weight and requires a qualified contractor licensed to handle asbestos. Any activity that involves cutting, grinding, or drilling during building renovation or demolition or relocation of underground utilities could release friable asbestos fibers unless proper precautions are taken.

Lead is regulated as a hazardous material, and inorganic lead is regulated as a toxic air contaminant. Lead-containing paints, according to Cal/OSHA, are defined as paints reported with any detectable levels of lead by paint chip analysis (8 CCR Section 1532.1(d)). When disturbed for construction purposes, these surfaces are subject to Cal/OSHA exposure assessment requirements.

Several regulations and guidelines pertain to abatement of and protection from exposure to ACM and lead-based paint:

- Lead-based paint
 - 8 CCR Subchapter 4, Construction Safety Orders, Section 1532.1
 - 29 CFR 1926, Subpart D
- Asbestos
 - 8 CCR Subchapter 4, Section 1529
 - 29 CFR 1926, Subpart Z
 - 40 CFR 61, Subpart M

These rules and regulations provide exposure limits, exposure monitoring, respiratory protection, and good working practice for workers exposed to lead and ACM. In California, ACM and lead-based-paint abatement must be performed and monitored by contractors with appropriate certification from the California Department of Health Services. HSC Sections 17920.10 and 105255 require lead to be contained during demolition activities.

Polychlorinated biphenyls (PCBs) were commonly used in the small capacitor in fluorescent light ballasts through 1979. PCB regulations are included in 40 CFR 761, which requires the material to be incinerated. The entire lighting fixture does not need special handling and disposal as long as the ballast (electrical box) is not leaking. The non-leaking ballasts can be removed and recycled or disposed of properly.

Hazardous Waste Control

HSC, Division 20, Chapter 6.5, and 22 CCR, Division 4.5, Environmental Health Standards for the Management of Hazardous Waste, address how hazardous waste must be handled, stored, transported, treated, and disposed. They provide an effective process for hazardous waste management planning at the local level to ensure adequate handling, storing, transporting, treating, and disposing of hazardous materials.

REGIONAL

South Coast AQMD Rules and Regulations

All projects within the South Coast Air Basin (SoCAB) are subject to South Coast Air Quality Management District (AQMD) rules and regulations in effect at the time of activity.

- **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.
- **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 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.

Certified Union Program Agency for Orange County

The Orange County Environmental Health Division (OCEHD) was designated as the Certified Union Program Agency (CUPA) for the County of Orange in 1997 by the State Secretary for Environmental Protection. CUPA serves as an administrative agency that coordinates regulation of hazardous materials and waste in Orange County including the City of Irvine. The CUPA oversees the following six programs: Hazardous Materials Disclosure, Business Emergency Plan, Hazardous Waste, Underground Storage Tank, Aboveground Petroleum Storage Tank, and California Accidental Release Prevention. These agencies have developed specific plans for identifying and managing different types of hazardous waste, described in more detail below.

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Hazardous Materials Disclosure Business Emergency Plan

The Hazardous Materials Disclosure Business Emergency Plan (HMBEP) program requires businesses that handle hazardous materials such as hazardous waste or substances at reportable quantities to submit an HMBEP to the California Environmental Reporting System (CERS). The purpose of CERS is to protect Californians from hazardous waste and hazardous materials by ensuring consistency throughout the state regarding administrative requirements, permits, inspections, and enforcement. CalEPA oversees the statewide implementation of CERS and its 81 CUPAs, which apply regulatory standards established by five different state agencies (CERS 2025). The CUPA then verifies this information and provides it to agencies that are responsible for the protection of public health and the environment.

Hazardous Waste Inspection Program

The Hazardous Waste Inspection Program is overseen by the OCEHD throughout Orange County. This program aims to manage the proper handling, recycling, treatment, storage, and disposal of all hazardous waste generated by Orange County businesses. Through this program, specialists inspect facilities that generate hazardous waste, evaluate industries that generate hazardous waste, investigate reports of illegal hazardous waste disposal, and respond to emergency spills of hazardous chemicals. Additionally, specialists engage in public education programs that inform industries and residents about regulations relating to proper hazardous waste disposal.

Underground Storage Tank Inspection Program

The Underground Storage Tank (UST) inspection program serves to ensure that hazardous materials stored in underground tanks are not released into the environment, causing potential pollution of ground or surface waters. The UST inspection program is overseen by the Orange County Health Care Agency (OCHCA), OCEHD in the City of Irvine. The OCEHD is responsible for implementing and enforcing underground storage tank codes. Specialists from the OCEHD inspect and monitor equipment and compliance of UST systems to ensure that they comply with relevant laws and regulations. OCEHD also educates and helps tank owners and operators navigate regulatory requirements.

Aboveground Petroleum Storage Act

The Aboveground Petroleum Storage Act (APSA) defines “petroleum” as crude oil, or any fraction thereof, which is liquid at 60 degrees Fahrenheit temperature and 14.7 pounds per square inch absolute pressure. The Act applies to businesses with a total storage capacity at one site of more than 1,320 gallons of petroleum products in tanks or containers larger than 55 gallons. The OCHCA is the CUPA responsible for inspections of these storage facilities in all of Orange County, including the City of Irvine. Tank facilities regulated under APSA are also regulated by the U.S. EPA Region 9 Oil Program Clean Water Act Compliance Office. A tank facility may be regulated and inspected by just the EPA or both the EPA and Orange County.

Facilities regulated under the APSA or the federal Spill Prevention, Control, and Countermeasure (SPCC) Rule must prepare and implement a SPCC Plan. Regulated facilities fall into three different categories with corresponding required plans depending on the storage capacity present at the facility.

John Wayne Airport Land Use Plan

The Airport Environ Land Use Plan (AELUP) for John Wayne Airport contains land use restrictions that are meant to reduce the hazards associated with airport land use plans.

John Wayne Airport is in unincorporated Orange County along the western border of the city, adjacent to the Irvine Business Complex. Structures within the Airport Environs Land Use Plan Airport Planning Areas are required to abide by land use regulations within the Airport Land Use Plan such as safety and noise compatibility zones, and height restrictions.

Each local agency having jurisdiction over any area within the planning areas is required to submit its general plans for that area to the Commission for a determination in accordance with the Government Code for the State of California, Section 65302.3, and Public Utilities Code Section 21676. The submittals should highlight those areas which address the AELUP noise impact, safety compatibility, and height restriction zones. The only requirement is that the submittals illustrate how local agencies will incorporate the performance standards outlined in the airport land use plan into their planning, zoning, and development processes. Any amendments to a General Plan must be submitted to the Commission for a determination prior to its adoption by the local agency.

LOCAL

2045 Irvine General Plan

The 2045 Irvine General Plan provides the basis for the City's policies and represents the community's basic values, ideals, and aspirations. The General Plan establishes policies to guide development and conservation through 2045. Key policies of the General Plan relevant to this section's analysis of the proposed project's potential hazards and hazardous materials impacts are included below. The set of policies listed is not an exhaustive list of all of the General Plan policies applicable to the proposed project; rather, it is a selection of policies relevant to the impact discussion in this section.

Land Use Element

Goal 6: Achieve Harmonious Land Use Patterns Throughout the City

Objective LU-6. To establish cohesive and harmonious land use patterns throughout the City by implementing integrated planning strategies that promote connectivity, sustainability, and

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community well-being while respecting the unique character and identity of different neighborhoods.

- **Policy (a).** Safeguard the public health, safety, and welfare of sensitive receptors/land uses when placing them near the following land uses: those dealing with hazardous substances, those causing excessive noise or dust, and those creating other conflicts. Simultaneously, ensure that proposed sensitive receptors/land uses do not impede the ongoing operation or expansion of airports, surface utilities, off-site hazardous waste facilities, solid waste facilities, manufacturing, research and development, mining and processing, or any land use involving hazardous substances as defined by federal and state regulations.
- **Policy (b).** Ensure that the siting of any land use which handles, generates, and/or transports hazardous substances, as defined by federal and state regulations, will not hurt existing sensitive receptors/land uses.
- **Policy (h).** Ensure that sensitive uses are allowed in areas with identified hazards only if the hazard has been adequately analyzed and mitigated.

City of Irvine Municipal Code

The Irvine Municipal Code includes various directives pertaining to hazards and hazardous materials.

Title 4, Division 9, gives responsibility to the Irvine Disaster Council for the development of the City of Irvine Emergency Plan, which plan shall provide for the effective mobilization of all of the resources of this City, both public and private, to meet any condition constituting a local emergency, state of emergency, or state of war emergency; and shall provide for the organization, powers and duties, services, and staff of the emergency organization.

Title 4, Division 17, governs the proper handling, storage, and disposal of hazardous substances, ensuring businesses and individuals follow regulations to prevent chemical spills, contamination, and exposure risks. It includes permitting requirements for facilities that store or use hazardous materials, emergency response protocols in case of an incident, and guidelines for reporting hazardous substance releases. The goal is to protect public health, water quality, and the environment from dangerous chemical-related hazards.

Title 5, Division 9, incorporates California's Building and Fire Codes while also implementing local amendments tailored to Irvine's specific safety needs. It includes provisions for fire prevention, emergency access, structural integrity, and occupancy limits to reduce risks associated with fire hazards, earthquakes, and other structural dangers. Compliance with these codes is enforced through permitting, inspections, and penalties for violations to ensure public safety.

City of Irvine Local Hazard Mitigation Plan

The City developed the Local Hazard Mitigation Plan (LHMP), most recently updated in 2020, to identify the hazards, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term natural or human-made hazard risks to human life and property for the City and its residents. The goals of the LHMP are to:

1. Protect against threats from natural hazards to life, injury, and property damage.
2. Increase public awareness of potential hazard events.
3. Preserve critical services and functions by protecting key facilities and infrastructure.
4. Protect natural systems from current and future hazard conditions.
5. Coordinate mitigation activities among City departments, neighboring jurisdictions, and federal agencies.
6. Prepare for long-term change in hazard regimes.

The LHMP identifies hazardous materials and potential risks associated with their storage, transport, and use within the city. It also assesses vulnerabilities that could lead to hazardous material spills, leaks, or exposure, posing risks to public health and the environment. Additionally, the LHMP outlines a mitigation strategy aimed at reducing the likelihood and impact of hazardous material incidents through proper management, emergency response planning, and regulatory compliance.

Emergency Operations Plan

The purpose of the City's Emergency Operations Plan (City of Irvine 2022) is to provide a resiliency framework for the City to prepare for, respond to, recover from, and mitigate against all hazards including natural, human-caused, and technological disasters, and national security emergencies. It includes an overview of operational concepts, identifies components of the City's emergency management organization consistent with the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS), and describes the overall responsibilities of federal, state, and county entities, and the City for protecting life and property and assuring the overall well-being of the population. The Plan concentrates on management, concepts, and response procedures inherent in large-scale disasters that threaten life, the environment, and property, and impact the well-being of a mass population in a community.

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3.5.2 Existing Conditions

ON-CAMPUS AND ADJACENT USES

The project site is developed with the Northwood HS campus, which is surrounded by residential uses to the north; residential and agricultural uses to the east; residential uses to the south; and agricultural uses to the west. The proposed project would be developed within the existing track and field located in the southern portion of the Northwood HS campus. The Northwood HS campus has a General Plan designation of Educational Facility and a zoning designation of Institutional, that would not change.

SITE HISTORY

Northwood HS was built in 1999. The 1974 United States Geological Survey (USGS) topographic quadrangle map shows the entirety of project site was developed for agricultural uses (USGS 1977). No other historic uses were mapped for the project site. Historically, the project site was surrounded by avocado groves. According to DOC's Farmland Mapper Over Time, which classifies agricultural land from 1984 to 2022, the project site was classified as Prime Farmland from 1984 to 1998 (DOC 2025).

Agricultural activities can result in environmental impacts as a result of the application of pesticides and herbicides and sometimes involve storage of significant quantities of hazardous materials on-site as well as the maintenance, repair, and operation of farm equipment.

No direct evidence of these activities was identified at the project site; however, it would be unusual if pesticides and herbicides were not applied at the project site, based on the historical agricultural use. Such applications are permissible under applicable regulations but can result in a buildup of contaminants over time. Development of the site likely resulted in redistribution of remaining near-surface soils, minimizing the potential for hot spots of contamination to remain. In the absence of evidence of a significant release of agricultural chemicals, there is no regulatory requirement for sampling at the project site.

HAZARDOUS MATERIALS SITE DATABASE SEARCH

A review of six databases from federal, state, and local environmental regulatory agencies was conducted to identify properties near the project site with reported unauthorized releases of hazardous materials and to identify properties that use, generate, store, treat or dispose of hazardous materials and chemicals, or release hazardous materials which may impact the campus. The databases searched and the findings regarding the campus and adjacent properties are presented below.

- **GeoTracker:** State Water Resources Control Board (SWRCB 2025)

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- **EnviroStor:** Department of Toxic Substances Control (DTSC 2025a)
- **EnviroMapper:** US Environmental Protection Agency (USEPA 2025)
- **Solid Waste Information System (SWIS):** California Department of Resources Recovery and Recycling (CalRecycle 2025)
- **Cortese List:** Department of Toxic Substances Control (DTSC 2025b)
- **CalEPA:** California EPA (CalEPA 2025a)

Three hazardous chemical sites within a quarter mile were identified in the CalEPA list as belonging to the California Environmental Reporting System (CERS), including the project site. Rattlesnake Reservoir and AT&T Mobility are the other sites.

HAZARDOUS BUILDING MATERIALS AND CHEMICAL STORAGE AREAS

Hazardous Building Materials

State and federal agencies regulate removal, abatement, and transport procedures for ACMs. These regulations prohibit releases of asbestos from industrial, demolition, or construction activities not permitted, and medical evaluation and monitoring are required for employees performing actions that could expose them to asbestos. Additionally, the rules include warnings and practices that must be followed to reduce the risk of asbestos emissions and exposure. Finally, federal, State, and local agencies must be notified before the onset of demolition or construction activities with the potential to release asbestos.

ACMs were commonly used in a wide variety of building products before 1980, such as roofing shingles, composite siding, linoleum flooring, acoustic ceiling tiles, furnace, water heater exhaust piping and insulation, glues and mastics, stucco, joint compounds, and composite wallboards. ACMs can be divided into friable materials (easily crumbled or reduced to powder) and nonfriable. Friable ACMs are regulated as hazardous materials due to the elevated long-term risk of developing lung cancer. They must be properly removed before the renovation or demolition of any structure containing them.

Lead-based paints (LBP) were commonly used until 1978, when they were phased out. ACMs, LBP, and other building materials containing lead (e.g., ceramic tile) were likely used to construct the on-site structure in the 1960s.

None of the buildings within the Northwood HS campus were constructed prior to 1999.

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Storage Tanks

No Aboveground Storage Tanks (ASTs), Underground Storage Tanks (USTs), or Septic Tanks are recorded for the project site.

Airport Hazards

The nearest public-use airport is John Wayne Airport, located approximately 7.5 miles southwest of the project site. The project site is not located with any of the safety zones of John Wayne Airport.

WILDFIRE

Wildland fire protection in California is the responsibility of either the local government, state government, or the federal government. State Responsibility Areas (SRA) are the areas in the state where the State of California has the primary financial responsibility for the prevention and suppression of wildland fires. The SRA covers more than 31 million acres, to which the California Department of Forestry and Fire Protection (CAL FIRE) provides a basic level of wildland fire prevention and protection services.

Local responsibility areas (LRA) include incorporated cities, cultivated agricultural lands, and portions of the desert. LRA fire protection is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local government. CAL FIRE uses an extension of the SRA Fire Hazard Severity Zone model as the basis for evaluating fire hazard in LRAs. The local responsibility area hazard rating reflects flame and ember intrusion from adjacent wildlands and from flammable vegetation in the urban area. Fire Hazard Severity Zones (FHSZ) are identified by Moderate, High and Very High in an SRA, and Very High in an LRA.

According to CAL FIRE's Fire Hazard Severity Zone in LRA Viewer, the project site is located within an LRA and is not in a Very High FHSZ. The northern portion of the project site is located within Moderate and High FHSZs. The nearest Very High FHSZ is located just north of the project site, adjacent to the campus (CALFIRE 2025).

3.5.3 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that the proposed project would result in a significant impact related to hazards and hazardous materials if it would:

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- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substance, or waste within one-quarter mile of an existing or proposed school.
- d) Be located on a site that is included on a list of hazardous materials compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
- 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 result in a safety hazard or excessive noise for people residing or working in the project area.
- f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

METHODOLOGY

To determine the presence or absence of hazards or hazardous materials on the project site, a review was conducted of relevant federal, state, and local databases, including CalEPA, CalReycle, GeoTracker, Cortese List, EnviroStor, and EnviroMapper. These sources were evaluated to assess whether the project site has been previously identified as containing hazardous materials.

3.5.4 Project Impact Analysis

-
- a) **The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.**
-

Construction

Construction of the proposed project would require small amounts of hazardous materials such as vehicle fuels, lubricants, grease, and transmission fluids. The handling, use, transport, and disposal of hazardous materials during the construction phase of the proposed project would

HAZARDS AND HAZARDOUS MATERIALS

comply with existing regulations of several agencies—the EPA, Cal/OSHA, United States Occupational Safety and Health Administration, and United States Department of Transportation.

Operation

The proposed project would consist of the installation of four new stadium lights located adjacent to the existing track and field, infrastructure to allow for a future Public Address (PA) system, utility trenching, and hardscaping. No manufacturing, industrial, or other uses using large amounts of hazardous materials would occur within the Northwood HS campus. Operation of the proposed project would not transport, use, store, or dispose of hazardous materials beyond typical school facilities such as cleaning and maintenance supplies (e.g., cleaners, paint, pesticides). Operation of the proposed project would use cleaners and other chemicals in small quantities, which is not typically considered hazardous materials that could result in a significant hazard to the public or the environment. No new uses on-site are proposed. Compliance with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials would ensure that all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for safety impacts to occur. Therefore, the proposed project would not create substantial hazards to the public or the environment. Impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

b) The proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

As discussed in Section 3.5(a), construction activities would require small amounts of hazardous materials, including vehicle fuels, lubricants, grease and transmission fluids. The use, transportation, and disposal of hazardous materials would be in accordance with regulatory standards and manufacturers' specifications. Hazardous materials would be used in small quantities and stored so they do not pose significant safety hazards. Operation of the proposed project would transport, use, store, and dispose of small amounts of hazardous materials typical of school facilities such as cleaning and maintenance supplies (e.g., cleaners, paint, pesticides). Operation of the proposed project would use cleaners and other chemicals in small quantities, which is not typically considered hazardous materials that could result in a significant hazard to the public or the environment. Compliance with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials would ensure impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

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-
- c) The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substance, or waste within one-quarter mile of an existing or proposed school.**
-

The project site is located on the Northwood HS campus. The proposed project would consist of installing four new stadium lights located adjacent to the existing track and field, infrastructure to allow for a future PA system, utility trenching, and hardscaping. As stated in Section 3.5(a), construction activities would require small amounts of hazardous materials, including vehicle fuels, lubricants, grease, and transmission fluids. Additionally, operation of the proposed project would transport, use, store, and dispose of small amounts of hazardous materials typical of school facilities such as cleaning and maintenance supplies (e.g., cleaners, paint, pesticides). Operation of the proposed project would use cleaners and other chemicals in small quantities, which is not typically considered hazardous materials that could result in a significant hazard to the public or the environment. The proposed project would also comply with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials.

Other than the Northwood HS campus, there are no existing or proposed schools within one-quarter mile of the project site. The nearest existing school is Orchard Hills School, which is 0.5 miles northwest of the project site. The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste on the project site and is not located within one-quarter mile of an existing or proposed school campus. Therefore, impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

-
- d) The proposed project would not be located on a site that is included on a list of hazardous materials compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.**
-

California Government Code Section 65962.5 requires referencing a list of hazardous materials sites, hazardous waste discharges for which the State Water Control Board has issued certain types of orders, public drinking water wells collecting detectable levels of organic contaminants, underground storage tanks with reported unauthorized releases, and solid waste disposal facilities from which hazardous waste has mitigated.

A review of six databases from Federal, state, and local environmental regulatory agencies was conducted to identify properties near the project site with reported unauthorized releases of hazardous materials and to identify properties that use, generate, store, treat or dispose of hazardous materials and chemicals, or release hazardous materials which may impact the campus. The following are databases searched and the findings regarding the campus and

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adjacent properties are presented in Table 3.5-1, *Active Hazardous Waste Sites Within 0.25 Mile*.

- **GeoTracker:** State Water Resources Control Board (SWRCB 2025)
- **EnviroStor:** Department of Toxic Substances Control (DTSC 2025a)
- **EnviroMapper:** US Environmental Protection Agency (USEPA 2025)
- **Solid Waste Information System (SWIS):** California Department of Resources Recovery and Recycling (CalRecycle 2025)
- **Cortese List:** Department of Toxic Substances Control (DTSC 2025b)
- **CalEPA:** California EPA (CalEPA 2025a)

Table 3.5-1 Active Hazardous Waste Sites Within 0.25 Mile

Database	Site Address	Cleanup Status	Distance (miles)/Direction From Project Site	Identifier
CalEPA, EnviroMapper	Northwood High School 4515 Portola Parkway Irvine, CA (10557961)	Active	On-site	Chemical Storage Facility
CalEPA	Rattle Snake Reservoir 4769 Portola Parkway Irvine, CA (10583536)	Active	0.22/W	Chemical Storage Facility
CalEPA	AT&T Mobility 4050 ½ Orchard Hills Drive Irvine, CA (10868839)	Active	0.25/E	Chemical Storage Facility

Sources: CalEPA 2025a, USEPA 2025.

Three sites were identified in the CalEPA list as belonging to CERS. These sites include the project site, Rattlesnake Reservoir, and AT&T Mobility.

The hazardous chemicals stored at Northwood HS include Sodium Hypochlorite, Sodium Bicarbonate, Trichloroisocyanuric Acid, Hydrochloric Acid, and Calcium chloride, commonly known as pool maintenance chemicals used for water treatment and sanitation (CalEPA 2025b).

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The chemicals stored at Rattlesnake Reservoir include Sodium Hypochlorite and Sodium Bisulfite (disinfectants and dichlorination agents used in water treatment processes), and Diesel (CalEPA 2025c). The chemicals stored at AT&T Mobility include Diesel Fuel No. 2 and Lead Acid Batteries (CalEPA 2025d). These are common items found in most commercial and residential uses and do not pose as significant hazardous waste.

According to CalEPA, Northwood HS had six open violations in 2018 related to the failure to submit a Hazardous Materials Release Response Plan (HMRRP). However, the school submitted HMRRPs in 2023 and 2024 without any reported violations. Rattlesnake Reservoir had seven violations related to the failure to submit a HMRRP in 2017, 2019, and 2021 but has submitted HMRRPs in 2022 and 2023 without violations. AT&T Mobility does not have any violations. Though all three sites store hazardous chemicals, the location of each of these locations would not pose as a significant potential hazard to the public or the environment because of the small amount of hazardous waste being produced and the continued oversight by the OCEHD.

Additionally, Northwood High School is identified by EnviroMapper as an active generator of off-spec, aged, or surplus organics (waste code 331), typically expired or unused chemicals from science classrooms, which are classified as Non-RCRA Hazardous Waste Liquids. Hazardous waste is classified as non-RCRA hazardous waste if it does not exhibit specific hazardous characteristics (ignitability, corrosivity, reactivity, or toxicity) under certain regulations, is not listed as an RCRA hazardous waste, or meets specific state-defined criteria. It may also be classified as non-RCRA hazardous waste if it meets alternative criteria, such as being excluded under federal regulations or requiring special management.

Any hazardous waste generation and disposal are subject to federal and state regulations. Therefore, impacts related hazardous sites within one-quarter mile of the project site creating a significant hazard to the public or the environment would be **less than significant**.

Significance without Mitigation: Less than significant.

-
- e) **The proposed project would not be 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 result in a safety hazard or excessive noise for people residing or working in the project area.**
-

The nearest public-use airport is John Wayne Airport, approximately 7.5 miles southwest of the project site. The project site is not located within two miles of a public or private airport. The project site is not located with any of the safety zones of the John Wayne Airport or within the 60 CNEL John Wayne Airport noise contours (ALUC 2008). Therefore, **no impact** would occur.

Significance without Mitigation: No impact.

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f) The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The City of Irvine's Office of Emergency Management (OEM) coordinates the City's preparedness efforts for hazards that could impact the community. The OEM works with all City departments, having primary responsibility for specific response functions, and ensures department-level plans and procedures are incorporated in the plan and its annexes. The OEM also maintains the Emergency Operations Center, trains emergency response staff and volunteers, and coordinates with Orange County Operational Area, California Office of Emergency Services, and Federal Emergency Management Agency (City of Irvine 2022).

The City's LHMP is designed to identify the City's hazards, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term natural or human-made hazard risks to human life and property for the City and its residents. The City's Emergency Operations Plan's (EOP) (City of Irvine 2022) purpose is to establish a strategic response plan if an emergency occurs. The plan provides an overview of concepts and components of the City's emergency management organization within the Standardized Emergency Management System and describes responsibility of federal, state, and county entities to protect life and property. The Orange County Fire Authority (OCFA) and the City of Irvine's Police Department (IPD) handle smaller incidents that occur on a day-to-day basis. During the construction and operation phases, the project would not interfere with any of the daily operations of the OCFA, the IPD, or OEM, which supports emergency planning and response efforts Irvine. All construction activities would be required to be performed per the City's standards and regulations. The proposed project would be required to provide the necessary on- and off-site access and circulation for emergency vehicles and services during the construction and operation phases.

The proposed project would consist of installing four new stadium lights located adjacent to the existing track and field, infrastructure to allow for a future PA system, and utility trenching. These improvements would occur entirely within the boundaries of the campus, and access is provided via Yale Avenue and Northwood High School Private Road. Construction activities would be limited in scope and duration and would not require road closures or significant changes to on- or off-site circulation. The proposed project would have no impact on emergency response or evacuation plans. The project site is located within Evacuation Management Zone: Orchard Hills 1D and evacuation routes in the vicinity include Wolf Trail and a portion of Yale Avenue, which connect to the portion of Yale Avenue and Northwood High School Private Road that serves the school (City of Irvine 2025). The proposed project would not alter the existing access or egress points, nor would it result in any permanent changes to road capacity, traffic controls, or emergency access routes. Adequate evacuation routes would continue to be provided to the project site.

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The proposed project would also be required to go through DSA's development review and permitting process and would be required to incorporate all applicable design and safety standards and regulations in the CBC to ensure that proposed project development does not interfere with the provision of local emergency services (provision of adequate access roads to accommodate emergency response vehicles, adequate numbers/locations of fire hydrants, etc.). The proposed project would not impair implementation of the City's LHMP and OEP. The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, impacts would be less than significant. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

g) The proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

According to CAL FIRE's Fire Hazard Severity Zone in LRA Viewer, the project site is located within an LRA and is not in a Very High FHSZ. The northern portion of the project site is located within Moderate and High FHSZs. The nearest Very High FHSZ is located just north of the project site, adjacent to the campus (CALFIRE 2025). The project site is flat and developed with the Northwood HS campus. Surrounding the project site are urban uses. The proposed project would not involve new construction in previously undeveloped areas or expansion towards adjacent Very High FHSZs. The proposed project would be designed in accordance with the California Building Code and California Fire Code. Project design plans would be reviewed by the DSA. Fire suppression equipment specific to construction would be maintained on-site. Additionally, project construction would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. The proposed project would not change the uses or boundaries of the facilities to place buildings and structures, students, or members of the public closer to wildland fires. Therefore, the proposed project would not expose people or structures to a significant risk due to wildfires beyond existing conditions. Impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

3.5.5 Cumulative Impact Analysis

The proposed project would not have a cumulative effect related to hazards and hazardous materials.

As defined in Section 15130 of the State CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past,

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current, and probable future projects within the cumulative impact area for hazards and hazardous materials. The study area for the assessment of cumulative impacts related to hazards and hazardous materials is the Northwood HS campus. There are currently no other projects proposed to occur within the campus.

