DRAFT INITIAL STUDY
MITIGATED NEGATIVE DECLARATION FOR THE LAKEWOOD HIGH SCHOOL AQUATIC CENTER PROJECT LAKEWOOD, CA (Los Angeles County)

Prepared for:

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SECTION 1.0 – PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

1.1 PROJECT PURPOSE

This Initial Study (IS) analyzes the proposed Lakewood High School (Lakewood HS) Aquatic Center Project (Proposed Project). The Proposed Project would develop a new Aquatic Center for the Lakewood HS campus. Long Beach Unified School District (District or LBUSD) is the lead agency for the Proposed Project. This IS has been prepared in accordance with California Environmental Quality Act (CEQA) (Public Resources Code §21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations, §15000 et seq.) and has determined that preparation of a Mitigated Negative Declaration (MND) would be appropriate under CEQA.

1.2 PROJECT LOCATION AND SITE CHARACTERISTICS

1.2.1 Project Location, Setting, and Surrounding Uses

The Proposed Project or Project would be constructed on the existing campus, with the Aquatic Center located on the southern portion of the Lakewood HS campus, located at 4400 Briercrest Avenue, Lakewood, in the County of Los Angeles (Project Site) as shown in Figure 1: Project Location. The campus is bordered by Centralia Street to the north, Lomina Avenue to the east, Harvey Way to the south, and Briercrest Avenue to the west.

The Project Site is zoned Open Space (O-S) and the site is surrounded Single Family (R-1) Residential zoning to the north, east, west, and south. Further from the Project Site are commercial uses to the southeast, and Jose Del Valle Park and MacArthur Elementary School to the northeast.

1.2.2 Existing Conditions

The campus is located on an approximately 32-acre property; comprising ten permanent buildings ranging from one-story to four-story buildings. These buildings are numbered as buildings 1000, 2000, 3000, 4000, 5000 (Gym/Natatorium), 6000, 7000, 8000, and 9000 (Auditorium). John Ford Stadium is located on the east side of campus, baseball/softball fields, tennis courts, and 13 portables are located on the south portion of campus. An additional 12 portables and three Russel bungalow buildings are located to the east of Track and Field.

Lakewood HS was built in 1957; however, modifications and additional buildings were added to the site, including portable structures since that date. Lakewood HS is eligible for the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR) under Criterion 3 as a representative example of a Post-War Modern style school campus and as the work of architect Hugh Gibbs. PCR Services identified eight buildings that contributed to the historic significance of the resource (Buildings 1000, 2000, 4000, 5000, 6000, 8000 9000, and 10000).

Lakewood HS currently contains an indoor pool located in the gymnasium/natatorium which is in the center of campus. On June 16, 2016, LBUSD Master Plan was updated and $3.5 billion of need was identified. On June 23, 2016, LBUSD Board approved a $1.5 billion bond measure for ballot including improving fields, upgrading gyms, aging pools, and athletic fields, and physical education resources among other identified improvements that will improve student health and benefit academic performance. Consequently, Lakewood Natatorium will be converted into a multipurpose gymnasium, and an aquatic center with an outdoor pool will be constructed at the campus. Repurposing the Natatorium into a

multipurpose gymnasium and construction of the new aquatic center increases students' access to safe, supervised indoor and outdoor activities. Additionally, the new competition size outdoor pool benefits students in their training. Students will benefit from accessing a competition-sized pool. The site of the future Aquatic Center currently contains softball fields, which would be shifted within the campus as part of a separate project.

1.3 PROJECT GOALS AND OBJECTIVES

The following objectives would be met with development of the Proposed Project:

- Develop a pool for competitive uses and events at the Lakewood HS Campus.
- Develop a fully functioning aquatic center with offices, lockers, restrooms and a ticket and concession stand.

1.4 PROJECT DESCRIPTION

The Proposed Project includes the construction of a new aquatic facility within the campus. The new aquatic center will be used by swim and water polo teams, physical education to accommodate 54 to 100 students, students with special needs, Special Olympics, and community learn to swim programs.

The Pool and Pool Deck will include:

- A Myrtha Brand, swimming pool that is 51.5 meters long by 25 yards wide, with a 1.5 meter-wide bulkhead. The plan is to have an approximately 30-foot deck surrounding the pool. The pool will be an outside pool.
- Bleachers with a capacity for 500 spectators, and shade coverings over the bleachers
- Stadium lights
- Light-emitting diode (LED) scoreboard with integrated sound system throughout the complex
- Pool deck 30’ surrounding the pool
- Perimeter walls for security and privacy
- Surveillance cameras for security purposes
- Equipment storage enclosure/room

The aquatic center buildings will also include:

- A snack bar/ticket booth
- Americans with Disabilities Act (ADA) compliant changing/locker rooms will boys, girls, and all-gender areas. The building will accommodate 34 +/- changing/shower stalls, and approximately 200 lockers in total.
- A multi-purpose room
- Two offices for staff
- Washer/dryer room
- Chemical storage rooms – easily accessible for truck deliveries
- Mechanical and electrical rooms
- Pool attendant office including a restroom and shower.
- Student, staff, and public restrooms as required by code
- Equipment storage enclosure/room
- Outdoor shower heads

A layout of the Proposed Project is shown in Figure 2: Site Plan.

1.4.1 Event Schedule

The following pool users are expected to use the High School pools in LBUSD, which would include the new Lakewood HS Aquatic Center:

i. High School water polo and swimming
   1. Three levels of girls' polo and swimming
   2. Three levels of boys' polo and swimming

ii. P.E. Classes range in size but can be as large as 54 students and a few instructors. The lessons will be held during school hours.

iii. Parks and Recreation - Learn to swim programs

iv. Special Olympics

v. Private groups - Rentals

vi. YMCA – Summer swim programs

vii. Special needs programs for HS students

The aquatic facility will be in use for the most part with the exception of a few days in a year. Below is a sample schedule based on a normal school year with athletics and physical education:

School Days - P.E. Classes

When school is in session (Sept - June), P.E. Classes will typically use the pool Monday through Friday between the hours of 8 a.m. - 1 p.m. While it may not be every day, PE classes will be in the pool on at least 90% of the days school is in session.

Fall (Aug - Nov) – Boy's Water Polo Season

Practices or games will occur between the hours of 1 p.m. - 8 p.m. (Monday - Friday). There will be some occasional Saturday practices and games, but the majority of the practices and games will occur during the week. Lakewood HS typically has 2-3 games each week during the season.

Winter (Nov - Feb) – Girl's Water Polo Season

Practices or games will occur between the hours of 1 p.m. - 8 p.m. (Monday - Friday). There will be some occasional Saturday practices and games, but the majority of the practices and games will occur during the week. Lakewood HS typically has 2-3 games each week during the season.

Spring (Feb-May) - Boys/Girls Swim Season

Practices or Swim Meets will occur between the hours of 1 p.m. - 8 p.m. (Monday - Friday). There will be some occasional Saturday practices and meets, but the majority of the practices and meets will occur during the week. Lakewood HS typically has 1-2 swim meets each week during the season.

Summer (June-Aug) - Water Polo Summer Camps

During the summer months, boys' and girls' water polo will run summer camps. The practices occur typically between the hours of 7 a.m. - 2 p.m. with some occasional off-season games conducted in the evenings between the hours of 4 p.m. - 8 p.m. The majority of the practices and games occur Monday through Friday.

Permitting outside groups activities will be accommodated when they do not conflict with the needs of the school water polo and swim teams. These typically happen on Saturday or Sunday. More local youth (ages 5-13) club water polo and swim teams may reach out to use the facility once it is built since there will be no other facility like it in the City of Lakewood (City. When the District has permitted these groups in the past for weekend use it has typically occurred between the hours of 8 a.m. - 6 p.m.

1.5 CONSTRUCTION SCHEDULE

The Proposed Project construction is expected to begin in September 2023 and be completed in March 2025.

Construction equipment to be used during construction of the Proposed Project upgrades may include the following items:

- Loaders
- Pick-up trucks
- Backhoes
- Water Truck
- Crane
- Asphalt paver
- Bulldozers
- Fork Lifts
- Concrete trucks/mixer
- Dump trucks

1.5.1 Demolition and Excavation

The estimated total amount of excavation needed for the Proposed Project would include an estimated 9,000 cubic yards of soil export and 5,400 cubic yards of soil import. Alternatively, some of the unsuitable soil may be amended on-site, but the analysis below assumes a worst-case scenario.

1.5.2 Staging Areas

Construction trailers and staging areas will be located within the existing campus.

Figure 1 - Project Location Map

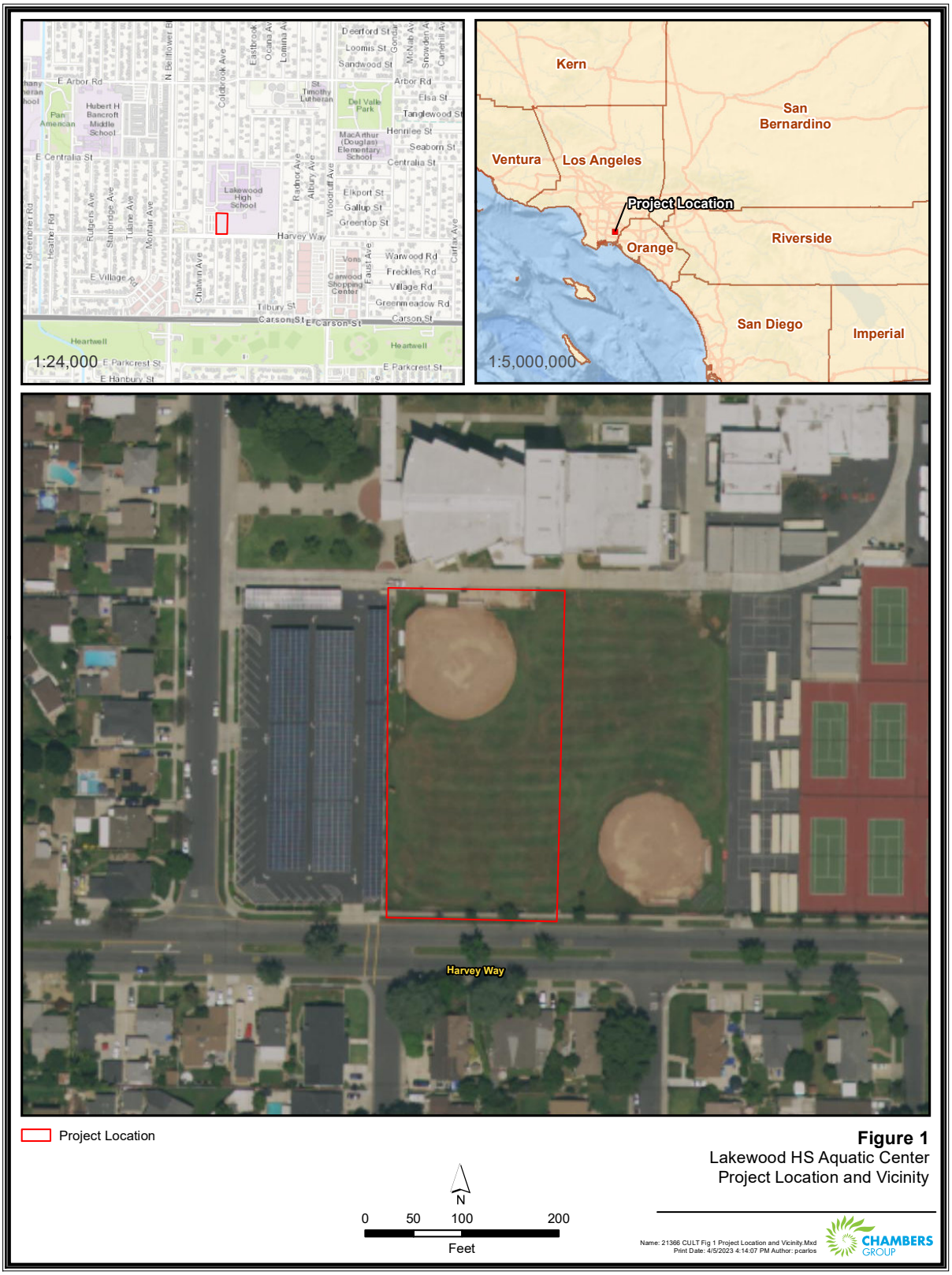
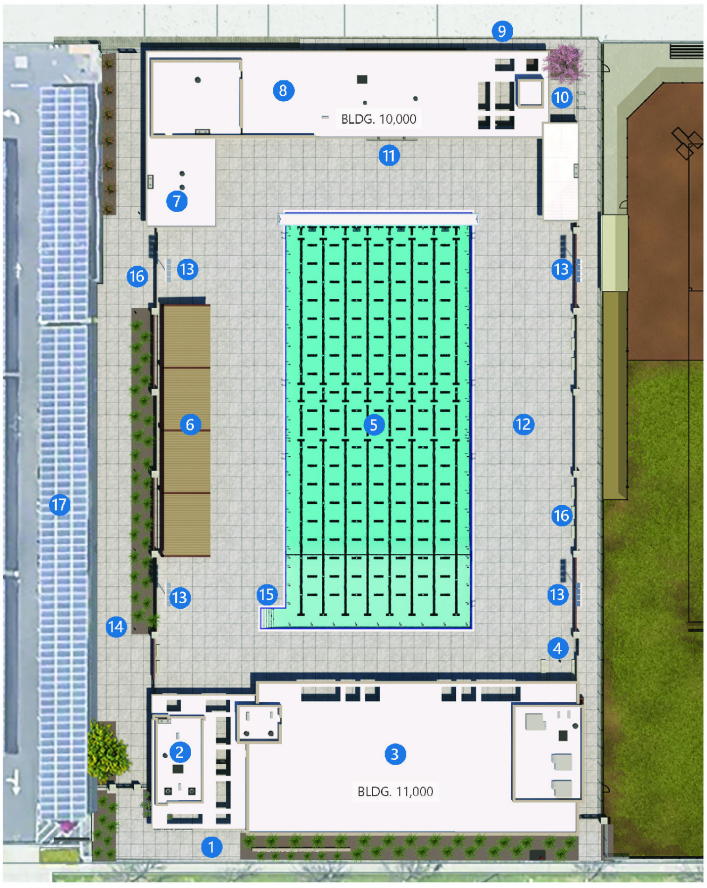


Figure 2 – Site Plan



1 PUBLIC ENTRY
2 TICKET OFFICE AND CONCESSIONS
3 MODERN LOCKER ROOM FACILITY
4 OUTDOOR SHOWER AREA
5 MYRTHA POOL (51.5M LONG BY 25 YARDS WIDE)
6 NEW BLEACHERS WITH SHADE CANOPY
7 DECK RESTROOMS
8 MECHANICAL SUPPORT BUILDING
9 CAMPUS ENTRY
10 ELECTRICAL YARD
11 SCORE BOARD
12 30' POOL DECK
13 STADIUM LIGHTS
14 LANDSCAPE WALKWAY
15 ACCESSIBLE POOL ENTRY
16 PERIMETER WALL
17 EXISTING SOUTH PARKING LOT WITH PV STRUCTURES

Figure 2
Project Name AND
21366 Lakewood HS Aquatic Center
Site Plan

Name: 21366 PLAN Fig 2 Site Plan.Mxd
Print Date: 2/24/2021 2:56:47 PM Author: pcarlos
CHAMBERS GROUP

1.6 REQUIRED PERMITS AND APPROVALS

Reviewing Agencies include those agencies that do not have discretionary powers but may review the MND for adequacy and accuracy. Responsible Agencies have discretionary approval authority for a project. Potential Reviewing Agencies and Responsible Agencies include the following:

1.6.1 Responsible Agencies

State of California

- Department of Toxic Substances Control (DTSC)
- Department of Education
  - School Facilities Planning Division
- Department of General Services
  - Office of Public-School Construction
  - Division of the State Architect
- Department of Public Health (DPH)
- Division of Occupational Safety and Health (Cal/OSHA)
- Southern California Edison (SCE)
- State Water Resources Control Board

Regional Agencies

- South Coast Air Quality Management District (SCAQMD)
- Los Angeles Regional Water Quality Control Board (RWQCB)

Local Agencies

- Los Angeles County Fire Department
- Los Angeles County Sanitation
- Los Angeles County Department of Health
- City of Lakewood

1.6.2 Reviewing Agencies

- City of Lakewood
- Native American Heritage Commission, and tribes requesting consultation

1.6.3 Permits and Approvals

The following permits may be required prior to construction of the Project.

- SCAQMD – Rule 201/203 Permit to Construct/Permit to Operate or Rule 222 registration for the natural gas fire pool water heaters
- SWRCB – Construction General Permit
- LA County – Conditional Use Permit (CUP) and Building Permit
- Division of the State Architect
- Loa Angeles County Department of Public Health

SECTION 2.0 – ENVIRONMENTAL DETERMINATION

2.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would potentially be affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklists on the following pages. For each of the potentially affected factors, mitigation measures are recommended that would reduce the impacts to less than significant levels.

☐ *Aesthetics*	☐ *Agriculture and Forestry Resources*	☐ *Air Quality*
☒ *Biological Resources*	☒ *Cultural Resources*	☐ *Energy*
☒ *Geology /Soils*	☐ *Greenhouse Gas Emissions*	☐ *Hazards & Hazardous Materials*
☐ *Hydrology /Water Quality*	☐ *Land Use / Planning*	☐ *Mineral Resources*
☐ *Noise*	☐ *Population / Housing*	☐ *Public Services*
☐ *Recreation*	☐ *Transportation*	☐ *Tribal Cultural Resources*
☐ *Utilities /Service Systems*	☐ *Wildfire*	☐ *Mandatory Findings of Significance*

2.2 DETERMINATION

On the basis of this initial evaluation:

1. I find that the project **could not** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐
2. I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared. ☒
3. I find the proposed project **may have a significant effect** on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐
4. I find that the proposed project **may have a "potentially significant impact" or "potentially significant unless mitigated impact"** on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. ☐
5. I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or Negative Declaration pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐

Signature	Date: 5.10.23
Name: DAVID MIRANDA	Title: EXECUTIVE DIRECTOR - FACILITIES

SECTION 3.0 – EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if substantial evidence exists that an effect may be significant. If one or more "Potentially Significant Impact" entries are marked when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. The explanation of each issue should identify:

   a. the significance criteria or threshold, if any, used to evaluate each question; and

   b. the mitigation measure identified, if any, to reduce the impact to less than significant.

   *Note: Instructions may be omitted from final document.

SECTION 4.0 – CHECKLIST OF ENVIRONMENTAL ISSUES

4.1 AESTHETICS

1.	**AESTHETICS.** **Except as provided in Public Resources Code Section 21099, would the project:**	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(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 non-urbanized 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)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

4.1.1 Environmental Setting

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area. Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area. Aesthetic resources include scenic resources, which include water forms, trees, rock outcroppings, historic buildings, and scenic highways. Impacts to aesthetic resources include obstruction and destruction of views to or from scenic resources and/or the degradation of the visual character of the area.

Existing Visual Characteristics

The Proposed Project would be constructed within the existing campus, with the Aquatic Center located on the southern portion of the Lakewood HS campus, bordered by Centralia Street to the north, Lomina Avenue to the east, Harvey Way to the south, and Briercrest Avenue to the west. The campus is located on an approximately 32-acre property and contains 10 permanent buildings comprising single- to four-story buildings. John Ford Stadium is located on the east side of campus, baseball and softball fields, tennis courts, and 13 portables are located on the south portion of campus. An additional 12 portable and 3 Russel bungalow buildings are located to the east of Track and Field.

4.1.2 Impact Analysis

a) Would the project have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. No scenic views or vistas exist at the Project Site; therefore, no scenic vistas would be obstructed by the Proposed Project (County 2015; City 2017). The Proposed Project includes the construction of a new aquatic facility within the existing campus. The outdoor aquatic

facility would include a single-story building housing the following: a snack bar/ticket booth, locker rooms, a multi-purpose room, two offices, laundry room, chemical storage room, mechanical and electrical rooms, restrooms, equipment storage room, and outdoor showers. Installation of the building would not block any existing views. In addition, the aquatic facility would include bleachers with a capacity for 500 spectators and shade coverings over the bleachers. Perimeter walls would also be constructed for security and privacy and would screen the aquatic facility elements from view. Impacts to scenic vistas would be less than significant.

b) *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

Less than Significant Impact. The Proposed Project is not designated as a state scenic highway (Caltrans 2022). No rock outcroppings exist on the site. A Phase II Intensive Historic Resource Assessment report was prepared in compliance with Compliance Activity B as required by the District-Wide Cultural Resources Assessment. Based on a review of available Project plans and the scope of the Proposed Project, it does not appear that the Project will result in the significant modification or destruction of the character defining features of Lakewood HS. Further, the location of the Proposed Project is sufficiently removed from the vicinity of the contributing buildings that there is no adverse visual impact to the resource. The Proposed Project would, therefore, have a less than significant impact on scenic resources.

c) *Would the project, in non-urbanized 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?*

Less than Significant Impact. The Proposed Project includes the construction of a new aquatic facility and the demolition, addition, and relocation of various sports courts and fields within the campus. These changes would result in minor changes to the overall visual character and quality of the site. The Project would be consistent with the character of the surrounding structures. The improved educational facility installations would not degrade the existing visual character or quality of the site or its immediate surroundings. The Proposed Project would also be consistent with zoning regulations (City 2011, 2020). Impacts would be less than significant.

d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Less than Significant Impact. The Project Site currently does not contain any lighting. However, there is street lighting adjacent to the Project site on Harvey Way. As shown in Figure 2, stadium lights would be installed on the pool deck to the east and west of the proposed pool. Lights would be hooded and faced downwards and would only be utilized during nighttime. Additionally, a LED scoreboard would be installed on the eastern side of the Project site to the north side of the pool. Events would end no later than 10:00 p.m., at the latest, per an agreement with the community, and lights and the scoreboard would be turned off after event goers leave. The Project site is in an urban environment; therefore, the Project would not create a new source of substantial light or glare that would adversely affect the area. Impacts would be less than significant.

4.2 AGRICULTURE & FORESTRY RESOURCES

2.	**AGRICULTURE & FOREST RESOURCES. (In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:**	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
(b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
(d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
(e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or the conversion of forest land to non-forest use?	☐	☐	☐	☒

4.2.1 Environmental Setting

Agricultural resources include prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and commercial grazing land as defined in the Guidelines for the Farmland Mapping and Monitoring Program, pursuant to Section 65570 of the Government Code, as well as land in a Williamson Act contract.

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor and without intolerable soil erosion (7 U.S.C. 4201(c)(1)(A)).

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops such as, citrus, tree nuts, olives, cranberries, fruits, and vegetables (7 U.S.C. 4201(c)(1)(B)).

Additional farmland of statewide or local importance is land identified by state or local agencies for agricultural use but not of national significance (7 U.S.C. 4201(c)(1)(C)).

The California Legislature passed the Williamson Act in 1965 to preserve agricultural and open-space lands by discouraging premature and unnecessary conversion to urban uses. The Williamson Act creates an arrangement whereby private landowners' contract with counties and cities to voluntarily restrict their land to agricultural and compatible open space uses.

The Williamson Act is a means to restrict the uses of agricultural and open-space lands to farming and ranching uses during the length of the contract period. The Williamson Act Program was also envisioned as a way for local governments to integrate the protection of open space and agricultural resources into their overall strategies for planning urban growth patterns.

4.2.2 Impact Analysis

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The Project Site is designated in the City of Lakewood General Plan as O-S (City 2017). Zoning designations surrounding the Project Site include R-1 and General Commercial (C-4) (City 2011). The Project Site is not identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) (DOC 2016a); therefore, the Proposed Project would not result in an impact associated with the conversion of farmland to non-agricultural use.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Project Site is zoned O-S and the site is surrounded by R-1; areas zoned C-4 are located in the vicinity of the Project site (City 2011). There are no areas adjacent to the Proposed Project site that are zoned for agricultural uses. The Project site is not included in these designated areas (DOC 2016b). The Proposed Project would not result in an impact associated with Williamson Act lands or agricultural zoning.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The City does not include any forest lands or timberland. Although open space is present throughout the City, these portions of the City will not be significantly impacted by the Proposed Project. The Proposed Project would not take place within the forest lands. The Project would not result in an impact associated with forest land or timberland.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. Implementation of the Proposed Project would not result in any change to land use on the Project Site. The Proposed Project does not contain forest lands, or lands for forest uses. Therefore, the Proposed Project would not result in an impact associated with forest land or the conversion of forest land to non-forest use.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or the conversion of forest land to non-forest use?

No Impact. The Proposed Project is zoned for O-S and there are no agricultural uses surrounding the site. The Project Site is not within an area identified as Prime Farmland, Unique Farmland or Farmland of Statewide Importance (DOC 2016a). The Proposed Project does not include activities involving conversion of agricultural or forest lands; therefore, no impact would occur.

4.3 AIR QUALITY

3.	AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☒	☐

4.3.1 Environmental Setting

An Air Quality, Energy, and Greenhouse Gas (GHG) Emissions Impact Analysis Report was prepared by Vista Environmental for the Proposed Project in April 2023 (Appendix A).

South Coast Air Basin

The Project site is located within south coastal Los Angeles County, which is part of the South Coast Air Basin (Air Basin) that includes the non-desert portions of Riverside, San Bernardino, and Los Angeles Counties and all of Orange County. The Air Basin is located on a coastal plain connecting broad valleys and

low hills to the east. Regionally, the Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Estimates of the existing emissions in the Air Basin provided in the 2012 Air Quality Management Plan (AQMP), indicate that collectively, mobile sources account for 59 percent of the Volatile Organic Compound (VOC), 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust. The 2016 AQMP found that since 2012 AQMP projections were made stationary source VOC emissions have decreased by approximately 12 percent, but mobile VOC emissions have increased by 5 percent. The percentage of NOx emissions remains unchanged between the 2012 and 2016 projections.

SCAQMD has divided the Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The Project site is located in Air Monitoring Area 4, which covers the south coastal Los Angeles County. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the project sites have been used: Long Beach-Signal Hill Monitoring Station (Signal Hill Station) and South Long Beach Monitoring Station (South Long Beach Station).

The Signal Hill Station is located approximately 4.0 miles southwest of the Project site at 1710 E 20th Street, Signal Hill and the South Long Beach Station is located approximately 4.3 miles southwest of the Project site at 1305 East Pacific Coast Highway, Long Beach. Ozone and NOx were measured at the Signal Hill Station and PM10 and PM 2.5 were measured at the South Long Beach Station. However, it should be noted that due to the air monitoring stations distances from the Project site, recorded air pollution levels at the monitoring stations reflect with varying degrees of accuracy, local air quality conditions at the project site. The monitoring data is presented in Table 4-1 and shows the most recent 3 years of monitoring data from California Air Resources Board (CARB).

Table 4-1– Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year		
	2019	2020	2021
Ozone: [1]			
Maximum 1-Hour Concentration (ppm)	ND	0.105	0.086
Days > CAAQS (0.09 ppm)	ND	**4**	0
Maximum 8-Hour Concentration (ppm)	ND	0.083	0.064
Days > NAAQS (0.070 ppm)	ND	**4**	0
Days > CAAQs (0.070 ppm)	ND	**4**	0
Nitrogen Dioxide: [1]			
Maximum 1-Hour Concentration (ppb)	ND	75.3	59.0
Days > NAAQS (100 ppb)	ND	0	0
Days > CAAQS (180 ppb)	ND	0	0

Pollutant (Standard)	Year 2019	2020	2021
Inhalable Particulates (PM10) :[2]			
Maximum 24-Hour National Measurement (ug/m^3)	72.7	68.3	48.7
Days > NAAQS (150 ug/m^3)	0	0	0
Days > CAAQS (50 ug/m^3)	**2**	**3**	0
Annual Arithmetic Mean (AAM) (ug/m^3)	21.5	26.9	23.2
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):[1]			
Maximum 24-Hour National Measurement (ug/m^3)	30.6	63.7	42.9
Days > NAAQS (35 ug/m^3)	0	**10**	**4**
Annual Arithmetic Mean (AAM) (ug/m^3)	10.6	12.1	13.8
Annual > NAAQS and CAAQS (12 ug/m^3)	No	No	**Yes**

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.
[1] Data obtained from the Compton Station.
[2] Data obtained from the Long Beach Station.
Source: http://www.arb.ca.gov/adam/

Ozone

During the last 3 years, the state 1-hour concentration standard for ozone has been exceeded between 0 and 1 days each year at the Compton Station. The state 8-hour ozone standard has been exceeded between 0 and 1 days each year over the last 3 years at the Compton Station. The Federal 8-hour ozone standard has been exceeded between 1 and 5 days each year over the last 3 years at the Compton Station. Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and nitrogen dioxide (NO_2), which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The Signal Hill Station did not record an exceedance of either the federal or state 1-hour NO_2 standards for the last 3 years.

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between 4 and 10 days each year over the past 3 years at the Long Beach Station. Over the past 3 years the federal 24-hour standard for PM10 has not been exceeded 1 day at the Long Beach Station. The annual PM10 concentration at the Long Beach Station has exceeded the state standard for the past 3 years and has not exceeded the federal standard for the past 3 years.

Over the past 3 years the 24-hour concentration standard for PM2.5 has been exceeded between 1 and 5 days over the past 3 years at the Compton Station. The annual PM2.5 concentrations at the Compton Station has not exceeded the federal standard for the past 3 years. The annual PM2.5 concentrations at the Compton Station has exceeded the state standard for 2 of the past 3 years. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the U.S. Environmental Protection Agency (EPA), some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths during exercise.

4.3.2 Impact Analysis

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The Proposed Project would not conflict with or obstruct implementation of the SCAQMD AQMP. The following section discusses the Proposed Project's consistency with the SCAQMD AQMP.

SCAQMD AQMP

CEQA requires a discussion of any inconsistencies between a project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the Proposed Project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the Proposed Project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the Proposed Project would interfere with the region's ability to comply with federal and state air quality standards. If the decision-makers determine that the Proposed Project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance or local thresholds of significance discussed in Appendix A (Section 9.1 and Section 9.2). The ongoing operation of the Proposed Project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the Proposed Project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the Proposed Project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the Proposed Project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Federal Transportation Improvement Program (FTIP). The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on Southern California Association of Governments (SCAG) and is updated every 4 years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this Project, the City of Lakewood General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The Project site is currently designated as O-S in the General Plan and is zoned O-S. The Proposed Project consists of development of an aquatic center on the existing Lakewood HS campus. The Proposed Project is an allowed use within the current O-S land use designation and O-S zoning. As such, the Proposed Project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the Proposed Project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

b) Would the project 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 Impact. 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. The following section calculates the potential air emissions associated with the construction and operations of the Proposed Project and compares the emissions to the SCAQMD standards.

Construction Emissions

The construction activities for the Proposed Project are anticipated to include site preparation and grading of the 1.5-acre Project site, building construction of a new aquatic facility, paving of the walkways and pool deck, and application of architectural coatings. The California Emissions Estimator Model® (CalEEMod) model has been utilized to calculate the construction-related regional emissions from the project and the input parameters utilized in this analysis have been detailed in Section 8.1. The maximum daily construction emissions by season are shown below in Table 4-2 and the CalEEMod printouts are shown in Appendix A.

Table 4-2– Construction-Related Criteria Pollutant Emissions

Season and Year of Construction	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Summer 2023	1.93	23.7	19.4	0.05	4.13	2.08
Winter 2023	1.92	23.9	19.3	0.05	4.13	2.08
Summer 2024	9.44	9.52	10.5	0.02	0.44	0.36
Winter 2024	1.15	9.53	10.4	0.02	0.44	0.36
Maximum Daily Construction Emissions	**9.44**	**23.9**	**19.4**	**0.05**	**4.13**	**2.08**
SCQAMD Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
SCAQMD Local Thresholds	**--**	**66**	**678**	**--**	**5**	**4**
Exceeds Thresholds?	No	No	No	No	No	No

Source: CalEEMod Version 2022.1.

Table 4-2 shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during construction of the Proposed Project. Therefore, less than significant regional and local air quality impacts would occur from construction of the Proposed Project.

Operational Emissions

The on-going operation of the Proposed Project would result in a long-term increase in air quality emissions. This increase would be due to emissions from on-site area sources, energy usage, and pool heater boiler emissions created from the on-going use of the Proposed Project. The operations-related regional criteria air quality impacts created by the Proposed Project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 8.1 of Appendix A. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the Proposed Project's long-term operations have been calculated and are summarized below in Table M and the CalEEMod emissions printouts are shown in Appendix A.

Table 4-3 – Operational Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Emissions Source	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	0.31	<0.01	0.44	<0.01	<0.01	<0.01
Energy Usage[2]	<0.01	0.06	0.05	<0.01	<0.01	<0.01
Pool Heater Boiler[3]	0.09	<0.01	1.54	0.01	0.12	0.12
Total Emissions	**0.40**	**0.06**	**2.02**	**0.01**	**0.12**	**0.12**
SCQAMD Regional Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
SCAQMD Local Thresholds	**--**	**66**	**678**	**--**	**1**	**1**
Exceeds Thresholds?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of emissions from natural gas usage (does not include the pool heater boiler).
[3] Pool heater boiler based on a 2.0 MBTU per hour boiler operating 8 hours per day.
Source: Calculated from CalEEMod Version 2022.1.

The data provided in Table 4-3 shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during operation of the Proposed Project. Therefore, less than significant regional and local air quality impacts would occur from operation of the Proposed Project.

Friant Ranch Case

The operations-related regional criteria air quality impacts In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." In order to determine compliance with this Case, the Court developed a multi-part test that includes the following:

1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

This Analysis details the specific health risks created from each criteria pollutant in Appendix A. In addition, the specific health risks created from diesel particulate matter is detailed above in Section 2.2 of this analysis. As such, this analysis meets the Part 1 requirements of the Friant Ranch Case.

2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant

Ranch case (https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf) (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the Proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM2.5 methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NOX or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the Proposed Project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NOx and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone. As shown above in Table 4-2, Project-related construction activities would generate a maximum of 9.44 pounds per day of VOC and 9.53 pounds per day of NOx and as shown above in Table 4-3, operation of the Proposed Project would generate 0.33 pounds per day of VOC and 0.06 pounds per day NOx. The Proposed Project would not generate anywhere near these levels of 6,620 pounds per day of NOx or 89,190 pounds per day of VOC emissions. Therefore, the Proposed Project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Notwithstanding, this analysis does evaluate the Proposed Project's localized impact to air quality for emissions of CO, NOX, PM10, and PM2.5 by comparing the Proposed Project's on-site emissions to the SCAQMD's applicable Localized Significance Thresholds (LST) thresholds. As evaluated in this analysis, the Proposed Project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the Proposed Project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NOX, PM10, and PM2.5.

Therefore, the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. The Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the Proposed Project, which may expose sensitive receptors to substantial concentrations have been calculated in Section 10.3 of Appendix A for both construction

and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant (TAC) emissions. The nearest sensitive receptors to the Project site are residents at the single-family homes on the south side of Harvey Way that are located as near as 100 feet south of the Project site. There are also single-family homes on the west side of Briercrest Avenue that are located as near as 240 feet west of the Project site.

Construction-Related Sensitive Receptor Impacts

The construction activities for the Proposed Project are anticipated to include site preparation and grading of the Project site, building construction of a new aquatic facility, paving of the walkways and pool deck, and application of architectural coatings. Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from TAC emissions created from on-site construction equipment, which are described below.

Local Criteria Pollutant Impacts from Construction

The local air quality impacts from construction of the Proposed Project has been analyzed in Appendix A and found that the construction of the Proposed Project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance. Therefore, construction of the Proposed Project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

TAC Impacts from Construction

The greatest potential for TAC emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the Proposed Project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30-year exposure period for the nearby sensitive receptors (OEHHA 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the Proposed Project would not result in a long-term (i.e., 30 or 70 years) substantial source of TAC emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits the idling of equipment to no more than 5 minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0, Tier 1, or Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, due to the limitations in off-road construction equipment diesel particulate matter (DPM) emissions from implementation of Section 2448, a less than significant short-term TAC impacts would occur during construction of the Proposed Project from DPM emissions.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the Proposed Project may expose sensitive receptors to substantial pollutant concentrations from the potential local air quality impacts from on-site operations and from possible TAC impacts.

Local Criteria Pollutant Impacts from Onsite Operations

The local air quality impacts from the operation of the Proposed Project would occur from on-site sources such as architectural coatings, landscaping equipment, and on-site usage of natural gas appliances. The analysis found that the operation of the Proposed Project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance. Therefore, the on-going operations of the Proposed Project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Operations-Related TAC Impacts

PM from diesel exhaust is the predominant TAC in most areas and according to The California Almanac of Emissions and Air Quality 2013 Edition, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program. Due to the nominal number of diesel truck trips that are anticipated to be generated by the Proposed Project, a less than significant TAC impact would occur during the on-going operations of the Proposed Project and no mitigation would be required.

Therefore, operation of the Proposed Project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact. The Proposed Project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints, and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content

in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the Project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The Proposed Project would consist of the development of an aquatic center. Potential sources that may emit odors during the on-going operations of the Proposed Project would primarily occur from the trash storage areas and use and storage of pool chemicals. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. As detailed in the Project design, all of pool chemicals would be stored in a structure, specifically designed for the storage of pool chemicals and the pool chemicals will primarily be applied through mechanical systems that limit the chemical exposure to air.

Due to the distance of the nearest receptors from the Project site and through compliance with SCAQMD's Rule 402, City trash storage regulations and pool chemical regulations, a less than significant impact related to odors would occur during the on-going operations of the Proposed Project.

Therefore, a less than significant odor impact would occur and no mitigation would be required.

4.4 BIOLOGICAL RESOURCES

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

4.	BIOLOGICAL RESOURCES. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
(f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

4.4.1 Environmental Setting

Biological resources include habitats and vegetative communities, migratory corridors, plants, wildlife, fisheries, special status species (regulated by a law, regulation, or policy, such as threatened and endangered species), and waters of the United States. The Lakewood HS campus is a developed site and is located in an urbanized area in the City. Campus vegetation is limited to ornamental landscaping. The Project Site, in the central and southern portions of the campus, contains no landscaping apart from several ornamental trees located within the sidewalk along Harvey Way.