No other projects are currently proposed to occur within the Northwood HS campus. Hazards and hazardous waste impacts are typically unique to each site and do not usually contribute to cumulative impacts. Cumulative development projects in the area would be required to assess potential hazardous materials impacts on the development site prior to grading. The proposed project and cumulative projects would be required to comply with laws and regulations governing hazardous materials and hazardous waters used and generated, as described in Section 3.5.1, *Regulatory Framework*. Therefore, cumulative impacts related to hazards and hazardous materials would be less than significant after regulatory compliance.

Overall, the proposed project would not introduce new uses to the campus and would not substantially alter the campus beyond compared to existing conditions. Therefore, the proposed project would not have a cumulative effect related to hazards and hazardous materials, and this impact is **less than significant**.

Significance without Mitigation: Less than significant.

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3.6 HYDROLOGY AND WATER QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential impacts of the proposed Northwood High School Field Lighting Improvement Project (proposed project) to hydrology and water quality conditions. Hydrology deals with the distribution and circulation of water, both on land and underground. Water quality deals with the quality of surface- and groundwater. Surface water includes lakes, rivers, streams, and creeks; groundwater is under the earth's surface.

During the Notice of Preparation (NOP) public review period, no comments were received regarding hydrology and water quality impacts associated with the proposed project. A CEQA scoping meeting was conducted on June 3, 2025. The NOP is included as Appendix A of this DEIR.

3.6.1 Regulatory Framework

Federal, state, and local laws, regulations, plans, or guidelines related to hydrology and water quality are summarized in this section.

Federal

CLEAN WATER ACT

The Clean Water Act (CWA) is a 1977 amendment to the Federal Water Pollution Control Act of 1972. The CWA is the principal statute governing water quality. It establishes the basic structure for regulating discharges of pollutants into the waters of the United States¹ and gives the federal Environmental Protection Agency (EPA) the authority to implement pollution-control programs, such as setting wastewater standards for industry. The statute's goal is to end all discharges entirely and to restore, maintain, and preserve the integrity of the nation's waters. The CWA regulates both the direct and indirect discharge of pollutants into the nation's waters. The CWA sets water quality standards for all contaminants in surface waters and makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit is obtained under its provisions. The CWA mandates permits for wastewater and stormwater discharges, requires states to establish site-specific water quality standards for navigable bodies of water, and regulates other activities that affect water quality, such as dredging and the filling of wetlands. The CWA also funded the construction of sewage treatment plants and recognized the need for planning to address nonpoint sources of

¹ Waters of the US generally include surface waters—lakes, rivers streams, bays, the ocean, dry streambeds, wetlands—and storm sewers that are tributary to any surface water body.

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pollution. The following CWA Sections assist in ensuring water quality in surrounding water bodies.

- **Section 208** of the CWA requires the use of best management practices (BMPs) to control discharge of pollutants in stormwater during construction.
- **Section 303(d)** requires creation of a list of impaired water bodies by states, territories, and authorized tribes; evaluation of lawful activities that may impact impaired water bodies;² and preparation of plans to improve the quality of these water bodies. Water bodies on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution-control technology.
- **Section 402(p)** establishes a framework to control water pollution by regulating point-source discharges under the National Pollutant Discharge Elimination System (NPDES) permit program. Point-source discharges are readily identifiable, discrete inputs where waste is discharged to the receiving waters from a pipe or drain. Nonpoint discharges occur over a wide area and are associated with particular land uses (such as urban runoff from streets and stormwater from construction sites).

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM

Under the National Pollution Discharge Elimination System (NPDES) program (under Section 402 of the CWA), all facilities that discharge pollutants from any point source into waters of the U.S. must have a NPDES permit. The term “pollutant” broadly applies to any type of industrial, municipal, and agricultural waste discharged into water. Point sources can be publicly owned treatment works, industrial facilities, and urban runoff. The NPDES program addresses certain agricultural activities, but the majority are considered nonpoint sources and are exempt from NPDES regulation. Direct sources discharge directly to receiving waters, and indirect sources discharge to publicly owned treatment works, which in turn discharge to receiving waters. Under the national program, NPDES permits are issued only for direct, point-source discharges. The NPDES has a variety of measures designed to minimize and reduce pollutant discharges. All counties with storm drain systems that serve a population of 50,000 or more, as well as construction sites one acre or more in size, must file for and obtain an NPDES permit.

State

STATE WATER RESOURCES CONTROL BOARD

Responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCB).

² Impaired water bodies are water bodies that do not meet or are not expected to meet water quality standards.

The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard. Other criteria may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document, California Toxics Rule) or from EPA water quality criteria developed under Section 304(a) of the CWA. Numeric criteria are required by the CWA for many priority toxic pollutants. To fill in the gap between the water quality control plans and CWA requirements, on May 18, 2000, the EPA promulgated the California Toxics Rule based on the Administrator's determination that numeric criteria are necessary in California to protect human health and the environment. These federal criteria are numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards legally applicable in California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.) is the basic water quality control law for California. Under this Act, the SWRCB has ultimate control over state water rights and water quality policy. In California, the EPA has delegated authority to issue NPDES permits to the SWRCB. The state is divided into nine regions related to water quality and quantity characteristics. The SWRCB, through its nine RWQCBs carries out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a Water Quality Control Plan or Basin Plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water quality conditions and problems. The proposed project's site lies within the jurisdiction of the Santa Ana RWQCB (Region 8).

WASTE DISCHARGE REQUIREMENTS

All dischargers of waste to waters of the state are subject to regulation under the Porter-Cologne Act and the requirement for waste discharge requirements (WDR) is incorporated into the California Water Code. This includes both point- and nonpoint-source dischargers. All current and proposed nonpoint-source discharges to land must be regulated under WDRs, waivers of WDRs, a basin plan prohibition, or some combination of these administrative tools. Discharges of waste directly to State waters would be subject to an individual or general NPDES permit, which also serves as WDRs. The proposed project is subject to the Municipal Stormwater NPDES Permit and the Construction General Permit, both of which also serve as WDRs.

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The RWQCBs have primary responsibility for issuing WDRs. The RWQCBs may issue individual WDRs to cover individual discharges or general WDRs to cover a category of discharges. WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions. Violations of WDRs may be addressed by issuing Cleanup and Abatement Orders or Cease and Desist Orders, assessing administrative civil liability, or seeking imposition of judicial civil liability or judicial injunctive relief.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

In 2014, California lawmakers passed the Sustainable Groundwater Management Act (SGMA), which mandates that all groundwater basins within the state be managed to ensure long-term water supply reliability. Under SGMA, each high and medium priority basin, as identified by the California Department of Water Resources (DWR), must have a groundwater sustainability agency that will be responsible for groundwater monitoring and the development of a groundwater sustainability plan to ensure long-term groundwater sustainability and prevent overdraft. While the Orange County Water District's (OCWD) water basin is not in overdraft, OCWD prepared a groundwater management plans to further long-term groundwater sustainability. The plan describes basin hydrogeology, water supply monitoring, management and operation of recharge facilities, groundwater replenishment system, seawater intrusion and barrier management, and water quality protection.

NPDES STATE- AND REGIONAL-LEVEL IMPLEMENTATION

The SWRCB establishes policies and regulations that help protect and restore the water quality in California. The SWRCB also coordinates with and supports RWQCB efforts and reviews RWQCB actions. The RWQCB monitors and enforces state and federal plans, policies, and regulations. Each RWQCB makes critical water quality decisions for its region. The vast majority of NPDES permits are issued by RWQCBs, though the SWRCB has also issued a few. Typically, NPDES permits are issued for a five-year term. Future development on the project site would be subject to conditions in the NPDES permits described below.

STATEWIDE NPDES GENERAL CONSTRUCTION ACTIVITY STORMWATER PERMIT

Pursuant to the CWA Section 402(p) and as related to the goals of the Porter-Cologne Water Quality Control Act, the SWRCB has issued a statewide NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2022-0057-DWQ, NPDES No. CAS000002), which was adopted September 8, 2022 and became effective on September 1, 2023. Every construction project that disturbs one acre or more of land requires coverage under the Construction General Permit.

For all sites that are not covered by a Phase I or Phase II MS4 permit, a project must implement post-construction stormwater performance standards as stated in the Construction General Permit. This is applicable for all K-12 schools and community colleges, which includes the proposed project.

STATEWIDE TRASH AMENDMENTS

On April 7, 2015, the SWRCB adopted an amendment to the Water Quality Control Plan for Ocean Waters of California to control trash and Part 1, Trash Provisions, of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California. They are collectively referred to as “the Trash Amendments.” The Trash Amendments apply to all surface waters of California and include a land-use-based compliance approach to focus trash controls on areas with high trash-generation rates. Areas such as high density residential, industrial, commercial, mixed urban, and public transportation stations are considered priority land uses. The City has incorporated in its municipal code that any structural or treatment control BMP used for stormwater mitigation must include a full capture trash system.

Regional

SANTA ANA RIVER BASIN WATER QUALITY CONTROL PLAN

The Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) establishes water quality standards (water quality objectives, beneficial uses, and anti-degradation policy) for the protection of surface and groundwaters within the Santa Ana Region. Additionally, the Basin Plan includes comprehensive watershed and groundwater management programs to implement water quality objectives, including total maximum daily loads salt nutrient management measures, and implementation plans. The Basin Plan includes an implementation plan describing the actions by the RWQCB and others that are necessary to achieve and maintain the water quality standards. The RWQCB regulates waste discharges to minimize and control their effects on the quality of the region’s ground and surface water. Permits are issued under various programs and authorities. The terms and conditions of these discharge permits are enforced through a variety of technical, administrative, and legal means. Water quality problems in the region are listed in the Basin Plan, along with the causes of those problems, if known. For water bodies with quality below the levels necessary to allow for all the beneficial uses of the water, plans for improving water quality are included. The latest update for the 1995 Water Quality Control Plan for the Santa Ana River Basin was issued in April 2025.

ORANGE COUNTY REGIONAL MUNICIPAL SEPARATE STORMWATER SEWER SYSTEM (MS4) PERMIT

The Santa Ana RWQCB MS4 Storm Water Permit, NPDES Permit No. CAS618030 (Order R8-2009-0030 as amended by Order No. R8-2010-0062), specifies waste discharge requirements for the

HYDROLOGY AND WATER QUALITY

County of Orange, the incorporated cities of Orange County, and the Orange County Flood Control District (OCFCD) within the Santa Ana Region. Pursuant to this “Fourth-Term” MS4 Permit, the co-permittees were required to update and implement a drainage area management plan for their jurisdictions as well as local implementation plans that describe the co-permittees’ urban runoff management programs for their local jurisdictions.

Under the City’s capital improvement plan, land development policies pertaining to hydromodification and low impact development (LID) are regulated for new developments and significant redevelopment projects. The term “hydromodification” refers to the changes in runoff characteristics from a watershed caused by changes in land use condition. More specifically, hydromodification refers to the change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, interflow, and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport. The use of LID BMPs in project planning and design is to preserve a site’s predevelopment hydrology by minimizing the loss of natural hydrologic processes such as infiltration, evapotranspiration, and runoff detention. LID BMPs try to offset these losses by introducing structural and nonstructural design components that restore these water quality functions into the project’s land plan. These land development requirements are detailed in the County-Wide Model Water Quality Management Plan and Technical Guidance Document, approved in May 2011, which cities have incorporated into their discretionary approval processes for new development and redevelopment projects.

Local

WATER RESOURCES MASTER PLAN

Irvine Ranch Water District (IRWD) developed a comprehensive planning document titled Water Resources Master Plan (WRMP) that identifies existing and future planned water supply sources and demands to effectively manage such a large water system. The most recent updated occurred in 2020. The data within the WRMP is used for hydraulic modeling, the groundwater work plan, assessments of available water supply for specific development projects as required by CWC Section 10910, sub-area master plans and basin pumping projections. As part of the WRMP, the IRWD Capital Program identifies short-term and long-term projects needed to maintain future demands while accounting for replacement and maintenance for existing facilities. In addition to the Capital Program, the Financial Plan includes infrastructure repair and replacement funds and identifies how to pay and manage the long-term funding requirements.

URBAN WATER MANAGEMENT PLAN

Through Urban Water Management Plan (UWMP) reporting, IRWD uses population growth, climate scenarios, water supplies, water conservation, large development projects and approved specific plans and other factors to estimate future water demand and evaluate the

ability to meet this demand through various water supply sources over a 20-year projection. This document is required by the California Water Code and based on the Water Resources Master Plan, with certain elements required by the water code. It is updated every five years, and the latest revision was prepared in 2020.

2024 IRVINE GENERAL PLAN

The 2045 Irvine General Plan provides the basis for the City's policies and represents the community's basic values, ideals, and aspirations. The General Plan establishes policies to guide development and conservation through 2045. Key policies of the General Plan relevant to this chapter's analysis of the proposed project's potential impact on cultural resources are included below. The set of policies listed is not an exhaustive list of all of the General Plan policies applicable to the proposed project; rather, it is a selection of policies relevant to the impact discussion in this chapter.

Environmental Protection and Climate Action Element

Goal 5: Protect and enhance water quality in Irvine through policy implementation and measures to prevent pollution, conserve water resources, and ensure safe access to safe and clean water.

Objective EPCA-5. Achieve and maintain compliance with water quality standards set by regulatory agencies, such as the Environmental Protection Agency (EPA) and the California State Water Resources Control Board (SWRCB), to safeguard public health and the environment.

Implementation Measures

Implement best management practices (BMPs) for stormwater management, including the installation of vegetated swales, detention basins, and infiltration systems to capture and treat runoff before it enters water bodies.

Provide appropriate permanent measures to reduce stormwater pollutant loads from development sites.

Safety Element

Goal 3: Anticipate the risks and mitigate the effects that flood hazards pose to the community.

Policy S-3(a). Work with Orange County Flood Control District to ensure flood control facilities are adequately provided and maintained.

Policy S-3(g). Ensure resilience and long-term functionality of stormwater and sewer systems.

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Policy S-3(h). Encourage the use of climate-smart landscaped surfaces (e.g., permeable pavement, stormwater parks, green streets) in new and existing development to reduce runoff, minimize flood hazards, and maintain existing drainageways.

Policy S-5(f). Protect groundwater supply against contamination, degradation, or loss due to flooding.

Policy S-5(h). Promote nature-based methods and best management practices (BMPs) (e.g., bioswales, rain gardens, natural ground cover) through the City's stormwater program to promote groundwater infiltration and reduce the impacts of drought.

CITY OF IRVINE MUNICIPAL CODE

The Irvine Municipal Code outlines the local laws and regulations governing land use, development, and environmental protection within the City. Among its provisions, the municipal code includes specific measures to preserve water resources.

Title 5, Division 10, Chapter 1. establishes rules and regulations to control excavation, grading, and earthwork, construction (including fills and embankments), and establishes administrative requirements for issuance of grading permits, approval of plans, and inspection of grading construction in accordance with the requirements for grading and excavation contained in the California Building Code as adopted and modified by City ordinance. The Grading Code also contains erosion control requirements and guidelines for the preparation of erosion control plans.

Title 6, Division 8, Chapter 3. establishes the city's regulations for controlling stormwater and urban runoff pollution. It requires all individuals and businesses to prevent pollutants from entering the storm drain system and local water bodies, and mandates the implementation of Best Management Practices (BMPs) during construction and operation of development projects. The chapter enforces compliance with the MS4 Permit, including the use of structural controls such as full-capture trash screening devices. It also grants the City authority to inspect properties, enforce violations, and impose penalties for noncompliance.

3.6.2 Existing Conditions

Hydrology

The project site is located within the Coastal Plain of Orange County Groundwater Basin (Basin 8-1). Basin 8-1 has a surface area of 224,000 acres (350 square miles). The basin is bounded by consolidated rocks exposed on the north in the Puente and Chino Hills, on the east in the Santa Ana Mountains, and on the south in the San Joaquin Hills. Under the Sustainable Groundwater

Management Act (SGMA), the Basin 8-1 is classified as a medium priority basin, due to heavy reliance on the Basin's groundwater as a source of water supply. Well yields range from 500 to 4,500 gallons per minute but are generally 2,000 to 3,000 gallons per minute. The total capacity of the Orange County Basin is 38,000,000 AF (DWR 2004).

The local storm drain system is owned by the City and maintained by the City's Public Works and Transportation Department. The regional flood control system is owned and maintained by the Orange County Public Works Department (OCPW). Lines typically range in size from 18 to 60 inches (with some up to 96 inches), with the local drainage system consisting of the smaller diameter pipes and the larger flood control facilities consisting of trapezoidal channels or riverine systems. Drainage facilities are typically either RCP pipe or box culverts to convey stormwater. Local storm drain facilities are designed to accommodate 25-year flow requirements, and the regional County facilities are designed to accommodate 100-year storm events. The City conveys stormwater to OCPW regional conveyance facilities and has an ongoing monitoring and maintenance procedure to ensure the overall system functions effectively. To prevent significant flooding during storm events, OCPW and the City monitors and maintains its respective channels and storm drain systems to ensure they are conveying storm flows as designed. The project site is located entirely within the Santa Ana RWQCB jurisdictional area (City of Irvine 2024a).

The project site is currently developed with hardscape and impervious surfaces encompassing the school buildings and parking lots; the pervious areas include landscaping and athletic fields. The topography in the proposed project's area includes gentle slopes to the north, west, and east. Currently, runoff is collected via storm drain inlets and conveyed to the City's existing storm drains.

Surface Water Quality

The City is located within the Newport Bay Watershed, which is defined by the foothills of the Santa Ana Mountains to the east (Loma Ridge), and the San Joaquin Hills to the west and southwest. The Newport Bay Watershed is a part of the larger Orange County Watershed Management Areas, which is split into a South, North, and Central Watershed Management Areas (WMA). The total area of the Newport Bay Watershed is approximately 154 square miles (98,500 acres) of the Central Orange County WMA. Each watershed is comprised of a network of municipal drains and channels that ultimately deliver stormwater to Newport Bay (City of Irvine 2024b).

If a body of water does not meet established water quality standards under traditional point source controls, then it is listed as an impaired water body under Section 303(d) of the CWA. For 303(d) listed water bodies, a limit is established, which defines the maximum amount of

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pollutants (or total maximum daily load [TMDL]) that can be received by that water body. Table 3.6-1 lists impaired water bodies in the City of Irvine.

Table 3.6-1 Impaired Water Bodies in the City of Irvine

Water Body/Channel	List of 303(d) Impairments	TMDL
Borrego Creek (Reach 2)	Ammonia, Indicator Bacteria	
	Benthic Community Effects, DDT, Indicator Bacteria, Malathion, pH, Selenium, Toxaphene, Toxicity	DDT, Toxaphene
San Diego Creek Reach 1	Benthic Community Effects, DDT, Indicator Bacteria, Malathion, Nutrients, Sedimentation/Siltation, Selenium, Toxaphene, Toxicity	Newport Bay/San Diego Creek Nutrient TMDL, Newport Bay Toxics TMDL,
San Diego Creek Reach 2	Sedimentation/Siltation, Nutrients, Indicator Bacteria, Benthic Community Effects, Toxicity	Same as carbon monoxide sources

Source: City of Irvine 2024b.

Groundwater and Groundwater Quality

Replenishment supplies for the Basin come from a variety of sources, including increased flows from the Santa Ana River, purified recycled water, water purchases from the MWD, and the development of additional local supplies. The Orange County Water District (OCWD) has established a drought-resistant source of replenishment through its Groundwater Replenishment System (GWRS), an advanced water purification system. Wastewater from the Orange County Sanitation District undergoes a rigorous three-step treatment process to produce high-quality water, which is then used to recharge the groundwater Basin and support a seawater intrusion barrier. OCWD manages basin pumping using the Basin Production Percentage (BPP), which it adjusts as needed to help maintain groundwater storage levels. The Basin is operated to preserve available storage capacity, allowing for maximum recharge of surface water when supplies are abundant, particularly during wet years. By keeping the Basin as full as possible during wet and near-normal years, OCWD ensures that the maximum possible volume of groundwater is stored and available to support pumping during future droughts (IRWD 2020).

Groundwater from the Irvine sub-basin generally contains higher levels of total dissolved solids, color (tint), and nitrates. To address this, IRWD constructed the Irvine Desalter Project (IDP), which began operation in 2007 and is capable of producing up to 5,600 AFY of potable water.

Additionally, IRWD built two non-potable treatment facilities—the Shallow Groundwater Unit and the Principal Aquifer Treatment Plant—to treat groundwater near the former Marine Corps Air Station El Toro. These plants remove volatile organic compounds (VOCs), helping to clean up the sub-basin and prevent contamination from migrating into the main Basin (IRWD 2021).

Flood Hazards

Multiple areas within the City have been identified as having the potential to be subject to dam inundation (City of Irvine 2024b). The project site is within the Orchard Estates Retarding Basin inundation area (DWR 2025).

The National Flood Insurance Act (1968) established the National Flood Insurance Program, which is based on the minimal requirements for flood plain management and is designed to minimize flood damage within Special Flood Hazard Areas. The Federal Emergency Management Agency (FEMA) is the agency that administrates the National Flood Insurance Program. The project site is within FEMA Flood Zone X, areas with minimal flood hazard (FEMA 2025). The project site is not within a tsunami hazard area (DOC 2025).

Water Supply

IRWD's water resource portfolio consists of imported water, local groundwater, recycled water, and local surface water. The service area is approximately 181 square miles with the City and its sphere of influence accounting for approximately 41 percent (74 square miles) of IRWD's service area (City of Irvine 2024a).

IRWD's water supplies include groundwater, imported water from the MWD, recycled water and local surface water. Approximately one-half of IRWD's water supplies come from local groundwater wells in Basin 8-1. Imported water from MWD makes up less than one-fifth of IRWD's supply. Water imported to Orange County comes from two sources; the Sacramento-San Joaquin Delta (Delta, Bay-Delta) in Northern California through the State Water Project (SWP), and from the Colorado River through the Colorado River Aqueduct (CRA) (IRWD 2020).

Local supplies make up about 80 percent of IRWD's supplies, these supplies include new groundwater projects, increased recycled water treatment capacities and storage. Based on IRWD's 2020 UWMP, the total water supplies available to IRWD will meet the projected water demands of existing and planned uses through 2040 under a single dry-year condition and over five years of consecutive drought, as well as in normal year conditions (IRWD 2016). IRWD serves about 20 percent of Orange County and has more than 1,500 miles of drinking water pipelines, more than 900 miles of sewer pipes, 53 reservoirs, and two large water recycling facilities. Distribution pipelines within the City have a total length of approximately 78 miles (City of Irvine 2024a).

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Most of the potable groundwater supply to IRWD is produced from the Dyer Road Well Field (DRWF) located in the City of Santa Ana. IRWD can produce up to 28,000 AF per year consisting of 20,000 AF of clear groundwater and an additional 8,000 AF of “matching” clear groundwater. IRWD operates the Wells 21 and 22 Desalter in the City of Tustin which removes total dissolved solids (TDS) and nitrates for potable use. Annual yield from Wells 21 and 22 currently averages around 2,400 AFY and can be up to 6,400 AFY. Approximately 13 percent of IRWD’s potable water needs are met by imported water purchased and supplied by MWD through MWDOC. IRWD receives imported potable water supplies from the Colorado River and the State Water Project (SWP) through Metropolitan’s Diemer Filtration Plant and Weymouth Treatment Plant. The majority of IRWD's imported potable water is supplied from the Metropolitan Diemer Filtration Plant, located north of Yorba Linda (IRWD 2020).

3.6.3 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that the proposed project would result in a significant impact related to hydrology if it would:

- a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
- b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - i) Result in a substantial erosion or siltation on- or off-site.
 - ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.
 - iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
 - iv) Impede or redirect flood flows.
- d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

- e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

METHODOLOGY

To evaluate the potential impacts of the proposed project on hydrology and water quality, relevant information was reviewed from the General Plan EIR, and data from the IRWD. These sources were analyzed to determine whether implementation of the proposed project would affect surface and groundwater quality.

3.6.4 Project Impact Analysis

-
- a) **The proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.**
-

Urban runoff from storms or nuisance flows (runoff during dry periods) from development projects can carry pollutants to receiving waters. Runoff can contain pollutants such as oil, fertilizers, pesticides, trash, and sediment. This runoff can flow directly into local streams or into storm drains and continue through pipes until it is released untreated into a local waterway and eventually the ocean. Untreated stormwater runoff degrades water quality in surface waters and groundwater and can affect drinking water, human health, and plant and animal habitats.

The construction and operational phases of the proposed project could have the potential to impact water quality. Construction activities may impact water quality due to the erosion of exposed soils. During the operational phase of the proposed project, erosion potential and impacts from urban runoff are anticipated to remain similar to existing conditions. The following is a discussion of the potential impacts that the construction and operational phases of the proposed project could have on water resources and quality.

Construction

Grading, excavation, and construction activities associated with the proposed project may impact water quality through soil erosion and increasing the amount of silt and debris carried in runoff. Additionally, the use of construction materials such as fuels, solvents, and paints may present a risk to surface water quality. Finally, the refueling and parking of construction vehicles and other equipment on-site during construction may result in oil, grease, or related pollutant leaks and spills that may discharge into the storm drain system.

The proposed project consists of the installation of four new athletic field lights around the existing football field and infrastructure to allow for a future Public Address (PA) system. The proposed project may also consist of trenching for the installation of an electrical line to provide

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electricity for the four athletic field lights, and is anticipated to disturb approximately 1,500 square feet. Additionally, the proposed project is anticipated to include expansion of hardscaping, which would be limited to the installation of the athletic field light poles and installation of the power distribution equipment and lighting control equipment. The proposed project is not required to prepare a Stormwater Pollution Prevention Plan (SWPPP) because the total area of disturbance is approximately 1,500 square feet, which is well below the one-acre threshold that triggers SWPPP requirements. However, BMPs to control sedimentation, erosion, and hazardous materials contamination of runoff during construction would be incorporated. These include, but are not limited to:

- Erosion controls (e.g., earth dikes and swales, mulching, slope drains, compost blankets)
- Sediment controls (e.g., silt fence, sediment trap, sandbag or straw bale barriers)
- Tracking controls (e.g., stabilized construction entrance/exit, tire wash)
- Non-storm water management (e.g., dewatering practices, vehicle and equipment cleaning)
- Materials and waste management (e.g., material storage, hazardous waste management, soil management)
- Good housekeeping practices.

Implementation of BMPs throughout the construction phase of the proposed project will address anticipated and expected pollutants of concern due to construction activities. The proposed project would comply with all applicable water quality standards and waste discharge requirements. Therefore, the construction of the proposed project would not violate water quality standards or waste discharge requirements and would not otherwise substantially degrade water quality, resulting in **less-than-significant** impact.

Operation

Once the proposed project has been constructed, urban runoff could include a variety of contaminants that are typical of the operation of school athletic facilities (see Section 3.5, *Hazards and Hazardous Materials*). As discussed previously, the proposed project would be required to comply with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials would ensure impacts would be less than significant. Implementation of the proposed project would not substantially increase the amount of impervious surfaces on the project site. Therefore, operational impacts related to runoff would remain similar to existing conditions on-site.

Furthermore, as part of the Statewide Trash Amendments, the District would adhere to the requirements of the City of Irvine Municipal Code Section 6-8-3, which include the installation

and maintenance of full-capture trash screening devices at curb inlets, grate inlets, and catch basin inlets. With compliance with Federal, State, County, and local regulations and code requirements, the proposed project would have a less than significant impact on surface or groundwater quality during the operational phase. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

b) The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

The City of Irvine is located within Basin 8-1, which is classified as a medium priority basin, due to heavy reliance on the Basin's groundwater as a source of water supply. There are minimal stormwater recovery systems. IRWD captures dry weather runoff via Peters Canyon Channel Water Capture. As described in Chapter 2, *Project Description*, the proposed project would not change current enrollment or staffing. Therefore, overall water demand is not expected to increase and there would be no impact on groundwater supplies.

The project site is already built out with hardscape and impervious surfaces, and implementation of the proposed project would not substantially increase the amount of impervious surfaces on the project site. Hardscaping is minimal and limited to the installation of the athletic field light poles and installation of the power distribution equipment and lighting control equipment, which would disturb approximately 1,500 square feet. No new landscaping, including irrigation systems for the landscaping, are proposed. Stormwater runoff will continue to drain into the City's MS4 system, with no adverse effect on groundwater recharge. The proposed project would not interfere with groundwater recharge. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

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-
- c) **The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:**
- i) **Result in substantial erosion or siltation on- or off-site.**
 - ii) **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.**
 - iii) **Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.**
 - iv) **Impede or redirect flood flows.**
-

- i) **Result in substantial erosion or siltation on- or off-site.**

Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed or dissolved, and moved from one place to another. Precipitation, running water, waves, and wind are all agents of erosion. Ordinarily, erosion proceeds imperceptibly, but when the natural equilibrium of the environment is changed, the rate of erosion can greatly accelerate. This can create aesthetic as well as engineering problems on undeveloped sites. Accelerated erosion in an urban area can cause damage by undermining structures; blocking storm drains; and depositing silt, sand, or mud on roads and in tunnels. Eroded materials can eventually be deposited in local waters, where the carried silt remains suspended in the water for some time, constituting a pollutant and altering the normal balance of plant and animal life.

There are no streams or rivers on the project site. The proposed project would not involve the alteration of any natural drainage channels or any watercourse. Additionally, the project site is relatively flat and potential for erosion would be less than significant.

During construction, temporary erosion control measures as described in Section 3.6.4(a) will prevent sediment runoff, through the construction BMPs. The proposed project includes minimal ground-disturbing activities that could potentially cause erosion. The proposed project would not change existing uses on-site nor would it increase student capacity. The proposed project is not anticipated to substantially alter the existing on-site drainage patterns; however, any alterations that would occur would be designed to meet local, state, and federal water quality standards and to ensure that stormwater flows do not result in substantial erosion or siltation. The proposed project would not substantially alter the existing drainage pattern of the site, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site. Therefore, impacts would be **less than significant**.

- ii) **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.**

The proposed lighting improvements at Northwood HS would not substantially increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding. The project involves minimal new impervious surfaces, which include the concrete foundations for four light poles and a small equipment pad. Additionally, the project will adhere to City's stormwater regulations, ensuring proper compaction and restoration of any disturbed areas to prevent erosion. Given the negligible change in impervious area and the absence of modifications to major drainage pathways, the proposed project would not alter existing runoff patterns or exceed the capacity of local stormwater infrastructure which would not result in flooding on or off-site. Therefore, impacts would be **less than significant**.

- iii) **Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.**

Construction

Construction of the proposed project would temporarily introduce potential sources of pollution on-site, such as oils, solvents, and gasoline, that are typical of construction activities. Equipment and potentially hazardous materials would be maintained and stored in accordance with manufacturer instructions. The proposed project includes limited disturbance which exempts the project from formal SWPPP requirements.

Therefore, compliance with federal, state, and local regulations and implementation of BMPs would ensure that the proposed project would not result in substantial additional sources of polluted runoff during construction. A **less-than-significant** impact related to substantial additional sources of polluted runoff would occur during each construction phase.

Operation

As described in Section 3.6.4(c)(i), the proposed project would not substantially alter the existing drainage pattern of the project site or the surrounding area. The proposed project would result in the installation of four new stadium lights located adjacent to the existing track and field and infrastructure to allow for a future PA system. The expansion of hardscaping would be limited to the installation of the athletic field light poles and the concrete pad for the installation of the power distribution equipment and lighting control equipment. The proposed project would result in a minor increase of impervious surfaces onsite, approximately 1,500 total square feet. Stormwater from the proposed project would flow to onsite stormwater facilities and to stormwater drainage system in the public right of way like existing conditions. As such, the proposed project would not create or contribute runoff water that would exceed the

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capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Therefore, compliance with federal, State, County, and local regulations and code requirements would ensure that the proposed project would not alter existing drainage patterns in a manner that would result in substantial additional sources of polluted runoff during operation. A **less-than-significant** impact related to substantial additional sources of polluted runoff would occur during the operation of the proposed project.

iv) Impede or redirect flood flows.

As described in Section 3.6.4(c)(i), the proposed project would not substantially alter the existing drainage pattern of the project site or the surrounding area. According to the FEMA flood zone map, the project site is not in a flood zone and is in a highly developed area of the city (FEMA 2025). Additionally, the project site is located within the existing Northwood HS campus. Construction and operation of the proposed project would not impede or redirect flood flows. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

d) The proposed project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.

A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities because inundation from a seiche can occur if the wave overflows a containment wall such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. As such, there are no large water tanks in the area, however Orchard Estates Retarding Basin is approximately 0.4 miles northeast of the project site (DWR 2025).

According to DWR's Dam Breach Inundation Map viewer, the project site is within the Orchard Estates Retarding Basin inundation area. The project components, consisting primarily of light poles, electrical conduits, and PA equipment, and would contain no hazardous materials that could be released during flood events including a seiche. During construction, temporary erosion control measures as described in Section 3.6.4(a) will prevent sediment runoff, through construction BMPs.

The project site is within FEMA Flood Zone X, areas with minimal flood hazard (FEMA 2025). Additionally, the project site is approximately 15 miles from the Pacific Ocean and is not within a tsunami zone. Impacts would be less than significant with compliance with FEMA and the City's Floodplain District requirements. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

e) The proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

As previously mentioned in Section 3.6.4(b), the proposed project would not affect groundwater and would not obstruct implementation of a sustainable groundwater management plan. The proposed project would comply with existing local, regional, and state regulations and would not obstruct implementation of a water quality control plan. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

3.6.5 Cumulative Impact Analysis

The proposed project would not have a cumulative effect related to hydrology.

As defined in Section 15130 of the State CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for utilities and services. The study area for the assessment of cumulative impacts related to hydrology and water quality is the Northwood HS campus. There are currently no other projects proposed to occur within the campus.

Implementation of the proposed project would not substantially increase the amount of impervious surfaces on the project site, as hardscaping is minimal and would disturb approximately 1,500 square feet. Therefore, operational impacts related to runoff would remain similar to existing conditions on-site, and the proposed project would not violate any water quality standards. The proposed project would not change current enrollment or staffing, and thereby is not expected to increase and there would be no impact on groundwater supplies. Additionally, the project site is already built out with hardscape and impervious surfaces, and implementation of the proposed project would not substantially increase the amount of impervious surfaces on the project site. No new irrigation systems are proposed.

The proposed project is not anticipated to substantially alter the existing on-site drainage patterns; however, any alterations that would occur would be designed to meet Federal, State, County, and local water quality standards and to ensure that stormwater flows do not result in substantial erosion or siltation. The project involves minimal new impervious surfaces, primarily the concrete foundations for four light poles and a small equipment pad, which would not substantially increase the rate or amount of surface runoff in a manner that would result in on- or off-site flooding. The project site is within the Orchard Estates Retarding Basin inundation

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area; however, the project site is developed within the existing Northwood HS campus and the project components would not contain hazardous materials that could be released during flood events including a seiche. The proposed project would not affect groundwater and would not obstruct implementation of a sustainable groundwater management plan.

Overall, the proposed project would not introduce new uses to the campus and would not substantially alter the campus compared to existing conditions. Therefore, the proposed project would not have a cumulative effect related to hydrology, and this impact is **less than significant**.

Significance without Mitigation: Less than significant.

3.6.6 References

- California Department of Water Resources (DWR). 2004. Coastal Plain of Orange County Groundwater Basin. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/8_001_CoastalPlainofOrangeCounty.pdf
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3.7 NOISE

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Northwood High School Field and Lighting Improvements Project (proposed project) to result in noise impacts in the noise environment in the local vicinity. Specifically, this section summarizes relevant federal, State and local noise guidelines, policies, and standards; reviews noise levels at existing receptor locations, and evaluates potential noise impacts. This evaluation uses procedures and methodologies specified by the Federal Transit Administration (FTA). The analysis in this section is based in part on the noise modeling data included in Appendix E of this DEIR.

No comments related to noise were received during the Notice of Preparation (NOP) public comment period and/or public scoping meeting held for the proposed project. The NOP is included as Appendix A of this document.

Terminology

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unitless measure of sound on a logarithmic scale.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Continuous Noise Level (Leq);** also called the Energy-Equivalent Noise Level. The value of an equivalent, steady sound level that, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.
- **Statistical Sound Level (L_n).** The sound level that is exceeded “n” percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the “median sound level.” The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the “intrusive sound level.” The L_{90} is the sound level exceeded 90 percent of the time and is often considered the “effective background level” or “residual noise level.”

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- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 pm to 7:00 am.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 pm to 10:00 pm and 10 dB from 10:00 pm to 7:00 am. For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive, that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.
- **Peak Particle Velocity (PPV).** The peak signal value of an oscillating vibration velocity waveform usually expressed in inches per second (in/sec).
- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Noise and Vibration Fundamentals

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. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as “noisiness” or “loudness.” 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 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 loudness of sound is the decibel (dB). Changes of 1 to 3 dBA are detectable under quiet, controlled conditions, and changes of less than 1 dBA are usually indiscernible. A 3 dBA change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dBA is readily discernable to most people in an exterior environment, and a 10 dBA 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 scale 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.

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 dBA is 10 times more intense than 1 dBA, while 20 dBA is 100 times more intense, and 30 dBA is 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than 0 dBA. 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 dBA 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 dBA 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 dBA 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

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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. These “L” values are typically used to demonstrate compliance for stationary noise sources with a city’s noise ordinance, as discussed below. 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.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, an artificial dB increment is added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment of 5 dBA be added to the actual noise level for the hours from 7:00 a.m. to 10:00 p.m. and 10 dBA for the hours from 10:00 p.m. to 7:00 a.m. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 p.m. and 10:00 p.m. Both descriptors give roughly the same 24-hour level with the CNEL being only slightly more restrictive (i.e., higher)

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. A sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear.

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium, such as the ground or a building. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers.

Amplitude

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal, and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage. The units for PPV are normally inches per second (in/sec). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration.

The way in which vibration is transmitted through the earth is called propagation. 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. This geometric spreading loss is inversely proportional to the square of the distance. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3.7-1, *Human Reaction to Typical Vibration Levels*, shows the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3.7-1 Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity	Human Reaction	Effect on Buildings
0.006–0.019 in/sec	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08 in/sec	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10 in/sec	Level at which continuous vibration begins to annoy people	Virtually no risk of “architectural” (i.e., not structural) damage to normal buildings
0.20 in/sec	Vibrations annoying to people in buildings	Threshold at which there is a risk to “architectural” damage to normal dwellings – houses with plastered walls and ceilings

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Table 3.7-1 Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity	Human Reaction	Effect on Buildings
0.4–0.6 in/sec	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 2013.

3.7.1 Regulatory Framework

FEDERAL

Construction Noise and Vibration

The Federal Transit Administration (FTA) oversees safety measures related to noise and vibration. The FTA’s Transit Noise and Vibration Impact Assessment manual indicates that 80 A-weighted decibels (dBA) equivalent sound level (L_{eq}) is reasonable criteria for assessing construction noise levels at residential uses (FTA 2018). In the absence of local construction noise limits, the FTA recommended 80 dBA L_{eq} criteria is used to assess the significance of construction noise levels at residential receivers.

The FTA also provides criteria for acceptable levels of groundborne vibration for various types of buildings. Structures amplify groundborne vibration; wood-frame buildings, such as typical residential structures, are more affected by ground vibration than heavier buildings. The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively, but the standards recommended by the FTA are shown in Table 3.7-2, *FTA Construction Vibration Damage Criteria*.

Table 3.7-2 FTA Construction Vibration Damage Criteria

Building/Structural Category	Peak Particle Velocity (PPV) (in/sec)	Approximate Vibration dB
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

Table 3.7-2 FTA Construction Vibration Damage Criteria

Building/Structural Category	Peak Particle Velocity (PPV) (in/sec)	Approximate Vibration dB
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2018

in/sec = inches per second

According to FTA's *Transit Noise and Vibration Impact Assessment Manual*, a vibration velocity (VdB) of 75 to 80 VdB will annoy individuals. Table 3.7-3, *Human Response to Different Levels of Ground-Borne Vibration and Noise*, presents the human response to different levels of ground-borne vibration and noise. For purposes of analysis in this DEIR, the threshold of 75 VdB will be applied.

Table 3.7-3 Human Response to Different Levels of Ground-Borne Vibration and Noise

Vibration Velocity Level	Noise Level		Human Response
	Low Frequency	Mid Frequency	
65 VdB	25 dBA	40 dBA	Approximate threshold of perception for many humans. Low-frequency sound: usually inaudible. Mid-frequency sound: excessive for quiet sleeping areas.
75 VdB	35 dBA	50 dBA	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level annoying. Low-frequency noise: tolerable for sleeping areas. Mid-frequency noise: excessive in most quiet occupied areas.

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Table 3.7-3 Human Response to Different Levels of Ground-Borne Vibration and Noise

Vibration Velocity Level	Noise Level		Human Response
	Low Frequency	Mid Frequency	
85 VdB	45 dBA	60 dBA	Vibration tolerable only if there are an infrequent number of events per day. Low-frequency noise: excessive for sleeping areas. Midfrequency noise: excessive even for infrequent events for some activities.

Source: FTA 2018, Table 5-5

Low Frequency= Approximate noise level when vibration spectrum peak is near 30 hertz (Hz).

Mid Frequency= Approximate noise level when vibration spectrum peak is near 60 Hz.

STATE

California Code of Regulations

Title 24, Part 11. The State of California's noise insulation standards for nonresidential uses are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Part 11, California Green Building Standards Code (CALGreen). CALGreen noise standards are applied to new or renovation construction projects in California to control interior noise levels resulting from exterior noise sources. Proposed projects may use either the prescriptive method (Section 5.507.4.1) or the performance method (5.507.4.2) to show compliance. Under the prescriptive method, a project must demonstrate transmission loss ratings for the wall and roof-ceiling assemblies and exterior windows when located within a noise environment of 65 dBA CNEL or higher. Under the performance method, a project must demonstrate that interior noise levels do not exceed 50 dBA L_{eq} (1hr).

Title 5, Section 14040(q). Under Title 5, the California Department of Education (CDE) regulations require a school district to consider noise in the site selection process. As recommended by CDE guidance, if a school district is considering a potential school site near a freeway or other source of noise, it should hire an acoustical engineer to determine the level of sound that the site is exposed to and to assist in designing the school should that site be chosen.

LOCAL

City of Irvine General Plan

The City of Irvine General Plan Noise Element identifies the City's noise compatibility standards and identifies goals and policies aimed at maintaining a healthy noise environment.

Table 3.7-4, *City of Irvine Interior and Exterior Noise Standard Energy Average (CNEL)*, identifies the maximum interior and exterior noise levels for each land use category. The standards assume the incorporation of California State Law requirements into all projects.

Table 3.7-4 City of Irvine Interior and Exterior Noise Standards Energy Average (CNEL)

Land Use Categories		Energy Average (CNEL)	
Categories	Uses	Interior1	Exterior2
Residential	Single-Family, Multiple Family	45 ³ 55 ⁴	65 ⁷
	Mobile Home	--	65 ⁵
Commercial/Industrial	Hotel, Motel, Transient Lodging	45	65 ⁶
	Commercial, Retail, Bank, Restaurant	55	--
	Office Building, Professional Office, Research & Development	50	--
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	--
	Gymnasiums (Multipurpose)	50	--
	Health Clubs	55	--
	Manufacturing, Warehousing, Wholesale, Utilities	65	--
	Movie Theatre	45	--

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Table 3.7-4 City of Irvine Interior and Exterior Noise Standards Energy Average (CNEL)

Land Use Categories		Energy Average (CNEL)	
Categories	Uses	Interior ¹	Exterior ²
Institutional	Hospital, School /Classroom	45	65
	Church, Library	45	--
Open Space	Parks	--	65

Source: City of Irvine 2025

¹ Interior environment excludes bathrooms, toilets, closets, and corridors

² Outdoor environment limited to private yard of single-family or multi-family residences private patio which is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.

³ Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208 of Uniform Building Code

⁴ Noise level requirement with open windows if they are used to meet natural ventilation requirement

⁵ Exterior noise level shall be such that interior noise level will not exceed 45 CNEL.

⁶ Except for those areas affected by aircraft noise

⁷ Multifamily developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

Noise impacts can be reduced and addressed through the employment of goals and policies identified in the Noise Element. The following goals and policies may be applicable to the proposed project.

Goal 1: Noise Control Through Land Use Planning and Design

Objective N-1. Maintain healthy and safe noise environments consistent with the standards in Table 1 (of the Noise Element) through site design and location.

- **Policy 1(i).** Require that new development plans demonstrate that implementation would maintain clearly or normally compatible noise levels at existing receptors. In areas where existing ambient noise levels exceed acceptable noise criteria, require that the project demonstrates that implementation would not result in a more than 3 dBA CNEL change in ambient conditions, including from project-generated vehicle noise sources.

Goal 2: Stationary Noise Sources

Objective N-2 Reduce noise from non-transportation sources such that City residents are not exposed to stationary noise levels that exceed City Noise Ordinance standards.

Policy 2(a). Require any new construction to meet the City Noise Ordinance standards. The project applicant will be required to submit construction-related noise reduction strategies for review and approval prior to the issuance of grading permits.

- **Policy 2(d).** Require outdoor events with amplified noise to implement best management practices to reduce nuisance noise exposure.

Goal 3: Noise Abatement

Objective N-3. Achieve maximum efficiency in noise abatement efforts through establishing minimum standards, intergovernmental coordination, and public information programs.

- **Policy 3(a).** Coordinate efforts to reduce noise impacts with appropriate public and government agencies, such as aircraft and transit regulatory agencies.
- **Policy 3(g).** Minimize the use of noise barriers to reduce noise exposure. Consider other attenuation strategies, such as alternative development siting, soundproofing sensitive receptors, building orientation and setbacks, providing buffer areas or landscape berms, modifying source operating hours, modifying roadway design, or utilizing quieter pavement strategies, as applicable, prior to proposing noise barrier installation.

Goal 4: Ground-Borne Vibration

Objective N-4. Minimize exposure to ground-borne vibration such that City residents are not exposed to nuisance vibration or potential building damage.

- **Policy 4(c).** Require all plans submitted for development review to use vibration standards published by the Federal Transit Administration to evaluate the potential effects of vibration exposure from new vibration sources, such as construction, or siting of new receptors near existing vibration sources, such as rail operations.

City of Irvine Municipal Code

The City's Noise Ordinance (Irvine Municipal Code Title 6, Division 8, Chapter 2), adopted in 1975 and revised in February 2005, establishes the maximum permissible noise level from a stationary source that may intrude into adjoining property. Section 6-8-204, General Provision, of the ordinance establishes noise level standards for various land use categories affected by stationary noise sources. As stated in Section 6-8-204 of the ordinance, it shall be unlawful for any person at any location within the City to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level when measured on any receiving property either within or without the City to exceed the noise standard for the applicable receiving type of land use for any consecutive fifteen-minute period. The noise following noise standards shall be increased by

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five dB(A) for consecutive sound durations less than 15 minutes, by 10 dB(A) for consecutive sound durations less than 5 minutes, and by 15 dB(A) for consecutive sound duration less than 1 minute Exterior noise performance standards are summarized in Table 3.7-5, *City of Irvine Exterior Noise Performance Standards*.

Table 3.7-5 City of Irvine Exterior Noise Performance Standards

Type of Land Use	Time Intervals	
	7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
Residential	60 L _{eq}	55 L _{eq}
Residential Portion of Properties Zoned for Multi-Use	60 L _{eq}	55 L _{eq}
Commercial, Industrial, Manufacturing	70 L _{eq}	60 L _{eq}
Office/Institutional (hospital, school, classroom, church library)	60 L _{eq}	55 L _{eq}

Source: City of Irvine 2024

It should be noted that the City's Noise Ordinance identifies special provisions (Section 6-8-205). The special provisions include but are not limited to:

Construction activities and agricultural operations may occur Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturday from 9:00 a.m. to 6:00 p.m. No construction activities shall be permitted outside of these hours or on Sundays and federal holidays, except Columbus Day, unless a temporary waiver is granted by the Chief Building Official or his or her authorized representative. Trucks, vehicles, and equipment that are making or are involved with material deliveries, loading, or transfer of materials, equipment service, maintenance of any devices or appurtenances for or within any construction project in the City shall not be operated or driven on City streets outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City. Any waiver granted shall take impact upon the community into consideration. No construction activity and agricultural operations will be permitted outside of these hours except in emergencies including maintenance work on the City rights-of-way that might be required.

Deliveries to or pickups from any commercial property sharing a property line with any residential property may occur daily from 7:00 a.m. to 10:00 p.m. No deliveries or pickups from any such properties shall occur outside of these hours.

Maintenance of real property operations may exceed the noise standards Monday through Saturday from 7:00 a.m. to 7:00 p.m. and Sundays or federal holidays from 9:00 a.m. to 6:00 p.m.

Noise from air conditioning, refrigeration, or heating equipment for residences or other structures, and pumps, filters or heating equipment for pools or reservoirs shall not exceed the higher of the noise standards prescribed in the section above or the five decibels above the ambient noise level.

The following activities shall be exempt from the provisions of the Noise Ordinance:

- School bands, school athletic and school entertainment events, provided said events are conducted on school property or authorized by special permit from the City.
- Activities otherwise lawfully conducted on public parks, public playgrounds, and public or private school grounds.

3.7.2 Existing Conditions

The project site, located within the boundaries of the Northwood High School (HS) campus, encompasses 4.56 acres of the Northwood HS campus. The existing football field is located in the southern portion of the campus. The project site is bordered by the campus to the north and east, Portola Parkway to the south, and a private road (Northwood High School Private Road) to the west. Residential and orchard uses surround the campus, including the project site. Additional residential uses are located south of the campus, across Portola Parkway.

The noise environment surrounding the campus and project site is characterized by roadway traffic from Portola Parkway, activity from sports practices, children playing at Orchard Terrace Park, and residential traffic along surrounding roadways (e.g., Yale Avenue, Twisted Oak, Wolf Trail). Intermittent noise from the campus (students talking and bells/buzzers) also contributes to the existing ambient noise environment.

The nearest sensitive receptors to the project site are the single-family residences to the south, across Portola Parkway.

AMBIENT NOISE MEASUREMENTS

Short-Term

Two short-term (15-minute) measurement locations were conducted around the project site. All measurements were conducted Thursday, February 20th, 2025. The short-term sound level meter used (Larson Davis LxT) for noise monitoring satisfies the American National Standards Institute (ANSI) standard for Type 1 instrumentation. The short-term sound level meter was set to “slow” response and “A” weighting (dBA). The short-term sound level meter was calibrated prior to and after each monitoring period. All measurements were at least 5 feet above the ground and away from reflective surfaces. Temperatures were moderate, approximately 73

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degrees Fahrenheit, wind speeds of 7 miles per hour, and 30 percent relative humidity during the noise measurements. Short-term measurement locations are described below and shown in Figure 3.7-1, *Short-Term Noise Monitoring Locations*, and results are summarized in Table 3.7-6, *Short-Term Noise Measurements Summary in A-weighted Sound Levels*.

Table 3.7-6 Short-Term Noise Measurements Summary in A-weighted Sound Levels

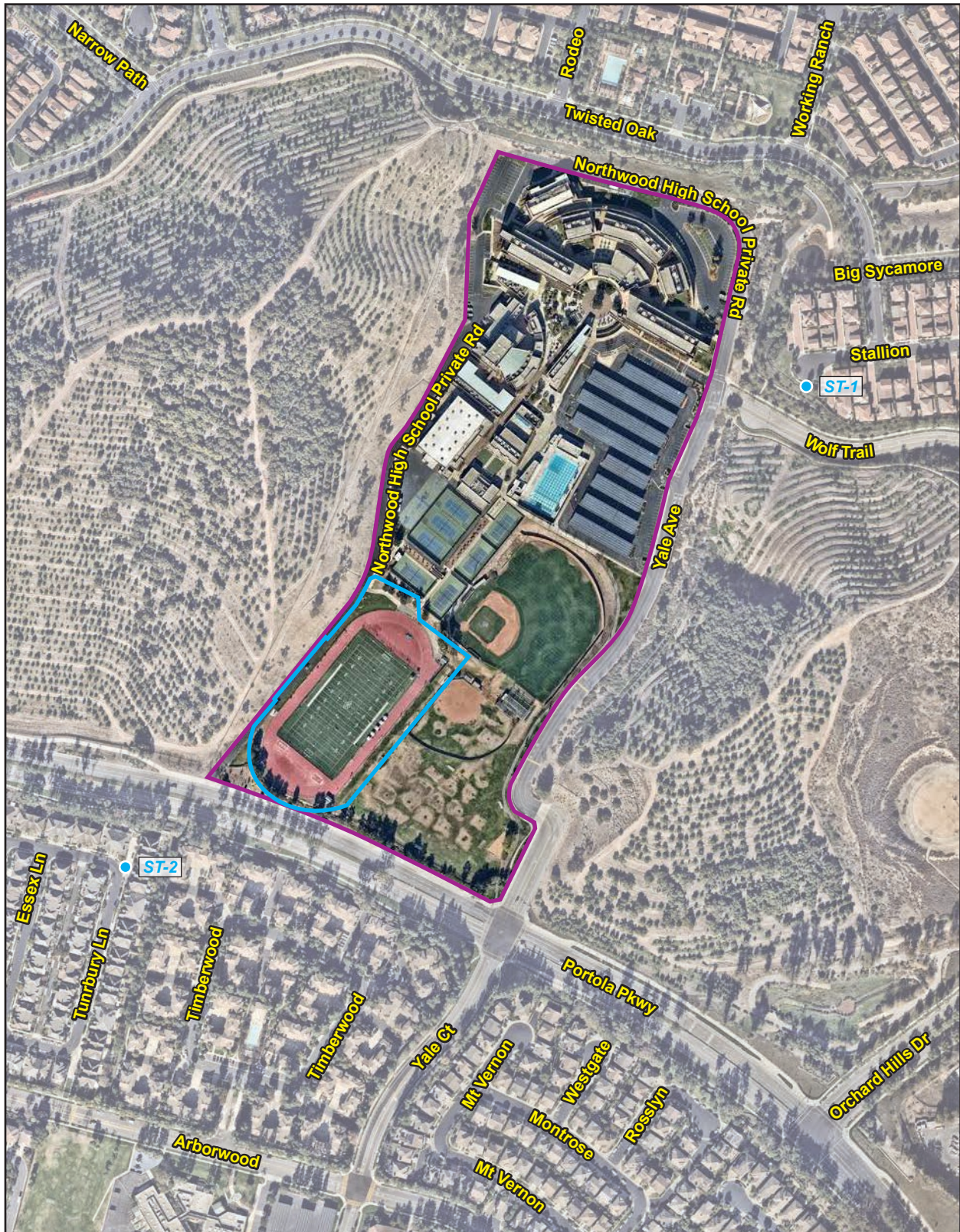
Monitoring Location	Description	15-minute Noise Level, dBA						
		L _{eq}	L _{max}	L _{min}	L ₅₀	L ₂₅	L ₈	L ₂
ST-1	At the southwest end of the cul-de-sac on Stallion, 112 feet from the northern residential use at 101 Stallion 2/20/25, 4:26 PM	48.4	64.1	41.7	46.5	48.5	52.0	54.8
ST-2	At the front of 78 Winslow Lane, approximately 125 feet from the northern sound wall. 2/20/25, 4:52 PM	47.8	56.6	36.5	46.5	49.2	51.9	53.2

Source: Appendix E

Short-Term Location 1 (ST-1) located in the cul-de-sac on Stallion, approximately 112 feet (ft) from the residence at 101 Stallion. ST-1 was located approximately 829 ft north of the campus swimming pool, 1,129 ft north of the campus baseball field, and 1,250 ft north of the existing track and field on the project site. A 15-minute noise measurement began at 4:26 p.m. The noise environment is characterized by infrequent traffic on Stallion and Wolf Trail and residents talking. A softball game and batting practice occurring at the campus were audible from this short-term location. Noise levels measured 48.4 dBA L_{eq} and 64.1 dBA L_{max} during the measurement period.