4.4.2 Impact Analysis

a) *Would the project have a substantial adverse effect, either directly or through habitat modification, on any species identified as candidate, sensitive or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less than Significant Impact with Mitigation. The Proposed Project would include ground disturbing activities, which include excavation for the pool. However, the Project Site is in a highly urbanized setting and is currently developed with tennis and paddle tennis courts and softball fields. Vegetation at the Project Site includes ornamental landscaping along the sidewalk of Harvey Way and within the campus. Due to the potential disturbance of the ornamental trees along Harvey Way and within the campus, mitigation measures MM-BIO-1 and MM-BIO-2 will be implemented to avoid disturbance or nesting bird species.

MM-BIO-1: A nesting bird pre-construction survey will be conducted by a Qualified Biologist and submitted to the District 3 days prior to demolition and/or vegetation removal activities during nesting bird season (February 15 through August 31). Should nesting birds be found, an exclusionary buffer will be established by a Qualified Biologist. The buffer may be up to 500 feet in diameter depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the Qualified Biologist, and construction or clearing will not be conducted within this zone until the Qualified Biologist determines that the young have fledged or the nest is no longer active. Nesting bird habitat within the Project site will be resurveyed during bird breeding season if a lapse in construction activities lasts longer than 7 days.

MM-BIO-2: Project-related activities likely to have the potential to disturb suitable bird nesting habitat shall be prohibited from February 15 through August 31, unless a Project

Biologist acceptable to the District surveys the Project area prior to disturbance to confirm the absence of active nests. Disturbance shall be defined as any activity that physically removes and/or damages vegetation or habitat or any action that may cause disruption of nesting behavior such as loud noise from equipment and/or artificial night lighting.

Implementation of MM-BIO-1 and MM-BIO-2 would reduce Project-related impacts to nesting birds to less than significant. Therefore, impacts to special status species would be less than significant with mitigation.

b) *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

Less than Significant Impact with Mitigation. The Project Site does not contain any riparian habitat or sensitive natural communities, as it is fully developed and mostly paved. The Project Site includes ornamental trees that may need to be disturbed; however, these trees are not anticipated to provide habitat for sensitive or special status species due to the developed nature of the site and proximity to roadways. As noted in Impact 4.4.2 (a), above, mitigation measures would be implemented to reduce any potential impacts to nesting birds that may occur as a result of the disturbance to the ornamental trees. With implementation of MM-BIO-1 and MM-BIO-2, impacts would be less than significant.

c) *Would the project have a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

No Impact. The Project Site is not located on or in the vicinity of a federally protected wetland (United States Fish and Wildlife Service [USFWS] 2022). No impact would occur.

d) *Would the project Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

No Impact. There are no native biological habitats on the Project site nor any wildlife corridors. The Project site is currently urbanized and developed. The implementation of the Project would have no impact regarding wildlife corridors or nursery sites.

e) *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

Less than Significant Impact. The Project Site contains no landscaping apart from several ornamental trees located on the sidewalk along Harvey Way and within the campus. Although most of the trees will remain preserved in place, due to construction vehicles accessing the Project site, it is possible that the ornamental street trees will be impacted. The District will comply with the existing tree protection policies, including the City of Lakewood Municipal Code Section 7140 Part 4 Roadside Trees. Compliance with the zoning code will include coordination with the Department of Development Services if a roadside tree needs to be removed. With compliance with the existing City zoning and municipal codes, impacts will be less than significant.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservancy Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The Project site is not within the area of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the Proposed Project would not conflict with any approved plans. No impact would occur.

4.5 CULTURAL RESOURCES

5.	CULTURAL RESOURCES. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
(b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
(c)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

4.5.1 Environmental Setting

A Cultural Resources Survey Report was prepared in March 2023 (Appendix B) to document the results of the survey conducted on the Project site and the results of the records search. The results of the records search request were received on October 5, 2022. The California Historical Records Information System (CHRIS) records search indicates that 14 previous cultural resource investigations have been recorded within a 1-mile radius of the Proposed Project site. Of these, one investigation includes the Proposed Project site. The CHRIS records search also identified two previously recorded cultural resources located within 1-mile radius of the Proposed Project site. None of these resources were mapped within the Proposed Project site. Based on the background research and SCCIC records search results, none of these previously recorded cultural resources are documented within the Proposed Project site. However, the Lakewood High School campus itself possesses buildings that have been determined to be eligible for listing on the National Register of Historic Places (NRHP). LBUSD prepared a districtwide Cultural Resources Assessment to assess all potential cultural resources, both historic and prehistoric, located within all District campuses and facilities. According to the districtwide assessment, Lakewood High School is eligible for listing on the NRHP (PCR 2015). Kleinfelder's senior architectural historian reviewed available Project plans and completed a site visit in November 2022 (Appendix B) to assess the potential impacts of the Project on Lakewood HS.

4.5.2 Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Less than Significant Impact. Based on a review of available Project plans and the scope of the proposed Project, it does not appear that the Project will result in the significant modification or destruction of the character-defining features of Lakewood HS. Further, the location of the proposed Project is sufficiently removed from the vicinity of the contributing buildings to avoid any adverse visual impact to the resource. Therefore, based on the current Project description, the Project will not result in a substantial adverse change that would impair the historic significance of Lakewood HS. Impacts would be less than significant.

b) *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

Less than Significant with Mitigation. Based on background research and South Central Coastal Information Center (SCCIC) records search results, none of these previously recorded cultural resources are documented within the Proposed Project site. The Survey resulted in no new cultural resources observed or recorded within the Proposed Project site. The Survey was completed as required, providing a full visual inspection of the existing built environment of the Proposed Project site, and inspection of the conditions present at time of the survey. No new cultural resources were observed during the Survey. It should be noted that ground surface visibility was almost completely obscured due to the vast majority of the Proposed Project site being covered with asphalt. Given the historic age of the original Lakewood HS development, there is potential that cultural resource surface deposits may be present underlying the existing development. Thus, it remains undetermined if cultural resources are present within the Proposed Project site at subsurface depths which may be disturbed by the Proposed Project.

Although background research and Survey has been completed with no new discoveries, as noted above, the soil surface visibility was almost entirely impeded by the existing development. Based on the limited ground surface visibility, the historic nature of the Lakewood HS structures and the existence of previously recorded prehistoric and historic resources within the 1-mile study area around the Proposed Project site, new resources still have potential to be discovered in or near the Project site. In order to reduce impacts to less than significant, the following mitigation measures shall be implemented.

MM CUL-1 LBUSD shall retain the services of a qualified cultural resources consultant and require that all initial ground disturbing work be monitored by a cultural resources monitor. The cultural resources consultant shall provide a Qualified Archaeologist, meeting the Secretary of the Interior Standards (U.S. Department of the Interior, 2008), and require that all initial ground-disturbing work be monitored by cultural resources monitor (monitor) proficient in artifact and feature identification in monitoring contexts. The Consultant (Qualified Archaeologist and/or monitor) shall be present at the Project construction phase kickoff meeting.

MM CUL-2 Prior to commencing construction activities and thus prior to any ground disturbance in the Proposed Project site, the Consultant shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at the outset of the Project construction work phase, for which the lead contractor and all subcontractors shall make their personnel available. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and

minimize impacts to cultural resources and maintain environmental compliance and be performed periodically for new personnel coming on to the Project as needed.

MM CUL-3 The contractor shall provide the Consultant with a schedule of initial potential ground disturbing activities. A minimum of 48 hours will be provided to the archaeological consultant of commencement of any initial ground disturbing activities such as vegetation grubbing or clearing, grading, trenching, or mass excavation.

As detailed in the schedule provided, a monitor shall be present onsite at the commencement of ground-disturbing activities related to the Project. The Consultant shall observe initial ground disturbing activities and, as they proceed, adjust the monitoring approach as needed to provide adequate observation and oversight. All monitors will have stop-work authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations as an ongoing reference resource and to provide a resource for final reporting upon completion of the Project.

The Consultant, and the lead contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the Consultant is aware of all ground disturbing activities in advance in order to provide appropriate oversight.

MM CUL-4 In addition to cultural resources monitoring, if formally requested during Native American Consultation under Assembly Bill (AB) 52, a Native American monitor(s) selected by the tribe should be present at the Project kickoff meeting, be provided with a schedule of initial ground disturbing activities, and be onsite at the commencement of ground-disturbing activities related to the Project, and as the Project proceeds be adjusting personnel and schedule as needed to provide sufficient oversight. As with the Consultant the lead contractor and all subcontractors shall routinely update the Native American monitor and their scheduling representative(s) regarding scheduling for ground disturbing activities, and changes to said schedule, such that there is sufficient advance notice that a Native American monitor can be scheduled and present to provide oversight.

MM-CUL-5 If cultural resources are discovered, construction shall be halted within 50 feet of any cultural artifacts or features and within 100 feet of any potential human remains and shall not resume until the Qualified Archaeologist can determine the significance of the find and/or the find has been fully investigated, appropriately documented, and cleared.

MM CUL-6 At the completion of all ground disturbing activities, the Consultant shall prepare a Cultural Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds, as well as providing follow-up reports of any finds to the SCCIC, as required.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact. In the event that human remains are discovered during ground-disturbing activities, then the Proposed Project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98 (NPS 1983).If human remains are found during ground-disturbing activities, State of California Health and Safety

Code Section 7050.5 states that no further disturbance shall occur until the Los Angeles County Medical Examiner-Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the Los Angeles County Medical Examiner-Coroner shall be notified immediately. If the human remains are determined to be prehistoric, the Medical Examiner-Coroner shall notify the Native American Heritage Commission (NAHC), which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials (NPS 1983).

4.6 ENERGY

6.	ENERGY Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
(b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

4.6.1 Environmental Setting

An Air Quality, Energy, and GHG Emissions Impact Analysis Report was prepared by Vista Environmental for the Proposed Project in April 2023 (Appendix A).

4.6.2 Impact Analysis

a) Would the project a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. The Proposed Project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, natural gas, and petroleum-based fuel supplies and distribution systems. This analysis includes a discussion of the potential energy impacts of the Proposed Project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

The following section calculates the potential energy consumption associated with the construction and operations of the Proposed Project and provides a determination if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy

The construction activities for the Proposed Project are anticipated to include site preparation and grading of the 1.5-acre Project site, building construction of a new aquatic facility, paving of the

walkways and pool deck, and application of architectural coatings. The Proposed Project would consume energy resources during construction in three general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the project Site, construction worker travel to and from the project site, as well as delivery and haul truck trips (e.g., hauling of demolition material to off-site reuse and disposal facilities);

2. Electricity associated with the conveyance of water that would be used during Project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,

3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction the Proposed Project would consume electricity to construct the new structures and infrastructure. Electricity would be supplied to the Project site by SCE and would be obtained from the existing electrical lines in the vicinity of the Project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on energy use. Electricity consumed during Project construction would vary throughout the construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during Project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the Proposed Project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during Project construction would not be wasteful, inefficient, or unnecessary.

Since SCE already provides power to the Project site, it is anticipated that only nominal improvements would be required to SCE distribution lines and equipment with development of the Proposed Project. Compliance with City's guidelines and requirements would ensure that the Proposed Project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with construction of the Project. Construction of the Project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Natural Gas

Construction of the Proposed Project typically would not involve the consumption of natural gas. Natural gas would not be supplied to support construction activities, thus there would be no demand generated by construction. Since Southern California Gas (SoCalGas) already provides natural gas to the Project site, construction-related activities would be limited to installation of new natural gas

connections within the Project site. Development of the Proposed Project would not require extensive infrastructure improvements to serve the Project site. Construction-related energy usage impacts associated with the installation of natural gas connections are expected to be confined to trenching in order to place the lines below surface. In addition, prior to ground disturbance, the Proposed Project would notify and coordinate with SoCalGas to identify the locations and depth of all existing gas lines and avoid disruption of gas service. Therefore, construction-related impacts to natural gas supply and infrastructure would be less than significant.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would utilize by both off-road equipment operating on the Project site and on-road automobiles transporting workers to and from the Project site and on-road trucks transporting equipment and supplies to the Project site.

The off-road construction equipment fuel usage was calculated through use of the off-road equipment assumptions and fuel use assumptions shown in Appendix A, which found that construction of the Proposed Project would consume 892 gallons of gasoline and 4,957 gallons of diesel fuel. This equates to 0.00002 percent of the gasoline and 0.0085 percent of the diesel used annually in Los Angeles County. As such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the Proposed Project would be required to adhere to all state and SCAQMD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the Proposed Project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant. Development of the Proposed Project would not result in the need to manufacture construction materials or create new building material facilities specifically to supply the Proposed Project. It is difficult to measure the energy used in the production of construction materials such as asphalt, steel, and concrete, it is reasonable to assume that the production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Operational Energy

The on-going operation of the Proposed Project would require the use of energy resources for multiple purposes including, but not limited to, pool heating, heating/ventilating/air conditioning (HVAC), refrigeration, lighting, appliances, and electronics. Energy would also be consumed during operations related to water usage, solid waste disposal, and landscape equipment.

Operations-Related Electricity

Operation of the Proposed Project would result in consumption of electricity at the Project site. As detailed in Appendix A, the Proposed Project would consume 62,737 kilowatt-hours per year of electricity. This equates to 0.0001 percent of the electricity consumed annually in the County of Los Angeles. As such, the operations-related electricity use would be nominal, when compared to current electricity usage rates in the County.

It should be noted that, the Proposed Project would comply with all federal, state, and city requirements related to the consumption of electricity, that includes CCR Title 24, Part 6 Building Energy Efficiency Standards and California Code of Regulations (CCR) Title 24, Part 11: California Green Building Standards. The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed aquatic center, including enhanced insulation, use of energy efficient lighting and appliances, water, and space heating systems, as well as requiring a variety of other energy-efficiency measures to be incorporated into the Proposed Project. Therefore, it is anticipated the Proposed Project will be designed and built to minimize electricity use and that existing and planned electricity capacity and electricity supplies would be sufficient to support the Proposed Project's electricity demand. Thus, the Project would not result in the wasteful or inefficient use of electricity and no mitigation measures would be required.

Operations-Related Natural Gas

Operation of the Proposed Project would result in increased consumption of natural gas at the Project site. As detailed in Appendix A the Proposed Project would consume 6,050 MBTU per year of natural gas. This equates to 0.0021 percent of the natural gas consumed annually in Los Angeles County. As such, the operations-related natural gas use would be nominal, when compared to current natural gas usage rates in the county.

It should be noted that, the Proposed Project would comply with all federal, state, and city requirements related to the consumption of natural gas, that includes CCR Title 24, Part 6 Building Energy Efficiency Standards and CCR Title 24, Part 11: California Green Building Standards. The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the Proposed Project, including enhanced insulation as well as use of efficient natural gas appliances and HVAC units. Therefore, it is anticipated the Proposed Project will be designed and built to minimize natural gas use and that existing and planned natural gas capacity and natural gas supplies would be sufficient to support the Proposed Project's natural gas demand. Thus, impacts with regard to natural gas supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

b) *Would the project Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

Less than Significant Impact. The Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Although the City has not adopted any specific plans that address energy efficiency, the city adopted Section 8900 of the Municipal Code in 2011, which was amended in 2014 and 2017 that adopts the County of Los Angeles Municipal Code Title 31 – Green Buildings Standards Code that requires new buildings in the County to be designed to meet the 2019 CalGreen Building Standards (Title 24 Part 11 standards). In addition, the Proposed Project will be required to be designed to meet the state's most current Title 24 Part 6 and Part 11 building energy efficiency standards. As such, the Proposed Project would be designed to meet all applicable State building energy efficiency standards as well as to meet the City's energy efficiency standards. Therefore, the Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

4.7 GEOLOGY AND SOILS

7.	GEOLOGY AND SOILS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 18-1-B 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 waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
(f)	Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐

4.7.1 Environmental Setting

Informed land-use decisions require information about California's geologic and seismic hazards, such as surface rupture, ground failure, landslides, liquefaction, soil erosion, and subsidence. The California Geological Survey (CGS) provides technical information and advice about landslides, erosion, sedimentation, and other geologic hazards to the public, local governments, agencies, and industries that make land-use decisions in California. Surface rupture is the breakage of ground along the surface trace of a fault caused by the intersection of the fault surface area ruptured in an earthquake. Liquefaction is a process by which water-saturated granular soils transform from a solid to a liquid state during strong ground-shaking. A seismically induced landslide is a general term for falling, sliding, or flowing mass of soil, rocks, water, and debris caused by an earthquake. Erosion is displacement of soil, usually by moving water and wind.

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Surface rupture is the most easily avoided seismic hazard. The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides.

4.7.2 Impact Analysis

a) *i) Would the project directly or indirectly cause potential substantial adverse effects, 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 Impact. The Project site is approximately 0.5 mile east of the Los Alamitos Fault (CGS 2015). Although the Proposed Project is in the vicinity of a fault, the Project site is not located within a designated Alquist-Priolo Special Study Zone (CGS 2022). The Project would be consistent with the city's safety codes and requirements and would not directly or indirectly cause potential substantial adverse effects related to rupture of a known earthquake fault. Impacts would be less than significant.

ii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Less than Significant Impact. The Proposed Project would include upgrades and additions to an existing school. The Project Site is located approximately 0.5 mile east of the Los Alamitos Fault (CGS 2015). Although ground disturbance will occur during construction of the aquatic facility, the facilities will be constructed following the LBUSD and City design guidelines and standards, as well as the 2019 California Building Code for construction. Therefore, impacts would remain less than significant impact.

iii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Less than Significant Impact. Liquefaction is a process by which soil behaves temporarily as a viscous liquid. Liquefaction typically occurs in areas where sediment is water-saturated during moderate to great earthquakes. The California Geological Survey (CGS 2019) identifies that the area as susceptible to liquefaction. The Proposed Project, however, involves upgrading an existing recreational area with other recreational uses. The Proposed Project would be required to adhere to the LBUSD and City of Lakewood design guidelines and standards, as well as the 2019 California Building Code, which would ensure that impacts would remain less than significant impact.

iv)Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

No Impact. The Project site is not identified as an area prone to seismically induced landslides (CGS 2019). The Project site is relatively flat which would not induce or facilitate landslides. The implementation of the Project would result in no impact.

b) *Would the project result in substantial soil erosion or the loss of topsoil?*

Less than Significant Impact. The Proposed Project includes the installation of an aquatic center. The construction activities, including the excavation for the pool, have the potential result in soil erosion or the loss of topsoil. Since ground disturbance will occur over the approximately 7.8-acre Project Site, the Proposed Project would comply with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit, which includes preparation of a Stormwater Pollution Prevention Plan (SWPPP). Conformance with applicable erosion control regulations during construction activities will reduce impacts to a level of less than significant. The Proposed Project would also include Best Management Practices (BMPs) including those outlined in the SWPPP which would ensure that impacts would be less than significant.

c) *Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

Less than Significant Impact. As discussed above, the Project Site is not located in an area of slope instability but is susceptible to liquefaction (CGS 2019). The Project Site is relatively flat, and the Proposed Project includes improving an existing recreational area with other recreational uses, which would not result in an increased risk for landslide, lateral spreading, subsidence, liquefaction, or collapse. Impacts would be less than significant.

d) *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

Less than Significant Impact. The Project Site has been previously graded and developed with recreational fields. The Natural Resources Conservation Service (NRCS) Web Soil Survey designates the Project Site soil as Urban land-Hueneme, drained-San Emigdio complex, 0 to 2 percent slopes (NRCS 2022). The soil profile for this soil type typically has a sandy loam soil for the first 16 inches, and then loamy fine sand and fine sandy loam deeper in the soil profile. Soils with clay content typically have a higher potential to shrink and swell, however, since the clay content is minimal and previous grading and development has occurred on-site, it is unlikely that the Project site contains expansive soils. The Proposed Project would adhere to the requirements of the 2019 California Building Code, and therefore, implementation of the Proposed Project would result in a less than significant impact.

e) *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?*

No Impact. Lakewood HS relies on servers for wastewater disposal and would not involve the use of alternative wastewater disposal systems. Therefore, no impacts would occur.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Less than Significant with Mitigation Incorporated. The Project Site is located in an urbanized area previously disturbed by past activities. Therefore, there are no geologic features located within the Project Site.

As discussed in Section 4.5 Cultural Resources, no new cultural resources were observed or recorded during the survey. In addition, none of the previously recorded cultural resources were mapped within any portions of the Project site. However, based on the limited ground surface visibility, new resources still have the potential to be discovered in or near the site. Due to the demonstrated sensitivity of the area, mitigation measures CUL-1 through CUL-6 would be implemented during initial ground disturbance to mitigate potential impacts to undiscovered paleontological resources. Impacts would be less than significant with mitigation incorporated.

4.8 GREENHOUSE GAS EMISSIONS

8.	GREENHOUSE GAS EMISSIONS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
(b)	Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

4.8.1 Environmental Setting

An Air Quality, Energy, and GHG Emissions Impact Analysis Report was prepared by Vista Environmental for the Proposed Project in April 2023 (Appendix A).

4.8.2 Impact Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. The Proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The Proposed Project would consist of development of an aquatic center. The Proposed Project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment. The Project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed in Appendix A. A summary of the results is shown below in Table 4-4 and the CalEEMod model run is provided in Appendix A.

Table 4-4– Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[1]	0.20	<0.01	<0.01	0.20
Energy Usage[2]	21.10	<0.01	<0.01	21.20
Water and Wastewater[3]	1.73	0.04	<0.01	3.01
Solid Waste[4]	8.79	0.88	0.00	30.70
Refrigeration[5]	--	--	--	0.01
Pool Heater Boiler[6]	312.00	0.01	<0.01	313.00
Construction[7]	9.37	<0.01	<0.01	9.50
Total GHG Emissions	**353.19**	**0.93**	**<0.01**	**377.62**
SCAQMD Draft Threshold of Significance				**3,000**
Exceed Thresholds?				**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity and natural gas usage.
[3] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[4] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[5] Refrigeration includes leakage of refrigerants used in HVAC units and vending machines.
[6] Pool heater boiler based on a 2.0 MBTU per hour boiler operating 8 hours per day
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2022.1.

The data provided in Table 4-4 shows that the Proposed Project would create 377.62 $MTCO_2e$ per year. According to the SCAQMD draft threshold of significance detailed above in Section 9.6, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 $MTCO_2e$ per year. Therefore, a less than significant generation of GHG emissions would occur from development of the Proposed Project. Impacts would be less than significant.

b) *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Less than Significant Impact. The Proposed Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The Proposed Project would consist of development of an aquatic center. As detailed above in Appendix A, the Proposed Project is anticipated to create 377.62 MTCO2e per year, which is well below the SCAQMD threshold of significance of 3,000 MTCO2e per year. The SCAQMD developed this threshold in order to meet the state GHG emissions reduction regulations that was based on substantial evidence supporting the use of the recommended thresholds.

It should be noted that, the Proposed Project would comply with all federal, state, and city energy reduction requirements that includes CCR Title 24, Part 6 Building Energy Efficiency Standards and CCR Title 24, Part 11: California Green Building Standards. The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed aquatic center, including enhanced insulation, use of energy efficient lighting and appliances, water, and space heating systems, as well as requiring a variety of other energy-efficiency measures to be incorporated into the Proposed Project that would reduce the GHG emissions created from the

Proposed Project. For these reasons, the Proposed Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

4.9 HAZARDS AND HAZARDOUS MATERIALS

9.	HAZARDS AND HAZARDOUS MATERIALS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
(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, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
(d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
(e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
(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?	☐	☐	☐	☒

4.9.1 Environmental Setting

The Proposed Project and Project site were analyzed to determine the potential for hazards or hazardous materials to occur on-site. Background research included an evaluation of the Geotracker and Envirostor websites, operated by the State Water Resources Control Board and the DTSC, respectively.

4.9.2 Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. The potential impacts from the route transport, use, or disposal of hazardous materials are outlined below for both the construction and operation phases.

Construction

During construction, the temporary storage and use of potentially hazardous petroleum hydrocarbon fuels and lubricants at the Project site will occur. Other potentially hazardous materials may also be used. The delivery of hazardous materials to the Project site would be made by carriers following 49 CFR Part 173. In addition, the transportation of hazardous materials would be subject to 49 CFR Part 172, which contains the hazardous materials communication requirements, including shipping papers, marking, labeling, and placarding, in addition to emergency response requirements, training, and security plan. By following proper handling, health and safety practices, hazards communication, and emergency response procedures, any impact that would create a significant hazard to the public or the environment through the routine transport or use of hazardous materials at the Project site would be less than significant.

Operation

The Proposed Project includes operations and maintenance activities that would result in the periodic transport of hazardous materials to and from the Project site. Typical hazardous materials may potentially include chlorine, perlite, and muriatic acid for swimming pools and various potentially hazardous materials used for facility maintenance. No other routine storage or use of hazardous materials is planned. The delivery of hazardous materials to or disposal from the Project site would be made by carriers following 49 CFR Part 173. In addition, the transportation of hazardous materials would be subject to 49 CFR Part 172 which contains the hazardous materials communication requirements including shipping papers, marking, labeling, and placarding, in addition to emergency response requirements, training, and security plan. By following proper handling, health and safety practices, hazards communication, and emergency response procedures, impacts that would create a significant hazard to the public or the environment through the routine transport or use of hazardous materials at the Project site would be less than significant.

b) *Would the project 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?*

Less than Significant Impact. The Proposed Project will require the use of heavy equipment during construction of the proposed aquatic center. There is a potential for the release of fuels and/or lubricants during construction. Hazardous materials associated with swimming pool maintenance, such as chlorine and other chemicals for filtration and water quality, and other potentially hazardous materials for facility maintenance could be subject to reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The contractor would, however, have an approved Spill Prevention Countermeasure and Control (SPCC) plan in place to address any releases that may occur during construction activities. Containment measures would also be implemented, as required in the Construction General Permit. As noted in the Waste Pre-Characterization Sampling memorandum, based on a comparison of soil analytical results to federal and State waste characterization criteria, the samples will likely be classified as non-hazardous if removed from the site (Leighton 2023). Proper handling, health and safety practices, hazard communication, and emergency response training would be provided to all construction and facility

personnel responsible for using any hazardous materials. An SPCC would be prepared to address proper handling and emergency response to accidental releases. Therefore, the Proposed Project would have a less than significant impact with regard to creating 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) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

Less than Significant Impact. The Project includes construction of an aquatic facility to replace the existing indoor pool. Construction and operation of the Proposed Project would occur within the boundaries of the existing Lakewood HS campus. The Proposed Project would involve the use of heavy equipment during construction that would emit emissions associated with internal combustion engines (i.e., diesel and gasoline). Once operational, the Project would involve the use of chemicals associated with maintenance operations which would be subject to federal, state, and local health and safety requirements. As discussed above in Section 4.9.1 Impact (a), adherence to all local, county, state, and federal policies and regulations would reduce impacts to a level less than significant. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with hazardous materials, substances, or waste within one-quarter mile of an existing school.

d) *Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

Less than Significant Impact. The following databases compiled pursuant to Government Code Section 65962.5 were checked for known hazardous materials contamination at the Project site:

- GeoTracker (California State Water Resources Control Board [SWRCB]): list of leaking underground storage tank sites
- EnviroStor (California DTSC): list of hazardous waste and substances sites
- EnviroMapper (U.S. Environmental Protection Agency)

Lakewood High School does not contain any cleanup sites (DTSC 2022). The school also does not contain any Leaking Underground Storage Tank (LUST) cleanup sites (SWRCB 2022). There are no other active hazardous materials sites located near the Project site (USEPA 2022). Implementation of the Proposed Project would result in less than significant impacts.

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

Less than Significant Impact. The nearest airport to the Project site is the Long Beach Airport, which is approximately 1.5 miles southwest of the Project site. However, as designated by the Airport Land Use Commission (ALUC), the Project site is outside the Long Beach Airport influence area (ALUC 2003). Impacts would be less than significant.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The Proposed Project will be designed to provide unobstructed access. Permitting requirements require the Division of State Architect (DSA) to perform an Access Compliance review and a Fire and Life Safety review prior to approval of the Proposed Project drawings and specification documents. Emergency access will be ensured, and the Proposed Project will not interfere with adopted emergency response or evacuation plans. Therefore, no impacts would occur.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. The Project site is located in an urbanized area of the City of Lakewood that does not include wildlands or high fire hazard terrain or vegetation. The Proposed Project will not expose persons or structures to the risk of wildland fires during construction or operation. Therefore, no impacts would occur.

4.10 HYDROLOGY AND WATER QUALITY

10.	HYDROLOGY AND WATER QUALITY. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
(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 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 flood 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; or	☐	☐	☒	☐
	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?	☐	☐	☒	☐

4.10.1 Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. The Proposed Project includes the installation of a new aquatic facility. The Project site is located within the Los Angeles RWQCB jurisdiction, which is responsible for the preparation of the Los Angeles Region's water quality control plan. The Project would be compliant with the NPDES Multiple Separate Storm Sewer System (MS4) Permit, which requires the implementation of BMPs. The Project site currently includes the existing softball field, which offers little permeability. Installation of the proposed aquatic center would likely result in similar permeability to existing conditions. With implementation of BMPs, impacts to surface and/or ground water quality would remain less than significant.

b) Would the project 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 Impact. The Project site is located in an urbanized area currently containing an operational school. The Proposed Project would not include the alteration of a stream or river. Water usage associated with the Proposed Project would be provided by the Central Basin Municipal Water District (CBMWD). Local sources of water supply for the CBMWD's service area include imported water, groundwater, and recycled water supplies (CBMWD 2016). The proposed swimming pool would contain slightly more water than the existing pool. Pool filters would recycle water, but pool water would be lost daily due to evaporation. In addition, the additional showers and toilets would slightly increase water usage. However, the amount of water used by the Proposed Project in the long-term would likely be similar to the existing water use of Lakewood High School as a whole due to the reasons outlined below. First, the Project is not anticipated to increase enrollment; therefore, same number of students use the fixtures regardless of the total number, and that the overall long-term use of water may only be minimally increased; in addition, the pool building would be designed using Title 24 regulations. All fixtures, faucets, shower heads and toilets would meet federal and California State Requirements including California Green Building Standards Code. Lastly, the pool filtration system is regenerative media filtration system utilizing a technology that significantly reduces water use (approximately 20,000 gallons annually compared to sand's 500,000 to 1 million gallons, resulting in 97% annual water saving) and is more energy efficient (21% annul electrical saving) than the traditional sand filtration devices. This would ensure water use is greatly minimized. The Proposed Project would not physically interfere with any groundwater supplies. Impacts are therefore less than significant.

c) Would the project 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;

Less than Significant Impact. The Project site is relatively flat and includes replacing existing fields with an aquatic center, which may result in a small amount of erosion or siltation before the aquatic center is complete. BMPs would be implemented to reduce erosion. Therefore, the 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;

Less than Significant Impact. The Proposed Project would not involve alteration of a stream or river. The Project site is located in an urban area and contains impervious surfaces. The Project site currently contains a softball field, which offers little to no permeability. Installation of the proposed aquatic center would likely result in similar permeability to existing conditions. This change in use would not result in flooding on- or off-site. Implementation of the Project would result in a less than significant impact.

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff; or

Less than Significant Impact. The Proposed Project would not impede any current stormwater drainage systems existing at the Project site. The Project includes the installation of the proposed aquatic center and would not create a substantial increase in runoff. Impacts would, therefore, be less than significant.

iv) impede or redirect flood flows?

Less than Significant Impact. The Project site is not located in a 100-year flood hazard zone as per the Federal Management Agency (FEMA). According to FEMA Flood Map 06037C1980F, the Proposed Project is located in flood hazard zone X, which is an area with reduced flood risk due to levee (FEMA 2008). Flood impacts would be less than significant.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. Seiches are large waves generated by ground shaking effects within enclosed bodies of water. Tsunamis are tidal waves generated by fault displacement or major ground movement. The Project site is located approximately 5.5 miles from the Pacific Coast, is relatively flat, and is not located in any flood hazard, tsunami, or seiche zones (DOC 2020a). No impact would occur.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. As mentioned above, the Proposed Project would comply with the NPDES General Construction Permit, which requires the preparation of a SWPPP. The SWPPP outlines BMPs that prevent impacts to water quality. BMPs would be implemented prior to initiation of construction activities and throughout the duration of construction, reducing any impacts to less than significant. Additionally, the operational use of the Proposed Project area will remain the same as the existing rate and the amount of runoff would be substantially similar to existing conditions. The Project would be compliant with all City, State, and federal regulations. Impacts would be less than significant.

4.11 LAND USE AND PLANNING

11.	LAND USE/PLANNING Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Physically divide an established community?	☐	☐	☐	☒
(b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

4.11.1 Environmental Setting

Cities and counties "plan" in order to identify important community issues (e.g., new growth, housing needs, environmental protection), project future demand for services (e.g., sewer, water, roads), anticipate potential problems (e.g., overloaded sewer facilities or crowded roads), and establish goals and policies for directing and managing growth. Local governments use a variety of tools in the planning process including the general plan, specific plans, zoning, and subdivision ordinance.

The Project site is designated in the City of Lakewood General Plan as Open Space (City 2017). The Project site is zoned O-S Land (O-S; City 2011).

4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Proposed Project is located within an established institutional setting and is related to institutional uses. The Proposed Project will not physically divide an established community. Therefore, there Proposed Project would not result in any impacts related to dividing a community.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The Proposed Project is in conformance with the City's zoning designation of Open Space Land. Although the Project site is designated as O-S, educational institutions are an authorized use, provided that a CUP has been obtained. The Proposed Project would not alter the general function of the existing site and would be compliant with the land use plan, policies, and regulations. No impact would occur.

4.12 MINERAL RESOURCES

12.	MINERAL RESOURCES Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
(b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

4.12.1 Environmental Setting

Mineral resources are commercially viable mineral or aggregate deposits, such as sand, gravel, and other construction aggregate. The California Geological Survey provides objective geologic expertise and information about California's diverse nonfuel mineral resources. Maps, reports, and other data products developed by the staff assist governmental agencies, mining companies, consultants, and the public in recognizing, developing, and protecting important mineral resources. The California Department of Conservation (DOC) protects mineral resources to ensure adequate supplies for future production. The California Surface Mining and Reclamation Act of 1975 (SMARA) was developed to encourage production and conservation of mineral resources, prevent, or minimize adverse effects to the environment, and protect public health and safety.

4.12.2 Impact Analysis

a) *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No Impact. The General Plan does not specifically designate the Project site as an area with known mineral resources (City 2017). Additionally, the Roadway Construction Noise Model (RCNM) notes that there are no active mining operations, no land designated with soils known to contain mineral resources, and no land classified as MRZ-2 within the entire City of Lakewood (CGS 2010). There are no active or abandoned wells within or near the Project site (DOC 2020b). Therefore, no impact to the loss of a known mineral resource would occur and no further discussion is required.

b) *Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

No Impact. There are no existing or historic mineral resource recovery sites in or near the Project site. Implementation of the Project would not result in any impact.

4.13 NOISE

13.	NOISE Would the project result in:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
(b)	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
(c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

4.13.1 Environmental Setting

A Noise Impact Analysis Report was prepared by Vista Environmental for the Proposed Project in April 2023 (Appendix C). To determine the existing noise levels, noise measurements have been taken in the vicinity of the Project site. The field survey noted that noise within the Proposed Project area is generally characterized by vehicle traffic on Harvey Way that is adjacent to the south side of Lakewood HS and from school activities.

4.13.2 Impact Analysis

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact. 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. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the Proposed Project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the Proposed Project are anticipated to include site preparation and grading of the 1.5-acre Project site, building construction of a new aquatic facility, paving of the walkways and pool deck, and application of architectural coatings. Noise impacts from construction activities associated with the Proposed Project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities.

Neither the General Plan nor the Municipal Code provide any limits to the noise levels that may be created from construction activities. In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the Federal Transit Administration (FTA) construction noise criteria thresholds detailed above in Appendix C have been utilized, which shows that a significant construction noise impact would occur if construction noise exceeded 80 A-weighted decibels (dBA) during the daytime at the nearby homes.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of Appendix C. The results are shown below in Table 4-5 and the RCNM printouts are provided in Appendix C.

Table 4-5– Construction Noise Levels at the Nearby Sensitive Receptors

	Construction Noise Level (dBA Leq) at:	
Construction Phase	**Nearest Homes to South[1]**	**Nearest Homes to West[2]**
Site Preparation	70	68
Grading	71	70
Building Construction	70	69
Paving	68	67
Architectural Coatings	59	58
FTA Construction Noise Threshold[3]	**80**	**80**
Exceeds Thresholds?	**No**	**No**

Notes:
1 The nearest homes to the south are located as near as 270 feet from the center of the project site.
2 The nearest homes to the west are located as near as 320 feet from the center of the project site.
3 The FTA Construction noise thresholds are detailed above in Table A.
Source: RCNM, Federal Highway Administration, 2006

Table 4-5 shows that the greatest noise impacts would occur during the grading phase of construction, with noise levels as high as 71 dBA Leq at the nearest homes to the south and 70 dBA Leq at the nearest homes to the west. Table 4-5 also shows that none of the construction phases would exceed the FTA construction noise standard of 80 dB at the nearby homes. Therefore, the construction activities for the Proposed Project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

Operational-Related Noise

The Proposed Project would consist of the development of an aquatic center. Since the Proposed Project consists of the relocation of an existing aquatic center on campus that would not result in an increase in student enrollment nor would it result in a new use on campus, the Proposed Project is not anticipated to generate any new vehicle trips to the School. As such, no roadway noise impacts are anticipated to be created from operation of the Proposed Project. Potential noise impacts associated with the operations of the Proposed Project would be limited to on-site activities associated with the operation of the aquatic center.

The operation of the Proposed Project may create an increase in on-site noise levels from the operation of pool area, rooftop mechanical equipment, and parking lot. Section 9376.1 of the Municipal Code limits on-site noise sources at the property lines of the nearby homes to 60 dBA Leq.

In order to determine the noise impacts from the operation of pool activities and rooftop mechanical equipment, reference noise measurements were taken of each noise source and are shown in Table 4-6 and the reference noise measurements are provided in Appendix C.