Short-Term Location 2 (ST-2) was located in a residential neighborhood south of the campus and at the corner of the residence at 78 Winslow Lane. ST-2 was located approximately 125 ft south of the existing 6-foot sound wall, 52 ft north of the residence at 71 Turnbury Lane, and 492 ft south of the existing track and field on the project site. A 15-minute noise measurement began at 4:52 p.m. The noise environment is characterized primarily by frequent traffic on Portola Parkway. Additionally, Infrequent traffic noise on Winslow Lane and Turnbury Lane, and residences talking and walking was audible from this short-term location. Noise levels measured 47.8 dBA L_{eq} and 56.6 dBA L_{max} during the measurement period.

Figure 3.7-1 - Short-Term Noise Monitoring Locations



— Northwood High School Campus

— Project Site

● ST-X

Short-Term Noise Monitoring Locations (2)

0 400
Scale (Feet)



Source: Nearmap 2025; PlaceWorks 2025.

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Long-Term

Ambient noise monitoring was conducted over a 24-hour period from February 20 to February 21, 2025. The long-term noise monitoring location was located within the landscaped portion of the Portola Parkway right-of-way (ROW), to north of the existing 6-foot sound wall, near the northern property line of the residence at 1020 Timberwood. The noise environment is characterized primarily by vehicle traffic along Portola Parkway, residential activities, sports practice events at the campus, and bird activity. The long-term noise monitoring location was located approximately 249 ft southeast of the existing track and field on the project site. Figure 3.7-2, *Long-Term Noise Monitoring Location*, shows the one long-term (24-hour) noise measurement location. One Picollo II sound-level meter (SLM) was used for long-term measurements. The SLM deployed for noise monitoring satisfies the American National Standards Institute (ANSI) standard for Type II instrumentation. The long-term sound level meter was set to “slow” response and “A” weighting (dBA). The long-term measurement was 5 feet above the ground and away from reflective surfaces. Long-term measurement results are detailed below and summarized in Table 3.7-7, *LT-1 Ambient Long-Term Noise Measurements*. Additional noise monitoring data is shown in Appendix E to this DEIR.

Table 3.7-7 LT-1 Ambient Long-Term Noise Measurements

February 20-21, 2025 – 67.3 dBA CNEL					
Time	Leq (dBA)	L _{max} (dBA)	Time	Leq (dBA)	L _{max} (dBA)
4:00 PM	64.5	78.0	4:00 AM	55.3	75.6
5:00 PM	65.4	76.2	5:00 AM	61.2	75.6
6:00 PM	65.2	77.6	6:00 AM	65.9	80.5
7:00 PM	64.7	86.0	7:00 AM	65.9	77.8
8:00 PM	62.6	76.4	8:00 AM	65.6	87.6
9:00 PM	61.2	74.7	9:00 AM	63.9	77.0
10:00 PM	59.5	74.1	10:00 AM	63.3	76.5
11:00 PM	56.6	75.3	11:00 AM	65.3	89.1
12:00 AM	55.0	73.3	12:00 PM	63.6	80.9
1:00 AM	50.9	72.7	1:00 PM	63.4	81.1
2:00 AM	48.0	73.0	2:00 PM	64.3	81.5
3:00 AM	52.2	78.0	3:00 PM	64.6	79.4

Source: Appendix E

The average daily noise level was calculated to be 67.3 Community Noise Equivalent Level (CNEL) dBA during the measurement period. Daytime (7:00 a.m. to 7:00 p.m.) average noise levels measured 64.7 dBA Leq and 80.2 dBA Lmax; evening (7:00 p.m. to 9:00 p.m.) average

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noise levels measured 63.1 dBA Leq and 79.0 dBA Lmax; and nighttime (9:00 p.m. to 7:00 a.m.) average noise levels measured 59.2 dBA Leq and 75.1 dBA Lmax during the continuous 24-hour continuous measurement period. Hourly noise monitoring data and average daily noise levels are shown in Appendix E.

3.7.3 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that the proposed project would result in a significant impact related to noise if it would:

- a) Generate 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.
- b) Generate excessive groundborne vibration or groundborne noise levels.
- c) For a project 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.

THRESHOLD GUIDANCE

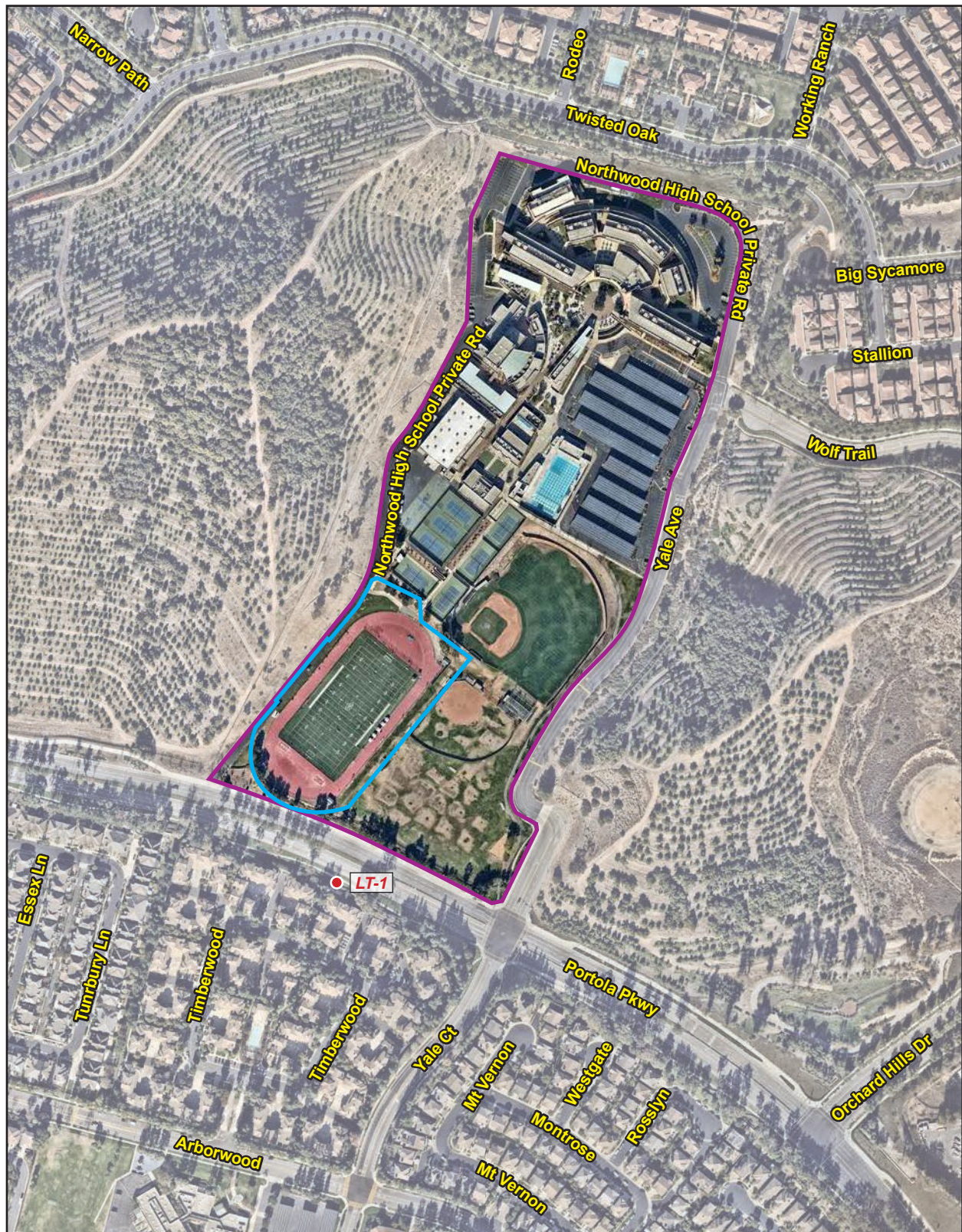
Noise Compatibility

The noise standards in the City of Irvine Noise Element are used to evaluate the acceptability of the noise levels for noise compatibility purposes. In addition, if the project is within the airport influence area of John Wayne Airport, 24-hour and single-event noise from aircraft should also be evaluated in accordance with the interior noise requirements of Title 21 of the California Code of Regulations and the City's 55 dBA $L_{max}(10)$ single-event supplemental noise criteria.

Stationary Source Noise

The City's Noise Ordinance establishes the maximum permissible noise level that may intrude into an adjoining property or dwelling unit. Volume II, Technical Guidelines, of the City of Irvine CEQA Manual provides a general approach to determine project-related noise impacts significance and provides screening criteria that is based on the noise standards adopted by the City. A significant impact would occur if the proposed project would exceed the City's exterior stationary noise standards summarized in Table 3.7-5.

Figure 3.7-2 - Long-Term Noise Monitoring Location



— Northwood High School Campus

— Project Site

● LT-X

Long-Term Noise Monitoring Location (1)

0 400
Scale (Feet)



Source: Nearmap 2025; PlaceWorks 2025.

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Construction Noise

The City's Noise Ordinance regulates the timing of construction activities and are limited to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturday from 9:00 a.m. to 6:00 p.m. In addition to the City's Noise Ordinance, the FTA identifies a noise level threshold of 80 dBA L_{eq} at residential receivers.

Vibration

The FTA vibration criteria are used to evaluate vibration annoyance and structural damage. The potential for construction-related vibration annoyance impacts to be objectionable depends on the magnitude of vibration generated by the construction equipment, the frequency of occurrence of the vibration during the construction day, and total duration of construction activities.

Transportation Noise

A project will normally have a significant effect on the environment related to noise if transportation noise would substantially increase the ambient noise levels for adjoining noise sensitive areas. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 dBA to 3 dBA are detectable under quiet, controlled conditions. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible to most people in an exterior environment. Based on this, the following thresholds of significance similar to those recommended by the Federal Aviation Administration (FAA) are used to assess traffic noise impacts at sensitive receptor locations. A significant impact would occur if project traffic noise increases would exceed:

- 1.5 dBA in ambient noise environments of 65 dBA CNEL and higher
- 3 dBA in ambient noise environments of 60 to 64 dBA CNEL
- 5 dBA in ambient noise environments of less than 60 dBA CNEL

A significant cumulative traffic noise impact occurs when the thresholds above are exceeded under cumulative conditions (with project) and the contribution of the project to future traffic is calculated to be greater than 1.5 dBA to 5 dBA CNEL, based on ambient noise levels.

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3.7.4 Project Impact Analysis

-
- a) **The proposed project would not generate 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.**
-

CONSTRUCTION NOISE

The transport of workers and materials to and from the construction site has the potential to increase noise levels along local access roadways to the project site. Individual construction vehicle passes-by and haul trucks may create momentary and short-lived noise levels. However, daily construction trips would be minimal and temporary.

The project includes the installation of four new athletic field lights with infrastructure for the future addition of one PA speaker, attached to each light pole adjacent to the existing track and field. Noise generated during construction is based on the type of equipment used, the location of the equipment relative to sensitive receptors, and the timing and duration of the noise-generating activities. Noise levels from construction activities are dominated by the loudest piece of construction equipment. The dominant noise source is typically the engine, although work piece noise (such as dropping of materials) can also be noticeable. For the proposed project, construction noise is dominated by the loudest piece of equipment needed for light pole installation. No nighttime work or the use of pile-driving equipment is proposed.

The noise produced at each construction phase is determined by combining the L_{eq} contributions from the three loudest pieces of equipment used at a given time, while accounting for the ongoing 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 of up 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 receptor. Since noise from construction equipment is intermittent and diminishes at a rate of at least 6 dBA per doubling of distance (conservatively disregarding other attenuation effects from air absorption, ground effects, and shielding effects provided by intervening structures or existing solid walls), the average noise levels at noise-sensitive receptors could vary considerably, because mobile construction equipment would move around the site (site of each development phase) with different equipment mixes, loads, and power requirements.

The expected construction equipment mix was estimated and categorized by construction activity using the Federal Highway Administration Roadway Construction Model (RCNM). Assuming the nearest sensitive receptor to the closest boundary for project construction activities, construction-related noise levels would be up to 67 dBA L_{eq} at residences to the south. Construction noise levels at receptors further away are estimated to be even less. The results are summarized in Table 3.7-8, *Project-Related Construction Noise Levels, dBA at the Nearest Receptors*.

Table 3.7-8 Project-Related Construction Noise Level, dBA at the Nearest Receptors

Construction Activity Phase	Noise Levels in dBA L_{eq}			
	RCNM Reference Noise Level	Residential Northeast	Residential Southwest	Residential South
<i>Distance (feet)</i>	50	800	520	350
Site Preparation	84	60	64	67
Utility Trenching	84	60	64	67
<i>Distance (feet)</i>	50	1,420	520	360
Field Lighting Installation	80	51	60	63
Exceeds FTA 80 L_{eq} Standard?		No	No	No

Source: FHWA's RCNM software. Distance measurements were taken using Google Earth (2025) from the area of anticipated construction to the property line of the nearest receptors.

dBA L_{eq} = Energy Average Sound Levels

Offsite Receptors

The anticipated construction equipment (auger drill rig, backhoe, grader, tractor, and a crane) were modeled using the FHWA RCNM. The types of pieces of equipment to be deployed during each construction phase were determined as part of the air quality and GHG emissions analyses for this proposed project. The nearest sensitive receptor property line to project construction activities (site preparation and utility trenching) are single-family homes approximately 350 feet to the south. These residences would be exposed to periodic noise levels of up to 67 dBA L_{eq} during site preparation and utility trenching and 63 dBA L_{eq} during field lighting installation. The proposed project's construction activities would occur within the permitted time frame identified in the City's Municipal Code Section 6-8-205 (7:00 a.m. – 7:00 p.m., Monday through Friday and 9:00 a.m. – 6:00 p.m. on Saturdays). The permitted time frame for construction activities acknowledges that construction activities during daytime hours are a typical part of urban living and generally do not cause significant disruption. Additionally, Goal N-2, Objective N-2, Policy(a) requires any new construction to meet the City Noise Ordinance standards.

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Because the proposed project's construction activities would not exceed the FTA noise standards ($80 L_{eq}$), would comply with the City's municipal code, and would comply with the applicable noise-related General Plan policies, the proposed project's construction-related noise impacts would be **less than significant**.

On-Campus Receptors

The nearest proposed construction area to an on-campus receptor, such as classroom building, is immediately east. Though construction noise would temporarily elevate interior noise levels at the nearest classrooms, elevated noise levels would be limited due to the temporary nature of construction activities. Moreover, to avoid classroom disruption, some work would be conducted during instructional breaks when students are off campus. Therefore on-campus construction noise impacts would be **less than significant**.

ATHLETIC FIELD NOISE

The athletic field lights are anticipated to be utilized throughout the year for school events and non-school events from dusk to 9:00 p.m. similar to other high schools within the District. As required by the Civic Center Act, the facilities would be available to outside user groups to utilize the athletic facilities from dusk to 10:00 p.m., which aligns with the City's hours of operation (Municipal Code Section 3-4-127). The hours of operation can be extended via a variance from the City of Irvine and approval by the District Use of Facilities Department. The proposed schedule offers flexibility and may be subject to change. The District would have authority over the use of lights for practices and events based on specific needs; thus, the event schedule may be adjusted for different school and community events. The proposed project is anticipated to include infrastructure to allow the implementation of a future PA system. The speakers would be oriented towards the audience in the spectator areas. The speakers may be used during sporting events, other school events, and non-school events.

The future PA system's primary onsite operational noise sources associated with sports events and other school events would include a PA system with speakers mounted on light poles modeled at a height of 20 feet, spectator cheering from western home side and eastern visitor side bleachers, on-field players and referee whistle blasts for football games. A Track and Field event would have a maximum capacity event of up to 400 spectators. A football event would have a maximum capacity of up to 250 spectators. The nearest residential uses are located to the south of the track and field across Portola Parkway and are shielded by an existing 6-foot sound wall. Sports events and other school events are temporary periodic (not daily) events that occur throughout the school year Monday through Saturday during regular campus operating hours (2:30 pm to 9:00 pm, see Table 2-2). Spectator capacity would range from 130 participants to up to 400 participants. Existing sports events and other school events at the track and field range from 130 to 400 participants. Band activities would remain the same.

Four new field lights (light fixtures and poles) with infrastructure to allow for a future PA system would be installed at the existing track and field on campus as part of the proposed project. The proposed project's operational scenarios were modeled using SoundPLAN computer software. SoundPLAN uses industry-accepted propagation algorithms based on International Organization for Standardization (ISO) and ÖAL-28 standards for outdoor sound propagation. The modeling calculations account for classical sound wave divergence (spherical spreading loss with adjustments for source directivity from point sources) plus attenuation factors due to air absorption and ground effects. Additionally, SoundPLAN provides for other correction factors, including level increases due to reflections, source directivity, and source tonality.

The most conservative scenarios modeled included existing and future conditions for both football games and track and field events, as these events would have the most spectator attendees and PA system activity. See Appendix E for modeling results. SoundPLAN noise modeling estimated noise levels at the receptor locations, representing the nearest residential receptors to the project site. Based on other typical event observations the following additional modeling inputs were assumed to be reasonable:

- Rowdy crowd cheering (Bleachers) was assumed for a cumulative 10 minutes per hour and each cheer interval to be approximately 10 seconds long.
- Four proposed future speakers, with individual announcement durations of 20 seconds, for a cumulative of 12 minutes per hour.
- On-field player activity was assumed to occur for a cumulative of 25 minutes per hour.
- On-field referee whistle activity was assumed to occur for a cumulative of 25 minutes per hour.

Table 3.7-9, *SoundPLAN Modeled Noise Levels*, dBA L_{eq} , shows ambient noise measurements and modeled operational noise levels associated with the proposed project at noise receptor locations R-1 through R-3. The residential receptors to the south of the project site are shielded by an existing 6-foot continuous sound wall. Residential receptors are shown in Table 3.7-9 as Receptor R-1, representative of ST-1 at 101 Stallion, R-2, representative of ST-2 at 78 Winslow Lane, and R-3, representative of LT-1 on the Portola Parkway side of the existing sound wall adjacent to 1020 Timberwood. Modeled SoundPLAN scenario inputs, results and operational noise contours associated with project track and field and practice field noise on the project site and in the greater community for all scenarios are shown in Appendix E.

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Table 3.7-9 SoundPLAN Modeled Noise Levels, dBA Leq

Receptors	Ambient Measurement dBA L _{eq}	Modeling Scenario, dBA L _{eq}			Increase Over Ambient, dBA	
		Existing Football	Future Football	Future Track and Field	Future Football	Future Track and Field
R-1 - 101 Stallion	48.4	35.0	35.0	30.4	>1	>1
R-2 - 78 Winslow Lane	47.8	26.7	26.7	23.2	>1	>1
R-3 - 1020 Timberwood	64.7	40.5	40.5	37.8	>1	>1

Source: SoundPLAN. See Appendix E.

As shown in Table 3.7-9, future sports events noise levels range from 23.2 dBA to 40.5 dBA L_{eq} at the nearest noise sensitive receptors to the track and field. Proposed project noise levels attributable to sports events would be similar to existing noise levels, however, would occur during the evening hours and not extending past 9:00 pm. Table 3.7-9 also shows that future sports events at the track and field would result in noise levels more than 10 dBA below ambient noise conditions at the nearest noise sensitive receptors. In addition, future sports events at the track and field would also result in a negligible less than 1 dBA increase over ambient noise levels. Furthermore, Section 6-8-205 of the Municipal Code exempts school bands, school athletic and school entertainment events, provided said events are conducted on school property or authorized by special City permit from the noise level standards within Section 6-8-204 of the City of Irvine Noise Ordinance. Therefore, this impact would be **less than significant**.

TRAFFIC NOISE

A project will normally have a significant effect on the environment related to traffic noise if it substantially increases the ambient noise levels for adjoining areas. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible to most people in an outdoor environment. Noise levels above 65 dBA CNEL are normally unacceptable at sensitive receptor locations such as residences, schools, and noise environments in these areas would be considered degraded. Based on this, a significant impact would occur if traffic noise increases by 3 dBA over existing conditions.

Roadway segment average daily traffic (ADT) volumes were provided by Garland (see Appendix F). To determine the project-related traffic noise increase, the Existing and Future 2027 year with Project ADT volumes were compared to the Existing and Future 2027 no Project ADT volumes, as shown in Table 3.7-10, *Summary of Traffic Noise Increases*. The increase in vehicle

trips from the project would result in a minimal increase in ADT volumes on most study roadway segments, thus resulting in a minimal increase in traffic noise levels. As shown in Table 3.7-10, project traffic increases would not exceed the 1.5 dBA or 3 dBA in ambient noise environments of greater than 70 dBA CNEL and less than 60 dBA CNEL thresholds, respectively. Therefore, the proposed project would not result in significant traffic noise increases, and this impact would be **less than significant**.

Table 3.7-10 Summary of Traffic Noise Increases

Roadway	Segment		Average Daily Traffic Noise Levels, dBA CNEL				Noise Increase, dBA CNEL	
	From	To	Existing no Project	Existing with Project	Year 2027 no Project	Year 2027 with Project	Project Noise Increase	Cumulative Noise Increase
Yale Avenue	the North	Portola Parkway	60	60	60	60	<1	<1
Yale Avenue	Portola Parkway	the South	60	60	60	60	<1	<1
Wolf Trail	Yale Avenue	Orchard Hills Drive	61	61	62	62	<1	<1
Portola Parkway	the West	Culver Drive	73	73	73	73	<1	<1
Portola Parkway	Culver Drive	Yale Avenue	73	73	73	73	<1	<1
Portola Parkway	Yale Avenue	Orchard Hills Drive	73	73	73	73	<1	<1
Portola Parkway	Orchard Hills Drive	the East	73	73	73	73	<1	<1
Orchard Hills Drive	the North	Wolf Trail	66	66	66	66	<1	<1
Orchard Hills Drive	Wolf Trail	Portola Parkway	66	66	66	66	<1	<1
Orchard Hills Drive	Wolf Trail	Portola Parkway	69	69	69	69	<1	<1
Orchard Hills Drive	Wolf Trail	Portola Parkway	74	74	74	74	<1	<1

Source: See Appendix E. Based on traffic volumes provided by Garland. (see Appendix F).

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As previously discussed, the proposed lighting project would not result in an increase in students, but the extended hours have the potential to result in additional trips from community groups after school hours. However, these trips would be minimal and would not substantially increase the overall daily traffic. Therefore, the proposed project would not result in a substantial CNEL noise increase. Traffic noise impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

b) The proposed project would not generate excessive groundborne vibration or groundborne noise levels.

Construction

Construction activities have the potential to generate varying degrees of ground vibration, depending on the construction procedures and equipment. The use of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type ground strata, and receptor-building construction. The effects from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures.

For reference, a vibration level of 0.2 in/sec PPV is used as the limit for nonengineered timber and masonry buildings, which would conservatively apply to the surrounding structures (FTA 2018). Typical construction equipment can generate vibration levels ranging from 0.21 inches per second (in/sec) peak particle velocity (PPV) at 25 feet.

Table 3.7-11, *Project-Related Construction Vibration Damage Levels*, summarizes vibration levels for typical construction equipment at a reference distance of 25 feet and the nearest sensitive receptor. The nearest off-site receptor are residences to the south approximately 350 feet south of the nearest construction impact area (site preparation and utility trenching).

Table 3.7-11 Project-Related Construction Vibration Damage Levels

Equipment	Levels, PPV (in/sec)			
	FTA Reference at 25 Feet	Residential Northeast at 800 Feet	Residential Southwest at 520 Feet	Residential South at 350 Feet
Hoe Ram	0.089	0.000	0.001	0.002
Large Bulldozer	0.089	0.000	0.001	0.002
Caisson Drilling	0.089	0.000	0.001	0.002
Loaded Trucks	0.076	0.000	0.001	0.001
Jackhammer	0.035	0.000	0.000	0.001
Small Bulldozer	0.003	0.000	0.000	0.000
Exceed 0.2 in/sec PPV Standard?		No	No	No

Source: FTA 2018

As shown in Table 3.7-11, the proposed construction activities would not exceed the 0.2 in/sec PPV FTA standard. Moreover, the proposed project would comply with General Plan Policy 4c, which requires all plans submitted for development review use the vibration standards published by the FTA. Therefore, vibration damage impacts would be **less than significant**.

Unlike architectural damage, which is measured in PPV, vibration annoyance is measured in terms of vibration decibels (VdB), which correspond best with the human response to vibration. Table 3.7-12, *Vibration Annoyance Levels for Typical Construction Equipment*, summarizes vibration annoyance levels for typical construction equipment. As shown in Table 3.7-11, vibration levels would not exceed the FTA's vibration annoyance threshold of 75VdB. Therefore, vibration annoyance levels would be **less than significant**.

Table 3.7-12 Vibration Annoyance Levels for Typical Construction Equipment

Equipment	VdB			
	FTA Reference at 25 Feet	Residential Northeast at 800 Feet	Residential Southwest at 520 Feet	Residential South at 350 Feet
Hoe Ram	87.0	41.8	47.5	52.6
Large Bulldozer	87.0	41.8	47.5	52.6
Caisson Drilling	87.0	41.8	47.5	52.6
Loaded Trucks	86.0	40.8	46.5	51.6
Jackhammer	79.0	33.8	39.5	44.6
Small Bulldozer	58.0	12.8	18.5	23.6
Exceed 75 VdB Standard?		No	No	No

Source: FTA 2018

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Operation

Proposed project operation would not include any substantial long-term vibration sources. Therefore, no significant vibration effects would occur; thus, impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

-
- c) **The proposed project is not 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 nearest airport to the Northwood HS campus, including the project site, is John Wayne Airport, approximately seven miles southwest (Google Earth 2025). Therefore, due to distance, the proposed project would not expose people residing or working in the project area to excessive noise levels related to air travel. **No impacts** would occur.

Significance without Mitigation: No impact.

3.7.5 Cumulative Impact Analysis

Noise and vibration are localized occurrences; they decrease rapidly in magnitude as the distance from the source to the receptor increases. Therefore, only those related project that are in the direct vicinity of the project site would have the potential to be considered in a cumulative context with the proposed project's contribution.

No major stationary sources of noise, construction noise, or groundborne vibration sources were identified in the vicinity of the project site.

As defined in Section 15130 of the State CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for noise. Northwood HS campus, including the project site, is in an area that is developed with a suburban setting that includes residential and open space uses.

The proposed project would not have a cumulative effect related to noise.

Construction

Cumulative impacts would only occur if other projects are being constructed in the vicinity of the project site at the same time as the proposed project. The project site is located within the

developed Northwood HS campus and the area surrounding the campus is developed and consists of recreational/open space uses. There are no active or pipeline projects within the vicinity of the project site that would combine with the proposed project's construction noise to create cumulatively considerable impacts. As with the proposed project, other project would be required to comply with the City's Noise Ordinance and applicable General Plan policies related to noise. Therefore, cumulative construction noise and vibration would be **less than significant**.

Operation

Operation of the proposed project would not exceed the City's noise standards. There are no other nearby sources of stationary noise in the project area that would significantly contribute to the ambient noise environment during games and events near the project site.