Table 4-6– Operational Noise Levels at the Nearby Sensitive Receptors

	Reference Measurements		At Homes to South		At Homes to West	
Noise Source	Distance - Source to Receiver (feet)	Noise Level[1] (dBA Leq)	Distance – Source to Homes (feet)	Noise Level[1] (dBA Leq)	Distance – Source to Homes (feet)	Noise Level[1] (dBA Leq)
Rooftop Equipment	6	65.1	130	38	250	33
Pool Activities[2]	30	71.8	150	58	240	54
Combined Noise Levels				**58**		**54**
City Noise Standard[3]				**60**		**60**
Exceed City Noise Standard?				No		No

Notes:
1 The noise levels were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6.0 dB for each doubling of the distance between the source and receiver. Does not account for noise reduction features, including the proposed wall around the perimeter of the proposed aquatic center.
2 The pool activities were based on a noise measurement 30 feet from Long Beach Community College Liberal Arts Campus pool hosting a swim meet.
3 City Noise Standard obtained from Section 9376.1 of the Municipal Code.

Table 4-6 shows that the Proposed Project's worst-case (i.e., during a swim meet) operational noise from the simultaneous operation of all noise sources on the Project site would create a noise level of 58 dBA at the homes to the south and 54 dBA at the homes to the west, which would be within the City's residential noise standard of 60 dBA. Therefore, the operational activities for the Proposed Project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

b) *Would the project result in generation of excessive groundborne vibration or groundborne noise levels?*

Less than Significant Impact. The Proposed Project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the Proposed Project.

Construction-Related Vibration Impacts

The construction activities for the Proposed Project are anticipated to include site preparation and grading of the 1.5-acre Project site, building construction of a new aquatic facility, paving of the walkways and pool deck, and application of architectural coatings. Vibration impacts from construction activities associated with the Proposed Project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptors to the Project site are residents at the homes on the south side of Harvey Way that are located as near as near as 100 feet south of the proposed construction activities on the Project site.

Since the City does not provide any limits to the vibration levels that may be created from construction activities, the vibration thresholds provided in Caltrans Guidance Manual that is discussed in Appendix C have been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second peak particle velocity (PPV).

The primary source of vibration during construction would be from the operation of a bulldozer. From Table D of Appendix C, a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest off-site homes (100 feet to the south) would be 0.02 inch per second PPV. The vibration level at the nearest off-site homes would be below the 0.25 inch per second PPV threshold detailed previously. Impacts would be less than significant.

Operations-Related Vibration Impacts

The Proposed Project would consist of the development and operation of an aquatic center. The ongoing operation of the Proposed Project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the Proposed Project.

c) *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public us airport, would the project expose people residing or working in the project area to excessive noise levels?*

Less than Significant Impact. The Proposed Project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is Long Beach Airport that is located as near as 1.5 mile southwest of the Project site and the primary runway runs perpendicular to the Project site, which results in very few aircraft overflights at the Project site. The Project site is located outside of the 60 dBA Community Noise Equivalent Level (CNEL) noise contours of Long Beach Airport. A less than significant impact would occur from aircraft noise.

4.14 POPULATION AND HOUSING

14.	POPULATION AND HOUSING. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
(b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

4.14.1 Environmental Setting

Housing impacts may result directly from a project which includes housing units or indirectly from revisions to the Housing Element in a General Plan or changes in housing demand associated with new nonresidential development projects.

A project would have a significant adverse impact if it would induce substantial population growth in an area, either directly by proposing new homes and businesses or indirectly through the extension of roads or other infrastructure; displace housing units, causing the construction of replacement housing somewhere else; or displace people, causing the construction of replacement housing somewhere else.

4.14.2 Impact Analysis

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The Project would require approximately 15 months of construction. Given that the Project is in an urban area of Los Angeles County, there is a sufficient local workforce available for construction. The Project would not require construction crews to relocate to the Project area. The proposed aquatic facility is located in a developed area and has been designed to meet the needs of the school and community. The new facility would not cause an increase in student enrollment at Lakewood HS. As such, there would be no likelihood that operation of the aquatic facility would indirectly induce population growth. No operation and maintenance impact would occur.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The Proposed Project would not require the permanent removal or displacement of housing or persons that would warrant replacement housing to be constructed elsewhere. No impact would occur.

4.15 PUBLIC SERVICES

15.	PUBLIC SERVICES.	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	i) Fire Protection?	☐	☐	☐	☒
	ii) Police Protection?	☐	☐	☐	☒
	iii) Schools?	☐	☐	☐	☒
	iv) Parks?	☐	☐	☐	☒
	v) Other public facilities?	☐	☐	☐	☒

4.15.1 Environmental Setting

Public services include fire, police, schools, parks, and libraries. A project would impact a public service if it would result in an increased demand for that service or if the project would result in a hindrance to that service.

4.15.2 Impact Analysis

a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?*

No Impact. Fire protection services for the Project site would be provided the Los Angeles County Fire Department. The fire station nearest to the Project site is Los Angeles County Fire Department Station 94, located at 6421 Turnergrove Drive, Lakewood, CA 90713, approximately 1 mile northeast of the proposed Project site. Fire protection service needs are generally related to the size of the population and geographic area served, the number and types of calls for service, and other community and physical characteristics. Because land uses at the Project site would remain the same as under current conditions, and no increase in students would result, an increase in the demand for fire services resulting from the Proposed Project is not anticipated. The implementation of the Proposed Project would, therefore, not result in an impact regarding fire protection services.

b) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection?*

No Impact. LBUSD maintains its own safety department to provide security for schools. The closest police station to the Project site is located at 5130 Clark Avenue, Lakewood, CA 90712, approximately 1 mile northwest of the Project site. The Project would not induce an increase in population and, therefore, will not require additional police protection. No significant impacts are expected to occur.

c) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools?*

No Impact. The Proposed Project involves the upgrades within the school property boundaries. During construction, the softball and tennis will temporarily be relocated offsite, using a nearby park through a joint use agreement that the District has with the City. Off season tennis practices will be held onsite. During the tennis season, students are anticipated to use Long Beach City College's tennis facility. All tennis meets are planned to be away games. Operation of the Project would not result in an increase school population. The implementation of the Proposed Project would, therefore, not result in an impact.

d) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks?*

No Impact. The Project would not result in adverse physical impacts associated with the provision of new or physically altered facilities to maintain acceptable opportunities for parks. The closest park to the Project site is located at 5939 Henrilee Street, Lakewood, CA 90713, approximately 0.5 miles northeast of the Project site. The school does not utilize this park for recreational purposes. The Proposed Project would not induce population growth and would not create new residents that would result in the need for new or expanded parks. Therefore, implementation of the Proposed Project would not result in a significant impact associated with parks.

e) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?*

No Impact. The Proposed Project is not expected to impact any other public facilities such as hospitals or libraries. The Proposed Project does not include activities that would increase student enrollment and result in the need for expanded public services and facilities. No impact would occur.

4.16 RECREATION

16.	RECREATION. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
(b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

4.16.1 Environmental Setting

Recreational facilities include active and passive facilities. Active recreational facilities include parks, tennis and basketball courts, pools, golf courses, and various other facilities. Passive recreational facilities include plazas and other public places.

A project would result in a significant impact on recreational facilities if it would increase the use of existing parks and facilities such that substantial physical deterioration of the facility would occur or be accelerated or if the project included recreational facilities or required construction that might have an adverse physical effect on the environment.

4.16.2 Impact Analysis

a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

No Impact. The Project includes construction of an aquatic facility to replace the existing 75 feet long pool containing a three-lane, 24 feet wide warmup pool and a six-lane, 45 feet and 12 feet deep swim pool that was built in 1949. The Project would not increase the use of existing surrounding recreational facilities.

Additionally, the Proposed Project would not directly or indirectly induce population that would increase the use of existing neighborhood, regional parks, or any other recreational facilities. As discussed above in Section 4.15.2 Impact (d), one recreational facility is in close proximity to the Project site: Recreational Park (approximately 0.5 mile from Project site). Lakewood HS does not use the nearby park because the school provides its own recreational facilities to fulfill students' recreational needs. No impact would occur.

b) *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

No Impact. The Project site is located at Lakewood HS, which provides students with on-campus recreational facilities. Implementation of the Proposed Project would not require the construction or expansion of off-site recreational facilities. The Proposed Project is intended to upgrade school

facilities for an existing student population and would not burden any facility beyond capacity by generating additional recreational users. Therefore, implementation of the Proposed Project would not result in an impact associated with the construction or expansion of recreational facilities.

4.17 TRANSPORTATION

17.	TRANSPORTATION. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?	☐	☐	☒	☐
(b)	Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
(c)	Substantially increase hazards due to a geometric design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(d)	Result in inadequate emergency access?	☐	☐	☒	☐

4.17.1 Impact Analysis

a) *Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities?*

Less than Significant Impact. The Proposed Project would not change any existing roadways, bicycle lanes, or pedestrian paths. The Proposed Project activities will remain within the existing campus. The Proposed Project would generate minor increases in traffic associated with short-term construction activities due to the presence and use of construction equipment and vehicles. However, there will not be a significant and permanent increase in traffic after the completion of the Proposed Project. In addition, as part of District Construction BMPs, the District will require its contractors to submit a worksite traffic control plan to the City of Lakewood for review prior to construction. The plan will show the location of any haul routes, construction hours, protective devices, warning signs, and access to abutting properties. The Proposed Project is not expected to change the current local traffic levels. Impacts would be less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less than Significant Impact. In 2013, the State Legislature adopted Senate Bill (SB) 743, a measure requiring all California cities to change long-standing methods for analyzing transportation-related impacts of projects. The City of Lakewood has not yet formally adopted a Vehicle Miles Traveled (VMT) analysis methodology or VMT impact significance thresholds; however, the adjacent City of Long Beach approved guidelines for analyzing the traffic and circulation impacts under SB 743 in June 2020 (City of Long Beach 2020). Based on the close proximity and adjacency of the cities of Lakewood and Long Beach and their similar transportation profiles, the City of Long Beach Traffic Impact Analysis Guidelines can be used to evaluate the Project's potential VMT impacts.

According to the guidelines, the County of Los Angeles Average VMT per Population is 13.9; the VMT per population for the Project site is 13.87. Therefore, the average VMT per capita is similar or lower than the county average for the Project site, indicating that any office or residential type development in the area would have a less than significant impact. Additionally, the Project site is located within 0.5 mile of a High-Quality Transit Corridor (HQTC) and is therefore within a High-Quality Transit Area (HQTA; SCAG 2019). Development in close proximity to a HQTC or within a HQTA also typically results in a less than significant impacts.

Currently, members of the water polo and swim teams practice and compete at the existing indoor pool on campus. The Proposed Project would develop an outdoor competition size pool at the existing school, which would not have any impact on VMT. Consequently, impacts to VMT would be less than significant.

c) *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

No Impact. The Proposed Project would not change any design features of the existing structures. There would be no change to the existing roadways and the Project would not involve any incompatible uses. Implementation of the Project would not result in an impact.

d) *Would the project result in inadequate emergency access?*

Less than Significant Impact. The Proposed Project would occur entirely within the Lakewood HS campus and does not include changes to nearby roadways or emergency access routes. As part of District Construction BMPs, the District will require its contractors to submit a worksite traffic control plan to the City for review prior to construction. The plan will show the location of any haul routes, construction hours, protective devices, warning signs, and access to abutting properties. After construction, all lanes in the vicinity of the Proposed Project would remain open for emergency use; therefore, implementation of the Proposed Project would not result in an impact associated with emergency access.

4.18 TRIBAL CULTURAL RESOURCES

18.	**TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(a)	Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
(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.	☐	☒	☐	☐

4.18.1 Environmental Setting

Based on the list of tribes that had previously requested consultation with the District, the District sent out AB 52 letters to the Torres Martinez Desert Cahuilla Indians, the Gabrieleno/Tongva San Gabriel Band of Mission Indians, and the Gabrieleno Band of Mission Indians-Kizh Nation on March 15, 2023. On March 29, 2023, the Gabrieleno Band of Mission Indians – Kizh Nation responded and requested formal consultation. A formal consultation phone call was conducted on April 26, 2023. Suggested mitigation measures were provided by the Gabrieleno Band of Mission Indians – Kizh Nation on April 28th, and these have been incorporated below. With the acceptance of the suggested mitigation measures, consultation was deemed concluded on May 5th, 2023.

4.18.2 Impact Analysis

a) *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 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)?*

Less than Significant Impact. Based on information provided by the Gabrieleno Band of Mission Indians – Kizh Nation, including information discussed during the April 26, 2023 consultation call, the District recognizes that potential subsurface tribal cultural resources may be present near or within the Project Site. As noted in Section 4.5.2, the California Historical Records Information System (CHRIS) records search identified two previously recorded cultural resources located within 1 mile of the Proposed Project site. None of these resources was mapped within any portions of the Proposed

Project site. Since no resources on the Project site area listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), impacts are considered less than significant.

b) *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 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?*

Less than Significant Impact with Mitigation Incorporated. As noted above in 4.18.2 a), based on information provided by the Gabrieleno Band of Mission Indians – Kizh Nation, including information discussed during the April 26, 2023 consultation call, the District recognizes that potential subsurface tribal cultural resources may be present near or within the Project site. Due to the amount of excavation and grading involved in the Proposed Project, the following mitigation measures will be implemented to reduce impacts to less than significant.

TCR-1: Retain a Native American Monitor/Consultant.

A. The Project Applicant shall be required to retain a Native American Monitor from or approved by the Gabrieleno 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. BA copy of the executed monitoring agreement shall be submitted to the lead agency 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.

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 project applicant/lead agency 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 project applicant/lead

agency 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 project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh TCRs.

TCR-2: Unanticipated Discovery of Tribal Cultural and Archaeological Resources.

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.

TRC-3: Unanticipated Discovery of Human Remains and Associated Funerary Objects.

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.

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.

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.

4.19 UTILITIES AND SERVICE SYSTEMS

19.	UTILITIES/SERVICE SYSTEMS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
(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 management and reduction statutes and regulations related to solid wastes?	☐	☐	☒	☐

4.19.1 Environmental Setting

Utilities and service systems include potable water and wastewater treatment. The quantity of water consumed and wastewater generated by a project is determined by several factors including the size, type, and characteristics of the project. The need for construction of new or replacement water and wastewater treatment facilities (e.g., reservoirs, storage tanks, water mains, filtration plants, pumps, wells, and other connections or distribution facilities) would depend on the existing capacity and anticipated demand for the project area.

4.19.2 Impact Analysis

a) *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or expansion of which could cause significant environmental effects?*

Less than Significant Impact. Implementation of the Proposed Project would not directly result in an increase in student or staff population. The proposed aquatic center would replace the existing natatorium and pool, including pool equipment. Therefore, post construction, the generation of wastewater, water usage, and other electricity and gas usage on the Project site would not differ substantially from existing conditions. Therefore, implementation of the Proposed Project would

result in less than significant impacts associated with water and/or wastewater facilities, or other utility facilities.

b) *Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal dry and multiple dry years?*

Less than Significant Impact. The Proposed Project involves the construction of an aquatic facility, which will include a 51.5-meter-long by 25-yard-wide swimming pool, to replace the existing 75 feet by 70 feet indoor swimming pool. The new swimming pool would contain slightly more water than the existing pool. Pool filters would recycle water; however, water levels in the pool would be lost daily due to evaporation. In addition, the new showers and toilets would slightly increase water usage. However, the amount of water used by the Proposed Project in the long-term would likely be similar to the existing water use of Lakewood High School as a whole due to the reasons outlined below. First, the Project is not anticipated to increase enrollment; therefore, same number of students use the fixtures regardless of the total number, and that the overall long-term use of water may only be minimally increased; in addition, the pool building would be designed using Title 24 regulations. All fixtures, faucets, shower heads and toilets would meet federal and California State Requirements including California Green Building Standards Code. Lastly, the pool filtration system is regenerative media filtration system utilizing a technology that significantly reduces water use (20K gallons annually compared to sand's 500K to 1M gallons, resulting in 97% annual water saving) and is more energy efficient (21% annul electrical saving) than the traditional sand filtration devices. This would ensure water use is greatly minimized.

Overall, while the Proposed Project would result in a long-term use of water supplies, it is considered a nominal increase compared to the overall water consumption of such an urban area and a minor increase over existing water use of Lakewood HS. The Project is considered to have sufficient water supplies available and is not expected to significantly contribute to any water shortages during normal, dry, and multiple dry years. Impacts would be less than significant.

c) *Would the project 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?*

Less than Significant Impact. Users of the Proposed Project and on-site staff would generate wastewater via showers and toilets. The Proposed Project would replace the existing pool and would employ pool staff and serve patrons from the local area; therefore, the Project would not result in a net increase to the amount of wastewater generated in the community. Overall, the limited amount of wastewater generated by operation of the Proposed Project would be less than significant.

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?*

Less than Significant Impact. The Proposed Project will not significantly affect the volume of solid waste. Construction of the Proposed Project would result in the generation of solid waste, including scrap lumber, concrete, residual waste, packaging material, plastics, and vegetation. To ensure optimal diversion of solid waste resources by the Proposed Project, the District will require contractors to recycle or salvage non-hazardous waste materials generated during demolition and/or construction, to foster material recovery and reuse, and to minimize disposal in landfills. Furthermore,

impacts from construction activities will be short-term and intermittent, and will be mitigated by compliance with existing state solid waste reduction statutes. The Proposed Project would not cause an increase in student and staff population that would result in the permanent and significant increase of solid waste. Therefore, impacts to solid waste would be less than significant.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. Construction of the Proposed Project would generate routine solid waste and, therefore, would require the consideration of waste reduction and recycling measures. The Project would be required to adhere to AB 939, which requires specific waste diversion goals. The Proposed Project would reuse and recycle construction material to the maximum extent feasible. The Proposed Project would not cause an increase in student and staff population that would result in the permanent and significant increase of solid waste. Therefore, the proposed Project is consistent with AB 939, resulting in less than significant impacts.

4.20 WILDFIRE

20.	WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(b)	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
(c)	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
(d)	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

4.20.1 Impact Analysis

a) Would the project impair an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The Proposed Project will not impair an adopted emergency response plan or evacuation plan. The Proposed Project does not include any modifications of main roads that could be designated as emergency evacuation routes, nor does the Project include construction of facilities that would interfere with an emergency response or evacuation plan. Impacts would be less than significant.

b) *Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

Less than Significant Impact. The Proposed Project is not located within a very high fire hazard severity zone (CalFire 2007). The Project site is located on a relatively flat, urbanized location with little vegetation and, therefore, will not exacerbate wildfire risks. Impacts would be less than significant.

c) *Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

Less than Significant Impact. The Proposed Project does not include installation or maintenance of associated infrastructures that would exacerbate a fire risk. In addition, the Proposed Project is not located within a very high fire hazard severity zone. Impacts would be less than significant.

d) *Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability or drainage changes?*

Less than Significant Impact. The Project site does not include structures that would be exposed to downstream flooding or landslides. The Project site is relatively flat and does not include activities that would change the drainage or slope of the Project site. Impacts would be less than significant.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

21.	MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
(b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)	☐	☐	☒	☐
(c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

4.21.1 Impact Analysis

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation Incorporated. As discussed in Section 4.4 Biological Resources, the Project site is located in a highly urbanized setting within a fully developed and operational school. Vegetation present consists mainly of ornamental landscaping. There are no riparian habitats or other sensitive natural communities within the Proposed Project, nor is the Project site within an area of an adopted Habitat Conservation Plan. Due to the potential disturbance of trees surrounding and within the Project site during construction, mitigation measures MM-BIO-1 and MM-BIO-2 are provided to reduce potential impacts. Therefore, impacts would be less than significant as it relates to sensitive habitats or threatened or engendered species.

Based on the background research and SCCIC records search results, none of these previously recorded cultural resources are documented within the Proposed Project site. The Survey resulted in no new cultural resources observed or recorded within the Proposed Project site. Given the historic age of the original Lakewood HS development, there is potential that cultural resource surface deposits may be present underlying the existing development. Based on the limited ground surface visibility, the historic nature of the Lakewood High School structures and the existence of previously recorded prehistoric and historic resources within the 1-mile study area around the Proposed Project site, new resources still have potential to be discovered in or near the Project site. With implementation of mitigation measures MM CUL-1 through MM CUL-6, impacts will be less than significant.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)

Less than Significant Impact. Lakewood HS proposes additional renovations as part of LBUSD's District wide improvements (LBUSD 2023). Future projects that may coincide with the construction of the Proposed Project, which is proposed to begin in summer 2023 and be completed by September 2024, include the following:

- Natatorium Renovation (Construction to begin 2027)

The proposed District wide improvements will require its own standalone environmental analysis to determine its individual and cumulative impacts. These proposed improvements are not expected to occur within the Proposed Project site. Since there would be no overlap in the schedule of the projects, no cumulative impacts would result. Other projects occurring in the vicinity of the Project site, within the City of Lakewood could have the potential to cumulatively increase impacts to air quality, greenhouse gas emissions, and noise. However, as discussed above in Section 4.3 Air Quality, Section 4.8 Greenhouse Gas Emissions, and Section 4.13 Noise, the proposed construction and operations would not result in exceeding local thresholds. Furthermore, the Proposed Project would

not result in a cumulatively considerable net increase of any criteria pollutant. Impacts would be less than significant.

c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less than Significant Impact. Effects to human beings are generally associated with air quality, noise, traffic safety, geology/soils, and hazards/hazardous materials. As noted in the sections above, the Proposed Project would not result in significant impacts to any of these impact categories.

SECTION 5.0 – REFERENCES

The following is a list of references used in the preparation of this document.

Airport Land Use Commission (ALUC)

2003 ALUC, Long Beach Airport Influence Area, May 13, 2003. Available online at: http://planning.lacounty.gov/assets/upl/project/aluc_airport-long-beach.pdf

County of Los Angeles (County)

2015 Los Angeles County General Plan. Available online at: https://planning.lacounty.gov/assets/upl/project/gp_final-general-plan.pdf

California Geological Survey (CGS)

2010 California Geological Survey, Update of Mineral Land Classification for Portland Cement Concrete-Grade Aggregate in the San Gabriel Valley Production-Consumption Region, Los Angeles County, California, 2010 Special Report 209. Available online at: https://filerequest.conservation.ca.gov/?q=SR_209_Text.pdf

2015 California Geological Survey, Fault Activity Map of California, 2015. Available online at: https://maps.conservation.ca.gov/cgs/fam/

2022 California Geological Survey, Earthquake Zones of Required Investigation, Accessed, July 2022. Available online at: https://maps.conservation.ca.gov/cgs/EQZApp/app/

California Department of Transportation (Caltrans)

2022 Caltrans, Scenic Highways. Available online at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

City of Lakewood (City)

2011 City of Lakewood Zoning Designations. Available online at: https://www.lakewoodcity.org/files/assets/public/about/documents/zoning-map.pdf

2017 City of Lakewood General Plan. Available online at: https://www.lakewoodcity.org/files/assets/public/building-amp-planning/general-plan/general_plan.pdf

2020 Lakewood Municipal Code – Chapter 3 Zoning. Available online at: https://weblink.lakewoodcity.org/WebLink/DocView.aspx?id=177397&dbid=0&repo=CityofLakewood

City of Long Beach

2020 City of Long Beach Traffic Impact Analysis Guidelines, June 2020. Available online at: http://www.longbeach.gov/globalassets/city-manager/media-library/documents/memos-to-the-mayor-tabbed-file-list-folders/2020/june-30--2020---vehicle-miles-traveled--vmt--standards-for-development-review.

California Department of Conservation (DOC)

2016a Department of Conservation, California Important Farmland Finder, Accessed June 2022. Available online at: https://maps.conservation.ca.gov/DLRP/CIFF/

2016b Department of Conservation, The Williamson Act Status Report 2016-17. Available online at: https://www.conservation.ca.gov/dlrp/wa/Documents/stats_reports/2018%20WA%20Status%20Report.pdf

2020b Department of Conservation, Division of Oil, Gas and Geothermal Resources, Well Finder, Accessed June 2022. Available online at: https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-118.12063/33.83750/17

CalFire

2007 CalFire, Fire Hazard Severity Zones in SRA, Los Angeles County, Adopted November 7, 2007. Available online at: https://osfm.fire.ca.gov/media/6705/fhszs_map19.pdf

Central Basin Municipal Water District (CBMWD)

2016 Urban Water Management Plan. Available online at: https://cdn5-hosted.civiclive.com/UserFiles/Servers/Server_8977649/File/Water%20Supplies/Managing%20Water/FINAL%20CBMWD%20UWMP%20June%202016.pdf

Department of Toxic Substances Control (DTSC)

2022 Department of Toxic Substances Control, Envirostor Sites and Facilities Map. Available online at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=4400+Briercrest+Avenue%2C+Lakewood%2C+CA%2C+USA

Flood Emergency Management Act (FEMA)

2008 FEMA Flood Map Service Center, Accessed August 20, 2020. Available online at: https://msc.fema.gov/portal/search?AddressQuery=4400%20Briercrest%20Ave,%20Lakewood,%20CA%2090713#searchresultsanchor

Leighton Consulting, Inc. (Leighton)

2023 Soil Pre-Characterization Sampling Report. Lakewood High School Aquatic Center. January 2023.

Long Beach Unified School District (LBUSD)

2023 Renovation & Construction projects at Lakewood High School. Accessed online at: Lakewood High School - Bond Site for Long Beach Unified School District (lbschoolbonds.net)

Natural Resources Conservation Service (NRCS)

2022 NRCS Web Soil Survey, Accessed July 2022. Available online at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx?aoicoords=((-118.12315%2033.83617,-118.12315%2033.83948,-118.11926%2033.83948,-118.11926%2033.83617,-118.12315%2033.83617))

State Water Resources Control Board (SWRCB)

2022 State Water Resources Control Board, GeoTracker Map. Available online at: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=4400+Briercrest+Avenue%2C+Lakewood

United States Environmental Protection Agency (USEPA)

2022 USEPA EnviroMapper. Available online at: https://geopub.epa.gov/myem/efmap/index.html?ve=17,33.838349,-118.122091&pText=4400%20Briercrest%20Ave,%20Lakewood,%20California,%2090713

United States Fish and Wildlife Service (USFWS)

2022 National Wetlands Inventory, Wetlands Mapper, Accessed July 222. Available online at: https://www.fws.gov/wetlands/data/mapper.html

APPENDIX A – Air Quality, Energy, and Greenhouse Gas Analysis

AIR QUALITY, ENERGY, AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

LAKEWOOD HIGH SCHOOL AQUATIC CENTER PROJECT

CITY OF LAKEWOOD

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April 7, 2023

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
Air Basin	South Coast Air Basin
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BSFC	Brake Specific Fuel Consumption
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
Cf_4	tetrafluoromethane
C_2F_6	hexafluoroethane
C_2H_6	ethane
CH_4	Methane
City	City of Lakewood
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CPUC	California Public Utilities Commission
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global warming potential
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons

IPCC	International Panel on Climate Change
kWhr	kilowatt-hour
LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
MATES	Multiple Air Toxics Exposure Study
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
O_3	Ozone
OPR	Office of Planning and Research
Pb	Lead
Pfc	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SO_x	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality, Energy, and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality, energy, and GHG emissions impacts associated with the proposed Lakewood High School Aquatic Center project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the energy conservation regulatory framework;
- A description of the GHG emissions regulatory framework;
- A description of the air quality, energy, and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP);
- An analysis of the short-term construction related and long-term operational air quality, energy, and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with all applicable energy and GHG emissions reduction plans and policies.

1.2 Site Location and Study Area

The project site is located in the southern portion of the City of Lakewood (City) at the Lakewood High School campus at 4400 Briercrest Avenue. The approximately 32-acre campus is bordered by Centralia Street to the north, Lomina Avenue to the east, Harvey Way to the south, and Briercrest Avenue to the west. The proposed aquatic center would be located on the southern portion of the campus that currently contains softball fields, which would be shifted within the campus as part of a separate project. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are residents at the single-family homes on the south side of Harvey Way that are located as near as 100 feet south of the project site. There are also single-family homes on the west side of Briercrest Avenue that are located as near as 240 feet west of the project site.

1.3 Proposed Project Description

The proposed project includes the construction of a new aquatics facility that will be used by swim and water polo teams, physical education to accommodate 54 to 100 students, students with special needs, Special Olympics, and community learn to swim programs.

The Pool and Pool Deck will include:

- A Myrtha Brand, swimming pool that is 51.5 meters long by 25 yards wide, with a 1.5 meter-wide bulkhead. The plan is to have an approximately 30 foot deck surrounding the pool. The pool will be an outside pool.
- Bleachers with a capacity for 500 spectators, and shade coverings over the bleachers
- Stadium lights
- LED scoreboard with integrated sound system throughout the complex
- Pool deck 30' surrounding the pool
- Perimeter walls for security and privacy
- Surveillance cameras for security purposes
- Equipment storage enclosure/room

The aquatic center buildings will also include:

- A snack bar/ticket booth
- ADA complaint changing/locker rooms with boys, girls, and gender neutral areas. The building will accommodate 34+/- combination changing, shower stalls, and approximately 200 lockers in total.
- A multipurpose room
- Two offices for coaching and PE staff.
- Washer/dryer room
- Chemical storage rooms – easily accessible for truck deliveries
- Mechanical and electrical rooms
- Pool attendant office including a restroom and shower.
- Students, staff and public restrooms as required by code
- Equipment storage enclosure/room
- Outdoor shower heads

A layout of the proposed project is shown in Figure 2, Proposed Site Plan. Construction of the proposed project is expected to begin in September 2023 and be completed in March 2025. The aquatic center will be in use for the most part, with the exception of a few days in a year. Typical hours of operation would be from 7 a.m. to 8 p.m..

1.4 Executive Summary

Standard Air Quality, Energy, and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable, but not limited to the proposed project.

- Rule 402 Nuisance – Controls the emissions of odors and other air contaminants;
- Rule 403 Fugitive Dust – Controls the emissions of fugitive dust;

- Rules 1108 and 1108.1 Cutback and Emulsified Asphalt – Controls the VOC content in asphalt;
- Rule 1113 Architectural Coatings – Controls the VOC content in paints and solvents; and
- Rule 1143 Paint Thinners – Controls the VOC content in paint thinners.

State of California Rules

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets;
- CCR Title 24 Part 6 – California Building Energy Standards; and
- CCR Title 24 Part 11 – California Green Building Standards.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality, energy, and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

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 impact.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than significant impact.

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;

Less than significant impact.

Conflict with or obstruct a state or local plan for renewable energy;

Less than significant impact.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Less than significant impact.

1.5 Mitigation Measures for the Proposed Project

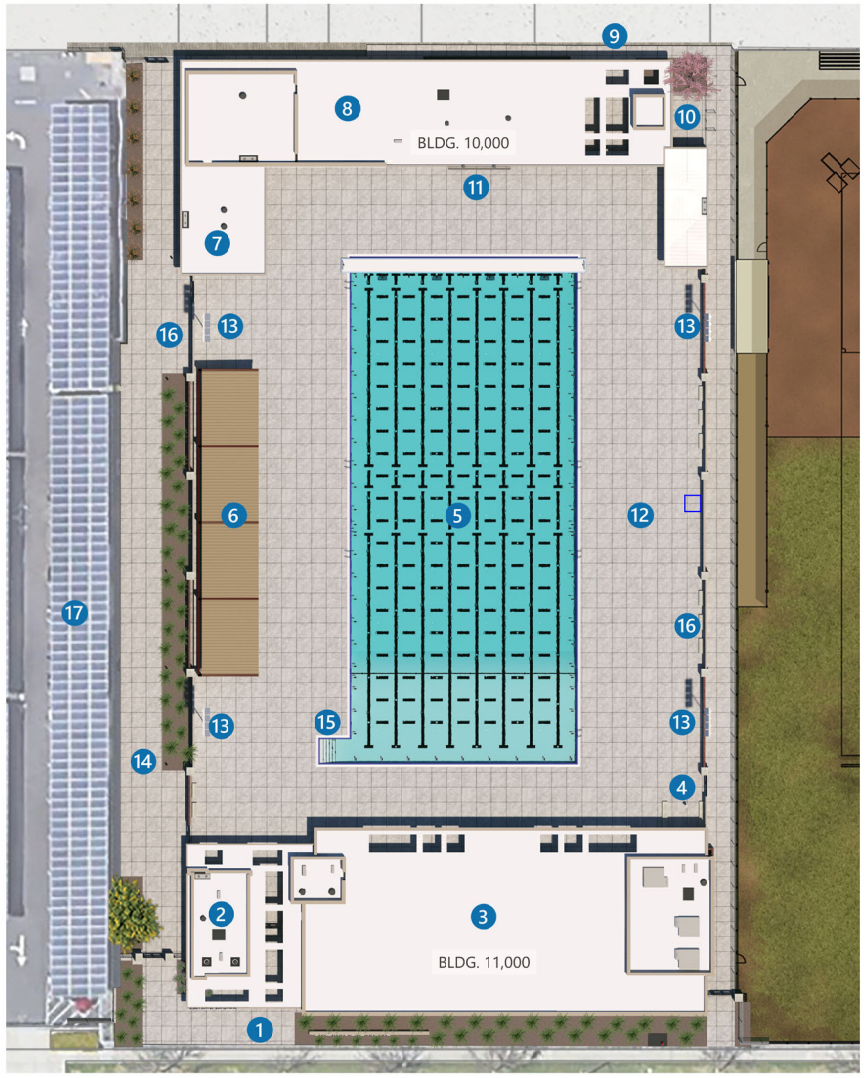
This analysis found that implementation of the State and SCAQMD air quality, energy, and GHG emissions reductions regulations were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality, energy, and GHG emissions.



SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Local Study Area



NOT TO SCALE

1. PUBLIC ENTRY
2. TICKET OFFICE AND CONCESSIONS
3. MODERN LOCKER ROOM FACILITY
4. OUTDOOR SHOWER AREA
5. MYRTHA POOL (51.5M LONG BY 25 YARDS WIDE)
6. NEW BLEACHERS WITH SHADE CANOPY
7. DECK RESTROOMS
8. MECHANICAL SUPPORT BUILDING
9. CAMPUS ENTRY
10. ELECTRICAL YARD
11. SCORE BOARD
12. 30' POOL DECK
13. STADIUM LIGHTS
14. LANDSCAPE WALKWAY
15. ACCESSIBLE POOL ENTRY
16. PERIMETER WALL
17. EXISTING SOUTH PARKING LOT WITH PV STRUCTURES

N

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SOURCE: Studio WC

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 AIR POLLUTANTS

Air pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

2.1 Criteria Pollutants and Ozone Precursors

The criteria pollutants consist of: ozone, nitrogen oxides (NOx), CO, sulfur oxides (Sox), lead, and particulate matter (PM). The ozone precursors consist of NO_x and VOC. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants and ozone precursors.

Nitrogen Oxides

NOx is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NO_x and the pollutants formed from NO_x can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources

Ozone

Ozone is not usually emitted directly into the air, instead it is created by a chemical reaction between NOx and VOCs in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves,

gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Oxides

SOx gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment

Lead

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

PM is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) that are also known as *Respirable Particulate Matter* are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) that are also known as *Fine Particulate Matter* have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

Volatile Organic Compounds

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of ozone are referred to and regulated as VOCs (also

referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of ozone and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, TACs are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM. DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release

asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 50 miles southeast of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

3.0 GREENHOUSE GASES

3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric GHGs, play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This

could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and CFCs). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6).

Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e. As such, the GWP of CO_2 is equal to 1. The GWP values used in this analysis are based on the 2007 IPCC Fourth Assessment Report, which are used in the CalEEMod Model Version 2022.1 and are detailed in Table A. The IPCC has updated the Global Warming Potentials of some gases in their Sixth Assessment Report, however the new values have not yet been incorporated into the CalEEMod model that has been utilized in this analysis.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	25	1,774 ppb
Nitrous Oxide (N_2O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	22,800	5.6 ppt

Notes:
[1] Defined as the half-life of the gas.

[2] Compared to the same quantity of CO_2 emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2022.1),that is used in this report (CalEEMod user guide, April 2022).
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC 2007, EPA 2015

3.3 Greenhouse Gas Emissions Inventory

According to the Carbon Dioxide Information Analysis Center[1], 9,855 million metric tons (MMT) of CO_2e emissions were created globally in the year 2014. According to the Environmental Protection Agency (EPA), the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use[2].

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020,* prepared by the EPA, in 2020 total U.S. GHG emissions were 5,981.4 million metric tons (MMT) of CO_2e emissions. Total U.S. emissions have decreased by 7.3 percent between 1990 and 2020, which is down from a high of 15.7 percent above 1990 levels in 2007. Emissions decreased from 2019 to 2020 by 9.0 percent. The sharp decline in emissions from 2019 to 2020 is largely due to the impacts of the coronavirus pandemic on travel and economic activity.

According to *California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators*, prepared by the CARB, July 28, 2021, the State of California created 418.2 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2019. The 2019 emissions were 7.2 $MMTCO_2e$ lower than 2018 levels and almost 13 $MMTCO_2e$ below the State adopted year 2020 GHG limit of 431 $MMTCO_2e$. The breakdown of California GHG emissions by sector consists of: 39.7 percent from transportation; 21.1 percent from industrial; 14.1 percent from electricity generation; 7.6 percent from agriculture; 10.5 percent from residential and commercial buildings; 4.9 percent from high global warming potential sources, and 2.1 percent from waste.

1 Obtained from: https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html
2 Obtained from: https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data

4.0 AIR QUALITY MANAGEMENT

The air quality at the project site is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

4.1 Federal – United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The EPA was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table B.

Table B – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	a) Pulmonary function decrements and localized lung injury in humans and animals; (b) asthma exacerbation; (c) chronic obstructive pulmonary disease (COPD) exacerbation; (d) respiratory infection; (e) increased school absences, and hospital admissions and emergency department (ED) visits for combined respiratory diseases; (e) increased mortality; (f) possible metabolic effects. Vegetation damage; property damage
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	Visibility reduction (a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) possible impairment of central nervous system functions; (d) possible increased risk to fetuses; (f) possible increased risk of pulmonary disease; (g) possible emergency department visits for respiratory diseases overall and visits for asthma.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	Short-term (a) asthma exacerbations (“asthma attacks”) Long-term (a) asthma development; (b) higher risk of all-cause, cardiovascular, and respiratory mortality. Both short and long term NO2 exposure is also associated with chronic obstructive pulmonary disease (COPD) risk. Potential impacts on cardiovascular health, mortality and cancer, aggravate chronic respiratory disease. Contribution to atmospheric discoloration

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour	Respiratory symptoms (bronchoconstriction, possible wheezing or shortness of breath) during exercise or physical activity in persons with asthma. Possible allergic sensitization, airway inflammation, asthma development.
Respirable Particulate Matter (PM_{10})	50 µg/m^3 / 24-hour 20 µg/m^3 / annual	150 µg/m^3 / 24-hour	Short -term (a) increase in mortality rates; (b) increase in respiratory infections; (c) increase in number and severity of asthma attacks; (d) COPD exacerbation; (e) increase in combined respiratory-diseases and number of hospital admissions; (f) increased mortality due to cardiovascular or respiratory diseases; (g) increase in hospital admissions for acute respiratory conditions; (h) increase in school absences; (i) increase in lost work days; (j) decrease in respiratory function in children; (k) increase medication use in children and adults with asthma. Long-term (a) reduced lung function growth in children; (b) changes in lung development; (c) development of asthma in children; (d) increased risk of cardiovascular diseases; (e) increased total mortality from lung cancer; (f) increased risk of premature death. Possible link to metabolic, nervous system, and reproductive and developmental effects for short-term and long-term exposure to PM2.5.
Suspended Particulate Matter ($PM_{2.5}$)	12 µg/m^3 / annual	35 µg/m^3 / 24-hour 12 µg/m^3 / annual	
Sulfates	25 µg/m^3 / 24-hour	No Federal Standards	(a) Decrease in lung function; (b) aggravation of asthmatic symptoms; (c) vegetation damage; (d) Degradation of visibility; (e) property damage
Lead	1.5 µg/m^3 / 30-day	0.15 µg/m^3 /3-month rolling	(a) Learning disabilities; (b) impairment of blood formation and nerve function; (c) cardiovascular effects, including coronary heart disease and hypertension Possible male reproductive system effects
Hydrogen Sulfide	0.03 ppm / 1-hour	No Federal Standards	Exposure to lower ambient concentrations above the standard may result in objectionable odor and may be accompanied by symptoms such as headaches, nausea, dizziness, nasal irritation, cough, and shortness of breath

Source: 2022 AQMP, SCAQMD, 2022.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table C, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone and PM2.5 and partial non-attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for CO, PM10, SO_2, and NO_2.

Table C – National Air Quality Standards Attainment Status – South Coast Air Basin

Criteria Pollutant	Averaging Time	Designation[a]	Attainment Date[b]
Ozone	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (revised deadline)
	2015 8-Hour (0.07 ppm)[d]	Nonattainment (Extreme)	8/3/2038
	2008 8-Hour (0.075 ppm)[d]	Nonattainment (Extreme)	7/20/2032
	1997 8-Hour (0.08 ppm)[d]	Nonattainment (Extreme)	6/15/2024
PM2.5[e]	2006 24-Hour (35 µg/m^3)	Nonattainment (Serious)	12/31/2019
	2012 Annual (12 µg/m^3)	Nonattainment (Serious)	12/31/2021
	1997 Annual (15 µg/m^3)	Attainment (final determination pending)	4/5/2015 (attained 2013)
PM10[f]	1987 24-Hour (150 µg/m^3)	Attainment (Maintenance)	7/26/2013 (attained)
Lead[g]	2008 3-Months Rolling (0.15 µg/m^3)	Nonattainment (Partial) (Attainment determination requested)	12/31/2015
CO	1971 1-Hour (35 ppm)	Attainment (Maintenance)	6/11/2007
	1971 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007
NO_2[h]	2010 1-Hour (100 ppb)	Unclassifiable/Attainment	N/A (attained)
	1971 Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
SO_2[i]	2010 1-Hour (75 ppb)	Unclassifiable/Attainment	1/9/2018
	1971 24-Hour (0.14 ppm)	Unclassifiable/Attainment	3/19/1979

Source: SCAQMD, 2022

Notes:

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable.

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.

c) The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard; original attainment date was 11/15/2010; the revised attainment date is 2/6/2023.

d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm, effective 12/28/20115 with classifications and implementation goals to be finalized by 10/1/2017; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone implementation rule, effective 4/6/2015; there are continuing obligations under the revoked 1997 and revised 2008 ozone NAAQS until they are attained.

e) The attainment deadline for the 2006 24-Hour PM2.5 NAAQS was 12/31/15 for the former "moderate" classification; the EPA approved reclassification to "serious", effective 2/12/16 with an attainment deadline of 12/31/2019; the 2012 (proposal year) annual PM2.5 NAAQS was revised on 1/15/2013, effective 3/18/2013, from 15 to 12 µg/m^3; new annual designations were final 1/15/2015, effective 4/15/2015; on 7/25/2016 the EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m^3) and 24-hour PM2.5 (65 µg/m^3) NAAQS, effective 8/24/2016.

f) The annual PM10 standard was revoked, effective 12/18/2006; the 24-hour PM10 NAAQS deadline was 12/31/2006; the Basin's Attainment Re-designation Request and PM10 Maintenance Plan was approved by the EPA on 6/26/2103, effective 7/26/2013.

g) Partial Nonattainment designation – Los Angeles County portion of the Basin only for near-source monitors; expect to remain in attainment based on current monitoring data; attainment re-designation request pending.

h) New 1-hour NO_2 NAAQS became effective 8/2/2010, with attainment designations 1/20/2012; annual NO_2 NAAQS retained.

i) The 1971 annual and 24-hour SO_2 NAAQS were revoked, effective 8/23/2010.

Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS and frequently record the highest ozone levels in the United States. In 2020, monitoring stations in the Air Basin exceeded the most current federal standards on a total of 181 days (49 percent of the year), including: 8-hour ozone (157 days over the 2015 ozone NAAQS), 24-hour PM2.5 (39 days), PM10 (3 days), and NO_2 (1 day). Nine of the top 10 stations in the nation most frequently exceeding the 2015 8-hour ozone NAAQS in 2020 were located within the Air Basin, including stations in San Bernardino, Riverside, and Los Angeles Counties (SCAQMD, 2022).

PM2.5 levels in the Air Basin have improved significantly in recent years. Since 2015, none of the monitoring stations in the Air Basin have recorded violations of the former 1997 annual PM2.5 NAAQS (15.0 µg/m^3). On July 25, 2016 the U.S. EPA finalized a determination that the Air Basin attained the 1997 annual (15.0 µg/m^3) and 24-hour PM2.5 (65 µg/m^3) NAAQS, effective August 24, 2016. However, the Air Basin does not meet the 2012 annual PM2.5 NAAQS (12.0 µg/m^3), with six monitoring stations having design values above the standard for the 2018-2020 period (SCAQMD, 2022).

4.2 State – California Air Resources Board

The CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants in the Air Basin are shown in Table D. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

Table D – California Ambient Air Quality Standards Attainment Status – South Coast Air Basin

Criteria Pollutant	Averaging Time	Level[a]	Designation[b]
Ozone	1-Hour	0.09 ppm	Nonattainment
	8-Hour	0.070 ppm	Nonattainment
PM2.5	Annual	12 µg/m^3	Nonattainment
PM10	24-Hour	50 µg/m^3	Nonattainment
	Annual	20 µg/m^3	Nonattainment
Lead	30-Day Average	1.5 µg/m^3	Attainment
CO	1-Hour	20 ppm	Attainment
	8-Hour	9.0 ppm	Attainment
NO_2	1-Hour	0.18 ppm	Attainment
	Annual	0.030	Nonattainment[c] (CA 60 Near-road portion of San Bernardino, Riverside and Los Angeles Counties) Attainment (remainder of Basin)
SO_2	1-Hour	0.25 ppm	Attainment
	24-Hour	0.04 ppm	Attainment
Sulfates	24-Hour	25 µg/m^3	Attainment
Hydrogen Sulfide	1-Hour	0.03 ppm	Unclassified

Source: SCAQMD, 2022

Notes:

a) CA State standards, or CAAQS, for ozone, SO_2, NO_2, PM10 and PM2.5 are values not to be exceeded; lead, sulfates and H_2S standards are values not to be equaled or exceeded; CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b) CA State designations shown were updated by CARB in 2019, based on the 2016-2018 3-year period; stated designations are based on a 3-year data period after consideration of outliers and exceptional events.

c) While this region is currently in Nonattainment, the CARB approved a redesignation to attainment to attainment based on 2018-2020 data on February 24, 2022.

As shown in Table D, the Air Basin has been designated by the CARB as a non-attainment area for ozone, PM10 and PM2.5 and partial nonattainment for NO_2. Currently, the Air Basin is in attainment with the ambient air quality standards for lead, CO, SO_2 and sulfates, and is unclassified for Hydrogen Sulfide.

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all warehouse projects in the State.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the CARB adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce DPM and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). As of January 1, 2023, no commercial operation is allowed to add Tier 0, Tier 1, or Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tiers 0, 1, and 2 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

4.3 Regional – Southern California

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect

sources. It has responded to this requirement by preparing a sequence of AQMPs. The *Final 2022 Air Quality Management Plan* (2022 AQMP) and has been submitted to the ARB for adoption before submittal to the U.S. EPA for final approval, which are anticipated to occur sometime this year. After the 2022 AQMP has been adopted by ARB and U.S. EPA, the 2022 AQMP will be incorporated into the State Implementation Plan (SIP). The 2022 AQMP establishes actions and strategies to reduce ozone levels to the U.S. EPA 2015 ozone standard of 70 ppb by 2037. The 2022 AQMP promotes extensive use of zero-emission technologies across all stationary and mobile sources coupled with rules and regulations, investment strategies, and incentives.

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the Air Basin. Instead, this is controlled through local jurisdictions in accordance to the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Air Basin, and adverse impacts will be minimized.

The following lists the SCAQMD rules that are applicable but not limited to school development projects in the Air Basin.

Rule 402 - Nuisance

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes 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. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

Rule 403- Fugitive Dust

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.

- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.
- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for 10 days or longer.
- Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
- Replant all disturbed area as soon as practical.
- Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.
- Restrict traffic speeds on all unpaved roads to 15 miles per hour or less.

Rules 1108 and 1108.1 – Cutback and Emulsified Asphalt

Rules 1108 and 1108.1 govern the sale, use, and manufacturing of asphalt and limits the VOC content in asphalt. This rule regulates the VOC contents of asphalt used during construction as well as any on-going maintenance during operations. Therefore, all asphalt used during construction and operation of the proposed project must comply with SCAQMD Rules 1108 and 1108.1.

Rule 1113 – Architectural Coatings

Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC content in sealers, coatings, paints and solvents. This rule regulates the VOC contents of paints available during construction. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

Rule 1143 – Paint Thinners

Rule 1143 governs the sale, use, and manufacturing of paint thinners and multi-purpose solvents that are used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations. This rule regulates the VOC content of solvents used during construction. Solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1143.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (Connect SoCal), adopted September 3, 2020 and the *2019 Federal Transportation Improvement* Program (2019 FTIP), adopted September 2018, which addresses regional development and growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP,

which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

4.4 Local – City of Lakewood

Local jurisdictions, such as the City of Lakewood, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the AQMPs. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

5.0 ENERGY CONSERVATION MANAGEMENT

The regulatory setting related to energy conservation is primarily addressed through State and City regulations, which are discussed below.

5.1 State

Energy conservation management in the State was initiated by the 1974 Warren-Alquist State Energy Resources Conservation and Development Act that created the California Energy Resource Conservation and Development Commission (currently named California Energy Commission [CEC]), which was originally tasked with certifying new electric generating plants based on the need for the plant and the suitability of the site of the plant. In 1976 the Warren-Alquist Act was expanded to include new restrictions on nuclear generating plants, that effectively resulted in a moratorium of any new nuclear generating plants in the State. The following details specific regulations adopted by the State in order to reduce the consumption of energy.

California Code of Regulations (CCR) Title 20

On November 3, 1976 the CEC adopted the *Regulations for Appliance Efficiency Standards Relating to Refrigerators, Refrigerator-Freezers and Freezers and Air Conditioners,* which were the first energy-efficiency standards for appliances. The appliance efficiency regulations have been updated several times by the Commission and the most current version is the *2016 Appliance Efficiency Regulations*, adopted January 2017 and now includes almost all types of appliances and lamps that use electricity, natural gas as well as plumbing fixtures. The authority for the CEC to control the energy-efficiency of appliances is detailed in California Code of Regulations (CCR), Title 20, Division 2, Chapter 4, Article 4, Sections 1601-1609.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The California Energy Commission (CEC) is the agency responsible for the standards that are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. In 2008 the State set an energy-use reduction goal of zero-net-energy use of all new homes by 2020 and the CEC was mandated to meet this goal through revisions to the Title 24, Part 6 regulations.

The Title 24 standards are updated on a three-year schedule and since 2008 the standards have been incrementally moving to the 2020 goal of the zero-net-energy use. The 2022 Title 24 standards are the current standards that went into effect on January 1, 2023.

According to the Title 24 Part 6 Fact Sheet, the CEC estimates that over 30 years the 2022 Title 24 standards will reduce GHG emissions by 16,230 $MMTCO_2e$ per year, when compared to the 2019 Title 24 standards, which is equivalent of taking 3,641 gas cars off the road each year. The 2022 Title 24 standards will: (1) Increase onsite renewable energy generation; (2) Increases electric load flexibility to support grid reliability; (3) Reduces emissions from newly constructed buildings; (4) Reduces air pollution for improved public health; and (5) Encourages adoption of environmentally beneficial efficient electric technologies.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (CalGreen Code) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The CalGreen Code is also updated every three years and the current version is the 2022 CalGreen Code that went into effect on January 1, 2023.

The CALGreen Code contains requirements for construction site selection; storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CALGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles, which reduces pollutant emissions.

Executive Order N-79-20

The California Governor issued Executive Order N-79-20 on September 23, 2020 that requires all new passenger cars and trucks and commercial drayage trucks sold in California to be zero-emissions by the year 2035 and all medium- heavy-duty vehicles (commercial trucks) sold in the state to be zero-emission by 2045 for all operations where feasible. Executive Order N-79-20 also requires all off-road vehicles and equipment to transition to 100 percent zero-emission equipment, where feasible by 2035.

Senate Bill 100

Senate Bill 100 (SB 100) was adopted September 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

Executive Order B-48-18 and Assembly Bill 2127

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and requires that the California Energy Commission working with the State Air Resources Board prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the

levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109) was adopted October 2007, also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. In June 2009, the EPA granted California the authority to implement GHG emission reduction standards for light duty vehicles, in September 2009, amendments to the Pavley I regulations were adopted by CARB and implementation of the "Pavley I" regulations started in 2009.

The second set of regulations "Pavley II" was developed in 2010, and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards were developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles and these GHG emissions standards are currently being implemented nationwide.

The EPA has performed a midterm evaluation of the longer-term standards for model years 2022-2025, and based on the findings of this midterm evaluation, the EPA proposed The Safer Affordable Fuel Efficient (SAFE) Vehicles Proposed Rule for Model Years 2021-2026 that amends the corporate average fuel economy (CAFE) and GHG emissions standards for light vehicles for model years 2021 through 2026. The SAFE Vehicles Rule were made effective on June 29, 2020.

5.2 Local – City of Lakewood

The City Council adopted Section 8900 of the Municipal Code in 2011, which was amended in 2014 and 2017 that adopts the County of Los Angeles Municipal Code Title 31 – Green Buildings Standards Code that requires new buildings in the County to be designed to meet the 2019 CalGreen Building Standards (Title 24 Part 11 standards).

6.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

6.1 International

In 1988, the United Nations established the IPCC to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement and on January 21, 2021 President Biden signed an executive order rejoining the Paris Agreement.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

6.2 Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO_2 gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per mega-watt hour (MWh) for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). On October 11, 2017, the EPA issued a formal proposal to repeal the Clean Power Plan and on June 19, 2019 the EPA replaced the Clean Power Plan with the Affordable Clean Energy rule that is anticipated to lower power sector GHG emissions by 11 million tons by the year 2030.

On April 30, 2020, the EPA and the National Highway Safety Administration published the Final Rule for the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). Part One of the Rule revokes California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California, which results in one emission standard to be used nationally for all passenger cars and light trucks that is set by the EPA.

6.3 State

The CARB has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets CAAQS, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2008, CARB approved a Climate Change Scoping Plan that proposes a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary

actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB, 2014) that identifies additional strategies moving beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California's 2017 Climate Change Scoping Plan, November 2017 (CARB, 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. On December 15, 2022, CARB adopted the *2022 Scoping Plan for Achieving Carbon Neutrality,* November 16, 2022 (CARB, 2022) that lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279.

In addition to the Scoping Plans, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

California Code of Regulations (CCR) Title 24, Part 6

The Title 24 Part 6 standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the Title 24 Part 6 building standards would also reduce GHG emissions, since energy usage is the primary source of human generated GHG emissions.

California Code of Regulations (CCR) Title 24, Part 11

The CalGreen Building standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the CalGreen Building standards would also reduce GHG emissions, since energy usage is the primary source of human generated GHG emissions.

Executive Order B-55-18 and Assembly Bill 1279

The California Governor issued Executive Order B-55-18 in September 2018 that establishes a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045. This executive order directs CARB to work with relevant State agencies to develop a framework for implementation and accounting that tracks progress toward this goal as well as ensuring future scoping plans identify and recommend measures to achieve this carbon neutrality goal. Assembly Bill 1279 was passed by the legislature in September 2022 that codifies the carbon neutrality targets provided in Executive Order B-55-18. The *2022 Scoping Plan for Achieving Carbon Neutrality,* adopted by CARB on December 16, 2022, was prepared in order to meet the carbon neutrality goal targets developed in Executive Order B-55-18 and codified in Assembly Bill 1279.

Executive Order N-79-20

EO N-79-20 establish targets for when all new vehicles and equipment are zero-emission and is described in more detail above in Section 5.1 under Energy Conservation Management.

Senate Bill 100

SB 100 requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-48-18 and Assembly Bill 2127

Executive Order B-48-18 and AB 2127 provides measures to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025 and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each

MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years and the most current targets are detailed at: https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets, which provides GHG emissions reduction targets for SCAG of 8 percent by 2020 and 19 percent by 2035.

The Connect SoCal (SCAG, 2020) provides a 2035 GHG emission reduction target of 19 percent reduction over the 2005 per capita emissions levels. The Connect SoCal include new initiatives of land use, transportation and technology to meet the 2035 new 19 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS. However, new provisions of CEQA incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS and categorized as "transit priority projects."

Assembly Bill 1109

AB 1109 requires reductions in energy usage for lighting and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Executive Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that addresses GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate Action Plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports must specifically consider a project's energy use and energy efficiency potential.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 $MMTCO_2e$. The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 $MMTCO_2e$ (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by

December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

Assembly Bill 1493

AB 1493 or the Pavley Bill sets tailpipe GHG emissions limits for passenger vehicles in California as well as fuel economy standards and is described in more detail above in Section 5.1 under Energy Conservation Management.

6.4 Regional – Southern California

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Air Basin. To that end, as a regional agency, the SCAQMD works directly with SCAG, county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The SCAQMD is also responsible for GHG emissions for projects where it is the lead agency. However, for other projects in the SCAB where it is not the lead agency, it is limited to providing resources to other lead agencies in order to assist them in determining GHG emission thresholds and GHG reduction measures. In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group, which is described below.

SCAQMD Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that either provides a quantitative annual thresholds of 3,500 $MTCO_2e$ for residential uses, 1,400 $MTCO_2e$ for commercial uses, and 3,000 $MTCO_2e$ for mixed uses. An alternative annual threshold of 3,000 $MTCO_2e$ for all land use types is also proposed.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Connect SoCal and 2019 FTIP addresses regional development and growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

6.5 Local – City of Lakewood

Local jurisdictions, such as the City of Lakewood, have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the global climate change potential of new development projects, requires mitigation of potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

7.0 ATMOSPHERIC SETTING

7.1 South Coast Air Basin

The project site is located within south coastal Los Angeles County, which is part of the South Coast Air Basin (Air Basin) that includes the non-desert portions of Riverside, San Bernardino, and Los Angeles Counties and all of Orange County. The Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

7.2 Local Climate

The climate of south coastal Los Angeles County is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. Although the Air Basin is semi-arid, the air near the surface in south coastal Los Angeles County is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the Air Basin by offshore winds, the ocean effect is dominant. Periods of heavy fog are frequent and low stratus clouds, often referred to as "high fog" are a characteristic feature.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in south coastal Los Angeles County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the Air Basin into the interior valleys which become trapped by the mountains that border the eastern and northern edges of the Air Basin.

In the summer, strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloud.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the Air Basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the Long Beach Daugherty Field Monitoring station, which is the nearest weather station to the project site with historical data are shown below in Table E. Table E shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from

the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table E – Monthly Climate Data

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (inches)
January	67.1	45.6	2.63
February	67.2	47.3	2.90
March	68.4	49.7	1.83
April	71.7	52.4	0.70
May	73.5	56.8	0.20
June	76.9	60.3	0.06
July	82.2	63.7	0.02
August	83.9	64.9	0.06
September	82.3	62.9	0.19
October	77.9	57.9	0.42
November	72.2	50.5	1.21
December	67.0	45.3	1.80
Annual	**74.2**	**54.8**	12.01

Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5085

7.3 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Estimates of the existing emissions in the Air Basin provided in the 2012 AQMP, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust. The 2016 AQMP found that since 2012 AQMP projections were made stationary source VOC emissions have decreased by approximately 12 percent, but mobile VOC emissions have increased by 5 percent. The percentage of NOx emissions remain unchanged between the 2012 and 2016 projections.

SCAQMD has divided the Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in Air Monitoring Area 4, which covers the south coastal Los Angeles County. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the project sites have been used: Long Beach-Signal Hill Monitoring Station (Signal Hill Station) and South Long Beach Monitoring Station (South Long Beach Station).

The Signal Hill Station is located approximately 4.0 miles southwest of the project sites at 1710 E 20th Street, Signal Hill and the South Long Beach Station is located approximately 4.3 miles southwest of the project site at 1305 East Pacific Coast Highway, Long Beach. Ozone and NOx were measured at the Signal Hill Station and PM10 and PM 2.5 were measured at the South Long Beach Station. However, it should be noted that due to the air monitoring stations distances from the project site, recorded air pollution levels at the monitoring stations reflect with varying degrees of accuracy, local air quality conditions at

the project site. The monitoring data is presented in Table F and shows the most recent three years of monitoring data from CARB.

Table F – Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year 2019	2020	2021
Ozone: [1]			
Maximum 1-Hour Concentration (ppm)	ND	0.105	0.086
Days > CAAQS (0.09 ppm)	ND	**4**	0
Maximum 8-Hour Concentration (ppm)	ND	0.083	0.064
Days > NAAQS (0.070 ppm)	ND	**4**	0
Days > CAAQs (0.070 ppm)	ND	**4**	0
Nitrogen Dioxide: [1]			
Maximum 1-Hour Concentration (ppb)	ND	75.3	59.0
Days > NAAQS (100 ppb)	ND	0	0
Days > CAAQS (180 ppb)	ND	0	0
Inhalable Particulates (PM10) : [2]			
Maximum 24-Hour National Measurement (ug/m^3)	72.7	68.3	48.7
Days > NAAQS (150 ug/m^3)	0	0	0
Days > CAAQS (50 ug/m^3)	**2**	**3**	0
Annual Arithmetic Mean (AAM) (ug/m^3)	21.5	26.9	23.2
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5): [2]			
Maximum 24-Hour National Measurement (ug/m^3)	30.6	63.7	42.9
Days > NAAQS (35 ug/m^3)	0	**10**	**4**
Annual Arithmetic Mean (AAM) (ug/m^3)	10.6	12.1	13.8
Annual > NAAQS and CAAQS (12 ug/m^3)	No	No	**Yes**

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.

[1] Data obtained from the Signal Hill Station.

[2] Data obtained from the South Long Beach Station.

Source: http://www.arb.ca.gov/adam/

Ozone

During the last three years, the State 1-hour concentration standard for ozone has been exceeded between 0 and 4 days each year at the Signal Hill Station. The State 8-hour ozone standard has been exceeded between 0 and 4 days each year over the last three years at the Signal Hill Station. The Federal 8-hour ozone standard has been exceeded between 0 and 4 days each year over the last three years at the Signal Hill Station. Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only

in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The Signal Hill Station did not record an exceedance of either the Federal or State 1-hour NO_2 standards for the last three years.

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between 0 and 3 days each year over the past three years at the South Long Beach Station. Over the past three years the Federal 24-hour standard for PM10 has not been exceeded at the South Long Beach Station. The annual PM10 concentration at the South Long Beach Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the 24-hour concentration standard for PM2.5 has been exceeded between 0 and 10 days over the past three years at the South Long Beach Station. The annual PM2.5 concentrations at the South Long Beach Station has not exceeded the Federal standard for the past three years. Over the past three years, the annual PM2.5 concentrations at the South Long Beach Station has only exceeded the State standard in the year 2021. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

7.4 Toxic Air Contaminant Levels in the Air Basin

In order to determine the Air Basin-wide risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the MATES V study (SCAQMD, 2021), the project site has an estimated cancer risk of 466 per million persons chance of cancer. In comparison, the average cancer risk for the Air Basin is 455 per million persons. The MATES V study monitored air toxins between May 1, 2018 to April 30, 2019, found that cancer risk from air toxics has declined significantly in the Air Basin with a 40 percent decrease in cancer risk since the monitoring for the MATES IV study that occurred between July 1, 2012 and June 30, 2013 and an 84 percent decrease in cancer risk since the monitoring for the MATES II study that occurred between April 1, 1998 and March 31, 1999.

The MATES V study also analyzed impacts specific to the communities experiencing environmental injustices (EJ communities) that were evaluated using the Senate Bill 535 definition of disadvantaged communities, which found that between MATES IV and MATES V, the cancer risk from air toxics decreased by 57 percent in EJ communities overall, compared to a 53 percent reduction in non-EJ communities.

In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges between 1 in 3 to 4 and 1 in 3, or a risk of about 300,000 per million persons. The MATES-III study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet and obesity, and about 2 percent were associated with environmental pollution related exposures that includes hazardous air pollutants.

8.0 MODELING PARAMETERS AND ASSUMPTIONS

8.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.6 (see Appendix A). CalEEMod Version 2022.1.1.6 is a computer model published by the California Air Pollution Control Officers Association (CAPCOA) for estimating air pollutant and GHG emissions. The CalEEMod 2022.1.1.6 program uses the EMFAC2021 computer program to calculate the emission rates specific for the South Coast Air Basin portion of Los Angeles County for employee, vendor and haul truck vehicle trips and the OFFROAD2007 and OFFROAD2011 computer programs to calculate emission rates for heavy equipment operations. EMFAC2021, OFFROAD2007 and OFFROAD2011 are computer programs generated by the CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod model were set to a project location of South Coast Air Basin portion of Los Angeles County, a Climate Zone of 9, utility companies of Southern California Edison and Long Beach Gas & Oil (with 2024 forecast factors), and project opening year of 2024.

Land Use Parameters

The proposed project would consist of development of a new aquatics facility that would include approximately 10,031 square feet of new building area on an approximately 1.36-acre project site. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table G.

Table G – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building Area (square feet)	Landscaped Area (square feet)
Pool	Recreational Swimming Pool	15 TSF	1.00	--	1,300
New Buildings	High School	10 TSF	0.36	10,031	450

Notes:
[1] TSF = Thousand Square Feet
[2] Lot acreage calculated based on the total project area of 1.36-acres.

Construction Parameters

The proposed project construction is expected to begin September 2023 and be completed by March 2025, however the construction activities were modeled as occurring over 12 months in CalEEMod, since the SCAQMD thresholds are based on the worst-case daily emissions and a shorter time period consolidates more activities and associated emissions per day. The construction-related GHG emissions were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The phases of construction activities that have been analyzed are detailed below and include: 1) Site Preparation; 2) Grading, 3) Building construction, 4) Application of architectural coatings, and 5) Paving.

It is anticipated that the proposed project would be constructed in phases, with the proposed buildings being constructed first and then the pool, however in order to provide a conservative analysis, this analysis

is based on both the structures and pool being constructed concurrently (see the following Section 9, that shows the air quality thresholds are based on the worst-case daily emissions).

Site Preparation

The site preparation phase would consist of removing any vegetation, tree stumps, and stones onsite prior to grading. The site preparation was modeled as starting in September 2023 and occurring over two workdays which is based on the CalEEMod default timing. The site preparation activities would generate an average of 17.5 worker trips per day. In order to account for water truck emissions, one onsite truck trip per day with a one mile length was added to the site preparation phase. The onsite equipment would consist of one grader, one rubber-tired dozer, and one of either a tractor, loader, or backhoe, which is based on the CalEEMod default equipment. "Water all exposed areas three times per day" was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Grading

The grading phase was modeled as starting after the site preparation phase and was extended over the default timing of four days to six weeks, in order to account for the additional excavation required for the pool. The proposed grading is anticipated to include import of 6,900 cubic yards of dirt and export of 9,000 cubic yards of dirt. The export and import of material would generate an average of 66.3 haul truck trips per day.

The CalEEMod model default onsite grading equipment consists of one grader, one rubber tired dozer, and two of either tractors, loaders, or backhoes. The grading activities would generate 10 trips per day for the workers. "Water all exposed areas three times per day" was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Building Construction

The building construction would occur after the completion of the grading phase and was modeled as occurring over nine months, which is based on the CalEEMod default timing. The building construction phase would generate 4.21 worker trips and 1.64 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, one forklift, one generator, three welders, and one of either a tractor, a loader, or a backhoe, which is based on the CalEEMod default equipment mix.

Paving

The paving phase would consist of paving the onsite parking lot area. The paving phase was modeled as occurring over two weeks and starting after completion of the building construction phase. The paving phase would generate 12.5 worker trips per day. The onsite equipment would consist of the simultaneous operation of one cement and mortar mixer, one paver, one paving equipment, one roller, and one of either a tractor, loader or backhoe, which is based on the CalEEMod default equipment mix.

Architectural Coating

The application of architectural coatings was modeled as occurring after the paving phase and occurring over two weeks. The architectural coating phase was modeled based on covering 15,047 square feet of non-residential interior area, 5,016 square feet of non-residential exterior area. The architectural coating

phase would generate an average of 0.84 worker trips per day. The onsite equipment would consist of one air compressor, which is based on the CalEEMod default equipment mix.

Operational Emissions Modeling

The operations-related criteria air pollutant emissions and GHG emissions created by the proposed project have been analyzed through use of the CalEEMod model. The proposed project was analyzed in the CalEEMod model based on the land use parameters provided above and the parameters entered for each operational source is described below.

Mobile Sources

Mobile sources include emissions the additional vehicle miles generated from the proposed project. Since the proposed project consists of the relocation of an existing aquatic center on campus that would not result in an increase in student enrollment nor would it result in a new use on campus, the proposed project is not anticipated to generate any new vehicle trips to the School. As such, the trip generation rate in CalEEMod was set to zero and no further analysis of mobile source emissions is provided in this Report.

Area Sources

Area sources include emissions from consumer products, landscape equipment, hearths and architectural coatings. The area source emissions were based on the on-going use of the proposed project in the CalEEMod model. No changes were made to the default area source parameters in the CalEEMod model.

Energy Usage

Energy usage includes emissions from electricity and natural gas used onsite. The energy usage was based on the ongoing use of the proposed project in the CalEEMod Model. In addition, the primary source of natural gas usage from the proposed project would be from the pool heater boiler, which has been analyzed as a separate emission source that is described below. No changes were made to the default energy usage parameters in the CalEEMod model.

Solid Waste

Waste includes the GHG emissions associated with the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. The analysis was based on the default CalEEMod solid waste generating rate of 309 tons of solid waste per year. No changes were made to the default solid waste parameters in the CalEEMod model.

Water and Wastewater

Water includes the water used for the interior of the buildings as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. The analysis was based on the default CalEEMod water usage rate of 1,219,193 gallons per year of indoor water use and 32,257 gallons per year of outdoor water use. No changes were made to the default water and wastewater parameters in the CalEEMod model.

Pool Heater Boiler

The proposed pool is anticipated to use a Lochinvar Aquas indirect gas fired pool boiler to heat the pool. Although the exact pool heater has not yet been selected, since the Lochinvar Aquas commercial boilers

range between 750,000 and 2,000,000 BTU per hour, this analysis has utilized the worst-case 2.0 million BTU per hour boiler. It is anticipated that the boiler will operate an average of 8 hours per day over the year, which would result in 16 million BTU per day and 5,840 million BTU per year.

8.2 Energy Use Calculations

The proposed project is anticipated to consume energy during both construction and operation of the proposed project and the parameters utilized to calculate energy use from construction and operation of the proposed project are detailed separately below.

Construction-Related Energy Use

Construction of the proposed project is anticipated to use energy in the forms of petroleum fuel for both off-road equipment as well as from the transport of workers and materials to and from the project site and the calculations for each source are described below.

Off-Road Construction Equipment

The off-road construction equipment fuel usage was calculated through use of the CalEEMod model's default off-road equipment assumptions detailed above in Section 8.1. For each piece of off-road equipment, the fuel usage was calculated through use of the *2017 Off-road Diesel Emission Factors* spreadsheet, prepared by CARB (https://ww3.arb.ca.gov/msei/ordiesel.htm). The Spreadsheet provides the following formula to calculate fuel usage from off-road equipment:

> Fuel Used = Load Factor x Horsepower x Total Operational Hours x BSFC / Unit Conversion
>
> Where:
>
> Load Factor - Obtained from CalEEMod default values
>
> Horsepower – Obtained from CalEEMod default values
>
> Total Operational Hours – Calculated by multiplying CalEEMod default daily hours by CalEEMod default number of working days for each phase of construction
>
> BSFC – Brake Specific Fuel Consumption (pounds per horsepower-hour) – If less than 100 Horsepower = 0.408, if greater than 100 Horsepower = 0.367
>
> Unit Conversion – Converts pounds to gallons = 7.109

Table H shows the off-road construction equipment fuel calculations based on the above formula. Table H shows that the off-road equipment utilized during construction of the proposed project would consume 20,564 gallons of diesel fuel.

Table H – Off-Road Equipment and Fuel Consumption from Construction of the Proposed Project

Equipment Type	Equipment Quantity	Horse-power	Load Factor	Operating Hours per Day	Total Operational Hours[1]	Fuel Used (gallons)
Site Preparation						
Grader	1	148	0.41	8	16	50
Rubber Tired Dozers	1	367	0.40	7	14	106
Tractors/Loaders/Backhoes	1	84	0.37	8	16	29
Grading						
Grader	1	148	0.41	8	240	752
Rubber Tired Dozer	1	367	0.40	8	240	1,819
Tractors/Loaders/Backhoes	2	84	0.37	7	420	749
Building Construction						
Crane	1	367	0.29	6	1,200	6,593
Forklift	1	82	0.20	6	1,200	1,129
Generator Set	1	14	0.74	8	1,600	951
Tractor/Loader/Backhoe	1	84	0.37	6	1,200	2,140
Welders	3	46	0.45	8	4,800	5,702
Paving						
Cement and Mortar Mixers	1	10	0.56	6	60	19
Paver	1	81	0.42	6	60	117
Paving Equipment	1	89	0.36	8	80	147
Roller	1	36	0.38	7	70	55
Tractors/Loaders/Backhoes	1	84	0.37	8	80	143
Architectural Coating						
Air Compressor	1	37	0.48	6	60	61
Total Off-Road Equipment Diesel Fuel Used during Construction (gallons)						**20,564**

Notes:
[1] Based on: 2 days for Site Preparation; 30 days for Grading; 200 days for Building Construction; 10 days for Paving; and 10 days for Painting.
Source: CalEEMod Version 2022.1 (see Appendix A); CARB, 2017.

On-Road Construction-Related Vehicle Trips

The on-road construction-related vehicle trips fuel usage was calculated through use of the construction vehicle trip assumptions from the CalEEMod model run as detailed above in Section 8.1. The calculated total construction miles was then divided by the fleet average for all of Southern California miles per gallon rates for the year 2023 calculated through use of the EMFAC2017 model (https://www.arb.ca.gov/emfac/2017/) and the EMFAC2017 model printouts are shown in Appendix B. The worker trips were based on the entire fleet average miles per gallon rate for gasoline powered vehicles and the vendor trips were based on the Heavy-Heavy Duty Truck (HHDT), Medium Duty Vehicle (MDV), and Medium Heavy-Duty Vehicle (MHDV) fleet average miles per gallon rate for diesel-powered vehicles. Table I shows the on-road construction vehicle trips modeled in CalEEMod and the fuel usage calculations.

Table I – On-Road Vehicle Trips and Fuel Consumption from Construction of the Proposed Project

Vehicle Trip Types/ Fuel Type	Daily Trips	Trip Length (miles)	Total Miles per Day	Total Miles per Phase[1]	Fleet Average Miles per Gallon[2]	Fuel Used (gallons)
Site Preparation						
Worker (Gasoline)	7.5	18.5	139	278	26.8	10
Grading						
Worker (Gasoline)	10	18.5	185	5,550	26.8	207
Haul Truck (Diesel)	66.3	20.0	1,326	39,780	8.7	4,573
Building Construction						
Worker (Gasoline)	4.21	18.5	78	15,577	26.8	582
Vendor Truck (Diesel)	1.64	10.2	17	3,346	8.7	385
Paving						
Worker (Gasoline)	12.5	18.5	231	2,313	26.8	86
Architectural Coating						
Worker (Gasoline)	0.84	18.5	16	155	26.8	6
Total Gasoline Fuel Used from On-Road Construction Vehicles (gallons)						**892**
Total Diesel Fuel Used from On-Road Construction Vehicles (gallons)						**4,957**

Notes:
[1] Based on: : 2 days for Site Preparation; 30 days for Grading; 200 days for Building Construction; 10 days for Paving; and 10 days for Painting..
[2] From EMFAC 2017 model (see Appendix B). Worker Trips based on entire fleet of gasoline vehicles and Vendor Trips based on only truck fleet of diesel vehicles.
Source: CalEEMod Version 2022.1; CARB, 2018.