A significant cumulative traffic noise increase would be identified if project traffic were calculated to contribute 1 dBA or more under Cumulative Plus Project conditions to a significant traffic noise increase over existing conditions. That is, if a cumulative traffic noise increase greater than 1.5 dBA, 3 dBA, or 5 dBA relative to the existing environment significance threshold (less than 60 CNEL dBA, 60 to 65 CNEL dBA, greater than 65 CNEL dBA, respectively) is calculated, and the relative contribution from project traffic is calculated to contribute 1 dBA or more to this cumulative impact, it would be considered cumulatively considerable. As shown in Table 3.7-10, the cumulative increase would be less than the most stringent significance threshold of 1.5 dBA for ambient noise environments of 65 dBA CNEL, 3 dBA for ambient noise environments of 60 to 64 CNEL, and 5 dBA for ambient noise environments of less than 60 dBA CNEL. Therefore, cumulative traffic noise impacts would be **less than significant**.

Airport

Noise and vibration are localized occurrences; they decrease rapidly in magnitude as the distance from the source to the receptor increases. The project site is located 7 miles northeast of the John Wayne Airport, a distance that places it well outside the airport's 65 dB CNEL contour, which is the threshold recognized by the Federal Aviation Administration, Caltrans Division of Aeronautics, and local jurisdictions for potentially incompatible noise exposure for residential and other sensitive land uses. The proposed project would not include uses that would generate new or increased aircraft activity, nor would it involve alterations to existing flight paths, aviation-related land uses, or noise-sensitive facilities that would draw significant people into areas subject to high aircraft noise exposure. Therefore, the proposed project would not contribute to a cumulatively considerable impact related to exposing people working or residing in the area to excessive noise levels; impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

NOISE

3.7.6 References

City of Irvine. 2024. Irvine Municipal Code.

https://library.municode.com/ca/irvine/codes/code_of_ordinances

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Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

Federal Highway Administration (FHWA). 1978, December. Federal Highway Traffic Noise Prediction Model. U.S. Department of Transportation (DoT) Report No. FHWA-RD77-108.

_____. 2006, January. FHWA Roadway Construction Noise Model (RCNM) User’s Guide. https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf.

Google Earth. 2025. City of Irvine.

3.8 TRANSPORTATION

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Northwood High School Field Lighting Improvement Project's (proposed project) to result in transportation and traffic impacts. The analysis in this section is based in part on the following technical report:

- *Traffic/Transportation Impact Analysis for the Proposed Northwood High School Field Improvements Project*, Garland Associates, June 2025

A complete copy of this technical report is provided in Appendix F of this DEIR.

During the Notice of Preparation (NOP) public review period, no comments were received regarding transportation. A California Environmental Quality Act (CEQA) scoping meeting was conducted on June 3, 2025, where no concerns regarding these issues were raised. The NOP and all scoping comment letters are included as Appendix A of this DEIR.

3.8.1 Regulatory Framework

Federal, State, and local laws, regulations, plans, or guidelines related to hazardous materials that are applicable to the proposed project are summarized below.

STATE

Senate Bill 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law. The legislature found that with the adoption of 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 (GHG) emissions, as required by Assembly Bill (AB) 32. Additionally, AB 1358, described subsequently, requires local governments to plan for a balanced, multimodal transportation network that meets the needs of all users.

SB 743 started a process that fundamentally changes transportation impact analysis as part of CEQA compliance. These changes 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 in many parts of California (if not statewide). 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" (California Public Resources Code (PRC) Section 21099[b][1]). On January 20, 2016, the Governor's Office of Planning and Research released proposed revisions to its CEQA Guidelines for the

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implementation of SB 743 and 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 LOS or similar measures of roadway capacity or traffic congestion, shall not be considered a significant impact on the environment. As of July 1, 2020, lead agencies were required to consider VMT as the metric for determining transportation impacts. The guidance provided relative to VMT significance criteria is focused primarily on land use projects, such as residential, office, and retail uses. However, as noted in the updated CEQA Guidelines, agencies are directed to choose metrics that are appropriate for their jurisdiction to evaluate the potential impacts of a project in terms of VMT. The Irvine Unified School District (IUSD or District) has not yet adopted a VMT threshold for use in determining significant transportation impacts under CEQA and relies on the City of Irvine's adopted VMT screening criteria and significance thresholds.

REGIONAL

Southern California Association of Governments

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 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.

2024 Regional Transportation Plan/Sustainable Community Strategy (Connect SoCal)

SB 375 requires each metropolitan planning organization to prepare a sustainable communities strategy (SCS) in its regional transportation plan (RTP). For the SCAG region, the 2024-2050 RTP/SCS, Connect SoCal, was adopted on April 4, 2024, and is an update to the 2020-2045 RTP/SCS. In general, the RTP/SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce VMT from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land use strategies in development of the SCAG region through the horizon year 2050 (SCAG 2024). Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. It also forecasts that implementation of the plan will reduce VMT per capita in year 2050 by 6.3 percent compared to

baseline conditions for that year. Connect SoCal includes a “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 2024).

SCAG Active Transportation Technical Report

The SCAG Active Transportation Technical Report is a part of Connect SoCal; it outlines some of the most prominent reasons for investing in active transportation and provides a discussion of current conditions and future developments related to active transportation. The Active Transportation Technical Report also serves as guidance for local and county agencies to outline the existing conditions and needs of the region related to active transportation. The Report discusses several projects and programs that are needed to achieve the goals of Connect SoCal. These include the following related to Safe Routes to Schools (discussed further under “Local,” below):

- **Strategy 1.** Complete school-area improvements to pedestrian and bicycle networks, drop-off areas and schools sites to improve safety and reduce conflicts with vehicles.
- **Strategy 2.** Install school site improvements for storage of bicycles, skateboards and other micro-mobility devices.
- **Strategy 3.** Implement vehicle speed reductions in school zones (e.g., 15 miles per hour) per the California Vehicle Code.

LOCAL

City of Irvine General Plan

The 2045 Irvine General Plan provides the basis for the City’s policies and represents the community’s basic values, ideals, and aspirations (City of Irvine 2025). The General Plan establishes policies to guide development and conservation through 2045. Key policies of the General Plan relevant to this chapter’s analysis of the proposed project’s potential transportation impacts are included below. The set of policies listed is not an exhaustive list of all of the General Plan policies applicable to the proposed project; rather, it is a selection of policies relevant to the impact discussion in this chapter.

Circulation Element

Goal 1: To facilitate the planning, provision, and maintenance of a well-integrated roadway network that actively meets the anticipated demands of both local communities and the broader regional transportation system.

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- **Policy (c).** Evaluate transportation impacts in terms of vehicle miles traveled (VMT) to ensure compliance with Senate Bill 743 and to minimize trip lengths to, from, and within the City.

Goal 2: To design a circulation system that adheres to the highest standards of transportation engineering safety while considering the surrounding land uses and their sensitivities.

- **Policy (h).** Proposed developments shall include measures to minimize negative impacts of additional vehicular traffic and aim to reduce vehicle miles traveled (VMT).
- **Policy (m).** Encourage safe and accessible routes to school for children and families walking, bicycling, and taking public transportation to schools in the community. Improvements may include but are not limited to, high visibility crosswalks, island refuges, pavement markings, rapid flashing beacons, pedestrian signals, traffic delineators, enhanced bikeways, defined bus stops, and roundabouts.

Goal 3: To establish a pedestrian circulation system that supports and promotes walking as a viable mode of transportation within the community.

- **Policy (a).** Link residences with schools, job centers, shopping centers, parks, and other public facilities/destination centers, both within a planning area and to adjacent planning areas, through an internal system consisting of pedestrian facilities (e.g., sidewalks and/or shared-use paths).
- **Policy (b).** Encourage proposed developments to provide safe, convenient, and direct pedestrian access to surrounding land uses, on-street parking, and transit stops, as applicable, emphasizing active transportation and supporting the Complete Streets Act.
- **Policy (c).** Design and locate land uses that facilitate access by non-automotive means (e.g., walking and/or bicycling).
- **Policy (d).** Continue to implement the existing sidewalk improvement program and enhance standards for improved active transportation and connectivity to create an interconnected system of pedestrian-friendly boulevards, avenues, and streets.

Goal 4: To develop and maintain a comprehensive bicycle network that encourages increased bicycle usage for both commuting and recreational purposes.

- **Policy (c).** Enhance the existing bicycle network to improve connectivity between residential areas, employment areas, schools, parks, community facilities, commercial centers, and transit facilities.

- **Policy (i).** Incorporate, where appropriate, school and park locations within the design of the bicycle network system.

Goal 5: Foster a culture of active transportation by prioritizing walking, cycling, and other non-motorized modes of travel to improve public health, reduce greenhouse gas emissions, and enhance the quality of life for residents and visitors in Irvine.

- **Policy (c).** Implement Safe Routes to Schools programs and infrastructure improvements to promote walking and cycling to schools, enhance pedestrian safety, and reduce traffic congestion around school zones through measures such as sidewalk enhancements, crosswalk upgrades, and traffic calming measures.

CITY OF IRVINE MUNICIPAL CODE

Chapter 6, Section 6.3.603, *Trip Reduction Facilities*, states that new commercial, industrial, and mixed-use development may adversely impact existing transportation and parking facilities, resulting in increased motor vehicle emissions, deteriorating levels of service, and possibly significant additional capital expenditures to augment and improve the existing transportation system. In order to more efficiently utilize the existing and planned transportation system and to reduce vehicle emissions, it is the policy of the City to:

- Reduce the number of peak-period vehicle trips generated in association with additional development;
- Promote and encourage the use of alternative transportation modes such as ridesharing, carpools, vanpools, public bus and rail transit, bicycles and walking, as well as those facilities that support such modes;
- Achieve related reductions in vehicle trips, traffic congestion, and public expenditure and achieve air quality improvements through utilization of existing local mechanisms and procedures for project review and permit processing;
- Promote coordinated implementation of strategies on a County-wide basis to reduce transportation demand;
- Achieve the most efficient use of local resources through coordinated and consistent regional and/or local TDM programs.

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3.8.2 Existing Conditions

EXISTING ROADWAY NETWORK

The street network in the vicinity of the school, the existing traffic volumes, and the levels of service at the affected study area intersections are described below.

Street Network

The streets that provide access to the proposed project area include Portola Parkway, Yale Avenue, Orchard Hills Drive, and Wolf Trail. The following paragraphs provide a brief description of the characteristics of these streets.

Portola Parkway

Portola Parkway is a six-lane, east-west street that abuts the south side of the school campus. Bike lanes and sidewalks are provided on both sides of Portola Parkway and parking is prohibited on both sides of the street. The speed limit on Portola Parkway is 55 miles per hour (mph), but with a reduced school speed limit of 25 mph when children are present.

Yale Avenue

Yale Avenue north of Portola Parkway is a three-lane street (two northbound lanes and one southbound lane) that abuts the east side of the school campus. It has a bike lane along the first 230 feet north of Portola Parkway and no bike lanes along the remainder of the street adjacent to the school. It has a sidewalk on the west side of the street along the school frontage and no sidewalk on the east side of the street. Parking is prohibited on Yale Avenue north of Portola Parkway and the speed limit is 15 mph.

Yale Avenue south of Portola Parkway is a two-lane street with bike lanes and sidewalks on both sides of the street. Parking is prohibited and the speed limit is 25 mph.

Orchard Hills Drive

Orchard Hills Drive is a two to four lane north-south street located approximately one-quarter mile east side of the school campus. It has four lanes south of Wolf Trail and two lanes north of Wolf Trail. There are sidewalks and bike lanes on both sides of the street and parking is prohibited. The speed limit on Orchard Hills Drive is 45 mph.

Wolf Trail

Wolf Trail is a two-lane street that extends from Yale Avenue adjacent to the school site to Orchard Hills Drive. It has bike lanes on both sides of the street and a sidewalk on the north side

of the street. Parking is prohibited on both sides of the street and the speed limit is 25 mph. The continuation of Wolf Trail east of Orchard Hills Drive is called New Point.

EXISTING TRAFFIC VOLUMES

Manual traffic counts were taken at the three study area intersections during the Friday evening peak period on April 18, 2025. The peak hour for this analysis (6:00 p.m. to 7:00 p.m.) refers to the one-hour time period prior to the beginning of a varsity football game at the field, which would typically occur from 7:00 p.m. to 9:00 p.m. on a Friday and would generate the highest number of attendees as compared to all other activities at the facility. The existing peak hour traffic volumes and turning movements are shown in Appendix F.

To quantify the existing baseline traffic conditions, the three study area intersections were analyzed to determine the Intersection Capacity Utilization (ICU) and corresponding levels of service have been determined for each intersection, as summarized in Table 3.8-1, *Existing and Future Intersection Levels of Service*. ICU values are used to measure how efficiently an intersection is being used as compared to its maximum capacity.

Table 3.8-1 Existing and Future Intersection Levels of Service

Intersection	ICU Value & Level of Service Friday Evening Peak Hour	
	Existing Conditions	2027 Without Project
SIGNALIZED INTERSECTIONS		
Portola Parkway/Yale Avenue	0.393 – A	0.407 – A
Portola Parkway/Orchard Hills Drive	0.408 – A	0.424 – A
Orchard Hills Drive/Wolf Trail	0.316 – A	0.326 – A

LOS is an industry standard by which the operating conditions of a roadway segment or an intersection are measured. LOS is defined on a scale of A through F with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS A is characterized as having free-flowing traffic conditions with no restrictions on maneuvering or operation speeds, where traffic volumes are low and travel speeds are high. The LOS at the study area intersections were determined by using the ICU methodology, which is consistent with the City of Irvine guidelines. Based on the ICU values, the intersections are currently operating at an acceptable LOS.

EXISTING TRANSIT FACILITIES

Pedestrian access to the project site is provided by Portola Parkway, Yale Avenue, and Wolf Trail. Portola Parkway and Wolf Trail have sidewalks on both sides and Yale Avenue has a sidewalk on one side. The three signalized intersections identified in Table 3.8-1 are equipped with painted

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crosswalks and pedestrian crossing signals. Painted crosswalks are also located at the intersection of Yale Avenue and Wolf Trail adjacent to the school campus. All the study area streets have bike lanes on both sides of the street except for Yale Avenue north of Portola Parkway and bike racks are provided at the school.

With regard to public transit, the nearest bus route operated by Orange County Transportation Authority (OCTA) is Route 167, which runs along Irvine Boulevard approximately one mile south of the school campus. The nearest bus stop is located at the intersection of Irvine Boulevard and Yale Avenue approximately 1.3 miles from the project site. In addition, Irvine Connect operates a shuttle service that runs along Yale Avenue and Irvine Boulevard with a bus stop at the intersection of these two streets located approximately 1.3 miles from the project site.

Busing would also be provided from the opposing schools during athletics events.

3.8.3 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that the proposed project would result in a significant impact related to transportation if it would:

- a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
- b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).
- c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- d) Result in inadequate emergency access.

Methodology

PROJECT GENERATED TRAFFIC

LOS analysis has been included for information only, to assess potential conflicts with local policies. Vehicle miles traveled (VMT) is the CEQA metric for determining the significance of transportation impacts. The volumes of traffic that would be generated by the proposed project were determined to estimate the impacts of the project on the study area streets and intersections. VMT was evaluated using the City of Irvine's Traffic Study Guidelines, which provide screening criteria for determining when projects are presumed to have a less-than-

significant VMT impact. The trip-generation rates and the anticipated volumes of traffic that would be generated by the athletics field on an average day and a peak day of activity are shown in Table 3.8-2, *Project-Generated Traffic*.

Table 3.8-2 Project-Generated Traffic

Facility	Pre-Event Peak Hour			Daily Traffic
	Inbound	Outbound	Total	
Trip Generation Rates				
Athletic (vehicle trips per attendee)	0.55	0.05	0.60	1.20
Generated Traffic Volumes				
Average Day (85 additional attendees)	47	4	51	102
Football Game (250 attendees, 50 additional daily attendees)	138	12	150	60

Source: Garland Associated 2025 (Appendix F).

NOTE: The varsity football games currently take place at the field, but during daylight hours. The peak hour traffic volumes represent the shift to the evening starting times. The daily traffic volume represents an increase of 50 additional attendees per day.

Table 3.8-2 indicates that the facility would generate an estimated 51 vehicle trips during the peak hour (47 inbound and 4 outbound) and 102 daily trips on an average day with 85 additional attendees. The peak hour for this analysis represents the one-hour time period at the beginning of an event when patrons are traveling to the athletics field. Approximately the same level of traffic would be generated at the end of an event when patrons are exiting (with the inbound and outbound traffic volumes reversed).

INTERSECTION IMPACT ANALYSIS

The impact analysis for the three study area intersections was conducted by comparing the ICU values and LOS for the “without project” and “with project” scenarios. For the existing conditions scenario, the analysis compared the existing conditions to the conditions with the proposed project.

The comparative levels of service at the study area intersections for the existing conditions scenario are summarized in Table 3.8-3, *Project Impact on Intersection Levels of Service, Existing Conditions as Baseline*, for the Friday evening peak hour. The table shows the before and after ICU values and the LOS that would occur at each study area intersection. Also shown are the increases in the ICU values that would occur as a result of the proposed project. The last column in Table 3.8-3 indicates if the intersections would be significantly impacted by the project-generated traffic.

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Table 3.8-3 Project Impact on Intersection Levels of Service, Existing Conditions as Baseline

Intersection	ICU Value and Level of Service		Increase in ICU Value	Significant Impact
	Existing Conditions	Existing Plus Project		
Signalized Intersections				
Portola Parkway/Yale Avenue	0.393 – A	0.429 – A	0.036	No
Portola Parkway/Orchard Hills Drive	0.408 – A	0.420 – A	0.012	No
Orchard Hills Drive/Wolf Trail	0.316 – A	0.316 – A	0.000	No

Source: Garland Associated 2025 (Appendix F).

Table 3.8-3 indicates that none of the study area intersections would be significantly impacted by the traffic that would be generated by the proposed project for a peak day event (varsity football game) for the existing conditions baseline scenario.

As the proposed project is expected to be fully completed in the fall of 2026, the first full year of operation for the facility would be the year 2027. The existing (2025) traffic volumes were expanded by a growth factor of 4.04 percent to account for general regional growth and the cumulative impacts of traffic associated with other development projects in the area. This growth factor represents a two percent annual growth rate for two years, compounded annually.

The comparative levels of service for the year 2027 analysis scenario are shown in Table 3.8-4, *Project Impact on Intersection Levels of Service, Year 2027 as Baseline*. Table 3.8-4 indicates that none of the study area intersections would be significantly impacted by the traffic that would be generated by the proposed project for a peak day event (varsity football game) for the year 2027 baseline scenario.

Table 3.8-4 Project Impact on Intersection Levels of Service, Year 2027 as Baseline

Intersection	ICU Value & Level of Service			Significant Impact
	Existing Conditions	Existing Plus Project	Increase in ICU Value	
Signalized Intersections				
Portola Parkway/Yale Avenue	0.407 – A	0.443 – A	0.012	No
Portola Parkway/Orchard Hills Drive	0.424 – A	0.435 – A	0.011	No
Orchard Hills Drive/Wolf Trail	0.326 - A	0.327 - A	0.001	No

Source: Garland Associated 2025 (Appendix F).

Tables 3.8-3 and 3.8-4 indicate that the proposed project would not have a significant impact at any of the study area intersections during the Friday evening peak hour based on the significance criteria presented previously because the intersections would continue to operate at LOS A during a peak day event.

3.8.4 Project Impact Analysis

- a) **The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.**

GENERAL PLAN

The Circulation Element of the General Plan includes specific goals, objectives, and policies that serve as a comprehensive framework for managing transportation infrastructure and promoting efficient mobility within the City of Irvine. The document addresses various aspects of circulation, including roadways, public transit, active transportation modes, and land use planning, with the overarching aim of enhancing accessibility, safety, and sustainability for residents, businesses, and visitors. The goals, objectives, and policies of the Irvine General Plan that are applicable to the proposed project are summarized in Section 3.8.1, *Regulatory Framework*.

As discussed in Section 3.8.2, *Existing Conditions*, pedestrian access at the project site is provided by Portola Parkway, Yale Avenue, and Wolf Trail; painted crosswalks exist at the intersection of Yale Avenue and Wolf Trail; and OCTA bus and Irvine Connect routes are near the

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campus. Additionally, the campus has installed various bike racks, and bike storage areas throughout the campus. The proposed project would be located on the Northwood HS campus and would not preclude the district from continuing to improve on campus bicycle or pedestrian facilities. The proposed project would allow existing activities on campus to occur into the evening hours, and would not result in an increase in student capacity that would substantially decrease the performance or safety of nearby facility. The proposed project would not construct any new vehicle or pedestrian access points on the project site (i.e., sidewalks, driveways), or pedestrian facilities (i.e., bike racks), that would alter or improve the existing circulation on campus. The campus would continue to utilize the existing non-motorized and pedestrian facilities.

The proposed improvements at the high school's athletics field are consistent with the goals, objectives, and policies presented in the Circulation Element and the project would not adversely affect the performance of any roadway, transit, or non-motorized (pedestrian and bicycle) transportation facilities. Additionally, the proposed project would not conflict with the City's Trip Reduction Ordinance.

Based on the traffic analysis, the discussion of non-motorized transportation and transit, and a review of the Circulation Element of the City of Irvine General Plan, the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

SCAG CONNECT SOCIAL CONSISTENCY

The proposed project would remain consistent with the 2024 SCAG RTP/SCS, Connect SoCal, as no changes to land use, or circulation are proposed. The goals of Connect SoCal are related to housing, transportation technologies, equity, and resilience. The proposed project would install stadium lighting, infrastructure to allow for a future Public Address (PA) system, and associated equipment. The proposed project would not interfere with the City's ability to continue to provide "complete streets" circulation improvements or Strategies 1, 2, and 3 of the SCAG Active Transportation Technical Report. Therefore, the proposed project would not conflict with Connect SoCal. Impacts would be **less than significant**.

Significance without Mitigation: Less than significant.

b) The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).

Vehicle delays and LOS have historically been used as the basis for determining the significance of traffic impacts as standard practice in CEQA documents. On September 27, 2013, SB 743 was signed into law, starting a process that fundamentally changed transportation impact analyses as part of CEQA compliance. SB 743 eliminated auto delay, LOS, and other similar measures of

vehicular capacity or traffic congestion as the sole basis for determining significant impacts under CEQA. As part of the current CEQA Guidelines, the criteria “shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses” (PRC Section 21099(b)(1)). Pursuant to SB 743, the California Natural Resources Agency adopted revisions to the CEQA Guidelines on December 28, 2018, to implement SB 743. CEQA Guidelines Section 15064.3 describes how transportation impacts are to be analyzed after SB 743. Under the Guidelines, metrics related to “vehicle miles traveled” (VMT) were required beginning July 1, 2020, to evaluate the significance of transportation impacts under CEQA for development projects, land use plans, and transportation infrastructure projects. State courts ruled that under the PRC Section 21099(b)(2), “automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment” under CEQA, except for roadway capacity projects.

Section 15064.3(b)(1) of the CEQA Guidelines state that projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less-than-significant transportation impact. Currently, football games for Northwood HS are held at remote locations, including Irvine High School, which is located approximately 2.5 miles from Northwood HS. The installation of lights at the project site would provide the opportunity for student athletes to attend practices and games at their school, which would eliminate the need to travel to another field, result in shorter travel distances. Thus, since the project would provide the opportunity for additional athletics events to be held at the Northwood High School campus instead of facilities at other schools in the District, it would result in a reduction in VMT because the facility would be closer to most of the homes in the attendance area as compared to the schools where the activities currently take place.

The City of Irvine’s “Traffic Study Guidelines” include screening criteria that can be used to identify when a proposed project is anticipated to result in a less than significant VMT impact. The document states that a locally serving public school (kindergarten through 12th grade) can be screened from requiring a VMT impact analysis and that no further VMT analysis is required. Based on these guidelines, this athletics facility project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), and would have a **less-than-significant** VMT impact.

Significance without Mitigation: Less than significant.

-
- c) **The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).**
-

The proposed project would not include any on- or off-site access or circulation features that would create or increase any design hazards or incompatible uses. Access to the school site would continue to be provided by four existing driveways on Yale Avenue and one existing

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driveway on Portola Parkway adjacent to the athletics field. There would be no modifications to these driveways or to the study area street network and all improvements within the school site would be consistent with the criteria of the Division of the State Architect (DSA).

The increased levels of traffic, the increased number of pedestrians, and the increased number of vehicular turning movements that would occur at the driveways and at the nearby intersections would result in an increased number of traffic conflicts and increase the probability of an accident occurring. These impacts would not be significant, however, because the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity. These streets and intersections have historically been accommodating school-related traffic daily for the existing school. The proposed project's athletics field improvements would be compatible with the design and operation of a high school, and the proposed project would not result in any modifications to the existing access or circulation features at the school.

As the existing street network could readily accommodate the anticipated increase in vehicular, pedestrian, and bicycle activity, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

d) The proposed project would not result in inadequate emergency access.

The existing on-campus access and circulation system, including roadways, parking lots, and fire lanes, would continue to accommodate emergency services. The proposed project would be required to maintain emergency access to the project site and would not modify any existing vehicle access points, including those used for emergency access to the campus or project site.

Emergency access to the school site is provided by four existing driveways on the west side of Yale Avenue that provide access to the school's parking lots plus an additional driveway on the north side of Portola Parkway. This driveway provides access to an on-site circulation road that runs along the west and north sides of the school campus and connects to Yale Avenue on the east side of the campus. The existing access and circulation features at the school, including the driveways, parking lots, on-site roadways, and fire lanes, would accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. The proposed project would be designed to accommodate emergency access to the athletics complex. The existing access/circulation features at the school were subject to the District's design requirements and were approved by the Fire Department and the DSA. Emergency vehicles could continue to readily access the athletics field and all other areas of the school via on-site travel corridors. The proposed project would not result in inadequate emergency access and **no impact** would occur.

Significance without Mitigation: No Impact.

3.8.5 Cumulative Impact Analysis

The proposed project would not have a cumulative effect related to transportation.

This section analyzes potential impacts related to transportation that could occur from a combination of the proposed project and other past, present, and reasonably foreseeable projects within the vicinity.

As described above, the proposed project would comply with applicable plans, ordinances, and policies that guide circulation. No significant cumulative impacts are anticipated in regard to City circulation policies with the implementation of the proposed project. Similar to the proposed project, each cumulative project would be expected to be consistent with existing programs, plans, ordinances, and policies that address its jurisdiction's circulation system (such as the City's Circulation Element). No significant cumulative impacts are anticipated to which both the proposed project and the cumulative projects would contribute in regard to City circulation policies or standards adopted to protect the environment and support multimodal transportation options.

The proposed project would result in no cumulative impacts related to transportation, as it would not contribute to deteriorating LOS or generate a significant increase in VMT. The project is consistent with applicable regional transportation plans and does not include features or generate traffic volumes that would cumulatively affect surrounding roadway operations. Given its limited scope and location within an area already served by existing roadways and existing transit facilities, the project would not conflict with adopted policies or exceed VMT thresholds set forth by local or state guidelines.

A potentially cumulative impact may occur if the proposed project would combine with a cumulative project to create or substantially increase hazards due to geometric design feature or incompatible uses. None of the cumulative development projects in the project vicinity would be close enough to the project site to provide any cumulatively considerable design features. The proposed project along with the cumulative projects would not add driveways that could combine to create hazardous geometric features. Additionally, the proposed project's educational uses are typical of an urban area and would not introduce incompatible uses.

Construction-related activities could adversely impact emergency access in adjacent roadways when combined with other cumulative projects. However, not all cumulative projects would be constructed at the same time, and no cumulative projects immediately adjacent to the project site are proposed at this time. Each construction project would be required to prepare and

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implement site-specific construction worksite staging and construction plans to reduce potential impacts to emergency access and potentially incorporate mitigation measures.

Thus, the project would not in combination with other projects result in significant cumulative transportation impacts and the impact would be **less than significant**.

3.8.6 References

Garland Associates. 2025, June. *Traffic/Transportation Impact Analysis for the proposed Northwood High School Field Improvements Project*. Appendix F to this DEIR.

Irvine, City of. 2025, July 15 (accessed). *2045 Irvine General Plan*.
<https://cityofirvine.org/community-development/current-general-plan>.