Table I shows that the on-road construction-related vehicle trips would consume 892 gallons of gasoline and 4,957 gallons of diesel fuel. As detailed above, Table H shows that the off-road construction equipment would consume 20,564 gallons of diesel fuel. This would result in the total consumption of 892 gallons of gasoline and 25,521 gallons of diesel fuel from construction of the proposed project.

Operations-Related Energy Use

The operation of the proposed project is anticipated to use energy in the forms of petroleum fuel, electricity, and natural gas, and the calculations for each source are described below.

Operational Petroleum Fuel

Operational petroleum fuel would be consumed by the additional vehicle miles generated from the proposed project. Since the proposed project consists of the relocation of an existing aquatic center on campus that would not result in an increase in student enrollment nor would it result in a new use on campus, the proposed project is not anticipated to generate any new vehicle trips to the School. As such, the trip generation rate in CalEEMod was set to zero and no further analysis of operational petroleum fuel usage is provided in this Report.

Operational Electricity Use

The operations-related electricity usage was calculated in the CalEEMod model run that is detailed above in Section 8.1 that found the operation of the proposed project would consume 62,737 kilowatt hours (kWh) per year with implementation of Title 24 part 6 requirements that require the implementation of building energy efficiency standards that include the use of LED lighting.

Operational Natural Gas Use

The operations-related natural gas usage was calculated in the CalEEMod model run that is detailed above in Section 8.1 that found the proposed project will use 210,449 kilo British Thermal Units (kBTU) per year. In addition, operation of the pool heater, would utilize natural gas. According to the project applicant, the proposed pool is anticipated to use a Lochinvar Aquas indirect gas fired pool boiler to heat the pool. Although the exact pool heater has not yet been selected, since the Lochinvar Aquas commercial boilers range between 750,000 and 2,000,000 BTU per hour, this analysis has utilized the worst-case 2.0 million BTU per hour boiler. It is anticipated that the boiler will operate an average of 8 hours per day over the year, which would result in 16 million BTU per day and 5,840 million BTU per year. As such, operation of the proposed project would consume 6,050 million BTU per year of natural gas.

9.0 THRESHOLDS OF SIGNIFICANCE

9.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table J.

Table J – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)						
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**	**Lead**
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

9.2 Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO_2, CO, PM10, and PM2.5.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the project site and distance to the nearest sensitive receptors. As detailed above in Section 6.3, the project site is located in Air Monitoring Area 4, which covers the south coastal Los Angeles County. The Look-Up Tables provided in the LST Methodology include project site acreage sizes of 1-acre, 2-acres and 5-acres. Since the 1.36-acre project site is between the 1-acre and 2-acre sizes, the 1-acre and 2-acre thresholds were interpolated in order to develop the threshold for 1.36-acres. The nearest sensitive receptors are the single-family homes on the south side of Harvey Way that are located as near as 100 feet (30 meters) south of the project site. In order to provide a conservative analysis the 25 meters (82 feet) thresholds have been utilized. Table K below shows the LSTs for NOx, CO, PM10 and PM2.5 for both construction and operational activities.

Table K – SCAQMD Local Air Quality Thresholds of Significance

Activity	Allowable Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Construction	66	678	5	4
Operation	66	678	1	1

Notes:
[1] The nearest sensitive receptor to the project site are single-family homes located as near as 100 feet (30 meters) south of the project site. In order to provide a conservative analysis, the 25 meter thresholds were utilized. The 1-acre and 2-acre thresholds were interpolated to the 1.36-acre project site.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for Air Monitoring Area 4, South Coastal Los Angeles County.

9.3 Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to toxic air contaminants (TACs), the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create TACs through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the TAC and the toxicity of the hazardous air pollutant (HAP) should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

9.4 Odor Impacts

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, 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 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."

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

9.5 Energy Conservation

The *2022 CEQA California Environmental Quality Act Statutes & Guidelines* (2022 CEQA Guideline) include an Energy Section that analyzes the proposed project's energy consumption in order to avoid or reduce

inefficient, wasteful or unnecessary consumption of energy. Appendix F of the 2020 CEQA Statute and Guidelines, states the following:

> The goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include:
>
> (1) Decreasing overall per capita energy consumption,
>
> (2) Decreasing reliance on fossil fuels such as coal, natural gas and oil, and
>
> (3) Increasing reliance on renewable energy sources.

Since the Energy Section was recently added, no state or local agencies have adopted specific criteria or thresholds to be utilized in an energy impact analysis. However, Appendix F, Subsection II.C of the 2022 CEQA Guidelines provides the following criteria for determining significance.

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project life cycle including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
2. The effects of the project on local and regional energy supplies and on requirement for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

If the proposed project creates inefficient, wasteful or unnecessary consumption of energy during construction or operation activities or conflicts with a state or local plan for renewable energy or energy efficiency, then the proposed project would create a significant energy impact.

9.6 Greenhouse Gas Emissions

The proposed project is located within the jurisdiction of the SCAQMD. In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use projects. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, as of November 2017, the SCAQMD Board has not yet considered or approved the Working Group's thresholds.

It should be noted that SCAQMD's Working Group's thresholds were prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. However, to date no air district or local agency within California has provided guidance on how to address AB 197 and SB 32 with relation to land use projects. In addition, the California Supreme Court's ruling on *Cleveland National Forest Foundation v. San Diego Association of Governments* (Cleveland v. SANDAG), Filed July 13, 2017 stated:

> SANDAG did not abuse its discretion in declining to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal. In its response to comments, the EIR said: "It is uncertain what role regional land use and transportation strategies can or should play in achieving the EO's 2050 emissions reduction target. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major 'decarbonization' of electricity supplies and fuels, and major improvements in energy efficiency [citation].

Although, the above court case was referencing California's GHG emission targets for the year 2050, at this time it is also unclear what role land use strategies can or should play in achieving the AB 197 and SB 32 reduction goal of 40 percent below 1990 levels by 2030. As such this analysis has relied on the SCAQMD Working Group's recommended thresholds. Therefore, the proposed project would be considered to create a significant cumulative GHG impact if the proposed project would exceed the annual threshold of 3,000 $MTCO_2e$.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 10.8 and 10.9.

10.0 IMPACT ANALYSIS

10.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality, energy, and GHG emissions would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

10.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 9.1 or local thresholds of significance discussed above in Section 9.2. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance discussed above in Section 9.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the 2022 AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2022 AQMP was developed through use of the planning forecasts provided in the Connect SoCal and 2019 FTIP. The Connect SoCal is a major planning document for the regional transportation and land use network within Southern California. The Connect SoCal is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The 2019 FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Lakewood General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The project site is currently designated as Open Space in the General Plan and is zoned Open Space Land (O-S). The proposed project consists of development of an aquatics center on the existing Lakewood High School campus. The proposed project is an allowed use within the current Open Space land use designation and O-S zoning. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

Level of Significance

Less than significant impact.

10.3 Cumulative Net Increase in Non-Attainment Pollution

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. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SCAQMD standards.

Construction Emissions

The construction activities for the proposed project are anticipated to include site preparation and grading of the 1.36-acre project site, building construction of a new aquatics facility, paving of the walkways and pool deck, and application of architectural coatings. The CalEEMod model has been utilized to calculate the construction-related regional emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 8.1. The maximum daily construction emissions by season are shown below in Table L and the CalEEMod printouts are shown in Appendix A.

Table L – Construction-Related Criteria Pollutant Emissions

Season and Year of Construction	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Summer 2023	1.58	15.2	14.3	0.02	2.45	1.47
Winter 2023	1.92	23.9	19.3	0.05	4.13	2.08
Summer 2024	9.44	9.52	10.5	0.02	0.44	0.36
Winter 2024	1.15	9.53	10.4	0.02	0.44	0.36
Maximum Daily Construction Emissions	**9.44**	**23.9**	**19.4**	**0.05**	**4.13**	**2.08**
SCQAMD Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
SCAQMD Local Thresholds	**--**	**66**	**678**	**--**	**5**	**4**
Exceeds Thresholds?	No	No	No	No	No	No

Source: CalEEMod Version 2022.1.

Table L shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during construction of the proposed project. Therefore, less than significant regional and local air quality impacts would occur from construction of the proposed project.

Operational Emissions

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from onsite area sources, energy usage, and pool heater boiler emissions created from the on-going use of the proposed project. The operations-related regional criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 8.1. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table M and the CalEEMod emissions printouts are shown in Appendix A.

Table M – Operational Criteria Pollutant Emissions

Emissions Source	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Area Sources[1]	0.31	<0.01	0.44	<0.01	<0.01	<0.01
Energy Usage[2]	<0.01	0.06	0.05	<0.01	<0.01	<0.01
Pool Heater Boiler[3]	0.09	<0.01	1.54	0.01	0.12	0.12
Total Emissions	**0.40**	**0.06**	**2.02**	**0.01**	**0.12**	**0.12**
SCQAMD Regional Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
SCAQMD Local Thresholds	**--**	**66**	**678**	**--**	**1**	**1**
Exceeds Thresholds?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage (does not include the pool heater boiler).
[3] Pool heater boiler based on a 2.0 MBTU per hour boiler operating 8 hours per day.
Source: Calculated from CalEEMod Version 2022.1.

The data provided in Table M shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during operation of the proposed project. Therefore, less than significant regional and local air quality impacts would occur from operation of the proposed project.

Friant Ranch Case

The operations-related regional criteria air quality impacts In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." In order to determine compliance with this Case, the Court developed a multi-part test that includes the following:

1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

This Analysis details the specific health risks created from each criteria pollutant above in Section 4.1 and specifically in Table B. In addition, the specific health risks created from diesel particulate matter is detailed above in Section 2.2 of this analysis. As such, this analysis meets the part 1 requirements of the Friant Ranch Case.

2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf)

(Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM2.5 methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NOX or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NOx and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone. As shown above in Table L, project-related construction activities would generate a maximum of 9.44 pounds per day of VOC and 9.53 pounds per day of NOx and as shown above in Table M, operation of the proposed project would generate 0.33 pounds per day of VOC and 0.06 pounds per day NOx. The proposed Project would not generate anywhere near these levels of 6,620 pounds per day of NOx or 89,190 pounds per day of VOC emissions. Therefore, the proposed project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Notwithstanding, this analysis does evaluate the proposed project's localized impact to air quality for emissions of CO, NOX, PM10, and PM2.5 by comparing the proposed project's onsite emissions to the SCAQMD's applicable LST thresholds. As evaluated in this analysis, the proposed project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the proposed project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NOX, PM10, and PM2.5.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

Level of Significance

Less than significant impact.

10.4 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above

in Section 10.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest sensitive receptors to the project site are residents at the single-family homes on the south side of Harvey Way that are located as near as 100 feet south of the project site. There are also single-family homes on the west side of Briercrest Avenue that are located as near as 240 feet west of the project site.

Construction-Related Sensitive Receptor Impacts

The construction activities for the proposed project are anticipated to include site preparation and grading of the 1.36-acre project site, building construction of a new aquatics facility, paving of the walkways and pool deck, and application of architectural coatings. Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

Local Criteria Pollutant Impacts from Construction

The local air quality impacts from construction of the proposed project has been analyzed above in Section 10.3 and found that the construction of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 9.2. Therefore, construction of the proposed project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

Toxic Air Contaminants Impacts from Construction

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30 year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0, Tier 1 or Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, due to the limitations in off-road construction equipment DPM emissions from implementation of Section 2448, a less than significant short-term TAC impacts would occur during construction of the proposed project from DPM emissions.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the proposed project may expose sensitive receptors to substantial pollutant concentrations from the potential local air quality impacts from onsite operations and from possible toxic air contaminant impacts.

Local Criteria Pollutant Impacts from Onsite Operations

The local air quality impacts from the operation of the proposed project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided above in Section 10.3 found that the operation of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 9.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Operations-Related Toxic Air Contaminant Impacts

Particulate matter (PM) from diesel exhaust is the predominant TAC in most areas and according to *The California Almanac of Emissions and Air Quality 2013 Edition*, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program. Due to the nominal number of diesel truck trips that are anticipated to be generated by the proposed project, a less than significant TAC impact would occur during the on-going operations of the proposed project and no mitigation would be required.

Therefore, operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Level of Significance

Less than significant impact.

10.5 Odor Emissions

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a

characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of the development of an aquatics center. Potential sources that may emit odors during the on-going operations of the proposed project would primarily occur from the trash storage areas and use and storage of pool chemicals. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. As detailed in the project design, all of pool chemicals would be stored in a structure, specifically designed for the storage of pool chemicals and the pool chemicals will primarily be applied through mechanical systems that limit the chemical exposure to air.

Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402, City trash storage regulations and pool chemical regulations, a less than significant impact related to odors would occur during the on-going operations of the proposed project.

Therefore, a less than significant odor impact would occur and no mitigation would be required.

Level of Significance

Less than significant impact.

10.6 Energy Consumption

The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, natural gas, and petroleum based fuel supplies and distribution systems. This analysis includes a discussion of the potential energy impacts of the proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. A general definition of each of these energy resources are provided below.

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate

for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands. According to http://www.ecdms.energy.ca.gov/elecbycounty.aspx, in 2021, Los Angeles County consumed 65,375 Gigawatt-hours per year of electricity.

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs, mainly located outside the State, and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network and, therefore, resource availability is typically not an issue. Natural gas satisfies almost one-third of the State's total energy requirements and is used in electricity generation, space heating, cooking, water heating, industrial processes, and as a transportation fuel. Natural gas is measured in terms of cubic feet. According to http://www.ecdms.energy.ca.gov/gasbycounty.aspx, in 2021, Los Angeles County consumed 2,880.99 Million Therms of natural gas.

Petroleum-based fuels currently account for a majority of the California's transportation energy sources and primarily consist of diesel and gasoline types of fuels. However, the state has been working on developing strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHG emissions from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, petroleum-based fuel consumption in California has declined. According to "2010-2017_A15_Results.xlsx" obtained from: https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/, in 2017, 3,659 million gallons of gasoline and 300 million gallons of diesel was sold in Los Angeles County.

The following section calculates the potential energy consumption associated with the construction and operations of the proposed project and provides a determination if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy

The construction activities for the proposed project are anticipated to include site preparation and grading of the 1.36-acre project site, building construction of a new aquatics facility, paving of the walkways and pool deck, and application of architectural coatings. The proposed project would consume energy resources during construction in three (3) general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the Project Site, construction worker travel to and from the Project Site, as well as delivery and haul truck trips (e.g. hauling of demolition material to off-site reuse and disposal facilities);
2. Electricity associated with the conveyance of water that would be used during Project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,
3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction the proposed project would consume electricity to construct the new structures and infrastructure. Electricity would be supplied to the project site by Southern California Edison (SCE) and would be obtained from the existing electrical lines in the vicinity of the project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on energy use. Electricity consumed during project construction would vary throughout the construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary.

Since SCE already provides power to the project site, it is anticipated that only nominal improvements would be required to SCE distribution lines and equipment with development of the proposed project. Compliance with City's guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with construction of the project. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Natural Gas

Construction of the proposed project typically would not involve the consumption of natural gas. Natural gas would not be supplied to support construction activities, thus there would be no demand generated by construction. Since SoCal Gas already provides natural gas to the project site, construction-related activities would be limited to installation of new natural gas connections within the project site. Development of the proposed project would not require extensive infrastructure improvements to serve the project site. Construction-related energy usage impacts associated with the installation of natural gas connections are expected to be confined to trenching in order to place the lines below surface. In addition, prior to ground disturbance, the proposed project would notify and coordinate with SoCalGas to identify the locations and depth of all existing gas lines and avoid disruption of gas service. Therefore, construction-related impacts to natural gas supply and infrastructure would be less than significant.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road construction equipment fuel usage was calculated through use of the off-road equipment assumptions and fuel use assumptions shown above in Section 8.2, which found that construction of the proposed project would consume 892 gallons of gasoline and 4,957 gallons of diesel fuel. This equates to 0.00002 percent of the gasoline and 0.0085 percent of the diesel used annually in Los Angeles County. As

such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the proposed project would be required to adhere to all State and SCAQMD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant. Development of the proposed project would not result in the need to manufacture construction materials or create new building material facilities specifically to supply the proposed project. It is difficult to measure the energy used in the production of construction materials such as asphalt, steel, and concrete, it is reasonable to assume that the production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Operational Energy

The on-going operation of the proposed project would require the use of energy resources for multiple purposes including, but not limited to, pool heating, heating/ventilating/air conditioning (HVAC), refrigeration, lighting, appliances, and electronics. Energy would also be consumed during operations related to water usage, solid waste disposal, and landscape equipment.

Operations-Related Electricity

Operation of the proposed project would result in consumption of electricity at the project site. As detailed above in Section 8.3 the proposed project would consume 62,737 kilowatt-hours per year of electricity. This equates to 0.0001 percent of the electricity consumed annually in the County of Los Angeles. As such, the operations-related electricity use would be nominal, when compared to current electricity usage rates in the County.

It should be noted that, the proposed project would comply with all Federal, State, and City requirements related to the consumption of electricity, that includes CCR Title 24, Part 6 *Building Energy Efficiency Standards* and CCR Title 24, Part 11: *California Green Building Standards.* The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed aquatics center, including enhanced insulation, use of energy efficient lighting and appliances, water and space heating systems, as well as requiring a variety of other energy-efficiency measures to be incorporated into the proposed project. Therefore, it is anticipated the proposed project will be designed and built to minimize electricity use and that existing and planned electricity capacity and electricity supplies would be sufficient to support the proposed project's electricity demand. Thus, the project would not result in the wasteful or inefficient use of electricity and no mitigation measures would be required.

Operations-Related Natural Gas

Operation of the proposed project would result in increased consumption of natural gas at the project site. As detailed above in Section 8.3 the proposed project would consume 6,050 MBTU per year of natural gas. This equates to 0.0021 percent of the natural gas consumed annually in Los Angeles County. As such, the operations-related natural gas use would be nominal, when compared to current natural gas usage rates in the County.

It should be noted that, the proposed project would comply with all Federal, State, and City requirements related to the consumption of natural gas, that includes CCR Title 24, Part 6 *Building Energy Efficiency*

Standards and CCR Title 24, Part 11: *California Green Building Standards.* The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed project, including enhanced insulation as well as use of efficient natural gas appliances and HVAC units. Therefore, it is anticipated the proposed project will be designed and built to minimize natural gas use and that existing and planned natural gas capacity and natural gas supplies would be sufficient to support the proposed project's natural gas demand. Thus, impacts with regard to natural gas supply and infrastructure capacity would be less than significant and no mitigation measures would be required

Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.7 Energy Plan Consistency

The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Although the City has not adopted any specific plans that address energy efficiency, the City adopted Section 8900 of the Municipal Code in 2011, which was amended in 2014 and 2017 that adopts the County of Los Angeles Municipal Code Title 31 – Green Buildings Standards Code that requires new buildings in the County to be designed to meet the 2019 CalGreen Building Standards (Title 24 Part 11 standards). In addition, the proposed project will be required to be designed to meet the State's most current 2022 Title 24 Part 6 and Part 11 building energy efficiency standards. As such, the proposed project would be designed to meet all applicable State building energy efficiency standards as well as to meet the City's energy efficiency standards. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.8 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed project would consist of development of an aquatics center. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed above in Section 8.1. A summary of the results is shown below in Table N and the CalEEMod model run is provided in Appendix A.

Table N – Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[1]	0.20	<0.01	<0.01	0.20
Energy Usage[2]	21.10	<0.01	<0.01	21.20
Water and Wastewater[3]	1.73	0.04	<0.01	3.01
Solid Waste[4]	8.79	0.88	0.00	30.70
Refrigeration[5]	--	--	--	0.01
Pool Heater Boiler[6]	312.00	0.01	<0.01	313.00
Construction[7]	9.33	<0.01	<0.01	9.47
Total GHG Emissions	**353.15**	**0.93**	**<0.01**	**377.59**
SCAQMD Draft Threshold of Significance				**3,000**
Exceed Thresholds?				**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity and natural gas usage.
[3] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[4] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[5] Refrigeration includes leakage of refrigerants used in HVAC units and vending machines.
[6] Pool heater boiler based on a 2.0 MBTU per hour boiler operating 8 hours per day
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2022.1.

The data provided in Table N shows that the proposed project would create 377.59 $MTCO_2e$ per year. According to the SCAQMD draft threshold of significance detailed above in Section 9.6, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 $MTCO_2e$ per year. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the proposed project. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.9 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The proposed project would consist of development of an aquatics center. As detailed above in Section 10.8, the proposed project is anticipated to create 377.59 $MTCO_2e$ per year, which is well below the SCAQMD threshold of significance of 3,000 $MTCO_2e$ per year. The SCAQMD developed this threshold in order to meet the State GHG emissions reduction regulations that was based on substantial evidence supporting the use of the recommended thresholds. It should also be noted, that the proposed

It should be noted that, the proposed project would comply with all Federal, State, and City energy reduction requirements that includes CCR Title 24, Part 6 *Building Energy Efficiency Standards* and CCR Title 24, Part 11: *California Green Building Standards.* The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed aquatics center, including enhanced insulation, use of energy efficient lighting and appliances, water and space heating systems, as well as requiring a variety of other energy-efficiency measures to be incorporated into the

proposed project that would reduce the GHG emissions created from the proposed project. For these reasons, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Level of Significance

Less than significant impact.

11.0 REFERENCES

California Air Pollution Control Officers Association, *California Emissions Estimator Model (CalEEMod)* version 2022.1

California Air Resources Board, *2017 Off-Road Diesel Emission Factor Update for NOx and PM,* 2017.

California Air Resources Board, *2022 Scoping Plan for Achieving Carbon Neutrality,* November 16, 2022.

California Air Resources Board, *Appendix VII Risk Characterization Scenarios,* October 2000.

California Air Resources Board, *California's 2017 Climate Change Scoping Plan,* November 2017.

California Air Resources Board, *California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators,* July 28, 2021.

California Air Resources Board, *First Update to the Climate Change Scoping Plan,* May 2014.

California Air Resources Board, *Resolution 08-43,* December 12, 2008.

California Air Resources Board, *Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*, October 2017.

California Air Resources Board, *The California Almanac of Emissions and Air Quality 2013 Edition*.

California Department of Conservation, *A General Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos,* August, 2000.

California Energy Commission, *2022 Building Energy Efficiency Standards for Residential and Nonresidential Buildings,* August 2022.

City of Lakewood, *City of Lakewood General Plan*, 1999.

City of Lakewood, *City of Lakewood General Plan Designations,* March 2013.

City of Lakewood, *City of Lakewood Zoning Designations,* January 2011.

City of Lakewood, *Lakewood Municipal Code Chapter 9 California Green Code,* 2017.

Environmental Protection Agency, *Nonattainment Major New Source Review Implementation Under 8-Hour Ozone National Ambient Air Quality Standard: Reconsideration*, June 30, 2005.

Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020,* April 15, 2022.

Office of Environmental Health Hazard Assessment (OEHHA), *Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments,* February 2015

South Coast Air Quality Management District, *2022 Air Quality Management Plan,* December 2, 2022.

South Coast Air Quality Management District, *CEQA Air Quality Handbook, April 1993.*

South Coast Air Quality Management District, *Final 2016 Air Quality Management Plan,* March, 2017.

South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, Revised July 2008.

South Coast Air Quality Management District, *Revised Draft – 2012 Lead State Implementation Plan Los Angeles County,* May 4, 2012.

South Coast Air Quality Management District, *Rule 402 Nuisance,* Adopted May 7, 1976.

South Coast Air Quality Management District, *Rule 403 Fugitive Dust,* Amended June 3, 2005.

South Coast Air Quality Management District, *Rule 1108 Cutback Asphalt,* Amended February 1, 1985.

South Coast Air Quality Management District, *Rule 1108.1 Emulsified Asphalt,* Amended November 4, 1983.

South Coast Air Quality Management District, *Rule 1113 Architectural Coatings,* Amended September 6, 2013.

South Coast Air Quality Management District, *Rule 1143 Consumer Paint Thinners & Multi-Purpose Solvents,* Amended December 3, 2010.

South Coast Air Quality Management District, *SCAQMD Air Quality Significance Thresholds,* March 2015.

South Coast Air Quality Management District, *Draft Report Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES III*, January 2008.

South Coast Air Quality Management District, *Draft Report Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES-IV*, October 2014.

South Coast Air Quality Management District, *MATES V Multiple Air Toxics Exposure Study in the South Coast AQMD Final Report*, August 2021

Southern California Association of Governments, *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy*, September 3, 2020.

Southern California Association of Governments, *2019 Federal Transportation Improvement Program (FTIP) Guidelines*, September 2018.

University of California, Davis, *Transportation Project-Level Carbon Monoxide Protocol,* December 1997.

U.S. Geological Survey, *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* 2011.

APPENDIX A

CalEEMod Model Printouts

Lakewood High School Aquatics Center Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lakewood High School Aquatics Center
Construction Start Date	8/8/2023
Operational Year	2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.30
Precipitation (days)	17.4
Location	33.83672934363817, -118.12262367048663
County	Los Angeles-South Coast
City	Lakewood
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4777
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Long Beach Gas & Oil
App Version	2022.1.1.7

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Recreational Swimming Pool	15.0	1000sqft	1.00	0.00	1,300	—	—	—
High School	10.0	1000sqft	0.36	10,031	450	450	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.44	15.2	14.3	0.02	0.72	1.73	2.45	0.66	0.80	1.47	2,172	0.09	0.02	0.70	2,180
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.92	23.9	19.3	0.05	0.89	3.24	4.13	0.83	1.26	2.08	7,339	0.39	0.77	0.30	7,580
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.79	4.43	4.90	0.01	0.17	0.28	0.40	0.16	0.11	0.22	892	0.04	0.07	0.42	897
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14	0.81	0.89	< 0.005	0.03	0.05	0.07	0.03	0.02	0.04	148	0.01	0.01	0.07	148
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	—	—	150	—	—	55.0	—	—	—	—	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—

Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	—	—	150	—	—	55.0	—	—	—	—	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.58	15.2	14.3	0.02	0.72	1.73	2.45	0.66	0.80	1.47	2,172	0.09	0.02	0.46	2,180
2024	9.44	9.52	10.5	0.02	0.37	0.16	0.44	0.34	0.04	0.36	1,914	0.08	0.02	0.70	1,923
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.92	23.9	19.3	0.05	0.89	3.24	4.13	0.83	1.26	2.08	7,339	0.39	0.77	0.30	7,580
2024	1.15	9.53	10.4	0.02	0.37	0.07	0.44	0.34	0.02	0.36	1,911	0.08	0.02	0.01	1,920
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.28	3.01	2.68	0.01	0.12	0.28	0.40	0.11	0.11	0.22	799	0.04	0.07	0.42	820
2024	0.79	4.43	4.90	0.01	0.17	0.04	0.21	0.16	0.01	0.17	892	0.04	0.01	0.08	897
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.05	0.55	0.49	< 0.005	0.02	0.05	0.07	0.02	0.02	0.04	132	0.01	0.01	0.07	136
2024	0.14	0.81	0.89	< 0.005	0.03	0.01	0.04	0.03	< 0.005	0.03	148	0.01	< 0.005	0.01	148

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.06	2.02	0.01	0.12	0.00	0.12	0.12	0.00	0.12	2,075	5.59	0.03	0.04	2,224
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.33	0.06	1.58	0.01	0.12	0.00	0.12	0.12	0.00	0.12	2,073	5.59	0.03	0.04	2,222
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.29	0.06	1.54	0.01	0.12	0.00	0.12	0.12	0.00	0.12	1,882	5.56	0.02	0.04	1,890
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.01	0.28	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	312	0.92	< 0.005	0.01	313
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	—	—	150	—	—	55.0	—	—	—	—	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	—	—	150	—	—	55.0	—	—	—	—	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,000
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	No

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.31	< 0.005	0.44	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.79	< 0.005	< 0.005	—	1.80
Energy	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	127	0.01	< 0.005	—	128
Water	—	—	—	—	—	—	—	—	—	—	10.4	0.24	0.01	—	18.2
Waste	—	—	—	—	—	—	—	—	—	—	53.1	5.31	0.00	—	186
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Stationary	0.09	0.00	1.54	0.01	0.12	—	0.12	0.12	—	0.12	1,882	0.04	0.02	—	1,890
Total	0.40	0.06	2.02	0.01	0.12	0.00	0.12	0.12	0.00	0.12	2,075	5.59	0.03	0.04	2,224
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	127	0.01	< 0.005	—	128
Water	—	—	—	—	—	—	—	—	—	—	10.4	0.24	0.01	—	18.2
Waste	—	—	—	—	—	—	—	—	—	—	53.1	5.31	0.00	—	186
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Stationary	0.09	0.00	1.54	0.01	0.12	—	0.12	0.12	—	0.12	1,882	0.04	0.02	—	1,890
Total	0.33	0.06	1.58	0.01	0.12	0.00	0.12	0.12	0.00	0.12	2,073	5.59	0.03	0.04	2,222
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.29	< 0.005	0.30	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.23	< 0.005	< 0.005	—	1.23
Energy	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	127	0.01	< 0.005	—	128
Water	—	—	—	—	—	—	—	—	—	—	10.4	0.24	0.01	—	18.2

Waste	—	—	—	—	—	—	—	—	—	—	53.1	5.31	0.00	—	186
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Stationary	0.09	0.00	1.54	0.01	0.12	—	0.12	0.12	—	0.12	1,882	0.04	0.02	—	1,890
Total	0.38	0.06	1.88	0.01	0.12	0.00	0.12	0.12	0.00	0.12	2,074	5.59	0.03	0.04	2,223
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.05	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.20	< 0.005	< 0.005	—	0.20
Energy	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	21.1	< 0.005	< 0.005	—	21.2
Water	—	—	—	—	—	—	—	—	—	—	1.73	0.04	< 0.005	—	3.01
Waste	—	—	—	—	—	—	—	—	—	—	8.79	0.88	0.00	—	30.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Stationary	0.02	0.00	0.28	< 0.005	0.02	—	0.02	0.02	—	0.02	312	0.01	< 0.005	—	313
Total	0.07	0.01	0.34	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	343	0.93	< 0.005	0.01	368

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	15.1	13.7	0.02	0.72	—	0.72	0.66	—	0.66	2,063	0.08	0.02	—	2,070
Dust From Material Movement	—	—	—	—	—	1.63	1.63	—	0.78	0.78	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3	< 0.005	< 0.005	—	11.3
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.87	< 0.005	< 0.005	—	1.88
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.61	0.00	0.00	0.10	0.10	0.00	0.02	0.02	108	< 0.005	< 0.005	0.46	110
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.57	< 0.005	< 0.005	< 0.005	0.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.09	< 0.005	< 0.005	< 0.005	0.10
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	17.5	16.3	0.02	0.83	—	0.83	0.77	—	0.77	2,453	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	1.85	1.85	—	0.89	0.89	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.44	1.34	< 0.005	0.07	—	0.07	0.06	—	0.06	202	0.01	< 0.005	—	202
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	33.4	< 0.005	< 0.005	—	33.5
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.69	0.00	0.00	0.13	0.13	0.00	0.03	0.03	137	0.01	< 0.005	0.02	138
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	6.34	2.33	0.03	0.06	1.26	1.32	0.06	0.34	0.39	4,749	0.28	0.75	0.28	4,979
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.4	< 0.005	< 0.005	0.02	11.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.53	0.19	< 0.005	< 0.005	0.10	0.11	< 0.005	0.03	0.03	390	0.02	0.06	0.38	410
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.89	< 0.005	< 0.005	< 0.005	1.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	64.6	< 0.005	0.01	0.06	67.8

3.5. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	9.81	10.2	0.02	0.41	—	0.41	0.38	—	0.38	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.94	0.98	< 0.005	0.04	—	0.04	0.04	—	0.04	173	0.01	< 0.005	—	173
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.17	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	28.6	< 0.005	< 0.005	—	28.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	57.6	< 0.005	< 0.005	0.01	58.3
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	53.8	< 0.005	0.01	< 0.005	56.1

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.61	< 0.005	< 0.005	0.01	5.69
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.16	< 0.005	< 0.005	0.01	5.38
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.93	< 0.005	< 0.005	< 0.005	0.94
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.85	< 0.005	< 0.005	< 0.005	0.89
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.51	4.23	4.53	0.01	0.17	—	0.17	0.15	—	0.15	807	0.03	0.01	—	810
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.77	0.83	< 0.005	0.03	—	0.03	0.03	—	0.03	134	0.01	< 0.005	—	134
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.32	0.00	0.00	0.06	0.06	0.00	0.01	0.01	59.5	< 0.005	< 0.005	0.23	60.4
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	53.0	< 0.005	0.01	0.14	55.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.27	0.00	0.00	0.06	0.06	0.00	0.01	0.01	56.4	< 0.005	< 0.005	0.01	57.1
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	53.1	< 0.005	0.01	< 0.005	55.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	25.6	< 0.005	< 0.005	0.05	26.0
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	23.8	< 0.005	< 0.005	0.03	24.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	4.25	< 0.005	< 0.005	0.01	4.30
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.94	< 0.005	< 0.005	< 0.005	4.11
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.90	6.53	0.01	0.23	—	0.23	0.21	—	0.21	992	0.04	0.01	—	995
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.13	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	27.2	< 0.005	< 0.005	—	27.3
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.50	< 0.005	< 0.005	—	4.51
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.06	0.06	0.94	0.00	0.00	0.16	0.16	0.00	0.04	0.04	176	0.01	0.01	0.70	179
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	4.65	< 0.005	< 0.005	0.01	4.71
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.77	< 0.005	< 0.005	< 0.005	0.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	134	0.01	< 0.005	—	134
Architectural Coatings	9.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.9	< 0.005	< 0.005	0.05	12.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.31	< 0.005	< 0.005	< 0.005	0.32

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.05	< 0.005	< 0.005	< 0.005	0.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
High School	—	—	—	—	—	—	—	—	—	—	59.9	0.01	< 0.005	—	60.3
Total	—	—	—	—	—	—	—	—	—	—	59.9	0.01	< 0.005	—	60.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
High School	—	—	—	—	—	—	—	—	—	—	59.9	0.01	< 0.005	—	60.3
Total	—	—	—	—	—	—	—	—	—	—	59.9	0.01	< 0.005	—	60.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
High School	—	—	—	—	—	—	—	—	—	—	9.92	< 0.005	< 0.005	—	9.98
Total	—	—	—	—	—	—	—	—	—	—	9.92	< 0.005	< 0.005	—	9.98

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	—	0.00
High School	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	67.4	0.01	< 0.005	—	67.6
Total	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	67.4	0.01	< 0.005	—	67.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	—	0.00
High School	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	67.4	0.01	< 0.005	—	67.6
Total	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	67.4	0.01	< 0.005	—	67.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	—	0.00
High School	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.2	< 0.005	< 0.005	—	11.2
Total	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.2	< 0.005	< 0.005	—	11.2

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	< 0.005	0.44	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.79	< 0.005	< 0.005	—	1.80
Total	0.31	< 0.005	0.44	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.79	< 0.005	< 0.005	—	1.80

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.20	< 0.005	< 0.005	—	0.20
Total	0.05	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.20	< 0.005	< 0.005	—	0.20

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	7.56	0.17	< 0.005	—	13.2
High School	—	—	—	—	—	—	—	—	—	—	2.87	0.07	< 0.005	—	4.97

Total	—	—	—	—	—	—	—	—	—	—	10.4	0.24	0.01	—	18.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	7.56	0.17	< 0.005	—	13.2
High School	—	—	—	—	—	—	—	—	—	—	2.87	0.07	< 0.005	—	4.97
Total	—	—	—	—	—	—	—	—	—	—	10.4	0.24	0.01	—	18.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	1.25	0.03	< 0.005	—	2.18
High School	—	—	—	—	—	—	—	—	—	—	0.47	0.01	< 0.005	—	0.82
Total	—	—	—	—	—	—	—	—	—	—	1.73	0.04	< 0.005	—	3.01

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	46.1	4.61	0.00	—	161

High School	—	—	—	—	—	—	—	—	—	—	7.01	0.70	0.00	—	24.5
Total	—	—	—	—	—	—	—	—	—	—	53.1	5.31	0.00	—	186
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	46.1	4.61	0.00	—	161
High School	—	—	—	—	—	—	—	—	—	—	7.01	0.70	0.00	—	24.5
Total	—	—	—	—	—	—	—	—	—	—	53.1	5.31	0.00	—	186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	7.63	0.76	0.00	—	26.7
High School	—	—	—	—	—	—	—	—	—	—	1.16	0.12	0.00	—	4.06
Total	—	—	—	—	—	—	—	—	—	—	8.79	0.88	0.00	—	30.7

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Process Boiler	0.09	0.00	1.54	0.01	0.12	—	0.12	0.12	—	0.12	1,882	0.04	0.02	—	1,890
Total	0.09	0.00	1.54	0.01	0.12	—	0.12	0.12	—	0.12	1,882	0.04	0.02	—	1,890
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Process Boiler	0.09	0.00	1.54	0.01	0.12	—	0.12	0.12	—	0.12	1,882	0.04	0.02	—	1,890
Total	0.09	0.00	1.54	0.01	0.12	—	0.12	0.12	—	0.12	1,882	0.04	0.02	—	1,890
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Process Boiler	0.02	0.00	0.28	< 0.005	0.02	—	0.02	0.02	—	0.02	312	0.01	< 0.005	—	313

Total	0.02	0.00	0.28	< 0.005	0.02	—	0.02	0.02	—	0.02	312	0.01	< 0.005	—	313

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	9/28/2023	9/30/2023	5.00	2.00	—

Grading	Grading	10/2/2023	11/10/2023	5.00	30.0	—
Building Construction	Building Construction	11/13/2023	8/16/2024	5.00	200	—
Paving	Paving	8/19/2024	8/30/2024	5.00	10.0	—
Architectural Coating	Architectural Coating	9/2/2024	9/13/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38

Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	66.3	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	4.21	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	1.64	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.84	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	15,047	5,016	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	1.88	0.00	—
Grading	6,900	9,000	30.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Recreational Swimming Pool	1.00	0%
High School	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	532	0.03	< 0.005
2024	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