Southern California Association of Governments (SCAG). 2024, *Southern California Association of Governments 2024-2050 Regional Transportation Plan/ Sustainable Communities Strategy* (Connect SoCal). <https://scag.ca.gov/sites/default/files/2024-05/23-2987-connect-socal-2024-final-complete-040424.pdf>.

3.9 TRIBAL CULTURAL RESOURCES

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of Northwood High School Field Lighting Improvement Project (proposed project) to impact Tribal Cultural Resources (TCRs). This section discusses state laws and regulations protecting resources, along with the existing cultural resource conditions on and near the project site. TCRs include landscapes, sacred places, or objects with a cultural value to a California Native American tribe. Potential impacts to other cultural resources (i.e., historic, archaeological, and disturbance of human remains) are evaluated in Section 3.3, *Cultural Resources*.

The Irvine Unified School District (District) invited California Native American tribes that are traditionally and culturally affiliated with the project site to consult on the proposed project via email. Four tribes were contacted on May 28, 2025, and a response was received from the Gabrieleño Band of Mission Indians – Kizh Nation on June 2, 2025, and August 18, 2025. A copy of the response received from the tribal consultation is included in Appendix G, *Tribal Consultation Responses*, of this DEIR.

3.9.1 Regulatory Framework

Federal, State, and local laws, regulations, plans, or guidelines related to TCRs and potentially applicable to the proposed project are summarized below.

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) recognizes properties that are significant at the national, state, and/or local levels and includes districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.

Properties are nominated to the NRHP by the State Historic Preservation Officer of the state in which the property is located, by the Federal Preservation Officer for properties under federal ownership or control, or by the Tribal Historic Preservation Officer if a property is on tribal lands.

The criteria for listing in the NRHP follow the standards for determining if properties, sites, districts, structures, or landscapes of potential significance are eligible for nomination. In addition to meeting any or all of the following criteria, properties nominated must also possess integrity of location, design, setting, feeling, workmanship, association, and materials:

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- Associated with events that have made a significant contribution to the broad patterns of history.
- Associated with the lives of persons significant in our past.
- Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components may lack individual distinction.
- Yield, or may be likely to yield, information important in prehistory or history.

National Historic Preservation Act

The National Historic Preservation Act supplements the provisions of the Antiquities Act of 1906 and established laws for historic resources to “preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice.” The law makes it illegal to destroy, excavate, or remove from federal or Indian lands any archaeological resources without a permit from the land manager. Regulations for the ultimate disposition of materials recovered as a result of permitted activities state that archaeological resources excavated on public lands remain the property of the United States. Archaeological resources excavated from Indian lands remain the property of the Indian or Indian tribe having rights of ownership over such resources.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (United States Code, Title 16, Sections 470aa–mm) became law on October 31, 1979, and has been amended four times. It regulates the protection of archaeological resources and sites that are on federal and Native American lands.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (United States Code, Title 25, Sections 3001 et seq.) is a federal law passed in 1990 that provides a process for museums and federal agencies to return certain Native American cultural items—such as human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants and culturally affiliated Indian tribes.

STATE

Assembly Bill 52

The Native American Historic Resource Protection Act (Assembly Bill (AB) 52 took effect July 1, 2015, and incorporates tribal consultation and analysis of impacts to tribal cultural resources

(TCR) into the CEQA process. It requires TCRs to be analyzed like any other CEQA topic and establishes a consultation process for lead agencies and California tribes. Projects that require a notice of preparation of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration are subject to AB 52. A significant impact on a TCR is considered a significant environmental impact and requires feasible mitigation measures.

Tribal cultural resources must have certain characteristics:

1. Sites, features, places, cultural landscapes (must be geographically defined), sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historic Resources or included in a local register of historical resources. (Public Resources Code [PRC] Section 21074(a)(1))
2. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. (PRC Section 21074[a][2])

The first category requires that the tribal cultural resource qualify as a historical resource according to PRC Section 5024.1. The second category gives the lead agency discretion to qualify that resource—under the conditions that it supports its determination with substantial evidence and consider the resource’s significance to a California tribe. Following is a brief outline of the process, paraphrased from PRC Sections 21080.3.1 and 21080.3.2.

1. A California Native American tribe asks agencies in the geographic area with which it is traditionally and culturally affiliated to be notified about projects. Tribes must ask in writing.
2. Within 14 days of deciding to undertake a project or determining that a project application is complete, the lead agency must provide formal written notification to all tribes who have requested it.
3. A tribe must respond within 30 days of receiving the notification if it wishes to engage in consultation.
4. The lead agency must initiate consultation within 30 days of receiving the request from the tribe.
5. Consultation concludes when both parties have agreed on measures to mitigate or avoid a significant effect on a tribal cultural resource, OR a party, after a reasonable effort in good faith, decides that mutual agreement cannot be reached.

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6. Regardless of the outcome of consultation, the CEQA document must disclose significant impacts on tribal cultural resources and discuss feasible alternatives or mitigation that avoid or lessen the impact.

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. However, confidentiality does not apply to data or information that are, or become, publicly available; are already in lawful possession of the project applicant before the provision of the information by the California Native American tribe; are independently developed by the project applicant or the project applicant's agents; or are lawfully obtained by the project applicant from a third party that is not the lead agency, a California Native American tribe, or another public agency.

Senate Bill 18

Existing law provides limited protection for Native American prehistoric, archaeological, cultural, spiritual, and ceremonial places. These places may include sanctified cemeteries, religious sites, ceremonial sites, shrines, burial grounds, prehistoric ruins, archaeological or historic sites, Native American rock art inscriptions, or features of Native American historic, cultural, and sacred sites.

SB 18 was signed into law in September 2004 and went into effect on March 1, 2005. It placed new requirements upon local governments for developments within or near "traditional tribal cultural places" (TTCP). Per SB 18, the law requires local jurisdictions to provide opportunities for involvement of California Native American tribes in the land planning process for the purpose of preserving traditional tribal cultural places. The Office of Land Use and Climate Innovation's Tribal Consultation Guidelines, adopted on November 14, 2005, provides advisory guidance to cities and counties on the process for consulting with Native American tribes during the adoption or amendment of local general plans or specific plans. The Tribal Consultation Guidelines recommend that the NAHC provide written information as soon as possible but no later than 30 days after receiving a request to inform the lead agency if the proposed project is determined to be in proximity to a TTCP and another 90 days for tribes to respond to notices provided by local governments if they want to consult to determine whether the project would have an adverse impact on the TTCP. There is no statutory limit on the consultation duration. Prior to the adoption or amendment of a general plan or specific plan, a local government must

refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located in the city or county's jurisdiction; the referral must allow a 45-day comment period. The CEQA public distribution list shall include tribes provided by the NAHC. If the NAHC, the tribe, and interested parties agree upon the mitigation measures necessary for the proposed project, they would be included the environmental document of a project. California Public Resources Code Sections 5097.9-5097.991

Archaeological resources are protected pursuant to a wide variety of state policies and regulations enumerated under the California Public Resources Code (PRC). In addition, cultural resources are recognized as a nonrenewable resource and therefore receive protection under the California PRC and CEQA.

PRC Sections 5097.9–5097.991 provide protection to Native American historical and cultural resources, and sacred sites and identifies the powers and duties of the Native American Heritage Commission (NAHC).

PRC Sections 5097.9-5097.991 also require notification to descendants of discoveries of Native American human remains and provides for treatment and disposition of human remains and associated grave goods.

California Public Resources Code Sections 21073 and 21074

PRC Sections 21073 and 21074 define California Native American tribe and tribal cultural resources, respectively. PRC Section 21073 defines a “California Native American tribe” as a Native American tribe located in California that is on the contact list maintained by the NAHC.

TCRs are defined in Section 21074 as sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either included in or determined to be eligible for inclusion in the CRHR, or are included in a local register of historical resources as defined in subdivision (k) of Section 5020.1, or are 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 Section 5024.1.

California Health and Safety Code

California Health and Safety Code Section 7050.5 requires that if human remains are discovered on a project site, disturbance of the site shall halt and remain halted until the coroner has conducted an investigation into the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative. If the coroner determines that the remains are not subject to his or her authority and recognizes

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or has reason to believe the human remains are those of Native American, he or she shall contact, by telephone within 24 hours, the NAHC.

California Register of Historical Resources

The California Register of Historic Resources (CRHR) is the state version of the NRHR program. It was enacted in 1992 and became official on January 1, 1993. The CRHR was established to serve as an authoritative guide to the state's significant historical and archaeological resources. Resources that may be eligible for listing include buildings, sites, structures, objects, and historic districts. According to subsection (c) of PRC Section 5024.1, a resource may be listed as a historical resource in the CRHR if it meets any of the four NRHR criteria.

California State Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have been determined to have statewide historical significance by meeting at least one of the criteria listed below:

- The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California).
- Associated with an individual or group having a profound influence on the history of California.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best-surviving work in a region of a pioneer architect, designer, or master builder.

The resource also must have written consent of the property owner; be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks.

California State Points of Historical Interest

California Points of Historical Interest (CPHI) are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historical resource may be designated as both a Landmark and a Point. If a Point is subsequently granted status as a Landmark, the Point designation will be retired. To be eligible for designation as a Point of Historical Interest, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type within the local geographic region (City or County).
- Associated with an individual or group having a profound influence on the history of the local area.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

LOCAL

2045 Irvine General Plan

The 2045 Irvine General Plan provides the basis for the City's policies and represents the community's basic values, ideals, and aspirations. The General Plan establishes policies to guide development and conservation through 2045. Key policies of the General Plan relevant to this chapter's analysis of the proposed project's potential impacts on tribal cultural resources are included below. The set of policies listed is not an exhaustive list of all of the General Plan policies applicable to the proposed project; rather, it is a selection of policies relevant to the impact discussion in this chapter.

Conservation and Open Space Element

Goal 4: Use and maintain societal resources, including, but not limited to, archaeological, historical, and paleontological resources, as part of the City's land use pattern.

Objective COS-4. To effectively utilize and preserve societal resources, encompassing archaeological, historical, and paleontological assets, within the City's land use framework, ensuring their integration and maintenance in alignment with conservation and open space goals.

Irvine Municipal Code

The Irvine Municipal Code outlines the local laws and regulations governing land use, development, and environmental protection within the City. Among its provisions, the municipal code includes specific measures to identify, evaluate, and preserve cultural resources, such as archaeological sites, and historic structures.

Title 3, Division 4, Chapter 1, Section 3-4-132: prohibits any person from possessing, destroying, injuring, defacing, removing, digging or disturbing from its natural state any of the following: plants, wildlife, artifacts, minerals, landscape structures, improvements, wood, and natural products.

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3.9.2 Existing Conditions

PREHISTORIC SETTING

Irvine is within the traditional tribal territory of the Gabrieleño Tribe. The traditional tribal territory of the Gabrieleño includes large portions of Los Angeles County, the northern part of Orange County, small sections of Riverside and San Bernardino counties as well as the southern Channel Islands of Santa Barbara, San Clemente, San Nicolas, and Santa Catalina. The Gabrieleño are considered to have been one of the wealthiest tribes and to have greatly influenced tribes they traded with. Houses were domed, circular structures thatched with tule or similar materials. The best-known artifacts were made of steatite and were highly prized. Many common everyday items were decorated with inlaid shell or carvings reflecting an elaborately developed artisanship. Villages were located near water sources.

The traditional tribal territory of the Acjachemen (Juaneño) Tribe is located immediately south of the city. The traditional tribal territory of the Acjachemen includes northern San Diego County and southern Orange County. Houses were typically conical in shape and thatched with locally available plant materials. Work areas were often shaded by rectangular brush-covered roofs (ramada). Adults in the tribe were actively involved in making tools including nets, arrows, bows, traps, food preparation items, pottery and ornaments (City of Irvine 2024a).

HISTORIC SETTING

Cultural resources in the City of Irvine encompass both historical and archaeological elements. Historical sites, dating from post-1542 AD, are valued for their historical, architectural, or cultural significance, while archaeological sites provide evidence of human activity predating 1750 AD. The highest concentrations of archaeological sites—primarily linked to the Gabrieleño and Acjachemen (Juaneño) peoples—are located in areas such as Upper Newport Bay and the Santiago and San Joaquin Hills. Within or near the city, hundreds of cultural resources have been identified, including some of the oldest sites in Orange County (City of Irvine 2024a).

Spanish Exploration

Juan Cabrillo was the first European to sail along the coast of California in 1542 and was followed in 1602 by Sebastian Vizcaino. The Spanish colonization of what was then known as Alta California began with the 1769 overland expedition led by Gaspar de Portolá. Between 1769 and 1822, the Spanish had colonized California and established missions, presidios, and pueblos and documented the people and landscape along the way. Portola and his expedition crossed the area north of Lake Forest in July 1769, naming the perennial creek that empties from the Santa Ana Mountains “aliso.”

During the Mission period, many of the trees along the creek, including alder, oak, sycamore, and other species were cut down for the construction of ships and structures, charcoal production, and other uses.

Portions of the City lie within the boundaries of Rancho Santiago de Santa Ana, which was given to Jose Antonio Yorba and his nephew Pablo Peralta in 1810 by Governor José Joaquin de Arrillaga on behalf of the Spanish Government.

Mexican Period

In addition to the land granted for the Rancho Santiago de Santa Ana under the Spanish Government, additional land grants were given by the Mexican government, including Rancho San Joaquin and Rancho Lomas de Santiago. The Rancho San Joaquín land grant was a combination of the Rancho Cienega de las Ranas and the Ranch La Bolsa de San Joaquín. This land grant was issued to José Antonio Andrés Sepúlveda in 1837 and 1842, respectively. Rancho Lomas de Santiago was granted to Teodosio Yorba by the Mexican Governor Pío Pico in 1846. Teodosio was the son of Jose Antonio Yorba, who was granted Rancho Santiago de Santa Ana (City of Irvine 2024a).

American Period

Following the cession of California to the United States after the Mexican-American War, the Treaty of Guadalupe Hidalgo in 1848 ensured that the land grants would be honored. In 1864 Sepúlveda sold his lands to Benjamin and Thomas Flint, Llewellyn Bixby, and James Irvine. In 1876, James Irvine bought out his partners and became the sole owner of the Irvine Ranch, which continued largely a ranching operation for many years. When Irvine died in 1886, James Irvine II took control of the ranch and increased its agricultural production. In 1894, James Irvine II incorporated the land holdings as the Irvine Company.

In 1899, the newly formed San Joaquin School District approached James Irvine II with the intent to build a school for the children of his ranch tenant. In 1911, the school and land upon which it resided was donated by Irvine II to Orange County. By the beginning of the twentieth century, Irvine II set aside 320 acres at the intersection of the Santa Fe Railroad tracks and Central Avenue for the purpose of developing a town for the residence of both its permanent and seasonal workers. In 1914, the Orange County town of Myford was renamed “Irvine” (City of Irvine 2024a).

Modern Period

As a result of the Second World War, pressure mounted towards the development of urban areas in California. Under the guidance of Myford Plum, Irvine, Cameo Highlands, Irvine Terrace, Harbor View Hills, Cameo Shores, Westcliff Baycrest, and Irvine Cove in Laguna were developed.

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In 1960, the Irvine Company gifted 1,000 acres of land to the University of California with a provision for the sale of an additional 500 acres. The establishment of the university on the Irvine Ranch provided a central focus around which the company would create a master plan for Irvine Ranch, centering around both the City and University of California, Irvine. To create this master plan, the Irvine Company hired William Pereira & Associates, who divided the ranch into three sections (north, central, and south). The central section consisted of prime agricultural land, while the northern section consisted of a remote mountainous region, and the southern section consisted of a basin that was considered the top priority of urban development, as it ran from the coast to the alignment of the Interstate 405 (I-405) Freeway. Development of each community underwent meticulous planning, as each “village” would include its own churches, shopping centers, and schools. The same attention to detail was utilized in master land-use plan in the development of the Irvine Industrial Complex and the Newport “downtown” Center. Pereira’s plan for the university outlined the campus as a large wheel with a park at the center that would include a lake and an amphitheater as “the focus of university life”. The University of California, Irvine was dedicated on June 20, 1964. In 1965, much of the agricultural land on the ranch was being converted into housing tracts. In 1971, the City of Irvine was incorporated (City of Irvine 2024a).

HISTORIC RESOURCES

According to Table 4.4-3 in the Irvine General Plan EIR, the City’s historic resources include four buildings listed on both the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR), along with eight properties recorded on the California Historical Resources Inventory (CHRI). Additionally, one site features a California Historical Landmark (CHL) plaque, and three sites have California Point of Historical Interest (CPHI) plaques. Orange County Parks recognizes the Irvine Ranch Historic Park as a historic resource, while the City designates 19 properties as historically significant (City of Irvine 2024b).

These resources encompass both current and former locations of historic buildings, historical archaeological sites—often near past-use areas—and existing historic homes over 45 years old. Old Town Irvine contains the highest concentration of historic buildings. Notable resources north of I-405 include the railroad, a eucalyptus windbreak, the Valencia Growers Packing House, and the Irvine Agricultural Headquarters Complex. South of I-405, key historic sites include the Rancho San Joaquin Adobe, the San Joaquin Gun Club, Phineas Banning House, Bommer Canyon Cattle Camp, and Barton’s Mound.

The Northwood HS campus is not officially designated as a historical resource on a local, state, or federal level, and was not identified in the General Plan as a historical site (City of Irvine 2024b; NPS 2025a, 2025b; OHP 2025a, 2025b).

ARCHAEOLOGICAL RESOURCES

According to the 2045 Irvine General Plan, artifacts from the Native American era and fossils of plants and animals have been discovered in various locations throughout the city. These artifacts provide an irreplaceable record of another civilization and the history of life on earth, so their protection is important. Only two historical archaeological sites have been recorded in City; both are in the eastern portion of the city and consist of historic domestic refuse (City of Irvine 2024a).

Tribal Consultation

In compliance with the requirements set forth in AB 52, the District provided formal notification of the proposed project and served an invitation for consultation to three tribes that are on the District's request for notification list on May 28, 2025. The District emailed and sent letters via certified mail to the following:

- Gabrieleño Band of Mission Indians – Kizh Nation
- Gabrieleño – Tongva Indian Tribe
- Juaneño Band of Mission Indians – Acjachemen Nation
- San Gabriel Band of Mission Indians

On June 2, 2025, the District received an email in response from the Gabrieleño Band of Mission Indian - Kizh Nation. Additionally, on August 18, 2025, the Gabrieleño Band of Mission Indian - Kizh Nation provided recommended mitigation measures for the proposed project (see Appendix G, *Tribal Consultation Responses*, of this DEIR). None of the other contacted tribes responded to the invitation for consultation. The District began consultation via email with representatives of the Gabrieleño Band of Mission Indian - Kizh Nation on July 17, 2025, and closed consultation on August 20, 2025.

3.9.3 Standards for Analysis

SIGNIFICANCE CRITERIA

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).

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- b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

METHODOLOGY

To determine the presence or absence of TCRs on the project site, a review was conducted of the City of Irvine General Plan and General Plan Environmental Impact Report, as well as relevant federal, state, and local databases, including the National Register of Historic Places and the California Register of Historical Resources. These sources were evaluated to assess whether the project site has been previously identified as containing TCRs.

3.9.4 Project Impact Analysis

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- a) **The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource 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).**
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As discussed in DEIR Section 3.3, *Cultural Resources*, the project site is not listed or eligible for listing in the CRHR, NRHP, CHL, or CPHI or in a local register of historical resources (NPS 2025a, 2025b; OHP 2025a, 2025b). The project site does not meet any of the historic resource criteria and does not meet the definition of a historic resource pursuant to CEQA.

The project would not impact tribal cultural resources listed on any of the registers of historic resources. The nearest historical resource is the Frances Packing House, which is approximately 1.5 miles southwest of the project site (NPS 2025b). The project site is surrounded by development and is not near any creeks, thereby decreasing the chance that any previously undiscovered tribal cultural resources are located on the project site. Due to the developed nature of the project site and surrounding area, the proposed project would not impact a resource listed on the CRHR, NRHP, CHL, or CPHI or in a local register of historical resources.

However, development of the proposed project could encounter previously unknown tribal cultural resources and human remains. Although no known tribal cultural resources have been identified on the project site, ground-disturbing activities as part of the proposed project have the potential to disturb subsurface deposits possessing traditional or cultural significance to Native American or other descendant communities. While the project would be confined within the existing campus boundary and would involve minimal construction, any grading beneath

existing artificial fill could reach previously undisturbed soils where buried cultural resources may exist. Therefore, this impact is **potentially significant**.

Mitigation Measure TCR-1 through TCR-3 would be implemented for the proposed project to address the potential to encounter any tribal cultural resources during project-related ground-disturbing activities. With the implementation of Mitigation Measures TCR-1 through TCR-3, potential impacts to tribal cultural resources would be reduced to less than significant.

Impact TCR-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, pursuant to criteria set forth in Public Resources Code Section 5020.1(k).

Mitigation Measure TCR-1: Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities.

- a) The Irvine Unified School District (IUSD) shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any “ground-disturbing activity” for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). “Ground-disturbing activity” shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.
- b) A copy of the executed monitoring agreement shall be submitted to the Irvine Unified School District (IUSD) prior to commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.
- c) The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or “TCR”), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the Irvine Unified School District (IUSD) upon written request to the Tribe.
- d) On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the Irvine Unified School District (IUSD) that all ground-disturbing activities and phases that may

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involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the Irvine Unified School District (IUSD) that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.

Mitigation Measure TCR-2: Unanticipated Discovery of Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial)

- a) Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.

Mitigation Measure TCR-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects

- a) Native American human remains are defined in PRC Section 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute.
- b) If Native American human remains and/or grave goods are discovered or recognized on the project site, then Public Resource Code Section 5097.9, as well as Health and Safety Code Section 7050.5 shall be followed.
- c) Human remains and grave/burial goods shall be treated alike per California Public Resources Code Section 5097.98(d)(1) and (2).
- d) Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods.
- e) Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

Significance with Mitigation: Less than significant.

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- b) **The proposed project could cause a substantial adverse change to a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**
-

Tribal cultural resources consider the value of a resource to tribal cultural tradition, heritage, and identity to establish potential mitigation and to recognize that California Native American tribes have expertise concerning their tribal history and practices. As discussed in Section 3.3, there are no sensitive resources eligible for listing in the CRHR or the NRHR on the project site. The project site is not listed as a Historical Resource within the City of Irvine, as identified in the 2045 Irvine General Plan DEIR.

In accordance with PRC Section 21080.1(d), a lead agency is required to provide formal notification of intended development projects to Native American tribes that have requested to be on the lead agency's list for receiving such notification. The formal notification is required to include a brief description of the proposed project and its location, lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. Pursuant to AB 52, the District certified mailed and emailed tribal consultation letters on May 28, 2025, inviting four tribes on their AB 52 list to consult on the project—the Gabrieleño Band of Mission Indians – Kizh Nation, Gabrielino – Tongva Indian Tribe, Juaneño Band of Mission Indians – Acjachemen Nation, and the San Gabriel Band of Mission Indians. One tribe, the Kizh Nation, requested to consult during the 30-day AB 52 consultation request window and the District did not receive any additional responses from the tribes. Further, a Sacred Lands File request was submitted to the NAHC and received a negative result; there are no known sacred sites or tribal cultural resources within or in the vicinity of the project site.

Although unlikely, the potential exists to unearth tribal cultural resources during ground-disturbing activities. Therefore, this impact is **potentially significant**.

In the event tribal cultural resources are discovered, Mitigation Measures TCR-1 through TCR-3, and CUL-1 provide guidelines for how to protect tribal cultural resources. Under Mitigation Measure TCR-1, the District must retain a Native American monitor during all ground-disturbing construction activities. If tribal cultural resources are encountered, work must stop in the immediate area while the monitor and a qualified archaeologist assess the find. Mitigation Measure CUL-1 requires the District to retain a qualified archaeologist to be on call during grading activities, conduct preconstruction cultural resources training, and prepare a monitoring plan. If archaeological materials are discovered, work must stop within 50 feet of the find, and the archaeologist must evaluate its significance. If the discovery includes tribal cultural resources, appropriate tribal consultation is required to determine the proper course of action.

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Implementation of Mitigation Measures TCR-1 through TCR-3, and CUL-1 would reduce impacts to **less-than-significant** levels.

Significance with Mitigation: Less than significant.

3.9.5 Cumulative Impact Analysis

The proposed project would not have a cumulative effect related to tribal cultural resources.

As defined in Section 15130 of the State CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for tribal cultural resources. The study area for the assessment of cumulative impacts related to tribal cultural resources is the Northwood HS campus. There are currently no other projects proposed to occur within the campus.

Development of the proposed project and related projects have the potential to encounter and potentially degrade tribal cultural resources and archaeological resources. However, similar to the proposed project, each related project would be expected to comply with PRC Section 15064.5, which addresses accidental discoveries of archaeological sites and resources, including tribal cultural resources, perform site-specific archaeological analyses, implement mitigation measures if needed, and comply with other applicable regulatory compliance measures. The proposed project would not result in an adverse change in the significance of a tribal cultural resource. The project site does not contain known archaeological resources or human remains. No other projects are currently planned for the project site.

Additionally, implementation of Mitigation Measure CUL-1 and Mitigation Measures TCR-1 through TCR-3 would ensure that in the event cultural resources are uncovered during ground-disturbing activities, the proper protocol would be followed to minimize impacts. If the discovery includes tribal cultural resources, appropriate tribal consultation is required to determine the proper course of action.

Overall, the proposed project would not introduce new uses to the campus and would not substantially alter the campus beyond compared to existing conditions. Therefore, the proposed project would not have a cumulative effect related to tribal cultural resources, and this impact is **less than significant**.

Significance with Mitigation: Less than significant.

3.9.6 References

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3.10 UTILITIES AND SERVICE SYSTEMS

This section of the Draft Environmental Impact Report (DEIR) describes the regulatory framework and existing conditions on the project site related to utilities and service systems, and the potential impacts of the project on water supply and distribution; wastewater (sewage) treatment and collection; solid waste collection and disposal; stormwater infrastructure; and electricity, natural gas, and telecommunications utilities. Potential impacts to hydrology (e.g., flooding) and water quality are provided in Section 3.6, *Hydrology and Water Quality*. Storm drainage, though discussed below, is also addressed in Section 3.6, *Hydrology and Water Quality*.

During the Notice of Preparation (NOP) public review period, no written comments were received regarding utilities and service systems impacts associated with the proposed project. A California Environmental Quality Act (CEQA) scoping meeting was conducted on June 3, 2025, where no concerns regarding these issues were raised. The NOP and all scoping comment letters are included as Appendix A of this DEIR.

3.10.1 Regulatory Framework

Federal, State, and local laws, regulations, plans, or guidelines that are related to utilities and service systems and applicable to the proposed project are summarized below.

FEDERAL

Clean Water Act

The Clean Water Act (CWA) regulates the discharge of pollutants into watersheds throughout the nation. Under the CWA, the United States Environmental Protection Agency (USEPA) implements pollution control programs, sets wastewater standards, and makes it unlawful to discharge pollutants from a point source into any navigable waters without obtaining a permit. Point sources include any conveyances, such as pipes and human-made drainage channels, from which pollutants may be discharged.

America's Water Infrastructure Act of 2018

America's Water Infrastructure Act was signed into law on October 23, 2018, and authorizes federal funding for water infrastructure projects; expands water storage capabilities; assists local communities in complying with the Safe Drinking Water Act and Clean Water Act; reduces flooding risks for rural, western, and coastal communities; and addresses significant water infrastructure needs in tribal communities. Additionally, the act requires that drinking water systems that serve more than 3,300 people develop or update risk assessments and emergency

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response plans. Risk assessments and emergency response plans must be certified by the USEPA within the deadline specified by the act.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act of 1976 (Title 40 of the Code of Federal Regulations), Part 258, contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the federal landfill criteria. The federal regulations address the location, operation, design (liners, leachate collection, run-off control, etc.), groundwater monitoring, and closure of landfills.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.) was passed in 1969 and amended in 2013. It is the basic water quality control law for California. Under this act, the State Water Resources Control Board (SWRCB) has authority over State water rights and water quality policy. The act divided the state into nine regional basins, each under the jurisdiction of a Regional Water Quality Control Board (RWQCB), to oversee water quality on a day-to-day basis at the local and regional levels. RWQCBs engage in various water quality functions in their respective regions and regulate all pollutant or nuisance discharges that may affect either surface water or groundwater.

California Building Code: CALGreen

The California Building Standards Commission adopted the nation's first green building standards in July 2008, the California Green Building Standards Code, also known as CALGreen. CALGreen applies to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure in California. The code establishes planning and design standards for sustainable site development, including water efficiency and water conservation measures that typically reduce water consumption by 20 percent. CALGreen is updated every three years to allow for consideration and possible incorporation of new low-flow plumbing fixtures and water-efficient appliances. The mandatory provisions of CALGreen became effective

January 1, 2011, and the latest version, the 2022 California Green Building Standards Code, became effective on January 1, 2023. The building-efficiency standards are enforced through the local building permit process. Section 5.408, *Construction Waste Reduction Disposal and Recycling*, mandates that, in the absence of a more stringent local ordinance, a minimum of 65 percent of nonhazardous construction and demolition debris must be recycled or salvaged. The Code requires applicants to prepare and submit a Construction and Demolition Recycling & Waste Reduction Plan that is submitted to the City for approval. The plan must:

- Identify the materials to be diverted from disposal by recycling, reuse on the project, or salvage for future use or sale.
- Specify if materials will be sorted on-site or mixed for transportation to a diversion facility.
- Identify the diversion facility where the material collected will be taken.
- Supply weight tags for the entire period of the project for compliance review.

General Waste Discharge Requirement

On May 2, 2006, the SWRCB adopted a General Waste Discharge Requirement (Order No. 2006-0003) and a monitoring and reporting program (Order No. WQ-2013-0058-EXEC) for all publicly owned sanitary sewer collection systems in California with more than one mile of sewer pipes. The order provides a consistent statewide approach to reducing sanitary sewer overflows (SSO) by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system, to prevent sanitary sewer waste from entering the storm sewer system, and to develop a Sewer System Management Plan (SSMP). The General Waste Discharge Requirement also requires that SSOs be reported to the SWRCB using an online reporting system. The SWRCB has delegated authority to the nine RWQCBs to enforce these requirements within their regions.

The SSMP evaluates existing sewer collection systems and provides a framework for minimizing the frequency and impact of SSOs. The SSMP includes an overflow emergency response plan; a fats, oil, and grease control program; scheduled inspections and condition assessment; design and construction standards; capacity assessment and management; and a monitoring program.

Assembly Bill 939

In 1989, the State Legislature passed Assembly Bill 939 (AB 939), the Integrated Waste Management Act, which required cities and county to prepare, adopt, and submit a “source reduction and recycling element” to the County that characterizes waste disposal, source reduction, recycling, composting, solid waste capacity, education/public information, funding, special waste, and household hazardous waste to ensure sufficient solid waste disposal capacity. In addition, AB 939 mandated that by January 1, 2000, each city must achieve a waste diversion

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goal of 50 percent through source reduction, recycling, and composting activities. In October 2011, the Legislature passed AB 341, which increased the goal of diversion of waste from landfills from 50 percent to 75 percent by 2020. In addition, AB 341 requires mandatory commercial waste recycling. Further, AB 1826 requires that businesses and multifamily residences of five or more units that generate a specified amount of organic waste to arrange recycling services for organic waste.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) was enacted in 2014 and aims to ensure the long-term sustainability of groundwater resources by requiring local agencies to develop and implement Groundwater Sustainability Plans (GSPs) for high- and medium-priority basins. These plans aim to achieve sustainable groundwater management by balancing the amount of water pumped out with the amount recharged.

LOCAL

Irvine Ranch Water District

The Irvine Ranch Water District (IRWD) published water conservation policies, practices, and procedures in 2018 to provide long-term water reliability for existing and future customers. IRWD water conservation policies include the following:

1. IRWD is committed to “Making Water Conservation a California Way of Life.”
2. An integrated and sustainable approach to California water resource management must recognize the role that water use efficiency and supply development play in ensuring an adequate and reliable water supply for California’s many diverse communities.
3. Water efficiency and conservation programs are most successful if they are locally designed, implemented, and managed.
4. Water use efficiency and conservation programs should be cost effective and economically viable.
5. Local agencies should take steps to preserve fiscal stability and water affordability when implementing water use efficiency and conservation programs.
6. The benefits and consequences of statewide, regional, and local water use efficiency and conservation policies should be understood prior to being implemented. At a minimum, the benefits and consequences to water and wastewater management, systems, infrastructure, operations, and recycled water supplies should be examined.

7. Statewide and regional policies should encourage and reward previous investments in beneficial water use efficiency strategies, including water recycling, water-budget based rate structures that create a nexus between those overusing water and those bearing the costs of overuse, and investments in distribution system integrity, among others.
8. Statewide and regional water use efficiency goals must incentivize and account for local investments in drought resilient supplies, including investments in recycled water and potable reuse.
9. Conservation strategies should include promoting both the expansion and efficient use of recycled water and potable reuse.
10. State agencies should engage urban retail water suppliers during implementation and development of methodologies, and regulations related to “Making Water Conservation a California Way of Life.”

Irvine Ranch Water District Sewer System Management Plan 2018

The IRWD Sewer System Management Plan evaluates the operation and maintenance of all parts of the IRWD sanitary sewer system and identifies the overflow emergency response plan. The Sewer System Management Plan identified the capacity of the system and the adequacy of a sewer collection system.

City of Irvine Municipal Code

The Irvine Municipal Code includes various directives pertaining to utilities and services.

Title 6, Division 7, Chapter 10: Mandates recycling or diversion of construction and demolition debris from landfills. Projects must adhere to the California Green Building Standards Code (CALGreen) sections 4.408, 5.408, and 5.713.8.

Title 6, Division 8, Chapter 3: Establishes water quality standards and requirements for stormwater pollution prevention. Compliance includes installing and maintaining devices and implementing practices to prevent pollutants from entering the drainage system.

Title 6, Division 4, Chapter 4: Addresses underground utilities, including regulations for electricity infrastructure.

Title 5, Division 1, Chapter 4: Regulates the installation and maintenance of electrical systems to ensure safety and compliance with applicable standards.

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Construction and Demolition Debris Recycling Ordinance

The City of Irvine adopted a Construction and Demolition Debris Recycling Ordinance (07-18) in 2007. Under this ordinance, projects are required to recycle or reuse 75 percent of concrete and asphalt, and at least 65 percent of all debris generated. Covered projects include new residential and nonresidential development and most projects involving nonresidential demolition and/or renovation in accordance with requirements of the California Green Building Standards Code. Applicants for projects are required to submit a waste management plan to the City prior to obtaining permits for construction, demolition, or renovation activities covered by the ordinance.

2045 Irvine General Plan

The 2045 Irvine General Plan provides the basis for the City's policies and represents the community's basic values, ideals, and aspirations. The General Plan establishes policies to guide development and conservation through 2045. Key policies of the General Plan relevant to this chapter's analysis of the proposed project's potential utilities impacts are included below. The set of policies listed is not an exhaustive list of all of the General Plan policies applicable to the proposed project; rather, it is a selection of policies relevant to the impact discussion in this chapter.

Environmental Protection and Climate Action Element

Objective EPCA-5. Achieve and maintain compliance with water quality standards set by regulatory agencies, such as the USEPA and the SWRCB, to safeguard public health and the environment.

- **Policy (a).** Implement measures to prevent and control pollution from various sources, including industrial discharges, stormwater runoff, agricultural activities, and wastewater treatment plants.
- **Policy (d).** Continue to promote water conservation practices and sustainable water use behaviors among residents, businesses, and municipal operations to reduce water consumption and minimize strain on water resources.

Goal 6: Reduce energy consumption and promote energy efficiency in Irvine.

Objective EPCA-6. Achieve significant reductions in per capita energy consumption across residential, commercial, and municipal sectors while promoting the adoption of renewable energy sources and energy-efficient technologies.

- **Policy (a).** Continue, through the efforts of CALGreen, establish and enforce energy efficiency standards and building codes for new construction and major renovations to improve the energy performance of buildings and reduce energy demand.

- **Policy (b).** Continue to require energy-efficient building design, insulation, HVAC systems, lighting, and appliances to minimize energy consumption and lower utility costs for residents and businesses.

Goal 7: Reduce waste generation, promote sustainable waste management practices, and maximize resource recovery in Irvine.

Objective EPCA-7. Achieve significant reductions in per capita waste generation and increase diversion rates through comprehensive waste reduction, reuse, recycling, and composting initiatives, while minimizing landfill disposal and associated greenhouse gas emissions.

- **Policy (d).** Cooperate in guiding the development and improvement of a solid waste disposal system within the County of Orange that will meet the needs of the City and protect the City from damage by unplanned disposal of refuse.

Goal 10: Promote sustainable land use practices in Irvine.

- **Policy (c).** Integrate green infrastructure elements, such as parks, greenways, and open spaces, into land use planning and development projects to manage stormwater runoff, improve air and water quality, and enhance ecological connectivity and biodiversity.

3.10.2 Existing Conditions

WATER

As stated in DEIR Section 3.6, *Hydrology and Water Quality*, the project site is within the Coastal Plain of Orange County groundwater basin, also known as Basin 8-1, and is within the service area of the IRWD. IRWD's water resource portfolio consists of imported water, local groundwater, recycled water, and local surface water (City of Irvine 2024b). Approximately 50 percent of IRWD's overall water supply comes from local groundwater wells in Basin 8-1, and Irvine and Lake Forest sub-basins. IRWD is an operator of groundwater-producing facilities in both the main Basin and the subbasins. Replenishment supplies for the Basin come from a variety of sources, including increased flows from the Santa Ana River, purified recycled water, water purchases from the Metropolitan Water District, and the development of additional local supplies. The Orange County Water District (OCWD) has established a drought-resistant source of replenishment through its Groundwater Replenishment System (GWRS), an advanced water purification system. Operational since 2008, the GWRS was expanded in 2015 to increase its capacity from 72,000 to 100,000 acre-feet (AF) per year, and is currently undergoing a further expansion to reach up to 150,000 AF annually (IRWD 2020).

IRWD also produces water from the Irvine sub-basin, which forms the southern-most portion of the Basin. This sub-basin has a perennial groundwater yield estimated at 13,000 AF. In addition,

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IRWD operates other small wells which produce non-potable quality water from the sub-basin. Altogether, these wells can produce up to 4,100 AFY of non-potable water from the Irvine sub-basin, which can be used to supplement the IRWD recycled water distribution system (IRWD 2020). Treated and untreated imported water is purchased from the Metropolitan Water District of Southern California (MWD) through the Municipal Water District of Orange County (MWD OC) (City of Irvine 2024b).

Total water demand for the City was approximately 56,374 AF in 2020. IRWD serves about 20 percent of Orange County and has more than 1,500 miles of drinking water pipelines, more than 900 miles of sewer pipes, 53 reservoirs, and two large water recycling facilities. Distribution pipelines within the City have a total length of approximately 78 miles. The IRWD is projected to have a water supply capacity of 178,727 AFY and a water supply surplus of 90,704 AFY through 2040 (Irvine 2025b). Based on IRWD's 2020 Urban Water Management Plan, the total water supplies available to IRWD will meet the projected water demands of existing and planned uses through 2040 under a single dry-year condition and over five years of consecutive drought, as well as in normal year conditions (IRWD 2020).

WASTEWATER AND RECYCLED WATER

IRWD collects and treats nearly all the sewage generated within the IRWD service area, including the project site. Sewage collected through IRWD's system is sent to one of the two IRWD water recycling plants, the Michelson Water Recycling Plant (MWRP) or the Los Alisos Water Recycling Plant (LAWRP). The sewage generated in IRWD's service area is treated to disinfected, tertiary recycled water standards. The MWRP and LAWRP have a tertiary treatment capacity of 28 million gallons per day (mgd), and 7.5 mgd, respectively (City of Irvine 2024b; IRWD 2025).

On average, IRWD delivers about 28 million gallons of recycled water per day to 6,000 customers through 561 miles of pipelines. In the event IRWD does not have sufficient recycled water supplies to meet customer demands, IRWD can supplement the recycled water system with untreated imported water (IRWD 2020).

STORMWATER INFRASTRUCTURE

The local storm drain system is owned by the City and maintained by the City's Public Works and Transportation Department. The regional flood control system is owned and maintained by the Orange County Public Works Department (OCPW). Lines typically range in size from 18 to 60 inches (with some up to 96 inches), with the local drainage system consisting of the smaller diameter pipes and the larger flood control facilities consisting of trapezoidal channels or riverine systems. Drainage facilities are typically either RCP pipe or box culverts to convey stormwater. Local storm drain facilities are designed to accommodate 25-year flow requirements, and the regional County facilities are designed to accommodate 100-year storm

events. The City conveys stormwater to OCPW regional conveyance facilities and has an ongoing monitoring and maintenance procedure to ensure the overall system functions effectively. To prevent significant flooding during storm events, OCPW and the City monitors and maintains its respective channels and storm drain systems to ensure they are conveying storm flows as designed. The project site is located entirely within the Santa Ana Regional Water Quality Control Board (RWQCB) jurisdictional area (City of Irvine 2024b).

ENERGY INFRASTRUCTURE

Electricity

Electricity is provided to the campus by the Orange County Power Authority and is accessed via Southern California Edison's (SCE) infrastructure. SCE's total mid-electricity consumption, or mid-peak hours for electricity usage, in SCE's service area was 2,102 gigawatt-hour (GWh) in 2024 and is forecast to increase to 2,541 GWh in 2035. The total mid-electricity consumption in SCE's service area is forecast to increase by approximately 439 GWh between 2024 and 2035 (City of Irvine 2024b).

Natural Gas

The City of Irvine's natural gas service is provided by the Southern California Gas Company (SoCalGas). Total natural gas supplies available to SoCalGas in the year 2022 was estimated at 2,416 million cubic feet per day (City of Irvine 2024b).

Solid Waste

Solid waste recovery, and conveyance within the City of Irvine are operated by Waste Management, Inc (WM). There are three landfills in the County managed by WM, the Olinda Alpha Landfill, Frank R. Bowerman Landfill, and Prima Deshecha Landfill (City of Irvine 2024b). Solid Waste is transported by WM and transported to the Frank R. Bowerman Landfill which has a remaining capacity of 160,896,082 Cubic Yards (CalRecycle 2025). The landfill is permitted for 11,500 tons per day (TPD) maximum with an 8,500 TPD annual average. The landfill has enough projected capacity to serve businesses until approximately 2053 (OC Waste and Recycling 2025).

OTHER UTILITIES

Telecommunications and Internet Providers

Internet, phone, and satellite television services are currently provided by a variety of private sources, including AT&T, Time Warner Cable, Spectrum, Verizon, and other sources (City of Irvine 2024b).

3.10.3 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the California Environmental Quality Act (CEQA) Guidelines states that the proposed project would result in a significant impact related to utilities if it would:

- a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.
- c) Result in a determination by the wastewater 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.
- d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
- e) Comply with federal, state, and local statutes and regulations related to solid waste.

METHODOLOGY

To evaluate the potential impacts of the proposed project on utilities and service systems, relevant information was reviewed from the City of Irvine General Plan, the General Plan EIR, and data from utility providers serving the project site. These sources were analyzed to determine whether implementation of the proposed project would affect existing utility infrastructure and service capacity.

3.10.4 Project Impact Analysis

-
- a) **The proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.**
-

WATER

The proposed project consists of new lighting poles for the track and field and utility trenching. No new development is proposed that would require the installation of a water line connection, and school capacity would not increase. Water is currently provided to the campus and project site by the IRWD. Potable water would continue to be provided to the campus through connections to the existing water mains. No water system improvements are proposed. As further discussed under Section 3.10(b), the IRWD provides water to the campus from MWDOC, local groundwater and surface water supplies, and recycled water (IRWD 2020). Therefore, the City has sufficient water capacity to continue serving the project site. The proposed project would not require the construction of new or expanded water facilities that could cause significant impacts. Therefore, this impact is **less than significant**.

WASTEWATER

No development is proposed that would generate wastewater or entail installation of a wastewater line connection to serve any new buildings, and school capacity would not increase. As further discussed in Section 3.10(c), the proposed project would not substantially increase wastewater. Wastewater generated during sporting events would be conveyed to the existing sewer lines on campus. Therefore, the proposed project would not require the construction of new or expanded wastewater facilities that could cause significant environmental effects. Therefore, this impact is **less than significant**.

STORMWATER INFRASTRUCTURE

The proposed project would result in a slight increase in impervious surfaces compared to existing conditions with the installation of new lighting poles and base. The increase in impervious surfaces due to the proposed project would be minor, and the majority of the project site would remain in its current state. No new buildings are proposed, and school capacity would not increase. Expansion of hardscaping would be limited to the installation of the stadium light poles in concrete and the installation a concrete pad for the area of the power distribution equipment and lighting control equipment. Additionally, installation of the conduit lines would result in demolition and then the reinstallation of existing hardscaping and would not result in an expansion of hardscaping. No other areas would be hardscaped. The

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stormwater from the proposed project would be conveyed to existing stormwater drains on campus or to the neighboring storm drain system along roadways. The proposed project would not significantly increase or change the stormwater volume, rate, or pattern beyond connecting to the existing stormwater system. Therefore, this impact is **less than significant**.

ENERGY INFRASTRUCTURE

Electricity is provided by SCE. The proposed project would connect to existing electric power infrastructure for operation. Underground system electrical conduit lines would be installed to connect the proposed stadium light poles to power distribution equipment and lighting control equipment that would be located north of the track and field. Additionally, the proposed project would also include the installation of infrastructure to allow for a future Public Address (PA) system.

Although the proposed project would result in a higher electricity demand compared to existing conditions, the increase would be negligible compared to SCE's capacity. The proposed project would use LED luminaires that are energy efficient and last longer than metal halide or high-pressure sodium lights. Increased electricity use would only occur during nighttime sporting events, which are intermittent. Implementation of the proposed project would not result in major construction related to electrical power facilities that could cause significant environmental impacts. Therefore, impacts would be **less than significant**.

Natural gas service is provided by SoCalGas. The proposed new lighting poles will be all-electric. No new development that would require the use of natural gas is proposed. The proposed project would not require the construction of new or expanded natural gas facilities. Therefore, this impact is **less than significant**.

OTHER UTILITIES

There are existing telecommunications facilities and services in the immediate area for the proposed project to connect to, if necessary. The proposed project would not require additional telecommunications facilities demand. The proposed project would not require off-site construction or relocation of utilities, and therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

-
- b) The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.**
-

As stated in Section 3.10.2, *Existing Conditions*, IRWD is projected to have a water supply capacity of 178,727 AFY and a water supply surplus of 90,704 AFY through 2040, which would

far exceed the proposed project's water supply demand (City of Irvine 2024b). Additionally, the 2020 UWMP includes a Water Shortage Contingency Plan (WSCP), which provides procedures for responding to various levels of supply shortages through a combination of supply augmentation and demand management measures (IRWD 2020).

The proposed project's increased water demand during sporting events would be negligible because the proposed project would not increase the campus's enrollment capacity; the events at the project site are existing events that already occur on campus; and the increased water demand would only occur during events/games, which are intermittent. No development is proposed that would require additional water use or the installation of a water line connection and school capacity would not increase. Based on the UWMP, the IRWD would have adequate water supplies to meet the water demands of the proposed project and the City during normal, dry, and multiple dry years. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

c) The proposed project would result in a determination by the wastewater 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.

No development is proposed that would generate wastewater or entail installation of a wastewater line connection to serve any new buildings and school capacity would not increase. Wastewater generation would occur during the operation of nighttime sporting events. The proposed project's increase in wastewater generation would be low compared to existing conditions for three reasons: first, the proposed project would not increase the campus's enrollment capacity; second, the events at the project site are existing events that already take place on campus; and third, the increased wastewater generation would only occur during events/games, which are intermittent. The proposed project's wastewater generation would be within the MWRP and LAWRP's remaining capacity of 28 mgd and 7.5 mgd, respectively. The proposed project would not require construction of new or expanded wastewater treatment facilities. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

d) The proposed project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

During construction, the proposed project would generate some demolition debris from clearance and waste debris from utility trenching. Construction solid waste generation would be minimal because construction of the proposed project would not require the demolition of

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buildings. CALGreen Section 5.408, Construction Waste Reduction, Disposal, and Recycling, requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

The proposed project would not increase student enrollment. The solid waste generated by the proposed project's operational activities would be negligible because the proposed project would not increase the campus's enrollment capacity and sporting and other events would occur infrequently and seasonally within the school year.

The waste generation as a result of the proposed project would be within the remaining capacity of 160,896,082 Cubic Yards at the Frank R. Bowerman Landfill remaining capacity of 160,896,082 Cubic Yards, and the proposed project would continue to be serviced by WM and regional landfills. The proposed project would comply with the required regulation pertaining to construction and demolition waste and would not adversely impact landfill capacity or impair attainment of solid waste reduction goals. Therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

e) The proposed project would comply with federal, state, and local statutes and regulations related to solid waste.

The proposed project is required to comply with federal, state, and local statutes and regulations related to solid waste and would continue this practice. The Construction and Demolition Debris Recycling Ordinance requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction and operation be recycled and/or salvaged for reuse. The City of Irvine implements policies to reduce generation of solid waste through the City's debris recycling and reuse ordinance (PPP UTIL-7), waste reduction (PPP UTIL-8) and City standard conditions related to solid waste recycling (PPP UTIL-9 and PPP UTIL-10). Project development would not conflict with laws governing solid waste disposal, and therefore, this impact is **less than significant**.

Significance without Mitigation: Less than significant.

3.10.5 Cumulative Impact Analysis

The proposed project would not have a cumulative effect related to utilities and service systems.

As defined in Section 15130 of the State CEQA Guidelines, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for utilities and

services. The study area for the assessment of cumulative impacts related to utilities and services is the Northwood HS campus. There are currently no other projects proposed to occur within the campus.

IRWD would have a water supply surplus of 90,704 AFY through 2040, which would far exceed the proposed project's expected increase in water demand. No development is proposed that would generate wastewater or entail installation of a wastewater line connection to serve any new buildings. Wastewater and solid waste generation from new operational uses would be negligible. The proposed project would result in a slight increase in impervious surfaces compared to existing conditions with the installation of new lighting poles and base. The increase in impervious surfaces due to the proposed project would be minor, and the majority of the project site would remain in its current state. The proposed project would connect to existing electric power infrastructure for operation. Although the proposed project would result in a higher electricity demand compared to existing conditions, the increase would be negligible compared to SCE's capacity. Furthermore, the proposed project would connect to the existing telecommunications infrastructure (telephone, internet, wireless services) present within the Northwood HS campus. Additionally, Frank R. Bowerman Landfill has enough projected capacity to serve residents and businesses until approximately 2053.

Overall, the proposed project would not introduce new uses to the campus and would not substantially alter the campus beyond compared to existing conditions. Therefore, the proposed project would not have a cumulative effect related to utilities and service systems, and this impact is **less than significant**.

Significance without Mitigation: Less than significant.

3.10.6 References

- CalRecycle. 2025. Frank R. Bowerman Landfill Site Summary.
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4. ALTERNATIVES TO THE PROPOSED PROJECT

4.1 INTRODUCTION

This chapter presents the alternatives analysis for the Northwood High School Field Lighting Improvement Project (proposed project), as required by the California Environmental Quality Act (CEQA). 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 Section 15126.6[a]).

The discussion includes an explanation of the methodology used to select alternatives to the proposed project, with the intent of identifying potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified for the proposed project while still meeting most of the basic project objectives, pursuant to CEQA Guidelines Section 15126.6(a). This chapter identifies a reasonable range of alternatives that meet these criteria, and these alternatives are evaluated with respect to minimizing adverse environmental effects as compared to the proposed project. It also describes other alternatives and alternative concepts that were considered but eliminated from detailed consideration and the reasons for their elimination. For the alternatives selected for analysis, this chapter evaluates the impacts of the alternatives against baseline environmental conditions and compares the potential impacts of the alternatives with those of the proposed project. Finally, as required under CEQA Guidelines Section 15126.6(e), based on this analysis, this chapter then discusses the Environmentally Superior Alternative.

The following discussion is intended to inform the public and decision makers of feasible alternatives to the proposed project that would avoid or substantially lessen any of the significant effects of the proposed project. Section 15126.6, Consideration and Discussion of Alternatives to the Proposed Project, of the CEQA Guidelines states that:

An EIR shall describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for

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selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

4.2 FACTORS CONSIDERED WHEN DEVELOPING ALTERNATIVES

This section describes the basis for determining the range of CEQA alternatives and identifies the specific alternatives that are analyzed in this Draft Environmental Impact Report (DEIR). The primary factors considered when determining feasible alternatives to the proposed project are the identified project objectives and those significant impacts that have been identified for the proposed project. Therefore, these two considerations are summarized below.

4.2.1 Project Objectives

Chapter 2, *Project Description*, provides objectives that 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. The following specific objectives have been identified for the proposed project:

1. Provide adequate athletic facilities at Northwood HS to accommodate school sport games and other school events at the campus.
2. Provide lighting to allow night use of the track and field to accommodate school-related events and activities.
3. Utilize existing space to enhance opportunities for after-school athletic and extracurricular activities.
4. Enhance sense of community by allowing home games on campus.
5. Upgrade the athletic fields to increase school pride.

4.2.2 Significant Impacts

As described, apart from the No Project Alternative, other alternatives to a project should be evaluated because of their ability to feasibly attain most of the basic objectives of the project and avoid or lessen the project's identified significant impacts. The proposed project would potentially result in three significant impacts.

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LESS-THAN-SIGNIFICANT IMPACTS WITH MITIGATION

The following impacts were found to be less than significant with implementation of mitigation measures.

- **Impact CUL-1:** Project development would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
- **Impact GEO-1:** Construction of the proposed project could encounter unique paleontological resources during ground-disturbing activities.
- **Impact TCR-1:** Implementation of the proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, pursuant to criteria set forth in Public Resources Code Section 5020.1(k).

SIGNIFICANT AND UNAVOIDABLE IMPACTS

This DEIR did not identify any significant and unavoidable adverse impacts, as defined by CEQA, that would result from implementation of the proposed project.

4.3 ALTERNATIVES CONSIDERED BUT REJECTED

As described in Section 4.1, *Introduction*, CEQA Guidelines Section 15126.6(c) requires EIRs to identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. CEQA Guidelines Section 15126.6(c) provides that among the factors that may be used to eliminate alternatives from detailed consideration in the EIR are (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts. The following is a discussion of alternatives considered and rejected, along with the reasons that alternative was not included in the analysis.

4.3.1 Alternative Development Area

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 Section 15126.6[f][2][A]). Key factors in evaluating the feasibility of potential off-site locations for EIR project alternatives include:

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- If it is in the same jurisdiction.
- Whether development as proposed would require a general plan amendment.
- Whether the project applicant could reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent). (CEQA Guidelines Section 15126.6[f][1])

The Alternative Development Area Alternative would result in the development of the proposed project in an alternate site. The proposed project by design is intended for the Northwood HS campus. Consequently, an alternative off-site location is not a feasible alternative and would not meet the project objectives. Impacts that are identified as being potentially significant under the proposed project are due to construction-related activity such as inadvertent discovery of significant archaeological or cultural resources during excavation. These impacts could potentially occur regardless of the proposed project's location. For these reasons, an alternative that is in another location within the District is not addressed in this chapter. Because the project site is already developed as a school with athletic facilities, constructing the proposed project on a different site would likely increase environmental impacts. It was determined, therefore, that it is unlikely that there is an alternative project site that could potentially meet the objectives of the proposed project and reduce significant impacts of the project as proposed.