0	0.00	15,047	5,016	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Recreational Swimming Pool	0.00	349	0.0330	0.0040	0.00
High School	62,737	349	0.0330	0.0040	210,449

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Recreational Swimming Pool	887,147	18,232
High School	332,046	14,025

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Recreational Swimming Pool	85.50	0.00

High School	13.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Recreational Swimming Pool	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Recreational Swimming Pool	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
Boiler - CNG (0–2 MMBTU)	CNG	1.00	2.00	16.0	5,840

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	7.52	annual days of extreme heat
Extreme Precipitation	4.10	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	29.9

AQ-PM	63.8
AQ-DPM	22.9
Drinking Water	55.5
Lead Risk Housing	86.9
Pesticides	0.00
Toxic Releases	92.3
Traffic	41.9
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	73.5
Impaired Water Bodies	0.00
Solid Waste	22.1
Sensitive Population	—
Asthma	31.3
Cardio-vascular	64.8
Low Birth Weights	78.4
Socioeconomic Factor Indicators	—
Education	28.1
Housing	45.6
Linguistic	31.3
Poverty	32.0
Unemployment	19.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract

Economic	—
Above Poverty	69.76774028
Employed	91.91582189
Median HI	74.97754395
Education	—
Bachelor's or higher	63.00526113
High school enrollment	100
Preschool enrollment	61.92737072
Transportation	—
Auto Access	60.64416784
Active commuting	7.173104068
Social	—
2-parent households	68.8823303
Voting	58.32157064
Neighborhood	—
Alcohol availability	27.01142051
Park access	42.87180803
Retail density	93.17336071
Supermarket access	77.51828564
Tree canopy	49.71127935
Housing	—
Homeownership	69.39561145
Housing habitability	92.01847812
Low-inc homeowner severe housing cost burden	42.5895034
Low-inc renter severe housing cost burden	96.58668035
Uncrowded housing	82.07365584
Health Outcomes	—

Insured adults	89.3750802
Arthritis	39.1
Asthma ER Admissions	55.9
High Blood Pressure	56.0
Cancer (excluding skin)	19.8
Asthma	69.3
Coronary Heart Disease	47.4
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	70.5
Life Expectancy at Birth	63.3
Cognitively Disabled	32.0
Physically Disabled	43.7
Heart Attack ER Admissions	26.2
Mental Health Not Good	66.0
Chronic Kidney Disease	55.3
Obesity	61.1
Pedestrian Injuries	19.6
Physical Health Not Good	65.0
Stroke	58.2
Health Risk Behaviors	—
Binge Drinking	20.5
Current Smoker	66.4
No Leisure Time for Physical Activity	77.8
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	15.5

Elderly	40.3
English Speaking	77.8
Foreign-born	19.0
Outdoor Workers	66.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	37.7
Traffic Density	39.4
Traffic Access	23.0
Other Indices	—
Hardship	15.5
Other Decision Support	—
2016 Voting	50.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	42.0
Healthy Places Index Score for Project Location (b)	78.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Approximately 15,000 sq ft swimming pool with 10,031 sq ft of building space on a 1.36 acre project site
Construction: Construction Phases	Grading phase extended to 6 weeks to account for additional import and export of dirt
Construction: Paving	Approximately 1 acre of pavement
Operations: Vehicle Data	No new project trips will be generated from the proposed project
Construction: Trips and VMT	Building Construction set to 27 worker and 11 vendor daily trips and Painting set to 2 worker daily trips

APPENDIX B

EMFAC2017 Model Printouts

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: SOUTH COAST
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar '	Vehicle C	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
SOUTH CO	2023	HHDT	Aggregated	Aggregatec	GAS	74.37	8047.23	1487.93	1.89
SOUTH CO	2023	LDA	Aggregated	Aggregatec	GAS	6459700.68	246807537.84	30522037.63	7786.05
SOUTH CO	2023	LDT1	Aggregated	Aggregatec	GAS	737358.38	27059295.05	3407418.81	995.76
SOUTH CO	2023	LDT2	Aggregated	Aggregatec	GAS	2219228.89	82875046.15	10414097.54	3244.21
SOUTH CO	2023	LHDT1	Aggregated	Aggregatec	GAS	170372.50	6057759.01	2538296.34	568.77
SOUTH CO	2023	LHDT2	Aggregated	Aggregatec	GAS	29153.37	1003759.33	434341.71	108.29
SOUTH CO	2023	MCY	Aggregated	Aggregatec	GAS	297600.18	2024753.66	595200.36	55.80
SOUTH CO	2023	MDV	Aggregated	Aggregatec	GAS	1540538.65	53902320.53	7127894.33	2607.45
SOUTH CO	2023	MH	Aggregated	Aggregatec	GAS	33691.87	321144.17	3370.53	61.57
SOUTH CO	2023	MHDT	Aggregated	Aggregatec	GAS	24928.02	1310043.21	498759.85	254.98
SOUTH CO	2023	OBUS	Aggregated	Aggregatec	GAS	5826.42	235991.19	116574.92	46.21
SOUTH CO	2023	SBUS	Aggregated	Aggregatec	GAS	2711.85	107297.31	10847.42	11.68
SOUTH CO	2023	UBUS	Aggregated	Aggregatec	GAS	957.77	89782.63	3831.07	17.62

vehicle miles per day (All Categories)	421802777	15,760	1,000 gall per day
		15,760,271	gallons per day
Fleet Avg Miles per gallon	26.8		

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: SOUTH COAST
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Ye	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
SOUTH COA	2023	HHDT	Aggregated	Aggregatec	DSL	99862.0	12043323.4	1008086.8	1696.5
SOUTH COA	2023	LDA	Aggregated	Aggregatec	DSL	60890.6	2412432.1	289413.5	48.3
SOUTH COA	2023	LDT1	Aggregated	Aggregatec	DSL	352.4	8196.1	1229.5	0.4
SOUTH COA	2023	LDT2	Aggregated	Aggregatec	DSL	15172.5	633608.1	74551.8	17.3
SOUTH COA	2023	LHDT1	Aggregated	Aggregatec	DSL	121835.8	4855937.3	1532540.9	221.8
SOUTH COA	2023	LHDT2	Aggregated	Aggregatec	DSL	48525.6	1881224.0	610391.4	95.2
SOUTH COA	2023	MDV	Aggregated	Aggregatec	DSL	35106.9	1383747.2	171565.7	49.2
SOUTH COA	2023	MH	Aggregated	Aggregatec	DSL	12560.1	119509.1	1256.0	11.2
SOUTH COA	2023	MHDT	Aggregated	Aggregatec	DSL	118681.0	7894095.0	1192353.2	705.1
SOUTH COA	2023	OBUS	Aggregated	Aggregatec	DSL	4158.7	323908.7	40367.2	37.2
SOUTH COA	2023	SBUS	Aggregated	Aggregatec	DSL	6393.3	202053.5	73777.5	26.3
SOUTH COA	2023	UBUS	Aggregated	Aggregatec	DSL	13.0	1416.6	52.0	0.2

Diesel Truck (HHDT, MDV, MHDT) vehicle miles per day	21,321,166	2,451	1,000 gall per day
		2450893.902	gallons per day
Diesel Truck Fleet Avg Miles per gallon	8.7		

APPENDIX B – Cultural Resources Survey Report & Phase II Historic Resources Assessment

April 5, 2023
9620 Chesapeake Drive, Suite 201
San Diego, CA 92123
(21366)

Ms. Talitha Crain
Facilities Consultant – Environmental Manager
Long Beach Unified School District
Facilities Development and Planning Branch
2425 Webster Avenue
Long Beach, CA 90810

Subject: Cultural Resources Survey Results Letter Report for the Lakewood High School Aquatic Center Project

Dear Ms. Talitha Crain:

Chambers Group provides the following California Historical Resources Information System (CHRIS) records search review and a Cultural Resources Phase I Pedestrian Survey (Survey) for the Long Beach Unified School Districts (LBUSD) proposed Lakewood High School Aquatic Center Project (Proposed Project, Project) in the City of Lakewood in Los Angeles County, California. These tasks were conducted to determine the presence of and potential for prehistoric and/or historic cultural resources within the Proposed Project site and to assess potential for impacts to those resources from Proposed Project activities in compliance with applicable County, State, and federal codes, regulations, and statutes.

The Cultural Resources Survey, as conducted, was negative and no evidence of new or previously documented cultural resources was observed in the Project site.

Proposed Project Site Location and Description

The Proposed Project would be constructed throughout the campus with the Aquatic Center located on the southern portion of the Lakewood High School campus, located at 4400 Briercrest Avenue, Lakewood, in the County of Los Angeles. The campus is bordered by Centralia Street to the north, Lomina Avenue to the east, Harvey Way to the south, and Briercrest Avenue to the west (Figure 1, Project Location & Vicinity map).

The Proposed Project site is found on the United States Geological Survey (USGS) *Los Alamitos*, California 7.5-minute topographic quadrangle, in Township 3 South, Range 12 West (USGS 1964).

The campus is located on an approximately 32-acre property; comprised of 10 permanent buildings ranging from one-story to four-story buildings. These buildings are numbered as buildings 1000, 2000, 3000, 4000, 5000 (Gym/Natatorium), 6000, 7000, 8000, and 9000 (Auditorium). John Ford Stadium is located on the east side of campus, baseball/softball fields, tennis courts, and 13 portables are located on the south portion of campus. An additional 12 portables and three Russel bungalow buildings are located to the east of Track and Field.

Lakewood High School currently contains an indoor pool located in the gymnasium/natatorium which is in the center of campus. In 2016, the LBUSD Master Plan was updated and $3.5 billion of need was identified, with the LBUSD Board approving a $1.5 billion bond measure for ballot including improving fields, upgrading gyms, aging pools, and athletic fields, and physical education resources among other identified improvements that will improve student health and benefit academic performance. Consequently, Lakewood Natatorium will be converted into a multipurpose gymnasium, and an aquatic center with an outdoor competition size pool will be constructed at the campus. The site of the future Aquatic Center currently contains softball fields, which would be shifted within the campus as part of a separate project.

The Proposed Project includes the construction of a new aquatics facility. The aquatics facility will include a Myrtha Brand swimming pool that is 51.5 meters long by 25 yards wide, with a 1.5-meter-wide bulkhead. The plan is to have an approximately 30-foot deck surrounding the pool. The pool will be an outside pool. Bleachers with a capacity for 500 spectators, shade coverings over the bleachers, stadium lights, LED scoreboard with integrated sound system throughout the complex. Additional new buildings including locker rooms, restrooms, showers, offices, laundry rooms, concessions, pool machine room, chemical storage, pool equipment, and general storage. Perimeter walls for security and privacy, along with surveillance cameras for security purposes, and an equipment storage enclosure/room.

The Proposed Project construction is expected to begin in September 2023 and be completed in March 2025. The construction equipment to be used during construction of the Proposed Project upgrades may include loaders, pick-up trucks, backhoes, water trucks, crane, asphalt paver, bulldozers, forklifts, concrete trucks/mixer, and dump trucks. The demolition and excavation construction work will include approximately 9,000 cubic yards of soil export and approximately 6,900 cubic yards of soil import.

Prior to beginning construction activities for the Proposed Project, LBUSD is expected to obtain all required permits for the Proposed Project. As such, the Proposed Project requires compliance with provisions of the California Environmental Quality Act (CEQA), and the California Register of Historical Resources, Public Resources Code (PRC) 5024. LBUSD should require any and all contractors to accommodate, to the extent practicable, all conditions of the permits, environmental mitigation plans, and similar documents and should expect them to make all reasonable efforts to minimize and mitigate for impacts to cultural resources. This Survey is a part of the preparation of said environmental mitigation plans.

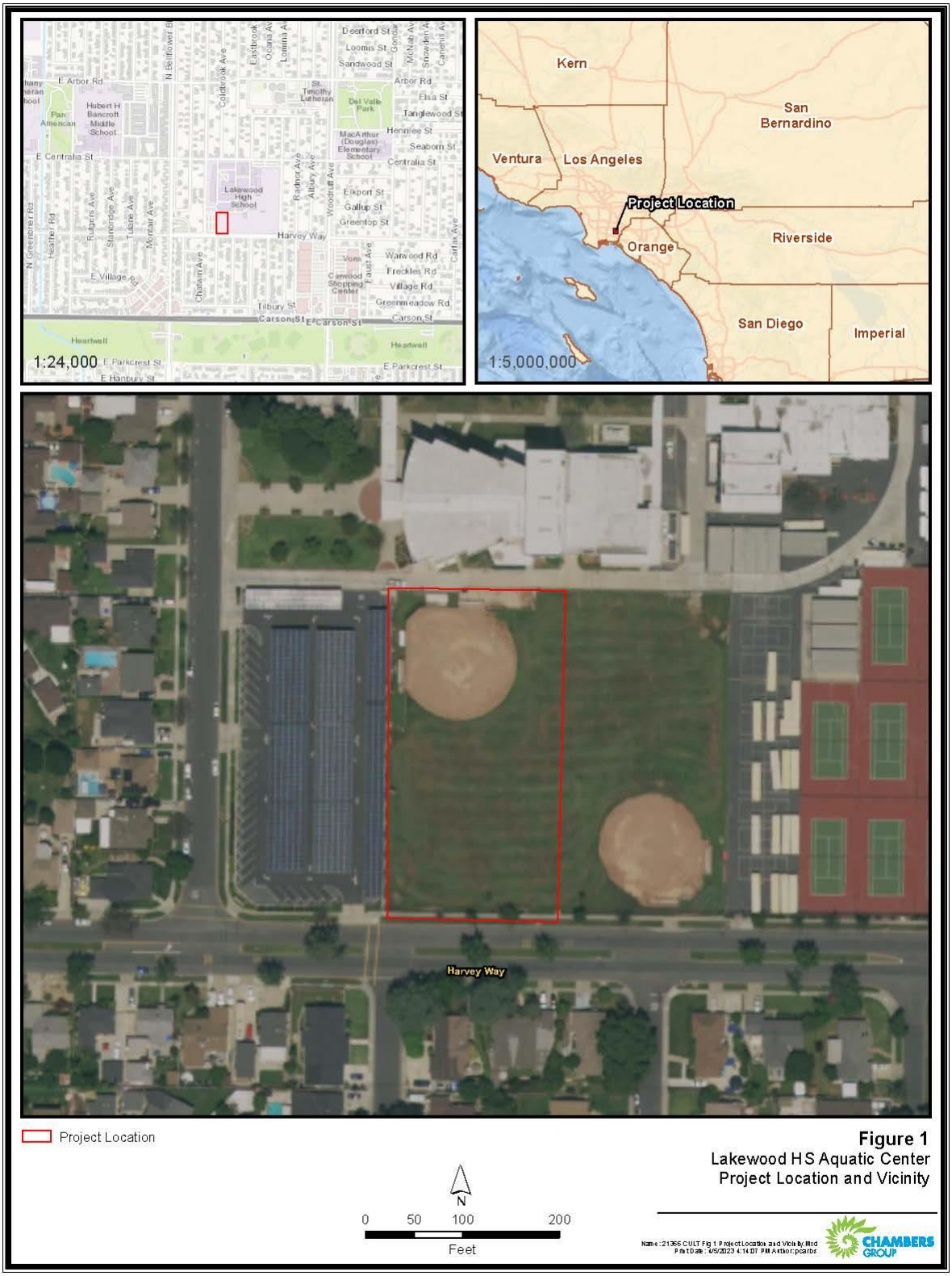


Figure 1
Lakewood HS Aquatic Center
Project Location and Vicinity

Regulatory Framework

Work for this Project was conducted in compliance with California Environmental Quality Act (CEQA). The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (Public Resources Code [PRC] §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 California Code of Regulations [CCR], § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for CRHR eligibility (PRC § 5024.1).

The purpose of the California Register of Historical Resources (CRHR) is to maintain listings of the state's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term historical resources includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

California Register of Historical Resources

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. 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. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the California Register must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

- 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:
    - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
    - Has a special and particular quality, such as being the oldest of its type or the best available example of its type
    - Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a "unique archaeological resource" under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Assembly Bill 52

Assembly Bill (AB) 52 was enacted in 2015 and expands CEQA by defining a new resource category: tribal cultural resources. AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. AB 52 requires that lead agencies "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed in the jurisdiction of the lead agency. It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3). PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and meets either of the following criteria:

- Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k)
- 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 PRC Section 5024.1 (in applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe)

Cultural Setting

Prehistoric Overview

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes within all or portions of Southern California (Moratto 1984; Jones and Klar 2007). A prehistoric chronology was devised for the Southern California coastal region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric (Wallace 1955, 1978). Though initially lacking the chronological precision of absolute dates (Moratto 1984:159), Wallace's 1955 synthesis has been modified and improved using thousands of radiocarbon dates obtained by Southern California researchers over recent decades (Byrd and Raab 2007:217; Koerper and Drover 1983; Koerper et al. 2002). The prehistoric chronological sequence for Southern California presented below is a composite based on Wallace (1955) and Warren (1968) as well as later studies, including Koerper and Drover (1983).

It is generally believed that human occupation of Southern California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000- and 6,000-years BP, a predominantly hunting and gathering economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. The most heavily exploited species were likely those species still alive today. Bones of extinct species have been found but cannot definitively be associated with human artifacts in California, unlike other

regions of the continent. Although small animal bones and plant grinding tools are rarely found within archaeological sites of this period, small game and vegetal foods were likely exploited. A lack of deep cultural deposits from this period suggests small groups practiced high residential mobility during this period (Wallace 1978).

The three major periods of prehistory for the greater Los Angeles Basin region have been refined by recent research using radiocarbon dates from archaeological sites in coastal Southern California (Koerper and Drover 1983; Mason and Peterson 1994):

- Millingstone Period (6,000–1,000 B.C., or about 8,000–3,000 years ago)
- Intermediate Period (1,000 B.C.–A.D. 650, or 3,000–1,350 years ago)
- Late Prehistoric Period (A.D. 650–about A.D. 1800, or 1,350–200 years ago)

Around 6,000 years BP, a shift in focus from hunting toward a greater reliance on vegetal resources occurred. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter (Wallace 1978). This period, known to archaeologists as the Millingstone Period, was a long period of time characterized by small, mobile groups that likely relied on a seasonal round of settlements that included both inland and coastal residential bases. Seeds from sage and grasses, rather than acorns, provided calories and carbohydrates. Faunal remains from sites dating to this period indicate similar animals were hunted. Inland Millingstone sites are characterized by numerous manos, metates, and hammerstones. Shell middens are common at coastal Millingstone sites. Coarse-grained lithic materials, such as quartzite and rhyolite, are more common than fine-grained materials in flaked stone tools from this time. Projectile points are found in archaeological sites from this period, but they are far fewer in number than from sites dating to before 6,000 years BP. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period (Wallace 1978).

In sites post-dating roughly 3,000 years BP, archaeological evidence indicates the reliance on both plant gathering and hunting continued but was more specialized and locally adapted to particular environments. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Chipped-stone tools became more refined and specialized, and bone tools were more common. During this period, new peoples from the Great Basin began entering Southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. The exact time of their entry into the region is not known; however, they were present in Southern California during the final phase of prehistory. During this period, population densities were higher than before; and settlement became concentrated in villages and communities along the coast and interior valleys (Erlandson 1994; McCawley 1996). During the Intermediate Period, mortars and pestles appeared, indicating the beginning of acorn exploitation. Use of the acorn – a high-calorie, storable food source – probably facilitated greater sedentism and increased social organization. Large projectile points from archaeological sites of this period indicate that the bow and arrow, a hallmark of the Late Prehistoric Period, had not yet been introduced; and hunting was likely accomplished using the *atlatl* (spear thrower) instead. Settlement patterns during this time are not well understood. The semi-sedentary settlement pattern characteristic of the Late Prehistoric Period may have begun during the Intermediate Period, although territoriality may not yet have developed because of lower population densities. Regional subcultures also started to develop, each with its own geographical territory and language or dialect (Kroeber 1925; McCawley 1996; Moratto 1984). These were most likely the basis for the groups encountered by the first Europeans during the eighteenth century (Wallace 1978). Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction (Erlandson 1994). The Late Prehistoric Period is better understood than earlier periods largely through ethnographic analogy made possible by ethnographic and anthropological research of the descendants of these groups in the late nineteenth and early twentieth centuries.

Ethnographic Overview

The Proposed Project is located within an area of the City of Long Beach identified as part of Gabrielino traditional territory. In addition, the Juaneño or Acjachemen suggest that the areas immediately east and south of the Proposed Project are part of their traditional territory.

Gabrielino

The Gabrielino (sometimes spelled Gabrieliño, Gabrieleno or Gabrieleño), are Cupan speakers. The Cupan languages are part of the Takic family, which is part of the Uto-Aztecan linguistic stock. Their tribal territory included the watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers, all of the Los Angeles Basin, the coast from Aliso Creek in the south to Topanga Creek in the north, and the islands of San Clemente, San Nicholas, and Santa Catalina. Villages or triblets were politically autonomous and made up of different lineages. Each lineage had its own leader and would seasonally leave the village to collect resource items (Bean and Smith 1978). Tribal boundaries were not fixed and overlapped with neighboring people, including Chumash (Barbareño, Ventureño, Purisimeño, Obispeño, Ineseño, Cruzeño, Emigdiano, and the Cuyama Chumash), Fernandeño Tataviam, Serrano, Cahuilla, Acjachemen (Juaneño), and Luiseño cultural groups. These overlaps historically have been a source of confusion, contest, conflict, and opportunity, which has persisted to this day.

During the Spanish missionization period, people from the greater area would have been incorporated into the San Gabriel mission. Whether they were Serrano, Cahuilla, Fernandeño Tataviam, Chumash or local Gabrielino, all would have been identified as Gabrielino, or as belonging to Mission San Gabriel. Indeed, even Fernandeño people have been collectively grouped within Gabrielino ethnographic treatments. Today, Fernandeño Tataviam, Gabrieleño Band of Mission Indians-Kihz Nation, and the Gabrielino-Tongva Indian Tribe identify as individual groups.

Juaneño/Acjachemen

The Juaneño, or Acjachemen, are members of the Takic-speaking group that includes Gabrielino, Luiseño, Cupan, and Cahuilla, among others, and are named after the Spanish mission at San Juan Capistrano (Bean and Shipek 1978). The degree to which the Acjachemen are related to their Gabrielino neighbors to the north, or to their Luiseño neighbors to the south and east is debated. Bean and Shipek (1978) essentially subsume the Juaneño within the greater Luiseño discussion, while others (e.g., Kroeber 1925, Harrington, n.d, cited in Koerper and Mason 2004) suggest affinity with the Gabrielino. Nevertheless, Juaneño or Acjachemen territory generally ranged between Las Flores creek in the south, to Aliso Creek in the north, and from the coast, across the Santa Ana Mountains, to Temescal Valley in the east.

The Acjachemen practiced a semi-sedentary hunting and gathering subsistence strategy, with a focus on well-watered drainage systems that allowed seasonally available resources (Koerper and Mason 2004). One of the most important food resources for the group were hard seeds. Availability of seed as a staple may have been a determinant as to when the group moved or split apart into smaller units in other parts of the territory (Koerper and Mason 2004). Additionally, acorns were gathered from oak groves in canyons, drainages, and foothills. Acorns were ground into flour using mortars and pestles. Protein was supplemented through the meat of deer, rabbits, and other animals, hunted with the bow and arrow or trapped. Shellfish was collected and eaten, and the shell was then used to make hooks for fishing, beads, and other ornaments (Bean and Shipek 1978).

Accurate population figures remain elusive; however, villages may have contained up to 300 people at certain times of the years. These tended to be located near permanent water and a variety of food sources. The San Juan Basin was densely populated, and villages were closely spaced because of the year-round availability of fresh water in San Juan Creek. Each village was typically located in the center of an established area from which resources for the group were gathered, usually within a day's journey. Subsequently, small groups would leave the village for a short time to hunt fish or gather plant materials (Bean and Shipek 1978).

Historic Overview

Post-European contact history for the state of California is generally divided into three periods: the Spanish Period (1540–1822), the Mexican Period (1822–1848), and the American Period (1848– present). Briefly, and in very general

terms, the Spanish Period encompassed the earliest historic-period explorations of the West, followed by colonization, missionization and proselytization across the western frontier later during their occupation. The Spanish Period witnessed the establishment of pueblos such as Los Angeles and Monterey and a line of missions and presidios with attendant satellite communities, minor prospecting, and a foundational economic structure based on nascent ranchos and cattle herds, and a ship-based trade and exchange system. The Mexican Period initiated with a continuation of the same Spanish structures; however, commensurate with the political changes that led to the establishment of the Mexican state the missions and presidios were secularized, the lands parceled into ranchos, and Indian laborers released from Church lands only to be conscripted into the ranchos. Increased global trade introduced both foreign and American actors into the Mexican economic and political spheres, and both coincidentally and purposefully, smoothing the transition to the American Period. The American Period was ushered in, following the conclusion of the Mexican-American War of 1846, with a momentous influx of people seeking fortune in the Sierra foothills where gold was "discovered" in 1848. By the early 1850s people from all over the globe had made their way to California. Expansive industries were required to supply the early mining operations, such as forestry products and food networks. Grains, poultry, cattle, and water systems, which were initiated in the early Mexican Period, were intensified into a broad system of ranches and supply networks. Additionally, this period witnessed the development and expansion of port cities to supply hard goods and clothes, animals, and people transported along improved trail and road networks throughout the interior regions of the state. California cycled through boom and bust for several decades until World War I when the Department of the Navy began porting war ships along the west coast. Subsequently, California has grown, and contracted, predominantly around military policy along the west coast, and the Pacific Ocean. Following the industrial expansion related to World War II and the Cold War, technology and systems associated have come to fore as economic drivers.

City of Long Beach

The chronology of school construction in LBUSD mirrors the growth and development of the City of Long Beach. The first school in Long Beach, located near Willow Street and Santa Fe Avenue, was founded in 1879 by the eleven families who constituted the American Colony. A year later, William E. Wilmore established his town site the "American Colony" or "Willmore City." In 1885, the Long Beach Unified School District (LBUSD) was established. The first Board of Trustees was elected and consisted of John W. Bixby, A.M. Hough, and Frank C. Butler. The same year, the first school in the newly formed LBUSD was established by Mrs. John Bixby and Belle Lowe (PCR 2015).

The present city of Long Beach is located on a portion of the 300,000 acres of land granted to Manuel Nieto by the Spanish colonial government in 1784. This property would subsequently be divided into five smaller land grants, including Rancho Los Alamitos and Rancho Cerritos, on which Long Beach would later be established. Rancho Los Alamitos was purchased in 1840 by real estate speculator and cattleman Abel Stearns, who was in the process of amassing one of the largest landholdings in Southern California, known collectively as Stearn's Ranchos. Rancho Cerritos was purchased in 1843 by Los Angeles merchant John Temple. The two ranchos owned by Stearns and Temple would later be sold to Jotham Bixby (PCR 2015).

The town site was purchased in 1884 by the Long Beach Land and Water Company, which began making significant improvements, including the construction of a wharf and hotel, and connecting the town to the Southern Pacific Railroad's Wilmington branch. The elements for growth now in place, the expansion was explosive, especially after the opening of a Pacific Electric line to the city in 1902. Long Beach, which in the early 1900s had become one of the region's premier seaside resorts, was incorporated as a city in 1908. The discovery of oil in 1921 and the construction of a modern harbor between 1925 and 1930 sparked an unprecedented boom in the building industry in Long Beach, including associated residential, commercial, and industrial development. The acute demand for housing and the availability of capital resulted in the redevelopment of part of the downtown shoreline with apartment hotels on a grand scale (PCR 2015).

The stock market crash in 1929 and the 1933 earthquake had a devastating impact on the built environment, both financial and physical. In 1935, thanks to funding from the federal Works Progress Administration, parks and

transportation facilities, and civic and recreational buildings in the city were reconstructed. In addition, the Federal Art Project subsidized art, literature, music and drama and engaged public artists, producing a legacy of public art in Long Beach. By the eve of World War II in 1940, the local economy was sufficiently reinvigorated by the oil and air transportation industries. After 1941, the wartime defense industry served to fully restore it, unlike many Southern California communities, which only truly rebounded in the postwar period. When residential and commercial construction resumed after the war, outlying areas of Long Beach experienced rapid growth during the latter part of the 1940s and through the 1950s to accommodate the increasing population and resulting generation of baby boomers (PCR 2015).

Brown vs. Board of Education was a landmark Supreme Court decision in 1954 in which the Court declared state laws establishing separate schools for white and black students unconstitutional. This ruling paved the way for integration and was a major victory of the Civil Rights Movement which peaked during the 1960s decade. This decision in combination with post-war economic prosperity and the baby boom had a profound effect on school modernization programs throughout California and in Long Beach (PCR 2015).

In the post-World War II period in America, Modern architecture became the predominant architectural style applied to buildings of every type. During the 1950s and 1960s, distinct and identifiable stylistic variants of Modernism evolved. The aesthetic closest to the 1920s origins of Modernism in Europe was dubbed the International Style and was identified by its rectilinear form, flat roofs, open floor plans, use of steel and glass, and lack of applied ornamentation. Local variants of Modern design, while based upon International Style tenets, were generally less formal in their expression of Modernist tenets with results that vary widely in terms of materials, form, and spatial arrangements. The features of the Post-World War II Modern style are one-story; flat or shed roofed, often with cantilevered overhangs, stucco or brick exterior, modular planning, classrooms with glass walls on one side and clerestory windows on the opposite side, incorporation of outdoor classrooms, and exterior corridors with roofs supported by pipe columns. District schools and buildings representative of the Post-World War II style include Charles Evans Hughes Middle School, Robert A. Millikan High School, Lakewood High School, and Beach (Nightingale) High School. In 1955, Lakewood High School, designed by architect Hugh Gibbs, was the first high school constructed in the district in twenty-one years. Lakewood originally included three classroom buildings, an auditorium seating 1,800, physical education, industrial arts, and cafeteria buildings and a combination administration and library unit. The school officially opened to students in September 1957. Robert A. Millikan High School was also designed using the same plan. During this period, forty-three schools were constructed entirely or were added to from plans on file in the Project Division of the Board of Education. This practice of reusing plans saved LBUSD approximately $671,331 in architects' fees over a period of twelve years (PCR 2015).

Lakewood High School is located on an approximately 32-acre property; comprised of ten permanent buildings ranging from one-story to four-story buildings. The High School was designed by architect Hugh Gibbs in 1955, while the school grounds were designed by Garrett Eckbo of Eckbo, Royston and Williams (PCR 2015). Construction of Lakewood High School was part of a larger expansion of educational facilities within the Long Beach region, which saw exceptional growth following World War II. The community of Lakewood saw initial development between 1949 and 1953 as a planned, Post-World War II suburb consisting of 17,500 single-family homes. Constructed by the Lakewood Park Company, the three developers in charge of the project were Louis Boyar, Mark Taper, and Ben Weingart. They publicized their plans to build "Lakewood, Tomorrow's City Today," and started construction in 1950. After City of Long Beach began efforts to acquire Lakewood, the Lakewood Taxpayers' Association, citizens, and other groups mobilized and successfully incorporated Lakewood within the City of Long Beach in March 1954 (PCR 2015). Lakewood High School officially opened to students in September 1957.

Methods of Review

Chambers Group requested a records search from the California Historical Resources Information System (CHRIS) South-Central Coastal Information Center (SCCIC) at California State University, Fullerton on July 12, 2022. A one-mile

study area was requested to provide additional context to the Project site and surrounding area and more information on which to base this review. Resources consulted during the records search conducted by the SCCIC included the NRHP, California Historical Landmarks (CHL), California Points of Historical Interest (CPHI), Caltrans Historic Highway Bridge Inventory, the California State Historic Resources Inventory, local registries of historic properties, and a review of available Sanborn Fire Insurance maps as well as historic photographs, maps, and aerial imagery. The task also included a search for potential prehistoric and/or historic burials (human remains) evident in previous site records and/or historical maps. In addition, Chambers Group submitted a request to the Native American Heritage Commission (NAHC) for a review of the Sacred Land Files (SLF) for the Project site and surrounding vicinity. Results of the NACH SLF records search are detailed below and included in Attachment 2. The results of the SCCIC records search are also detailed below and included in confidential Attachment 3.

In addition to the records search review, Chambers Group archaeologists completed extensive background research to determine if any additional historic properties, landmarks, bridges, or other potentially significant or listed properties are located within the Project site or half-mile study area. This background research included, but was not limited to, the NRHP, California State Historic Property Data Files, California State Historical Landmarks, California Points of Historical Interest, Office of Historic Preservation Archaeological Determinations of Eligibility, historic aerial imagery accessed via NETR Online, Historic U.S. Geological Survey topographic maps, Built Environment Resource Directory (BERD), and California Department of Transportation (Caltrans) State and Local Bridge Surveys. Additionally, Chambers Group archaeologists reviewed the San Bernardino County Historical Landmarks inventory designated by the County of San Bernardino Cultural Heritage Board, as well as the San Bernardino Historical Society and local historical newspaper clippings via Newspapers.com, ProQuest Historical Newspapers.com, and the California Digital Newspaper Collection.

Project Personnel

Chambers Group Cultural Resources Principal Investigator Richard Shultz, MA, RPA, managed the cultural resources tasks and authored the report. Chambers Group cultural resources specialist Eduvijes Davis-Mullens conducted background research and supported with preparation of the report. Additionally, cultural resources specialist Ken Hazlett completed the survey. Lucas Tutschulte, Chambers Group Cultural Resources Team Lead, performed quality control for the report.

Cultural Resources Reports within the Study Area

The results of the records search request were received on October 5, 2022. The CHRIS records search indicates that 14 previous cultural resource investigations have been recorded within a one-mile radius of the Proposed Project site. Of these, one investigation includes the Proposed Project site. The details pertaining to the investigations are listed below in Table 1 and in confidential Attachment 3.

Table 1. Prior Cultural Resources Studies Within a One-Mile Radius of the Project site

SCCIC Report Number	Author / Company	Year	Study Title	Included Project site?
LA-04354	Anonymous/City of Long Beach	1977	Historic Property Survey for the Proposed Heartwell Park Bike Route	No
LA-04903	Duke, Curt/ LSA Associates, Inc.	2000	Cultural Resource Assessment for AT&T Wireless Services Facility Number C789.1, County of Los Angeles, California	No

Table 1. Prior Cultural Resources Studies Within a One-Mile Radius of the Project site

SCCIC Report Number	Author / Company	Year	Study Title	Included Project site?
LA-05407	Duke, Curt/ LSA Associates, Inc.	2001	Cultural Resource Assessment Cingular Wireless Facility No. SM 069-02, Los Angeles County, Ca	No
LA-05868	Duke, Curt/ LSA Associates, Inc.	2002	Cultural Resource Assessment AT&T Wireless Services Facility No. 05315A, Los Angeles County, California	No
LA-06161	Pletka, Nicole/ LSA Associates, Inc.	2002	Cultural Resource Assessment AT&T Wireless Services Facility No. 05135B, Los Angeles County, California	No
LA-07874	Bonner, Wayne H./ Michael Brandman Associates	2006	Cultural Resources Records Search Results and Site Visit for T-Mobile Candidate LA03587C (St. Maria), 3954 Palo Verde Avenue, Long Beach, Los Angeles County, California	No
LA-08492	Bonner, Wayne H./ Michael Brandman Associates	2005	Cultural Resources Records Search and Site Visit for Nextel Candidate CA5554A (Monlaco), 5812 Arbor Road, Lakewood, Los Angeles County, California	No
LA-08493	Harper, Caprice D./ LSA Associates, Inc.	2004	Cultural Resource Assessment: Cingular Wireless Facility No. SM 264-01, City of Lakewood, Los Angeles County, California	No
LA-08720	Bonner, Wayne H./ Michael Brandman Associates	2007	Cultural Resources Records Search and Site Visit Results for Royal Street Communications, LLC Candidate LA0587a (veterans Stadium), 5000 East Lew Davis Street, Long Beach, Los Angeles County, California	No
LA-09349	Bonner, Wayne H./ Michael Brandman Associates	2008	Cultural Resources Records Search and Site Visit Results for Sprint Nextel Candidate CA7078C (Aristotle), 5000 Lew Davis Street, Long Beach, Los Angeles County, California	No
LA-11078	Willoughby, Kerry/ Archaeological Associates	2009	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Facility LA33952A (St. Timothy	No

Table 1. Prior Cultural Resources Studies Within a One-Mile Radius of the Project site

SCCIC Report Number	Author / Company	Year	Study Title	Included Project site?
			Lutheran), City of Lakewood, Los Angeles County, California	
LA-11339	Martorana, Dean/URS	2011	Verizon Wireless - Tanglewood 4139 Woodruff Avenue, Lakewood, CA	No
LA-11429	***McKenna, Jeanette A.***	***2011***	***Archaeological/Cultural Resources Records Search, City of Lakewood Overview***	***Yes***
LA-12666	Fulton, Terri/ LSA Associates, Inc.	2014	Cultural Resource Assessment Class I Inventory Verizon Wireless Services Tanglewood Facility, City of Lakewood, Los Angeles County, California	No

Previously Recorded Cultural Resources within the Study Area

The CHRIS records search also identified two previously recorded cultural resources located within one-mile radius of the Proposed Project site. None of these resources were mapped within the Proposed Project site. The results are summarized below in Table 2 and are also illustrated in confidential Attachment 3.

Table 2. Previously Recorded Cultural Resources Within a One-Mile Radius of the Proposed Project site

Primary Number	Trinomial	Resource Type	Recorded by and Year Recorded	Resource Description	Within Project site?
P-19-187655	-	Historic Building	2004 (J. Marvin & S. Carmack, LSA)	First United Methodist Church	No
P-19-187655	-	Historic Building	2004 (J. Marvin & S. Carmack, LSA)	Saint Timothy Lutheran Church	No

Background Research Results

Based on the background research and SCCIC records search results, none of these previously recorded cultural resources are documented within the Proposed Project site. However, the Lakewood High School campus itself possesses buildings that have been determined to be eligible for listing on the National Register of Historic Places (NRHP). LBUSD prepared a districtwide Cultural Resources Assessment to assess all potential cultural resources, both historic and prehistoric, located within all District campuses and facilities. According to the districtwide assessment, Lakewood High School is eligible for listing on the NRHP (PCR 2015).

As originally constructed, Lakewood High included three classroom buildings, an auditorium seating 1,800, physical education, industrial arts, and cafeteria buildings and a combination administration and library unit. Modifications and

additional buildings and other infrastructure have been added to the site, including portable building since that date. Gibbs drafted Lakewood High School within the post-World War II Modern architecture style. The features of the Post-World War II Modern style are one-story; flat or shed roofed, often with cantilevered overhangs, stucco or brick exterior, modular planning, classrooms with glass walls on one side and clerestory windows on the opposite side, incorporation of outdoor classrooms, and exterior corridors with roofs supported by pipe columns. Lakewood High School is eligible for the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR) under Criterion 3 as a representative example of a Post-War Modern style school campus and as the work of architect Hugh Gibbs. PCR Services identified eight buildings that contributed to the historic significance of the resource (Buildings 1000, 2000, 4000, 5000, 6000, 8000 9000, and 10000) (PCR 2015).

NAHC SLF Search

Chambers Group submitted a request for a search of the SLF records housed at the California NAHC on July 12, 2022. The results of the search were returned on August 24, 2022, and were negative. The NAHC response provided contact information for the nine tribes that may have information on cultural resources on the Project site.

The NAHC provided a list of 12 contacts, representing nine tribal governments, who may have knowledge of cultural resources near the Project Site (Attachment A). The nine Native American tribal governments identified by the NAHC include the:

- Gabrieleño Band of Mission Indians - Kizh Nation
- Gabrielino - Tongva Indians of California Tribal Council
- Gabrieleno - Tongva San Gabriel Band of Mission Indians
- Gabrielino/ Tongva Nation
- Gabrielino - Tongva Tribe
- Juaneño Band of Mission Indians Acjachemen Nation Belardes
- Juaneño Band of Mission Indians Acjachemen Nation - 84A
- Santa Rosa Band of Cahuilla Indians
- Soboba Band of Luiseño Indians

Due to both the negative SLF results and the phase of the Proposed Project, no NAHC scoping notification letters have been sent to the Native American contacts provided by the NAHC with the SLF results.

Additionally, LBUSD has an on-going consultation agreement under AB 52 with Tribal Governments of the Gabrieleno/Tongva San Gabriel Band of Mission Indians, the Gabrieleño Band of Mission Indians – Kizh Nation, and the Torres Martinez Desert Cahuilla Indians. The AB 52 process was engaged by the District with notification letters sent on out to these three Tribal Government contacts on March 15, 2023.

AB 52 Consultation

AB 52 was enacted in 2015 (Chapter 532, Statutes of 2014), requiring an update to Appendix G (Initial Study Checklist) of the CEQA Guidelines to include questions related to impacts to tribal cultural resources (Public Resources Code [PRC] § 21074), and establishing a formal consultation process for California tribes within the CEQA process (PRC § 21080.3.1, 21080.3.2). The bill specifies that any project may affect or cause a substantial adverse change in the significance of a tribal cultural resource would require a lead agency to "begin consultation with a California Native American tribe that is traditional and culturally affiliated with the geographic area of the proposed project." Public Resources Code § 21074 defines "tribal cultural resources" (TCR) as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is either listed on or eligible for the California Register of Historical Resources or a local historic register, or if the lead agency chooses to treat the resource as a tribal cultural resource. As a Lead Agency, LBUSD is required to conduct AB 52 consultation with requesting tribal groups on a government-to-government basis.

PRC § 21074 defines a resource as a TCR if it meets either of the following criteria:

1. sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe that are listed, or determined to be eligible for listing, in the national or state register of historical resources, or listed in a local register of historic resources; or
2. a resource that the lead agency determines, in its discretion, is a tribal cultural resource

As of the date of this report, Chambers Group understand that AB 52 consultation between LBUSD and requesting tribal governments with respect to the Project have only just begun with notification letters sent out on March 15, 2023. If consultation is requested, this report can be supplemented with the results if requested by LBUSD.

Survey Methodology

Chambers Group conducted a field Survey on November 2, 2022. The Survey was conducted by Cultural Resource Specialist Ken Hazlett. LBUSD's Planning Project Manager Ferdows Fazeli, Klienfelder Architectural Historian Justin Castells, and Chambers Group Planner Dustin Keogh were also present for the site visit. The Survey was performed by conducting a detailed visual inspection of the entirety of the Proposed Project site as it pertains to the proposed plans. This was done by walking the Project site starting the survey from the north end of the Project site area west of the football field near Centralia Street, to the south end of the Proposed Project Site where the tennis courts are located, and lastly to the southwest section of the Project site that currently contains the softball field located along Harvey Way. Where visible soils were present, the area was thoroughly inspected for visible signs of cultural resources.

Survey Results

The Survey resulted in no new cultural resources observed or recorded within the Proposed Project site. The Survey was completed as required, providing a full visual inspection of the existing built environment of the Proposed Project site, and inspection of the conditions present at time of the survey. Visibility over the Proposed Project site was almost entirely obscured with the development of existing athletic buildings and associated outdoor athletic facilities.

The Project site presently contains an open field containing two diagonally opposite softball fields. The field was subject to visual inspection involving east-west transects of no greater than 10-meter intervals and working from north to south. Soils consisted of highly compacted medium brown sandy loamy clay. Unobscured soil visibility was approximately 10 percent. A patchwork of three to four species of grasses and clovers provides ground cover for the softball fields, all of which were manicured to a height not exceeding three inches, allowing for very good surface visibility (Photographs 2 and 3).

No new cultural resources were observed during the Survey.

It should be noted that ground surface visibility was almost completely obscured due to the vast majority of the Proposed Project site being covered with a well-maintained outdoor athletic field currently utilized for softball. Given the historic age of the original Lakewood High School development, there is potential that cultural resource surface deposits may be present underlying the existing development. Thus, it remains undetermined if cultural resources are present within the Proposed Project site at subsurface depths which may be disturbed by the Proposed Project.

Conclusions and Recommendations

Although background research and Survey has been completed with no new discoveries, as noted above, the soil surface visibility was almost entirely impeded by the existing development. Based on the limited ground surface visibility, the historic nature of the Lakewood High School structures and the existence of previously recorded prehistoric and historic resources within the one-mile study area around the Proposed Project site, new resources still have potential to be discovered in or near the Project site. Due to the demonstrated sensitivity of the area, we recommend the following mitigation measures be implemented.

MM CUL-1 LBUSD shall retain the services of a qualified cultural resources consultant and require that all initial ground disturbing work be monitored by a cultural resources monitor. This includes all initial construction activities that will potentially expose or encounter intact subsurface sediments underlying the Project site. The cultural resources consultant shall provide a Qualified Archaeologist, meeting the Secretary of the Interior Standards (U.S. Department of the Interior, 2008), and require that all initial ground-disturbing work be monitored by cultural resources monitor (monitor) proficient in artifact and feature identification in monitoring contexts. The Consultant (Qualified Archaeologist and/or monitor) shall be present at the Project construction phase kickoff meeting.

MM CUL-2 Prior to commencing construction activities and thus prior to any ground disturbance in the Proposed Project site, the Consultant shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at the outset of the Project construction work phase, for which the lead contractor and all subcontractors shall make their personnel available. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to cultural resources and maintain environmental compliance and be performed periodically for new personnel coming on to the Project as needed.

MM CUL-3 The contractor shall provide the Consultant with a schedule of initial potential ground disturbing activities. A minimum of 48-hours' notice will be provided to the archaeological consultant of commencement of any initial ground disturbing activities that have potential to expose or encounter intact subsurface sediments underlying the Project site. These activities may include grading, trenching, and mass excavation.

As detailed in the schedule provided, a monitor shall be present onsite at the commencement of ground-disturbing activities related to the Project. The Consultant shall observe initial ground disturbing activities and, as they proceed, adjust the monitoring approach as needed to provide adequate observation and oversight. All monitors will have stop-work authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations as an ongoing reference resource and to provide a resource for final reporting upon completion of the Project.

The Consultant, and the lead contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the Consultant is aware of all ground disturbing activities in advance in order to provide appropriate oversight.

MM CUL-4 In addition to cultural resources monitoring, if formally requested during Native American Consultation under AB 52, a Native American monitor(s) selected by the tribe should be present at the Project kickoff meeting, be provided with a schedule of initial ground disturbing activities, and be onsite at the commencement of ground-disturbing activities related to the Project, and as the Project proceeds adjusting personnel and schedule as needed to provide sufficient oversight. The Consultant, lead contractor, and all subcontractors shall routinely update the Native American monitor and their scheduling representative(s) regarding scheduling for ground disturbing activities, and changes to said schedule, such that there is sufficient advance notice that a Native American monitor can be scheduled accordingly.

MM-CUL-5 If cultural resources are discovered, construction shall be halted within 50 feet of any cultural artifacts or features and within 100 feet of any potential human remains and shall not resume until the Qualified Archaeologist can determine the significance of the find and/or the find has been fully investigated, appropriately documented, and cleared.

MM CUL-6 At the completion of all ground disturbing activities, the Consultant shall prepare a Cultural Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds, as well as providing follow-up reports of any finds to the SCCIC, as required.

HUMAN REMAINS – LEGAL REQUIREMENTS

In the event that human remains are discovered during ground-disturbing activities, then the Proposed Project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98 (NPS 1983).If human remains are found during ground-disturbing activities, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Los Angeles County Medical Examiner-Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the Los Angeles County Medical Examiner-Coroner shall be notified immediately. If the human remains are determined to be prehistoric, the Medical Examiner-Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials (NPS 1983).

Sincerely,

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Eduvijes Davis-Mullens
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Attachments

Attachment 1: Project Survey Photographs
Attachment 2: NAHC SLF Records Search Results Letter
Attachment 3: CONFIDENTIAL; Figure 2: Record Search Results Map

References

Bean, Lowell J., and Florence C. Shipek
1978 Luiseño. In *California,* edited by Robert F. Heizer, pp. 550-563. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Bean, Lowell J., and Charles R. Smith
1978 Gabrielino. In *California,* edited by Robert F. Heizer, pp. 538-549. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Byrd, Brian F., and L. Mark Raab
2007 Prehistory of the Southern Bight: Models for a New Millennium. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 215-228. Altamira Press, New York.

California Office of Historic Preservation (OHP)
1995 Historic Properties Directory. State of California: Sacramento

Erlandson, Jon M.
1994 *Early Hunter-Gatherers of the California Coast*. Plenum Press, New York

Harrington, John P.
n.d. *Gabrielino Vocabulary* (General) Recorded by J. P. Harrington from Jose Maria Zalvideo and Santos Kuhn. Lummis Collection MS 970.69(34). On file at Southwest Library and Museum, Highland Park, Los Angeles.

Jones, Terry L., and Kathryn A. Klar, editors
2007 *California Prehistory: Colonization, Culture, and Complexity*. AltaMira Press, Lanham, Maryland.

Koerper Henry C., and Christopher E. Drover
1983 Chronology Building for Coastal Orange County: The Case from CA-ORA-119-A. *Pacific Coast Archaeological Society Quarterly* 19(2):1-34.

Koerper Henry C., and Roger D. Mason
2004 The Late Prehistoric Coastal Orange County Hokan Hypothesis: A Commentary. *Journal of California and Great Basin Anthropology* 24(2):259-288.

Koerper Henry C., Roger D. Mason, and Mark L. Peterson
2002 Complexity, Demography, and Change in Late Holocene Orange County. In *Catalysts to Complexity: The Late Holocene on the California Coast*, edited by Jon M. Erlandson and Terry L. Jones, pp. 63–81. Institute of Archaeology, University of California, Los Angeles.

Kroeber, Alfred L.
1925 Handbook of the Indians of California. *Bureau of American Ethnology Bulletin* 78. Washington, D.C.

Mason, Roger D., and Mark L. Peterson
1994 *Newport Coast Archeological Project: Newport Coast Settlement Systems, Analysis and Discussion*, Volume I. Prepared for Coastal Community Builders, Newport Beach. The Keith Companies Archaeological Division, Costa Mesa. On file, Chambers Group, Inc., Irvine.

McCawley, William
1996 *The First Angelinos: The Gabrielino of Los Angeles*. Malki Museum Press. The University of Michigan.

Moratto, Michael J.
1984 *California Archaeology.* Academic Press, San Diego.

National Park Service (NPS)
1983 *Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines*. 48 Federal Register 44716-42.

PCR Services
2015 *Cultural Resources Assessment for Long Beach Unified School District*. Prepared by PCR Services for Long Beach Unified School District.

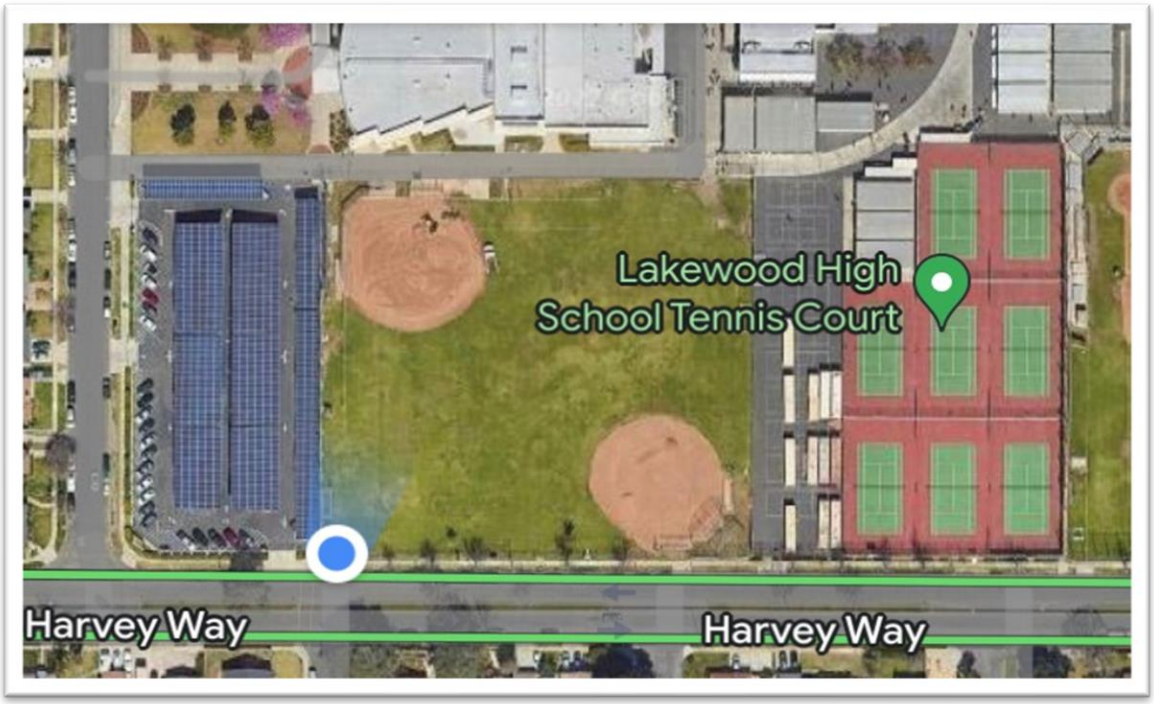
U. S. Geological Survey (USGS)
1964 Geologic Map of the *Los Alamitos* 7.5-Minute Quadrangle, California.

Wallace William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11(3):214-230.

1978 Post-Pleistocene Archaeology, 9000 to 2000 B.C. In *California,* edited by R. F. Heizer. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Warren, Claude N.
1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. In Archaic Prehistory in the Western United States, edited by C. Irwin-Williams. *Eastern New Mexico Contributions in Anthropology* 1(3):1-14. Portales.

ATTACHMENT 1: CULTURAL RESOURCES SURVEY PHOTOGRAPHS



Photograph 1: Location of Photo 8 and 9 (plan view).



Photograph 2: Overview of softball field on Proposed Project site from southwest corner. View to the east.



Photograph 3: Overview of softball field on Proposed Project site from southwest corner. View to the north.

ATTACHMENT 2: NAHC SLF RECORDS SEARCH RESULTS LETTER

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
Karuk

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok/Nisenan

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August 24, 2022

Eduvijes Davis-Mullens
Chambers Group, Inc.

Via Email to: emullens@chambersgroupinc.com

Re: Lakewood High School Aquatic Center (21366) Project, Los Angeles County

Dear Ms. Davis-Mullens:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Los Angeles County
8/24/2022

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., Gabrielino
#231
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

Gabrielino Tongva Indians of California Tribal Council
Christina Conley, Tribal
Consultant and Administrator
P.O. Box 941078 Gabrielino
Simi Valley, CA, 93094
Phone: (626) 407 - 8761
christina.marsden@alumni.usc.edu

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Joyce Perry, Tribal Manager
4955 Paseo Segovia Juaneno
Irvine, CA, 92603
Phone: (949) 293 - 8522
kaamalam@gmail.com

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Matias Belardes, Chairperson
32161 Avenida Los Amigos Juaneno
San Juan Capisttrano, CA, 92675
Phone: (949) 293 - 8522
kaamalam@gmail.com

Juaneno Band of Mission Indians Acjachemen Nation 84A
Heidi Lucero, Chairperson
31411-A La Matanza Street Juaneno
San Juan Capistrano, CA, 92675
Phone: (562) 879 - 2884
hllucero105@gmail.com

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 Cahuilla
San Jacinto, CA, 92581 Luiseno
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Lakewood High School Aquatic Center (21366) Project, Los Angeles County.

Native American Heritage Commission
Native American Contact List
Los Angeles County
8/24/2022

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487
San Jacinto, CA, 92581
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Cahuilla
Luiseno

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Lakewood High School Aquatic Center (21366) Project, Los Angeles County.

PROJ-2022-004973 | 08/24/2022 10:40 AM | 2 of 2

PHASE II INTENSIVE HISTORIC ASSESSMENT REPORT IN SUPPORT OF THE LAKEWOOD HIGH SCHOOL AQUATIC CENTER PROJECT CITY OF LAKEWOOD, CALIFORNIA KLEINFELDER PROJECT # 20231449.001A

February 2023

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ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Long Beach Unified School District
1515 Hughes Way
Long Beach, California 90810

On behalf of:

Chambers Group
5 Hutton Centre Drive, Suite 750
Santa Ana, California 92707

PHASE II INTENSIVE HISTORIC ASSESSMENT REPORT
IN SUPPORT OF THE LAKEWOOD HIGH SCHOOL AQUATIC CENTER PROJECT
CITY OF LAKEWOOD, CALIFORNIA

Prepared by:
Justin Castells, M.A.
Senior Architectural Historian

KLEINFELDER
770 First Avenue, Suite 400
San Diego, California 92101
Phone: 619.831.4600
Fax: 619.232.1039

February 2023
Kleinfelder Project No. 20231449.001A

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MANAGEMENT SUMMARY

In 2017 PCR Services Corporation (PCR Services) prepared the District-Wide Historical Resources Assessment for Long Beach Unified School District (District-Wide Historical Resources Assessment) (PCR Services 2017). The goal of the District-Wide Historical Resources Assessment was to assist the Long Beach Unified School District (LBUSD) to comply with the historical resources requirements of the California Environmental Quality Act (CEQA) when applicable and to implement practical approaches to preserving culturally significant resources whenever possible. The District-Wide Historical Resources Assessment stipulated compliance activities for potential changes to Lakewood High School (Lakewood HS). This Phase II Intensive Historic Resource Assessment report is prepared in compliance with Compliance Activity B as required by the District-Wide Historical Resources Assessment.

As part of the District-Wide Historical Resources Assessment, PCR Services recommended that Lakewood HS is eligible for the National Register of Historic Places (NRHP) under Criterion C and the California Register of Historic Resources (CRHR) under Criterion 3 as an excellent representative example of a Post - War Modern style school designed by Hugh Gibbs during an era of unprecedented growth in Long Beach. PCR Services identified eight buildings that contributed to the historic significance of the resource: Buildings 100, 200, 300, 400, 500, 600, 700, and 900 (Appendix A). PCR Services also identified the associated landscaping as a contributing element of the resource. The numbering of the buildings has subsequently changed:

Building Numbering in District-Wide Historical Resources Assessment and Associated DPR Forms	**Building Numbering in Project Plans**
100	1000
200	2000
300	10000
400	8000
500	9000
600	5000
700	4000
900	6000

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LBUSD proposes the construction of a new aquatics center on the campus of Lakewood HS (Project). The purpose of Kleinfelder's investigation is to assess what potential impacts the proposed Project may have to the character-defining features of Lakewood HS (Appendix B).

Kleinfelder's senior architectural historian reviewed available Project plans and completed a site visit in November 2022 (Appendix C) to assess the potential impacts of the Project on Lakewood HS. Based on a review of available Project plans and the scope of the proposed Project, it does not appear that the Project will result in the significant modification or destruction of the character-defining features of Lakewood HS. Further, the location of the proposed Project is sufficiently removed from the vicinity of the contributing buildings to avoid having any adverse visual impact to the resource.

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1 DISTRICT-WIDE HISTORICAL RESOURCES ASSESSMENT FOR LONG BEACH UNIFIED SCHOOL DISTRICT

This Phase II Intensive Historic Resource Assessment report has been prepared in compliance with Compliance Activity B as required by the District-Wide Historical Resources Assessment for Long Beach Unified School District (District-Wide Historical Resources Assessment) prepared by PCR Services Corporation (PCR Services) in 2017.

The District-Wide Historical Resources Assessment stipulated that the following Compliance Activities be completed for Lakewood HS:

- B. Perform Phase II Intensive Historic Resources Assessments
  Document character-defining features; review detailed scopes of work with Architect; provide written guidance in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties; assessment of potential impacts for California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) compliance.

- C. Preservation Advice
  Attend meetings with Architect and/or District as required; review plans at concept, preliminary, and final design; prepare CEQA Compliance Letter; attend pre-construction meetings/critical stage construction review.

The goal of the District-Wide Historical Resources Assessment was to assist the Long Beach Unified School District (LBUSD) to comply with the historical resources requirements of CEQA when applicable and to implement practical approaches to preserving culturally significant resources whenever possible. As part of the District-Wide Historical Resources Assessment, PCR Services recommended that Lakewood High School (Lakewood HS) is eligible for the National Register of Historic Places (NRHP) under Criterion C and the California Register of Historic Resources (CRHR) under Criterion 3 as an excellent representative example of a Post-War Modern style school designed by Hugh Gibbs during an era of unprecedented growth in Long Beach (Appendix A).

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2 LAKEWOOD HIGH SCHOOL

PCR Services recommended that Lakewood HS is eligible for the NRHP under Criterion C and the CRHR under Criterion 3 a as an excellent representative example of a Post-War Modern style school designed by Hugh Gibbs during an era of unprecedented growth in Long Beach. The period of significance is 1954–1964, the period covering the construction to the opening of the school.

2.1 CHARACTER-DEFINING FEATURES OFLAKEWOOD HIGH SCHOOL

Based on the assessment made by PCR Services of the Lakewood HS campus, eight buildings were identified as contributors to the historic significance of the campus: Buildings 100 (1000), 200 (2000), 300 (10000), 400 (8000), 500 (9000), 600 (5000), 700 (4000), and 900 (6000) as well as associated landscaping. The following are considered the exterior character-defining features of Lakewood HS.

2.1.1 Building 100 (1000)

Building 100 (1000) is a one-story Post-War Modern style building constructed in 1955. It is used as the Administration and Library Building. Character-defining features of this building include:

- Rectangular plan and massing
- Side gable roof
- Wide boxed overhang
- Cantilevered concrete roof
- Brick and stucco exterior surface
- Aluminum-frame single-pane fixed and awning ribbon windows with colored panels underneath
- Windows set flush in the exterior wall

2.1.2 Building 200 (2000)

Building 200 (2000) is a two-story Post-War Modern style building constructed in 1955. Character-defining features of this building include:

- Rectangular plan and massing
- Flat roof
- Wide, boxed overhang
- Painted concrete surface
- Aluminum-frame single-pane fixed windows

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2.1.3 Building 300 (10000)

Building 300 (10000) is a two-story Post-War Modern style building constructed in 1955. Character-defining features of this building include:

- Rectangular plan and massing
- Flat roof
- Wide, boxed overhang
- Brick and stucco exterior surface
- Extension of brick wall beyond building
- Main entrance breezeway into campus set underneath cantilevered second story
- Aluminum-frame single-pane fixed and awning ribbon windows with colored panels underneath
- Windows set flush with exterior wall

2.1.4 Building 400 (8000)

Building 400 (8000) is a two-story Post-War Modern style building constructed in 1955. Character-defining features of this building include:

- Rectangular plan and massing
- Flat roof
- Wide, boxed overhang
- Painted concrete surface
- Aluminum-frame single-pane fixed windows

2.1.5 Building 500 (9000)

Building 500 (9000) is a two-story Post-War Modern style building constructed in 1955. The building features a basement. Character-defining features of this building include:

- Asymmetrical plan
- Massing
- Flat roof
- Concrete panel surface with exposed pebble aggregate and unornamented brick (west elevation)
- Painted concrete surface on north, south, and east elevations
- Concrete gable canopy over primary entrance
- Aluminum-frame single-pane entrance doors on west elevation

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2.1.6 Building 600 (5000)

Building 600 (5000) is a one- and two-story Post-War Modern style building constructed in 1955. Character-defining features of this building include:

- Asymmetrical plan
- Massing
- Flat roof
- Various roof heights
- Brick and painted concrete surfaces
- Clerestory aluminum-frame single-pane windows
- Cantilevered covered walkway in front of primary entrance

2.1.7 Building 700 (4000)

Building 700 (4000) is a one-story Post-War Modern style building constructed in 1955. Character-defining features of this building include:

- U-shaped plan
- Massing
- Flat roof
- Brick, painted brick, and painted concrete surfaces
- Aluminum-frame single-pane fixed and awning windows
- Central landscaped courtyard

2.1.8 Building 900 (6000)

Building 900 (6000) is a two-story Post-War Modern style building constructed in 1964. Character-defining features of this building include:

- Rectangular plan
- Massing
- Flat roof
- Wide, boxed overhang
- Unornamented brick surface
- Aluminum-frame single-pane fixed and hopper windows with colored panels underneath
- Cantilevered second floor

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3 POTENTIAL EFFECTS ON CHARACTER-DEFINING FEATURES

According to CEQA, in the case of historic built environment resources, a significant impact is a substantial adverse change to the historic integrity of a resource. A substantial adverse change includes demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired. A project that has been determined to conform with the Secretary of the Interior's Standards for the Treatment of Historic Properties (SOI Standards) can generally be considered not to cause a significant impact (14 California Code of Regulations Section 15126.4(b)(1)).

LBUSD proposes the construction of a new aquatics center on the campus of Lakewood HS (Project). Kleinfelder's senior architectural historian reviewed available Project plans (Appendix B) and completed a site visit in November 2022 (Appendix C) to assess the potential impacts of the Project on Lakewood HS. Lakewood HS features eight buildings that exhibit character-defining features that contribute to the historic integrity of this resource: Buildings 100 (1000), 200 (2000), 300 (10000), 400 (8000), 500 (9000), 600 (5000), 700 (4000), and 900 (6000) as well as associated landscaping. Based on a review of available plans and the scope of the proposed Project, it does not appear that the Project will result in the significant modification or destruction of the character-defining features of these eight buildings. No elements of the proposed Project include any physical modification to the buildings. Further, the Project footprint is entirely located within existing hardscape and an existing softball field, neither of which is part of the contributing landscaping from the period of historical significance.

The SOI Standards stipulate that new construction in or adjacent to historic properties should be built in a manner that protects the integrity of the historic building(s) and the property's setting. The massing, size, scale, and architectural features of new construction on the site of a historic building must be compatible with those of the historic building. When visible and in close proximity to historic buildings, the new construction must be subordinate to these buildings. New construction should also be distinct from the old and must not attempt to replicate historic buildings elsewhere on the site to avoid creating a false sense of historic development.

The design of the aquatic center is distinct from the historic resource and does not attempt to create a false sense of history by replicating the design of the contributing elements. The aquatic center will be constructed in an area on the periphery of the campus and will not disrupt the relationship of the contributing buildings with each other or the original landscape design of the property. The aquatic center's placement is removed from the contributing elements of the resource, reducing the potential for the proposed Project to have an adverse effect on the resource. Due to the density of the built

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environment on the campus and the proposed construction area, the aquatic center will only be potentially visible from Buildings 500 (9000) and 600 (5000) and only from secondary elevations of the resource. The placement of the aquatic center will partially obstruct the view of the campus from the public right-of-way on Harvey Way; however, it will not obstruct any primary elevations or significant character-defining features. The view of the resource from the public right-of-way from Briercrest Avenue, where the primary elevations of Buildings 100 (1000), 300 (10000), and 500 (9000) are visible, will not be obstructed. The potential for an adverse effect is further reduced because, based on the historical assessment by PCR Services, the viewshed is not considered a character-defining feature of the resource. Regardless, the placement of the aquatic center will not obscure the view of primary elevations of the contributing elements of the resource from the public right-of-way, and the new construction is sufficiently removed from the contributing buildings to further reduce potential impact to the resource.

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4 CONCLUSION AND RECOMMENDATIONS

Based on a review of available Project plans and the scope of the proposed Project, it does not appear that the Project will result in the significant modification or destruction of the character-defining features of Lakewood HS. Further, the location of the proposed Project is sufficiently removed from the vicinity of the contributing buildings to avoid any adverse visual impact to the resource. Therefore, based on the current Project description, the Project will not result in a substantial adverse change that would impair the historic significance of Lakewood HS. Should the Project design change, further review may be necessary to assess the potential to cause a significant impact to Lakewood HS.

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5 REFERENCES CITED

PCR Services

2017 *District-Wide Historical Resources Assessment for Long Beach Unified School District.* Prepared by PCR Services for Long Beach Unified School District.

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6 PREPARER'S QUALIFICATIONS

This report was prepared by Kleinfelder Senior Architectural Historian Justin Castells, Master of Arts (M.A.).

Mr. Castells is an Architectural Historian who exceeds the Secretary of the Interior's Professional Qualification Standards in architectural history and history. He has a M.A. degree in history and over 16 years of professional experience in historic preservation and cultural resources management. Mr. Castells has worked on assessments for properties based on local, CRHR, and NRHP criteria. He has prepared technical reports in compliance with the NEPA, CEQA, and Section 106 of the National Historic Preservation Act (Section 106) including Environmental Impact Studies/Environmental Impact Reports, Department of Parks and Recreation (DPR) 523 series forms, Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) documentation, historic preservation plans, and cultural landscape reports. He has completed work for various federal, state, and local agencies, including the Federal Emergency Management Agency (FEMA), California High Speed Rail Authority, California Department of Transportation (Caltrans), as well as numerous private clients.

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APPENDIX A

DEPARTMENT OF PARKS AND RECREATION 523 FORMS

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # 653
HRI #
Trinomial
NRHP Status Code 3S, 3CS
Other Listings
Review Code _____ **Reviewer** _____ **Date** _____

Page 1 of 8 **Resource Name or #:** (Assigned by recorder) *653 Lakewood*

P1. Other Identifier: *Lakewood High School*

P2. Location: ☑ Not for Publication ☑ Unrestricted **a. County** *Los Angeles*

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

b. USGS 7.5' Quad **Date** **T** ; **R** ; **1/4 of** **1/4 of Sec** ; **B.M.**

c. Address: *4400* *Briercrest Avenue* City *Lakewood* Zip *90713*

d. UTM: (Give more than one for large and/or linear resources) Zone ; mE/ mN

e. Other Locational Data (e.g. Parcel #, directions to resource, elevation, etc., as appropriate)

Parcel No. *7178-004-900*

P3 Description: (Describe resources and its major elements. Include design, materials, condition, alterations, size, and boundaries)

Lakewood High School is sited a block bounded Briercrest Avenue to the west, Lomina Avenue to the east, Centralia Street to the north, and Harvey Way to the south. The primary buildings, Buildings 100 and 300, face west towards Briercrest Avenue. Designed in the Post War Modern style by Hugh Gibbs circa 1954, the contributing buildings include 100, 200, 300, 400, 500, 600, 700, 900, and also includes the entire site plan.

Building 300 is two-story; Post War Modern style; rectangular plan and massing; flat roof; wide, boxed overhang; asymmetrical; brick and stucco exterior surface; extension of brick wall beyond building; main entrance breezeway into the campus set underneath cantilevered second-story; aluminum-frame single-pane fixed and awning ribbon windows with colored panels underneath; windows set flush with the exterior wall.

P3b. Resource Attributes: (List attributes and codes) *HP15. Educational building*

P4. Resources Present: ☑ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)



P5b Description of Photo:
(View, date, accession #)
View East, 2012

P6. Date Constructed/Age and Sources:
☐ Prehistoric ☑ Historic ☐ Both
circa 1957

P7. Owner Address:
Long Beach Unified School District
1515 Hughes Way
Long Beach, CA 90810

P8. Recorded by:
(Name, affiliation, and address)

PCR Services
233 Wilshire Blvd., Suite 130
Santa Monica, CA 90401

P9. Date Recorded: *6/1/2015*

P10. Survey Type: (Describe)
Pedestrian Reconnaissance Survey

P11. Report Citation: (Cite survey report and other sources, or enter "none.")
Long Beach Unified School District District-Wide Cultural Resources Assessment

Attachments:
☐ NONE ☑ Continuation Sheet ☐ District Record ☐ Rock Art Record
☐ Location Map ☑ Building, Structure, and Object Record ☐ Linear Feature Record ☐ Artifact Record
☐ Sketch Map ☐ Archaeological Record ☐ Milling Station Record ☐ Photograph Record
☑ Other: (List) site plan

BUILDING, STRUCTURE, AND OBJECT RECORD

NRHP Status Code: *3S, 3CS*

Resource Name or #: (Assigned by recorder) *653 Lakewood*

B1. Historic Name: *Lakewood High School*

B2. Common Name *Lakewood*

B3. Original Use: *High School* B4. Present Use: *High School*

B5. Architectural Style: *Post War Modern*

B6. Construction History: (Construction date, alterations, and date of alterations)

In 1954, Lakewood High was designed by Hugh Gibbs, architect and constructed by Gust K. Newberg Construction Company, contractors. Originally Lakewood High included three classroom buildings, an auditorium seating 1,800, physical education, industrial arts, and cafeteria buildings and a combination administration and library unit. When Lakewood High opened in September 1957, it was the first new high school to be built in LBUSD in twenty-one years. Millikan High was also designed using the same plan. The landscape was designed by Eckbo, Royston and Williams circa 1954.

B7. Moved? ☑ **No** ☐ **Yes** ☐ **Unknown** **Date:** **Original Location:** *Yes*

B8. Related Features:

B9a. Architect: *Hugh Gibbs (1955); Eckbo, Royston and Williams (1954)* B9b. Builder: *Gust K. Newberg Const Co (1955)*

B10. Significance: Theme: *See Below* **Area** *Lakewood*

Period of Significance: *1954-1957* **Property Type** *School* **Applicable Criteria** *C, 3*

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Lakewood High School is an excellent representative of a Post-War Modern style school designed after WWII by Hugh Gibbs during an era of unprecedented growth in Long Beach. The period of significance is 1954, construction of Lakewood High and design of landscape, to 1957, opening of Lakewood High. The school was evaluated against the following theme: The Period of Accelerated Growth and Critical Decisions (1946-1968). Lakewood High buildings 100, 200, 300, 400, 500, 600, 700, and 900 and associated landscape appear eligible under Criterion C of the National Register and under Criterion 3 of the California Register. The school is a distinctive example of the Post-War Modern style designed by locally prominent architect Gibbs and landscape architects Eckbo, Royston and Williams as a cohesive campus and retains good integrity.

B11. Additional Resource Attributes: *HP15. Educational building*

B12. References:

A History: Long Beach Unified School District by Anton Thompson and Paul E. Teschke, Long Beach Telegram, LBUSD Architectural Drawings, AIA Historical Directory

B13. Remarks:

B14. Evaluator:

PCR Services
233 Wilshire Blvd., Suite 130
Santa Monica, CA 90401

Date of Evaluation: *6/1/2015*

(This space reserved for official comments.)



*Recorded by: PCR Services *Date: 6/1/2015 ☒ Continuation ☐ Update

P3a. Description (cont)

Building 100, Administration and Library Building



North and West Elevations, View Southeast (PCR 2012)

One-story; Post War Modern style; rectangular plan and massing; side-gable roof; wide, boxed overhang; asymmetrical; brick and stucco exterior surface; extension of brick wall beyond building; aluminum-frame single-pane fixed ribbon windows; aluminum-frame single-pane awning ribbon windows; windows set flush with the exterior wall.

Buildings 200 and 400

Two-story; Post War Modern style; rectangular plan and massing; flat roof; wide, boxed overhang; cantilevered concrete roof; asymmetrical; brick and stucco exterior surface; aluminum-frame single-pane fixed and awning ribbon windows with colored panels underneath; windows set flush with the exterior wall.

Cafeteria

One-story; Post War Modern style; rectangular plan and massing; flat roof; wide, boxed overhang; asymmetrical; painted concrete surface; aluminum-frame single-pane fixed windows

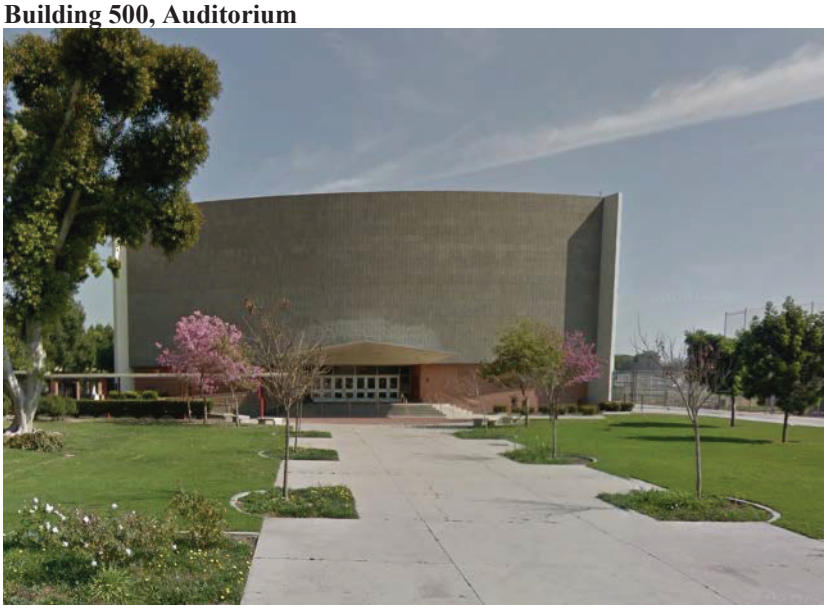
Building 600, Physical Education Building – Boys Gymnasium and Locker Room, Natatorium, Girls Gymnasium and Locker Room

One and two-story; Post War Modern style; asymmetrical shaped plan; rectangular massing; flat roof; various roof heights; brick and painted concrete surfaces; clerestory aluminum-frame single-pane windows; painted over single-pane windows (alteration);cantilevered covered walkway in front of primary entrance.