4.4 ALTERNATIVES SELECTED FOR ANALYSIS

The following 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 and that may avoid or substantially lessen any of the significant impacts of the proposed project.

- Alternative 1: No Project Alternative
- Alternative 2: Restricted Hours Alternative

4.5 ALTERNATIVE 1: NO PROJECT ALTERNATIVE

The CEQA Guidelines require analysis of a No Project Alternative. The purpose of this alternative is to describe and analyze a scenario under which the proposed project is not implemented so that decision makers can compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The No Project Alternative analysis must discuss the existing site conditions as well as what would reasonably be expected to occur in the foreseeable future based on any current plans, and it must be consistent with available infrastructure and community services.

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Under the No Project Alternative, the District would not approve any portion of the proposed project on the Northwood HS campus, and none of the mitigation measures identified within this DEIR would be necessary. Under the No Project Alternative, the proposed improvements at Northwood HS would not be implemented. The project site on campus would not have permanent lighting nor a PA system. The school would continue to operate under its current conditions, and no changes would take place.

4.5.1 Relationship to Project Objectives

Under the No Project Alternative, none of the District's objectives for the proposed project would be met.

4.5.2 Comparison Analysis of Environmental Effects

AESTHETICS

Under this alternative, the project site would not have permanent lighting nor a PA on the football field and track. No structural or other visible changes to the existing Northwood HS field would occur. Since no physical or operational changes would occur at the project site, this alternative would result in no new impacts to visual/aesthetic resources. Specifically, this alternative would not create new sources of light spill and glare as a result of installing light poles. Overall, the No Project Alternative would lessen the less than significant aesthetic impacts of the proposed project and avoid the less than significant light and glare impacts. Impacts under this alternative would be less than those of the proposed project.

AIR QUALITY

No construction would occur under this alternative; therefore, no construction-related air quality impacts would occur. Construction-related impacts would be less than the less than significant impacts of the proposed project. Operation (i.e., student enrollment, staffing, and general operational characteristics) under this alternative would remain similar to existing conditions. As discussed in Chapter 2, *Project Description*, the proposed project would not change enrollment capacity and staffing of Northwood HS. Therefore, operational-related air quality impacts under this alternative would be similar to the less-than-significant impacts of the proposed project. Overall, the No Project Alternative would result in air quality impacts that are less than those of the proposed project.

CULTURAL RESOURCES

The No Project Alternative would not include any ground-disturbing activities, therefore, potential construction-related impacts to subsurface unknown archaeological resources would

ALTERNATIVES TO THE PROPOSED PROJECT

be avoided and impacts would be less than the proposed project. The No Project Alternative would avoid the less than significant (after mitigation) impacts on cultural resources from the proposed project.

GEOLOGY AND SOILS

No new construction activities, including ground disturbance, would occur under the No Project Alternative. Therefore, potential construction-related impacts to unstable soils and subsurface unknown paleontological resources would be avoided. Construction impacts under this alternative would be less than the proposed project. Impacts related to seismic hazards would be similar to the proposed project, as they are determined by site-specific geologic conditions rather than project design or construction. Overall, the No Project Alternative would avoid the less than significant (after mitigation) geology and soil impacts of the proposed project and impacts under this alternative would be less than those of the proposed project.

HAZARDS AND HAZARDOUS MATERIALS

Because no development would occur under the No Project Alternative, construction impacts related to hazards or hazardous materials would be less than the proposed project. This alternative would continue to use, transport, and handle small quantities of hazardous materials typical of a school during operation (such as cleaning supplies, science laboratory chemicals, pesticides and landscaping materials). Therefore, impacts from hazardous materials during operation would be similar to the Proposed Project. Overall, the No Project Alternative would result in less hazardous and hazardous materials impacts than the proposed project.

HYDROLOGY AND WATER QUALITY

Water quality conditions, groundwater supplies, drainage patterns, and surface water runoff would remain the same under the No Project Alternative because no construction or new development would occur. This alternative would not introduce new sources of water pollutants from the construction phase, and the impacts would be less than the proposed project during construction. This alternative would continue to operate as a high school with the same student enrollment capacity and staffing as existing conditions and the proposed project. This alternative would not increase impervious surfaces on the project site, and impacts related to surface runoff would be less than the proposed project. Therefore, the impacts for the operational phase would be reduced compared to the less than significant impacts of the proposed project. Overall, the No Project Alternative would result in less hydrology and water quality impacts than the proposed project.

NOISE

No construction noise impacts would occur under the No Project Alternative; therefore, the construction noise impacts would be less than the proposed project. Specifically, this alternative

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would avoid the construction noise impacts to on-site school receptors and would avoid construction vibration impacts. Under this alternative, the campus would continue to operate as a high school campus, but no PA system would be installed to be used during events. Therefore, operational impacts under the No Project Alternative would be less than the less than significant operational noise impacts of the proposed project. Overall, the No Project Alternative would result in less noise impacts than the proposed project, and construction noise and vibration impacts would be avoided.

TRANSPORTATION

There would be no construction under the No Project Alternative, and therefore there would be no impacts as a result of construction-related traffic. Operation of the campus would remain the same under this alternative, games and practices would continue to be held off-site, and increases in VMT under the proposed project would be avoided. Therefore, the less than significant impacts of the proposed project would be reduced under the No Project Alternative. Overall, the No Project Alternative would result in less transportation impacts than the proposed project, and traffic impacts would be avoided.

TRIBAL CULTURAL RESOURCES

The No Project Alternative would not include any ground-disturbing activities, therefore, potential construction-related impacts to subsurface unknown tribal cultural resources would be avoided and impacts would be less than the proposed project. Overall, the No Project Alternative would avoid the less than significant (after mitigation) cultural resources impacts of the proposed project.

UTILITIES AND SERVICE SYSTEMS

No construction or expansion of utilities would occur under this alternative, therefore, no impacts to utilities and service systems would occur. Northwood HS would continue utilizing existing utilities serving the campus. Impacts related to the expansion of utilities would be less than the less than significant impacts of the proposed project. Operational uses under this alternative would remain the same, no lighting poles or PA system would be installed. Therefore, increased demand for utilities would not occur and operational-related impacts under this alternative would be less than the less than significant impacts of the proposed project. Overall, the No Project Alternative would result in less utilities impacts than the proposed project.

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4.6 ALTERNATIVE 2: RESTRICTED HOURS ALTERNATIVE

Under the Restricted Hours Alternative, the proposed Northwood High School Field Lighting Improvement Project would be implemented and would include the installation of four new athletic field lights around the existing football field infrastructure to allow for a future public address (PA) system. Under this Alternative, the difference from the proposed project is that field use would be required to stop at 9:00 p.m. and lights would turn off at 9:00 p.m., instead of 10:00 p.m.

4.6.1 Relationship to Project Objectives

Alternative 2, Restricted Hours Alternative, would meet project objectives, except for Objective 2, provide lighting to allow night use of the track and field to accommodate school-related events and activities, and Objective 4, enhance sense of community by allowing home games on campus. Under this alternative, the field's use would be reduced by one hour, requiring the lights to be turned off at 9:00 p.m. This would limit some on-campus games and events, ultimately requiring them to continue to be held off-campus.

4.6.2 Comparison Analysis of Environmental Effects

AESTHETICS

Under this alternative, impacts to views, scenic quality, light and glare would be slightly reduced but similar to the proposed project. The proposed light poles would still be installed on campus, however athletic activities and events would be required to end and lights turned off at 9:00 p.m., instead of 10:00 p.m. as proposed. The proposed alternative would result in the same lighting level as the proposed project and would not exceed 0.9 fc at the 150-foot boundary line south of the track and field. The duration of lighting would be reduced, reducing the amount of time which nearby residences could notice light spill and glare from the track and field by one hour each evening. Therefore, under the Restricted Hours Alternative, aesthetic impacts would be slightly reduced but remain less than significant.

AIR QUALITY

The Restricted Hours Alternative would require the same amount of construction as with the proposed project and would generate the same amount of criteria air pollutants. Operation under this Alternative would be similar to the proposed project and would result in the same amount of new daily trips to project site. Therefore, the Restricted Hours Alternative would result in similar air quality impacts compared to the proposed project.

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CULTURAL RESOURCES

The Restricted Hours Alternative would require the same ground-disturbing activities as with the proposed project. Similar to the proposed project, Mitigation Measure CUL-1 would be required to reduce impacts to less than significant. Therefore, potential construction-related impacts to subsurface unknown archaeological resources would be similar to the proposed project. Therefore, the Restricted Hours Alternative would result in similar impacts to cultural resources compared to the proposed project.

GEOLOGY AND SOILS

The Restricted Hours Alternative would require the same ground-disturbing activities as with the proposed project. Thus, potential construction-related impacts to unstable soils and subsurface unknown paleontological resources would be similar to the proposed project. Impacts related to seismic hazards would be similar to the proposed project, as they are determined by site-specific geologic conditions. Similar to the proposed project, Mitigation Measure GEO-1 would be required to reduce impacts to less than significant. Therefore, the Restricted Hours Alternative would result in similar impacts to geology and soils compared to the proposed project.

HAZARDS AND HAZARDOUS MATERIALS

The Restricted Hours Alternative would require the same amount of construction as with the proposed project and construction impacts related to hazards or hazardous materials would be similar to the proposed project. This alternative would continue to use, transport, and handle small quantities of hazardous materials typical of a school during operation (such as cleaning supplies, science laboratory chemicals, pesticides and landscaping materials). Therefore, impacts from hazardous materials during operation would be similar to the proposed project. Overall, the Restricted Hours Alternative would result in similar impacts to hazards and hazardous materials compared to the proposed project.

HYDROLOGY AND WATER QUALITY

Water quality conditions, groundwater supplies, drainage patterns, and surface water runoff would remain the same as the proposed project under the Restricted Hours Alternative because the same amount of construction would occur. This alternative would introduce the same new sources of water pollutants as the proposed project during construction. The Restricted Hours Alternative would increase the same amount of impervious surfaces on the project site as the proposed project, and impacts related to surface runoff would be similar. Therefore, the impacts for the operational phase would be similar compared to the proposed project. Overall, the Restricted Hours Alternative would result in similar impacts to hydrology and water quality compared to the proposed project.

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NOISE

Construction noise, vibration, and operational noise would still be generated under the Restricted Hours Alternative. Additionally, sensitive receptors close to the project site would still be exposed to increases in operational noise due to events. Under this alternative, athletic activities and events would be required to end and lights to be shut off by 9:00 p.m. compared to the project plan of having track/field use end by 10:00 p.m. Compared to the proposed project, this alternative would reduce the impact of the proposed project by shortening the duration of noise exposure by one hour each evening. Therefore, under the Restricted Hours Alternative, noise impacts would be reduced but remain less than significant.

TRANSPORTATION

Construction activities would still take place under the Restricted Hours Alternative and therefore impacts as a result of construction-related traffic would be similar to the proposed project. Operation of the campus would be the same as the proposed project under this alternative, games and practices would be held on-site and increases in VMT would be similar as the proposed project. Therefore, the Restricted Hours Alternative would result in similar transportation impacts compared to the proposed project.

TRIBAL CULTURAL RESOURCES

The Restricted Hours Alternative would include the same ground-disturbing activities as the proposed project, thus, potential construction-related impacts to subsurface unknown tribal cultural resources would be the same. Similar to the Proposed Project, Mitigation Measures TCR-1 through TCR-3 would be required to reduce impacts to less than significant. Overall, the Restricted Hours Alternative would result in similar impacts to tribal cultural resources compared to the proposed project.

UTILITIES AND SERVICE SYSTEMS

The Restricted Hours Alternative would involve the same amount of construction as the proposed project, including the expansion of utilities. As a result, construction-related impacts to utilities would be similar to those of the proposed project. Operational activities under this alternative would also be the same, resulting in similar increases in utility demand. Overall, the Restricted Hours Alternative would result in similar impacts to utilities and service systems compared to the proposed project.

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4.7 SUMMARY OF ALTERNATIVES EVALUATION

Table 4-1, *Comparison of Project Alternative Impacts*, compares the impact of each alternative to impacts of the proposed project. The impacts of each alternative are classified as having a reduced (↓), similar or comparable to (=), or greater (↑) level of impact when compared to the proposed project.

Table 4-1 Comparison of Project Alternative Impacts

Environmental Topic	Proposed Project ¹	Alternative 1: No Project Alternative	Alternative 2: Restricted Hours Alternative
3.1 Aesthetics	LTS	↓	↓
3.2 Air Quality	LTS	↓	=
3.3 Cultural Resources	LTS/M	↓	=
3.4 Geology and Soils	LTS/M	↓	=
3.5 Hazards and Hazardous Materials	LTS	↓	=
3.6 Hydrology and Water Quality	LTS	↓	=
3.7 Noise	LTS	↓	↓
3.8 Transportation	LTS	↓	=
3.9 Tribal Cultural Resources	LTS/M	↓	=
3.10 Utilities and Service Systems	LTS	↓	=

Notes:

- The impacts listed in this column represent the highest significance determination for each respective topic.

NI	No Impact	↓	Reduced impact in comparison to the proposed project
LTS	Less than Significant	=	Similar impact in comparison to the proposed project
LTS/M	Less than Significant with Mitigation	↑	Greater impact in comparison to the proposed project
SU	Significant and Unavoidable		

Table 4-2, *Ability to Meet Proposed Project Objectives*, identifies the ability of each of the project alternatives to meet the proposed project's objectives.

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Table 4-2 Ability to Meet Proposed Project Objectives

Objective	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: Restricted Hours Alternative
1. Provide adequate athletic facilities at Northwood HS to accommodate school sport games and school events at the campus.	Yes	No	Yes
2. Provide lighting to allow night use of the track and field to accommodate school-related events and activities.	Yes	No	No
3. Utilize existing space to enhance opportunities for after-school athletic and extracurricular activities.	Yes	No	Yes
4. Enhance sense of community by allowing home games on campus.	Yes	No	No
5. Upgrade the athletic fields to increase school pride.	Yes	No	Yes

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4.7.1 Summary of Alternative 1: No Project Alternative

The No Project Alternative would not include any ground-disturbing activities and would eliminate the proposed project's potentially significant impacts on cultural resources, geology and soils, and tribal cultural resources associated with the discovery of archaeological and paleontological resources. This alternative would not create new sources of light or cause light spill as a result of installing light poles. Additionally, all impacts related to construction for the proposed project would be avoided with this alternative. Overall, this alternative would result in reduced impacts across all environmental topics. However, the No Project Alternative would not meet any of the project objectives as no changes would occur.

4.7.2 Summary of Alternative 2: Restricted Hours Alternative

The Restricted Hours Alternative would have the same construction and operation characteristics as the proposed project, except field use would be required to stop at 9:00 p.m. and lights would turn off at 9:00 p.m., instead of 10:00 p.m. As a result, impacts related to air quality, cultural resources, geology and soils, hazardous materials, hydrology and water quality, transportation, tribal cultural resources, and utilities and service systems would be similar to those of the proposed project. However, this Alternative would reduce the duration of exposure to light and noise, therefore, impacts to aesthetics and noise would be slightly reduced but would remain less than significant, as with the proposed project. The Restricted Hours Alternative would not meet Objective 2, provide lighting to allow night use of the track and field to accommodate school-related events and activities, and Objective 4, enhance sense of community by allowing home games on campus. Under this alternative, the field's use would be reduced by one hour, requiring the lights to be turned off at 9:00 p.m. This would limit some on-campus games and events, ultimately requiring them to continue to be held off-campus.

4.8 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the proposed project and the alternatives, CEQA Guidelines Section 15126.6 requires that an "environmentally superior" alternative be selected and the reasons for such a selection be disclosed. In general, the environmentally superior alternative is the alternative to the proposed project that would be expected to generate the least number of significant impacts. Identification of the environmentally superior alternative is an informational procedure and the alternative to the proposed project selected may not be the alternative to the proposed project that best meets the goals or needs of the District. Because CEQA Guidelines Section 15126.6(c) requires an evaluation of a reasonable range of alternatives to the proposed project, the proposed project under consideration cannot be identified as the environmentally superior alternative. Additionally, in accordance with CEQA Guidelines Section 15126.6(e)(2), if the environmentally

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superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

The Restricted Hours Alternative is identified as the environmentally superior alternative. By requiring all field use and lighting at the Northwood HS track and field to end at 9:00 p.m. instead of 10:00 p.m., this Alternative would reduce the duration of impacts associated with aesthetics and noise. All impacts would be less than significant with mitigation incorporated. However, the Restricted Hours Alternative would limit some on-campus games and events, ultimately requiring them to continue to be held off-campus; thus, this alternative would not meet all of the project objectives, and would not meet the needs and goals of the school and the District.

5. OTHER CEQA CONSIDERATIONS

This chapter provides a discussion of the effects of the Northwood High School Field Lighting Improvement Project (proposed project) based on the analyses presented in Sections 3.1 through 3.10 of this Draft Environmental Impact Report (DEIR). The topics covered in this chapter include effects found not to be significant, significant and unavoidable impacts, significant irreversible changes to the environment, and growth-inducing effects. A more detailed analysis of the effects that the proposed project would have on the environment, and proposed mitigation measures to minimize significant impacts, are provided in Chapter 3, *Environmental Analysis*, of this DEIR.

5.1 EFFECTS FOUND NOT TO BE SIGNIFICANT

California Environmental Quality Act (CEQA) Guidelines Section 15128, *Effects Not Found to be Significant*, allows environmental issues for which there is no likelihood of significant impact to be “scoped out” and not analyzed further in the EIR. Based on the analysis in the Notice of Preparation (see Appendix A, *Notice of Preparation*, of this DEIR), it was determined that the proposed project would not result in significant environmental impacts related to the following environmental impact topics. These environmental impact topics are not analyzed in Chapter 3, *Environmental Analysis*, of this DEIR.

5.1.1 Agricultural and Forestry Resources

In determining whether impacts on agriculture and farmland are significant environmental effects, lead agencies may refer to the California Important Farmland Finder Map prepared by the California Department of Conservation’s (DOC) Farmland Mapping and Monitoring Program (FMMP), updated in 2022. The FMMP identifies and maps significant farmland. Farmland is classified using a system of five categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The classification of farmland as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance is based on the suitability of soils for agricultural production, as determined by a soil survey conducted by the Natural Resources Conservation Service. The DOC also manages the Williamson Act Contract Land Map showing William Act Contracts, updated in 2017.

The Northwood HS campus is identified as Urban Built-Up Land and is not identified as an area of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2025). The proposed project would occur within the boundaries of the existing Northwood HS campus, which is not zoned for agricultural or forestry use, or under a Williamson Act contract.

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Implementation of the proposed project would not conflict with zoning for agricultural use; no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would be converted to nonagricultural use; and no Williamson Act contract would be effected. Therefore, no impact would occur.

5.1.2 Biological Resources

The project site is on an existing high school campus and is already disturbed and developed. The project site is not suitable breeding or foraging habitat on-site for any sensitive species. There is no native habitat and no suitable habitat for threatened, endangered, or rare species on or near the site. The likelihood of species dispersal, whether plants or wildlife, from surrounding areas to the campus is very low. Therefore, no impact would occur to special-status species.

The project site is not located within a biologically sensitive area or near any wetlands or riparian habitats (USFWS 2025). The project site is not located within a migratory corridor (USGS 2025). The proposed project would require minimal ground disturbance around the existing track/field; however, the entire campus is fully developed with an existing high school and is not suitable to function as a corridor for migratory wildlife. The proposed project is located within the County of Orange Central/Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). However, no activities under the proposed project would conflict with any local policies protecting biological resources. Therefore, no impact to biological resources would occur.

5.1.3 Energy

Implementation of the proposed project would not generate excess energy use. The proposed project would result in short-term construction and long-term operational energy consumption.

Electricity use would vary during construction of the proposed project. The majority of construction equipment would be gas- or diesel-powered, and electricity would not be used to power most of the construction equipment. Electric-powered construction equipment would be include hand tools (e.g., power drills) and lighting, which would result in minimal electricity usage during construction activities. Therefore, project-related construction activities would not result in wasteful or unnecessary electricity demands, and impacts would be less than significant.

Operation of the proposed project would generate new demand for electricity on the project site. Operational use of energy would include stadium lighting for the existing field. The new stadium lighting would use LED lights. In addition, the proposed lights would only be operated during the evening practices or games on the Northwood HS campus. Therefore, operation of

the proposed project would not result in wasteful or unnecessary electricity demands and would not result in a significant impact related to electricity.

5.1.4 Greenhouse Gas Emissions

The proposed project involves the installation and operation of new field lighting on the existing Northwood HS campus. Thus, the greenhouse gas emissions associated with the proposed project would be limited to energy-source emissions (i.e., electricity demand of the proposed field lighting) and construction equipment emissions since the project would not result in an increase in vehicle trip generation, water demand, wastewater and solid waste generation, area sources (e.g., consumer cleaning products), or refrigerants. The proposed project would not generate new vehicle trips to the site and would continue serve existing sports practices and events at Northwood HS. Therefore, the proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in the Connect SoCal Plan, and impacts would be less than significant.

Overall, development and operation of the proposed project would not generate annual greenhouse gas emissions that exceed the South Coast AQMD Working Group bright-line threshold of 3,000 metric tons of carbon dioxide equivalent (MTCO_{2e}) per year for development projects (South Coast AQMD 2010). Therefore, the proposed project's cumulative contribution to greenhouse gas emissions would be less than significant.

5.1.5 Land Use and Planning

The proposed project would occur within the boundaries of the Northwood HS campus. The campus is zoned Institutional and has a General Plan designation of Education Facility. The project site is within an established and operating high school campus, and the proposed project would not alter or conflict with the existing uses of the campus. The surrounding area is fully developed with urban lands uses, including residential land uses. Therefore, no impact to land use and planning would occur.

5.1.6 Mineral Resources

In 1975, the State legislature adopted the Surface Mining and Reclamation Act (SMARA). This designated Mineral Resources Zones (MRZs) that were of statewide or regional importance. The classifications used to define MRZs are:

- **MRZ-1:** Areas where the available geologic information indicates no significant mineral deposits or a minimal likelihood of significant mineral deposits.

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- **MRZ-2:** Areas where the available geologic information indicates that there are significant mineral deposits or that there is a likelihood of significant mineral deposits.
- **MRZ-3:** Areas where the available geologic information indicates that mineral deposits are likely to exist, however, the significance of the deposit is undetermined.
- **MRZ-4:** Areas where there is not enough information available to determine the presence or absence of mineral deposits.

The California Department of Conservation Division of Geological Survey produces Mineral Land Classification studies that identify areas with potentially important mineral resources. The Generalized Mineral Land Classification of Orange County map shows that the area where Northwood HS is located is mapped within an MRZ-1 (DOC 1994). Additionally, the project site is not identified as a mineral resource zone in the Irvine General Plan (City of Irvine 2024). Implementation of the proposed project would not result in the loss of availability of a known mineral resource. No impact to known mineral resources would occur.

5.1.7 Population and Housing

The campus is located within a built-out, urbanized community, and no new roads or extensions of existing roads are proposed. The proposed project does not include the construction of any new homes or businesses or changes to the existing land uses onsite. The proposed project is designed to serve the current and planned student population. The proposed project would not result in increased student capacity. No impacts related to population growth would occur. All proposed improvements would occur within the campus boundaries and therefore would not displace any housing.

5.1.8 Public Services

The proposed project would continue serving the Northwood HS student population. The project site is already served by Orange County Fire Authority (OCFA), and the proposed project would accommodate the existing school programs and students. Northwood HS and surrounding areas are already served by the City of Irvine Police Department (IPD), and the proposed project would not substantially increase the need for police protection services because the student enrollment and capacity would not increase. Impacts to public parks are generally caused by population or employment growth. The proposed project would provide improvements to an existing high school's track/field and would not induce growth or influence housing in the area to create additional demands for public services such as parks or other facilities. Student population is not anticipated to change, therefore there would be no impact to any public services.

5.1.9 Recreation

The proposed project would continue serving the Northwood HS student population. Implementation of the proposed project would not increase the number of people served by the existing parks or other recreational facilities or displace existing recreational facilities so that the use of other parks or recreational facilities would be increased. Student population is not anticipated to change, therefore there would be no impact to any recreational facilities.

5.1.10 Wildfire

The project site is not located within a state responsibility area (SRA) nor is it located within a Very High Fire Hazard Severity Zone (FHSZ), according to the CAL FIRE FHSZs map (CAL FIRE 2025). Installation of sports lighting and necessary utility lines would have minimal impact on the existing drainage and runoff. The sports lighting would be installed on flat surfaces of existing sports facilities, and no slope instability would occur. Therefore, there would be no impacts related to wildfire.

5.2 SIGNIFICANT UNAVOIDABLE IMPACTS

CEQA Guidelines Section 15126.2(a) requires that “direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short- and long-term effects.” CEQA Guidelines Section 15126.2(c) requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Table ES-1, *Summary of Significant Environmental Impacts and Mitigation Measures*, in the Executive Summary of this DEIR summarizes the significant impacts, mitigation measures, and levels of significance with and without mitigation.

Mitigation measures would reduce the level of impact for all significant impacts to a less-than-significant level, and no impacts would remain significant and unavoidable after mitigation measures are applied.

5.3 SIGNIFICANT IRREVERSIBLE CHANGES

Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss whether “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.” The discussion shall consider primary and secondary impacts that generally commit future generations to similar uses, irreversible damage from environmental accidents, and irretrievable commitments of resources.

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The following are the significant irreversible changes that would be caused by the proposed project if it is implemented:

- Construction of the proposed light poles would require the commitment of nonrenewable and/or slowly renewable energy resources, including gasoline, diesel fuel, and electricity; human resources; and natural resources such as sand and gravel, steel and other metals, and water.
- Operation of the proposed project would require continued use of electricity, petroleum-based fuels, fossil fuels, and water, similar to existing school operations.
- Operation of the proposed project would require a continued commitment of social services and public maintenance services (e.g., police, fire, electricity).

The commitment of resources required for the construction and continued operation of the site would limit the availability of resources for future generations or for other uses during the life of the proposed project.

5.4 GROWTH-INDUCING EFFECTS

Section 15126.2(e) of the CEQA Guidelines requires that an EIR discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Typical factors may include the removal of obstacles to population growth, such as through a major expansion of a wastewater plant.

This section evaluates the proposed project's potential to create such growth inducements. As CEQA Guidelines Section 15126.2(e) requires, "[it] must not be assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment." In other words, negative impacts associated with growth inducement occur only where the projected growth would cause significant adverse environmental impacts.

Growth-inducing impacts fall into two categories: direct or indirect. Direct growth-inducing impacts are generally associated with providing urban services to an undeveloped area. Indirect, or secondary, growth-inducing impacts consist of growth-induced in the region by additional demand for housing, goods, and services associated with a population increase caused by or attracted to a new project. This analysis provides an overall discussion of project impacts and considers utility infrastructure and circulation to determine whether the project would result in direct or indirect growth inducement.

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 the proposed 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 DEIR.

The proposed project would result in the construction of light poles at the existing track/field to allow for events to take place beyond daylight hours. The proposed project would not increase student enrollment and would not increase seating. The project site is part of an existing campus and is located in an urbanized area served by existing infrastructure, including water and sewer mains and electricity and natural gas services. The improvements would only affect the existing school site and would not remove obstacles to growth or affect population growth.

The proposed project would provide lighting at the existing track/field at the project site and would not result in an increase in student population. The proposed project would not result in the need for additional public government services or expanded utility infrastructure.

Construction of the proposed project would generate short-term employment that would be absorbed from the regional labor force, so it would not attract new workers to the region.

The proposed project would support athletic programs at the school. District approval would not set a precedent that could encourage and facilitate local and regional activities and government actions that could significantly affect the environment. School construction activities to enhance educational and athletic programs are common state- and nationwide.

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This Draft Environmental Impact Report (DEIR) was prepared by the Irvine Unified School District (IUSD or District) in consultation with the following organizations, consultants, and individuals.

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