*Recorded by: PCR Services *Date: 6/1/2015 ☒ Continuation ☐ Update

P3a. Description (cont)

Building 500, Auditorium



West Elevation, View East (PCR 2012)

Two-story; Post War Modern style; asymmetrical shaped plan; rectangular massing; flat roof; surface of primary (west) elevation is panels of concrete with exposed pebble aggregate and unornamented brick surface, aluminum-frame single-pane main entrance doors set under concrete gable canopy; all other secondary surfaces painted concrete.

Building 700, Industrial Arts Building



North and West Elevations, View Southeast (PCR 2012)

One-story; Post War Modern style; u-shaped plan; rectangular massing; flat roof; brick. painted brick and painted concrete surfaces; aluminum-frame single-pane fixed and awning windows (some windows painted over, alteration); central landscaped courtyard.

*Recorded by: PCR Services *Date: 6/1/2015 ☒ Continuation ☐ Update

P3a. Description (cont)

Building 900



North and West Elevations, View Southeast (PCR 2012)

Two-story; Post War Modern style; rectangular plan and massing; flat roof; wide, boxed overhang; asymmetrical; unornamented brick surface; wall of aluminum-frame single-pane fixed and hopper windows with colored panels underneath; second-floor cantilevered; second-floor connected to second-floor of Building 300 by walkway. The plaza with concrete stage in front of the building to the north is an alteration.

*Recorded by: PCR Services *Date: 6/1/2015 ☒ Continuation ☐ Update

B10. Significance (cont)

The Period of Accelerated Growth (1946-1968)

After the construction hiatus caused by World War II, the outlying areas of Long Beach grew rapidly in the post-war climate, but many downtown areas suffered. LBUSD continued to erect new elementary, middle, and high schools in the outlying areas of Long Beach to accommodate the increasing population and resulting generation baby boomers. In 1947, LBUSD had an enrollment of 34,360 students in kindergarten through senior high school and found itself expanding at an even faster rate than post World War II. The district was faced with the challenge of housing an ever growing student enrollment. Solutions included four successful bond campaigns used to construct new campuses and enhance existing campuses with facilities, such as wood shops, home art rooms, cafeterias and assembly rooms, gymnasiums, swimming pools, and bleachers. Schools constructed during this period primarily displayed the midcentury modern styles that became the standard for schools during the second half of the twentieth century. Grounded in California's mild climate, the schools were primarily one-story schools, designed to open more easily to the outdoors, and provide open loggias and arcades for circulation.

During this era, LBUSD school officials authorized the construction of elementary school cafeterias with an auditorium to maximize spending. This double-purpose structure provided the school with two valuable facilities for the price of one. Dozens of cafeteria-auditorium building types were added to elementary schools across the district.

In 1955, Lakewood High School, designed by architect Hugh Gibbs, was the first high school constructed in the district in twenty-one years. Lakewood originally included three classroom buildings, an auditorium seating 1,800, physical education, industrial arts, and cafeteria buildings and a combination administration and library unit. The school officially opened to students in September 1957. Robert A. Millikan High School was also designed using the same plan. During this period, forty-three schools were constructed entirely or were added to from plans on file in the Project Division of the Board of Education. This practice of reusing plans saved LBUSD approximately $671,331 in architects' fees over a period of twelve years.

This period of tremendous constructed, ended with the erection of Nightingale, a special education school, designed by Edward Killingsworth, in 1957.

During the 1960s school new constructed in LBUSD slowed and eventually stopped. It appears there were no new schools constructed between the period of 1960 and 1987, with the exception of a few additions constructed on school campuses, such as Poly, Wilson, and Lindsey. In 1987, the first new school, Alvarado, was constructed in 1987. More than ten years later, the International School was constructed in 1998 by the prominent architecture firm Morphosis Architects. Also during the late 1980s and 1990s various LBUSD administrative and support office were constructed for Facilities and Maintenance (1988), Central Services (1988), Nutrition Services (1988), Personnel Commission (1989), and Administration (1996). Currently, the LBUSD Master Plan indicates an enrollment of just over 80,000 students in approximately 84 operating public schools in the cities of Long Beach, Lakewood, Signal Hill, and Avalon on Catalina Island.

*Recorded by: PCR Services *Date: 6/1/2015 ☒ Continuation ☐ Update

B10. Significance (cont)

Modern Era Schools (1946-1968)

After the construction hiatus caused by World War II, the International Style was adopted for schools, as pioneered by Viennese-born architect Richard Neutra in some Los Angeles area schools; the unfamiliar and plain design earned schools of this style the derogatory term "learning factories." The individual, architect-designed schools of the prewar era gave way to a period of postwar school design that reflected school district-level planning control and a nationwide trend toward standardization. The 1950s and 1960s saw the rise of predominantly one-story, open-plan Modern styles of architecture in Long Beach school construction. This style dispensed with the traditional two-story institutional model, thought to be unappealing and forbidding, in favor of schools of a more informal appearance. One-story design meant the elimination of the wasted space usually needed for corridors and stairwells, and easily accommodated expansion through the addition of new wings, separate structures or portable classrooms. Such ease of expansion was in keeping with the postwar baby boom and corresponding explosion of suburban development, where many of the new schools were necessarily located.

These schools were generally constructed where land was plentiful and are characterized by sprawling, low main buildings or clusters of buildings connected by covered walkways and possessing individual patios or open courtyards, encouraging air circulation and taking maximum advantage of the climate. It was postulated that such a layout was a descendant of the earliest Mission classrooms, held in rooms arranged about patios and under arcades. One-story buildings also substantially reduced the overall superstructure and consequent earthquake and fire risk, as access to the outdoors was readily available. Such architecture was primarily applied to grade schools, while two-story design was still favored for high schools.

Schools designed during this period in the Modern style include Charles Evans Hughes Middle School, Robert A. Millikan High School, and Beach (Nightingale) High School.

Post-World War II Modern

In the post-World War II period in America, Modern architecture became the predominant architectural style applied to buildings of every type. During the 1950s and 1960s, distinct and identifiable stylistic variants of Modernism evolved. The aesthetic closest to the 1920s origins of Modernism in Europe was dubbed the International Style and was identified by its rectilinear form, flat roofs, open floor plans, use of steel and glass, and lack of applied ornamentation. Local variants of Modern design, while based upon International Style tenets, were generally less formal in their expression of Modernist tenets with results that vary widely in terms of materials, form, and spatial arrangements. The features of the Post-World War II Modern style are one-story; flat or shed roofed, often with cantilevered overhangs, stucco or brick exterior, modular planning, classrooms with glass walls on one side and clerestory windows on the opposite side, incorporation of outdoor classrooms, and exterior corridors with roofs supported by pipe columns. District schools and buildings representative of the Post-World War II style include Charles Evans Hughes Middle School, Robert A. Millikan High School, Lakewood High School, and Beach (Nightingale) High School.

B10. Significance (cont)

Architect Hugh Gibbs (1911-1990)

Eligible LBUSD Schools: Robert A Millikan High School (1954-57), Lakewood High School (1954-57)

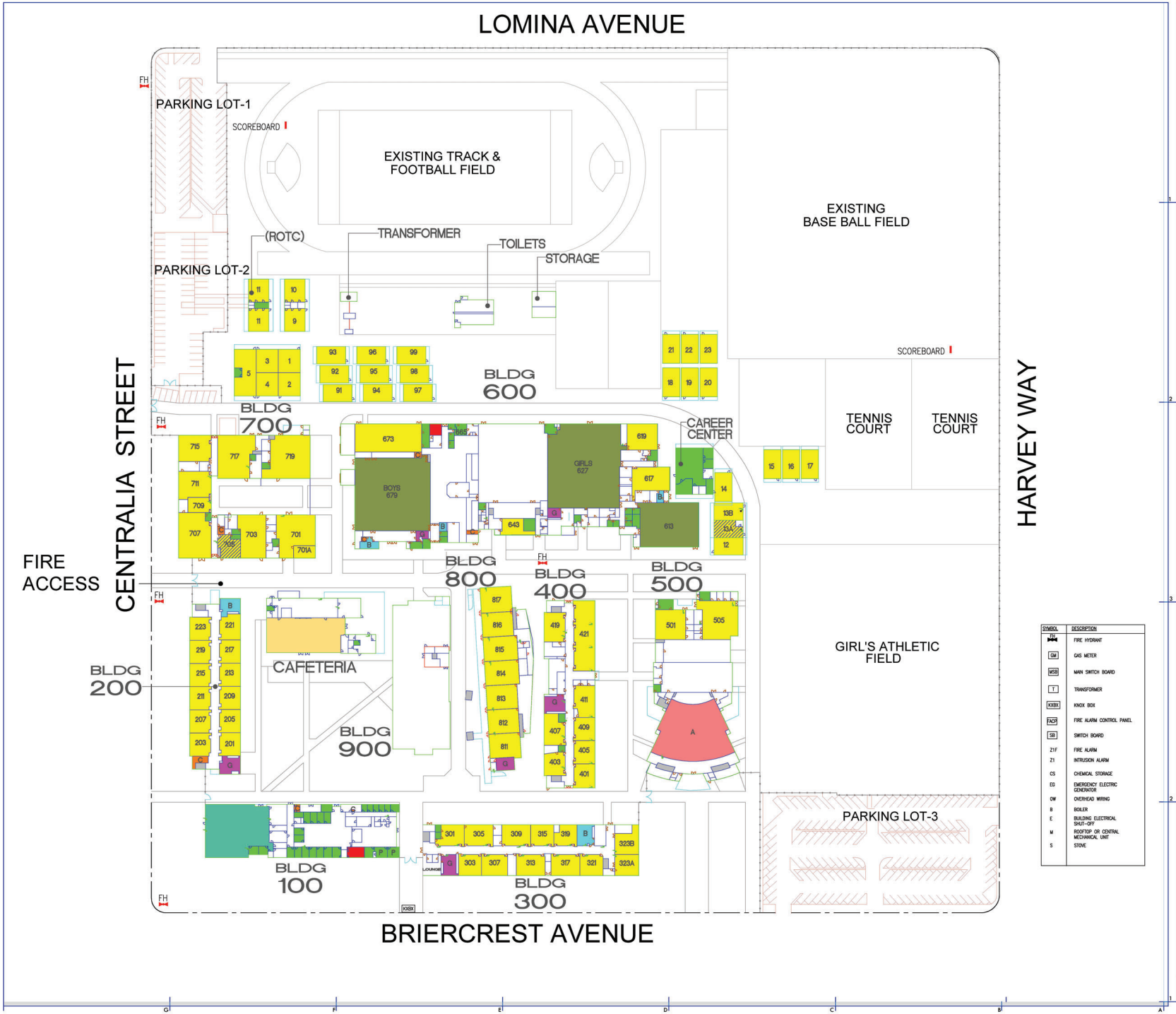
Born in San Francisco, Hugh Gibbs attended Long Beach Poly High School and USC School of Architecture. Between 1929 and 1931 Hugh Gibbs trained with four different architects, Kirkland Cutter, Long Beach (January 1929-October 1929); Hugh R. Davies, Long Beach (October 1929-December 1930); George D. Riddle, Long Beach (December 1930-May 1931); Hugh R. Davies (May 1931-May 1932). Beginning in September 1933, he worked for Miller and Gibbs for over ten years. His work was dedicated to schools, hospitals, office buildings, and apartment buildings. Significant projects include Petrolane Office Building, Long Beach (1968); Galaxy Apartment Building, Long Beach (1967); U.S. Naval Hospital, Long Beach (1967); "Thums" Office Building, Long Beach (1966); Ball, Hunt, Hart, and Brown Office Building, Long Beach (1966); John Brown Apartment Towers, Long Beach (1964); Portofino Apartment Building, Long Beach (1963); and Robert A. Millikan Senior High School, Long Beach (1957). In addition, he designed a number of Lunchroom/Assembly rooms for LBUSD schools at campuses including John C. Fremont Elementary School in 1950 and Abraham Lincoln Elementary School in 1949.

Landscape Architecture Firm Garrett Eckbo (1910-2000), Eckbo, Royston & Williams

Eligible LBUSD Schools: Robert A Millikan High School (1954), Lakewood High School (1954-57), James A. Garfield Elementary School (1949), Polytechnic High School (1952, 1954-1958), Nightingale School (1958)

Garrett Eckbo was an accomplished designer of campus landscapes. Among his best-known commissions are studies and designs for several University of California campuses, Loyola University in Los Angeles, Orange Coast College, Ambassador College, and the University of New Mexico. Some lesser-known campuses, however, include all of the schools in both the Whittier Public School District and the Long Beach Public School District, including elementary, junior high, high schools, and community colleges within the communities of Long Beach and Lakewood, CA. The firm of Garrett Eckbo, Robert Royston and Edward Williams was also responsible for the mid-1950s enlargement and reconfiguration of the Santa Monica High School landscape plan. At the time, the partnership of Eckbo, Royston and Williams was one of the most forward-looking, innovative and successful Modern landscape architectural firms in California.

Garrett Eckbo (b. November 28, 1910, d. May 15, 2000), received his training in landscape architecture at the University of California, Berkeley (B.S. 1935), and Harvard University (M.L.A. 1938). Early in his career he was a Landscape Architect for the Farm Security Administration, Central Valley, California. He was a Professor in the School of Architecture at the University of Southern California, 1948-1956; and Chair of the Department of Landscape Architecture, University of California, Berkeley, 1963-1969. He was a founding member of the Telesis group of architects, landscape architects and urban planners, along with Francis Violich. Edward Williams was the brother-in-law of Garrett Eckbo and founding partner in the firm Eckbo and Williams, Landscape Architects, when they were first established in Los Angeles, 1940-1945, and remained a principal partner with the firm throughout his career. Robert Royston joined the firm during the late 1940s. Among Eckbo's notable works are Central Park, and Community Centre, Project (1938); United States Housing Authority, Public Housing Landscape Plan, Project (1938); Farm Security Administration Housing, Woodville (1941); Marshall Hale House, Hillsborough, California (1947); the Alcoa Forecast Garden, Los Angeles (1958); University of Washington, Seattle, Faculty Club #2 (1958-1960); Shirley Todd House (1960); San Francisco Redevelopment Authority Diamond Heights Housing Project #3 (1962); Mar Vista House Renovation, Mar Vista, Los Angeles, California (1996); Franklin Delano Roosevelt Memorial, Washington, D.C. (1997); U.S. National Park Service, Signers Memorial, Washington, D.C.



SYMBOL	DESCRIPTION
FH	FIRE HYDRANT
GM	GAS METER
MSB	MAIN SWITCH BOARD
T	TRANSFORMER
KXBX	KNOX BOX
FACP	FIRE ALARM CONTROL PANEL
SB	SWITCH BOARD
Z1F	FIRE ALARM
Z1	INTRUSION ALARM
CS	CHEMICAL STORAGE
EG	EMERGENCY ELECTRIC GENERATOR
OW	OVERHEAD WIRING
B	BOILER
E	BUILDING ELECTRICAL SHUT-OFF
M	ROOFTOP OR CENTRAL MECHANICAL UNIT
S	STOVE

School Type Standards Color Legend

- AUDITORIUM
- BOYS TOILET
- CAFETERIA
- 84 CLASSROOMS
- 2 CR SPECIAL/RESOURCE
- CUSTODIAN
- FIRST AID / NURSE
- GIRLS TOILET
- GYM
- LIBRARY
- OFFICES
- ELEVATOR / STAIR
- COVERED AREAS

- DRINKING FOUNTAIN
- POWER POLE
- WATER METER
- MAN HOLE
- GAS VLV
- WTR VLV

Graphic Scale: 0 1 2

Client
long beach unified school district
Long Beach Unified School District
2425 Webster Avenue
Long Beach, CA 90810

Title & Program
Room Area Color Highlights by Building(s)
CAFM
MEASURE K SCHOOL BONDS
Building for 21st Century Learning

Consultant
facility technology solutions
CAD/CAFM PROFESSIONAL SERVICES
DTOBIN@FTSOLUTIONS.US

Project
SITE INFO:
4400 Briercrest Avenue
Lakewood, CA 90713
653
CODE:
LAKEWOOD
NAME:

Issue

REV.	DATE	DESCRIPTION

Sheet Info

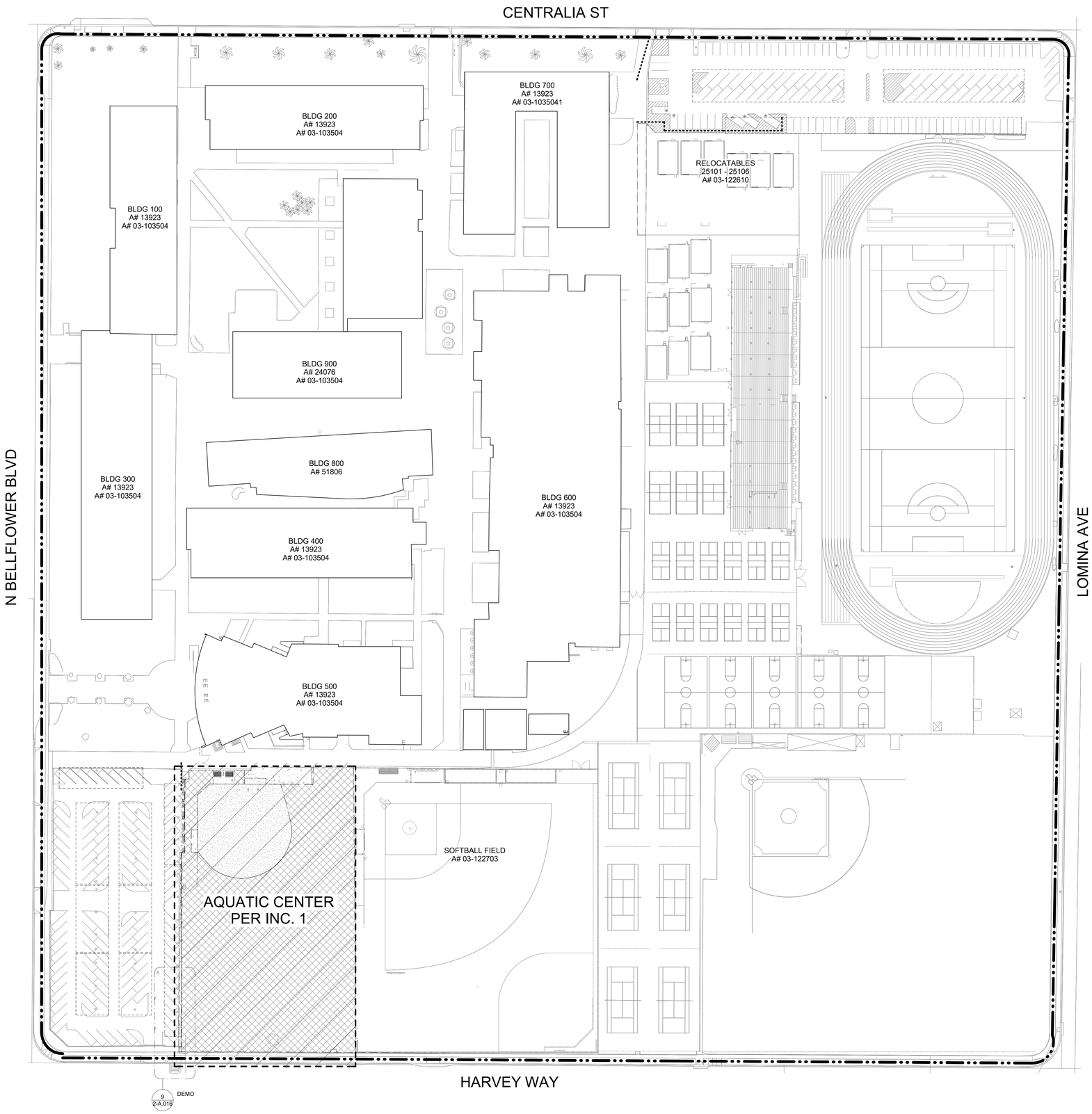
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PROJ MGR:	DAVE TOBIN - FTS, INC.
DATE:	06.01.11

Sheet Title
CAFM SITE PLAN 1ST FLOOR (SITE USE)

Sheet No.
FM100

APPENDIX B

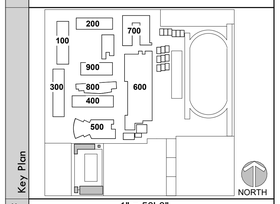
PROJECT PLANS



OVERALL SITE PLAN DEMO | 1" = 50'-0" | 1

Notes / Legends

Key Plan



Graphic Scale

1" = 50'-0"

0' 25' 50' 100' 150'

Agency Approval

Client

long beach unified school district

Long Beach Unified School District

2425 Webster Avenue
Long Beach, CA 90810

LBUSD No.: 9196-2021-653
PTN No.: 64725-465

Stamp

REGISTERED ARCHITECT
R. D. Wolfe
C - 28036
STATE OF CALIFORNIA

Architect

studiowc
ARCHITECTURE +

StudioWC

515 Encinitas Bl, Ste 201
Encinitas, CA 92024

Tel: 760-753-6800
www.studiowc.net

Consultant

Project

LAKEWOOD HIGH SCHOOL
4400 Briercrest Ave, Lakewood, CA 90713

AQUATIC CENTER
Increment 2
DSA SUBMITTAL

MEASURE K SCHOOL BONDS
Building for 21st Century Learning

Issue

REV.	DATE	DESCRIPTION

Sheet Info

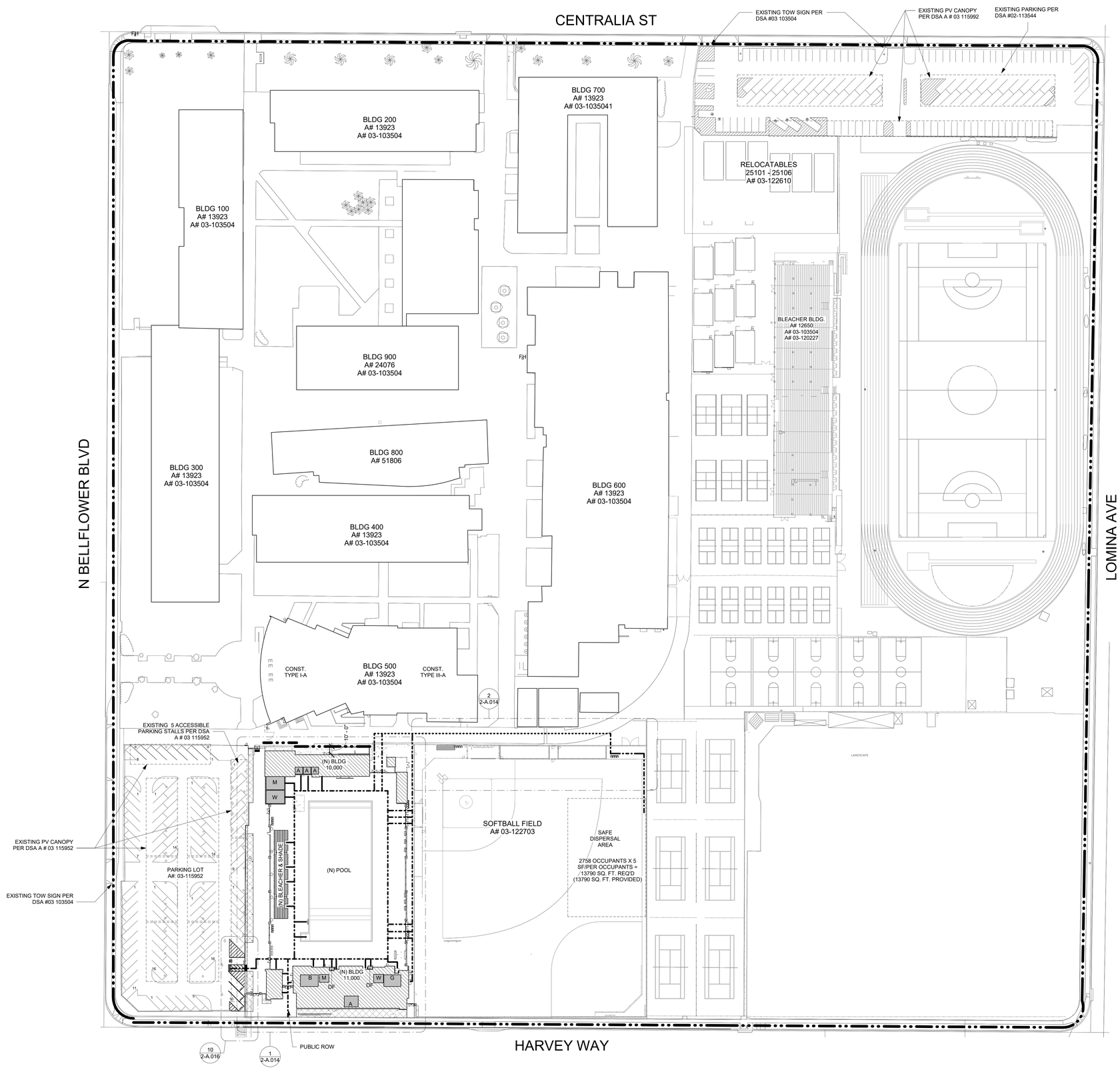
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SCALE: 1" = 50'-0"
PROJ MGR: Author
DATE: 07/19/22

Sheet Title

OVERALL SITE PLAN DEMO

Sheet No.

2-A.010



OVERALL SITE PLAN NEW | 1" = 50'-0" | 1

Notes / Legends

SITE PLAN ACCESS LEGEND

- PROPERTY LINE / ASSUMED PROPERTY LINE "APL"
- EXISTING ACCESSIBLE PATH OF TRAVEL, PER A# 03 - 103504
- NEW ACCESSIBLE PATH OF TRAVEL
- M — MENS RESTROOM
- W — WOMENS RESTROOM
- A — ALL GENDER RESTROOM
- B — BOYS RESTROOM
- G — GIRLS RESTROOM
- DF — DRINKING FOUNTAIN

ACCESS COMPLIANCE NOTES

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:

THE ACCESSIBLE PATH OF TRAVEL (P.O.T.) IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS MEETS THE REQUIREMENTS OF THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE (CBC) ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WERE DETERMINED TO BE NONCOMPIANT 1) HAVE BEEN IDENTIFIED AND 2) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECTS WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS.

DURING CONSTRUCTION, IF THE P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

OPENINGS IN GRATINGS AT DRAINS LOCATED IN THE SURFACE OF ANY PEDESTRIAN WAYS OF TRAVEL, SHALL BE LIMITED TO 1/2" MAX.

ALL BUILDINGS CONTAIN ACCESSIBLE PLUMBING FIXTURES. REFER TO FLOOR PLANS FOR EXACT LOCATIONS.

GATES IN THE PATH OF TRAVEL SHALL COMPLY WITH EXIT DOOR REQUIREMENTS PER CBC SECTION 11B-404

CODE ANALYSIS

BUILDING 11,000
LOCKER ROOM/ RESTROOM / TICKETING/ CONCESSIONS:

CONSTRUCTION TYPE: II-B
SPRINKLED: NO
OCCUPANCY: MIXED E / M
OF STORIES: 1
ACTUAL AREA
E: 6,922 SF
M: 701 SF
ALLOWABLE AREA:
E: 14,500 SF
M: 12,500 SF

MIXED OCCUPANCY ANALYSIS:

E		M	
6,922 / 14,500	+	701 / 12,500	= 0.53 (OK, LESS THAN 1)

BUILDING 10,000
POOL MECHANICAL:

CONSTRUCTION TYPE: II-B
SPRINKLED: NO
OCCUPANCY: MIXED B / S-1 / S-2
OF STORIES: 1
ACTUAL AREA
B: 377 SF
S-1: 4,124 SF
S-2: 486 SF
ALLOWABLE AREA:
B: 23,000 SF
S-1: 17,500 SF
S-2: 26,000 SF

MIXED OCCUPANCY ANALYSIS:

B		S-1		S-2	
377 / 23,000	+	4,124 / 17,500	+	486 / 26,000	= 0.29 (OK, LESS THAN 1)

POOL:
OCCUPANCY: A-4
12,781 SF / 50 SF PER OCCUPANT
640 TOTAL OCCUPANTS

POOL DECK:
OCCUPANCY: A-4
22,383 SF / 15 SF PER OCCUPANT
1,493 TOTAL OCCUPANTS

BLEACHER SEATING
OCCUPANCY: A-5
1,440 LF BENCH SEATING
500 TOTAL OCCUPANTS

BLEACHER CANOPY:
CONSTRUCTION TYPE: V-B
OCCUPANCY: A-3
ACTUAL AREA: 2,464SF
ALLOWABLE AREA: 6,000 SF

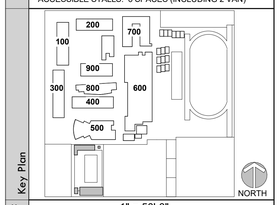
EXISTING BUILDING 500 A#03-118422
AUDITORIUM
CONSTRUCTION TYPE: III - 1HR
OCCUPANCY: A - 1
OF STORIES: 1
SPRINKLED: YES
ACTUAL AREA: 27,840
ALLOWABLE AREA: UL

PARKING SPACE COUNT

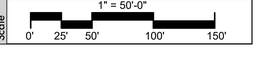
(E) SOUTH PARKING LOT A#: 03-115952

TOTAL STALLS: 110
REGULAR STALLS: 104
ACCESSIBLE STALLS: 6 SPACES (INCLUDING 2 VAN)

Key Plan



Graphic Scale



Agency Approval

Client

Long Beach Unified School District
2425 Webster Avenue
Long Beach, CA 90810

LBUSD No.: 9196-2021-653
PTN No.: 64725-465

Stamp



Architect

StudioWC
ARCHITECTURE +
515 Encinitas Bl, Ste 201
Encinitas, CA 92024
Tel: 760-753-6800
www.studiowc.net

Consultant

Project

LAKEWOOD HIGH SCHOOL
4400 Briercrest Ave, Lakewood, CA 90713

AQUATIC CENTER
Increment 2
DSA SUBMITTAL

MEASURE K SCHOOL BONDS
Building for 21st Century Learning

Issue

REV.	DATE	DESCRIPTION

Sheet Info

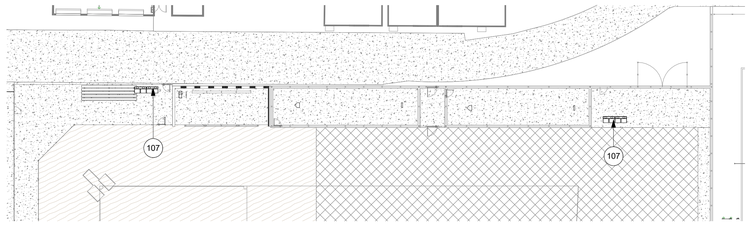
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PROJ MGR: Author
DATE: 05/06/19

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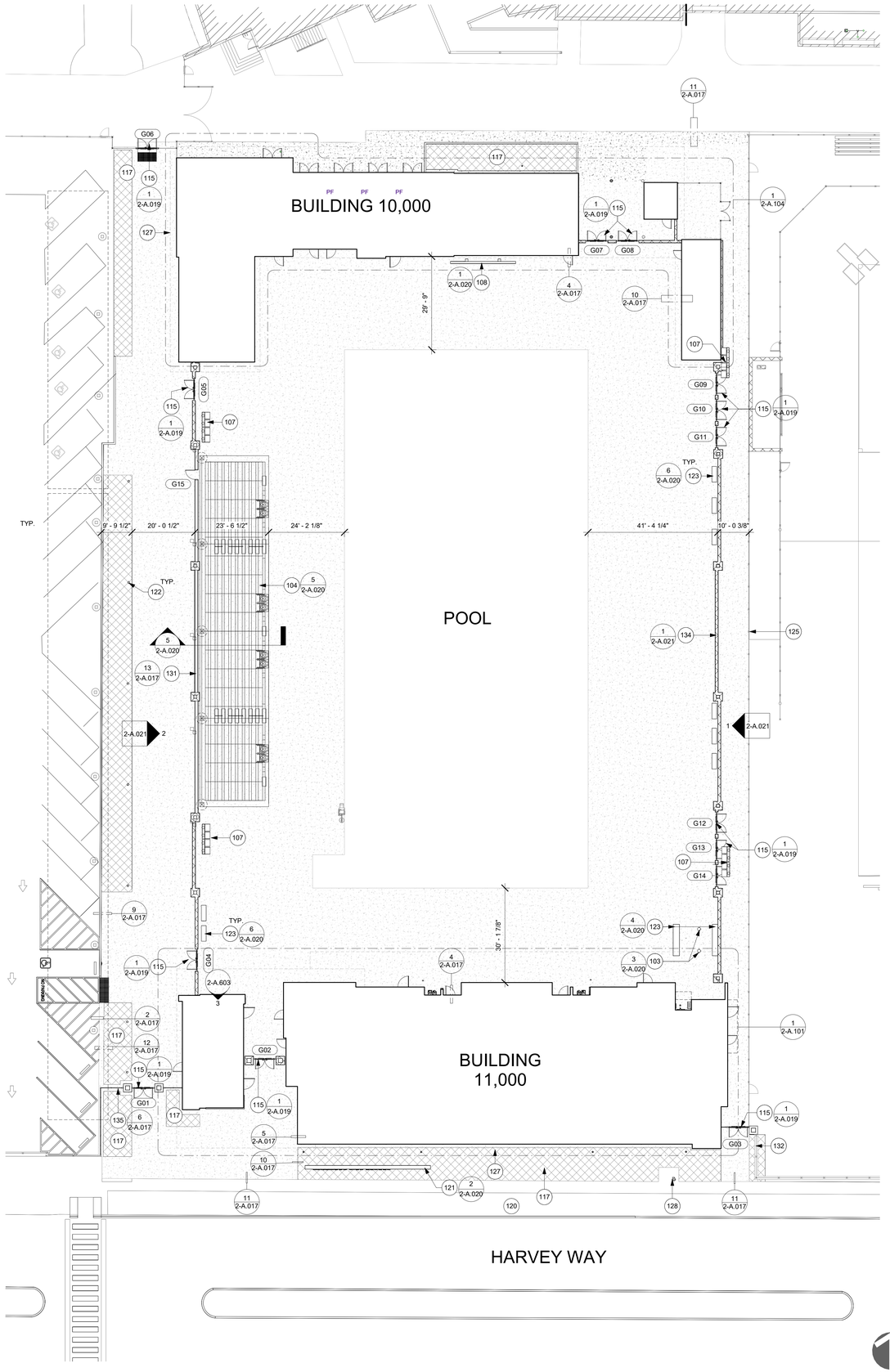
OVERALL SITE PLAN NEW

Sheet No.

2-A.011



ENLARGED SOFTBALL FIELD LIGHTING | 1 : 300 | 2



ENLARGED AQUATIC CENTER SITE PLAN | 1/16" = 1'-0" | 1

Notes / Legends

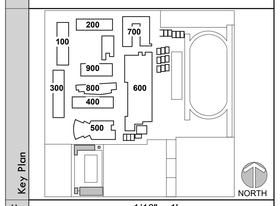
PAVING LEGEND

- NEW CONCRETE
- NEW LANDSCAPE AREA

KEYNOTES

103	NEW EXTERIOR SHOWER POSTS, SEE DTL REF'D ON PLAN
104	NEW BLEACHER STRUCTURE WITH SHADE STRUCTURE, SEE DTL REF'D ON PLAN
107	NEW MUSCO SPORTS LIGHTING FIXTURE, SEE DTL REF'D ON PLAN
108	NEW DIGITAL SCOREBOARD, SEE DTL REF'D ON PLAN, SEE ELECTRICAL AND POOL DRAWINGS
115	NEW HOLLOW METAL GATES, SEE DTL REF'D ON PLAN
117	NEW LANDSCAPING, SEE LANDSCAPE DWGS
120	EXISTING LANDSCAPE TO REMAIN
121	NEW CONCRETE MONUMENT SIGN, SEE DTL REF'D ON PLAN
122	NEW PATHWAY LIGHT BOLLARD, SEE ELECTRICAL DWGS
123	NEW CONCRETE BENCH, SEE DETAIL REF'D ON PLANS
125	EXISTING FENCING TO REMAIN
127	DASHED LINE INDICATES OVERHANG ABOVE
128	EXISTING FDC TO REMAIN
131	PERIMETER WALL WITH DECORATIVE FENCE, SEE SITE ELEVATION FOR FINISHES
132	EXISTING CHAIN LINK FENCE TO REMAIN
134	PERIMETER WALL, SEE SITE ELEVATION FOR FINISHES
135	DECORATIVE FENCE WITH MOW STRIP

Key Plan



Graphic Scale: 1/16" = 1'
0' 8' 16' 32' 48'

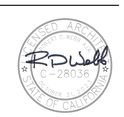
Agency Approval

Client

Long Beach Unified School District
2425 Webster Avenue
Long Beach, CA 90810

LBUSD No.: 9196-2021-653
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Stamp



Architect

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Encinitas, CA 92024
Tel: 760-753-6800
www.studiowc.net

Consultant

Project

LAKEWOOD HIGH SCHOOL
4400 Briercrest Ave, Lakewood, CA 90713

AQUATIC CENTER
Increment 2
DSA SUBMITTAL

MEASURE K SCHOOL BONDS
Building for 21st Century Learning

Issue

REV.	DATE	DESCRIPTION

Sheet Info

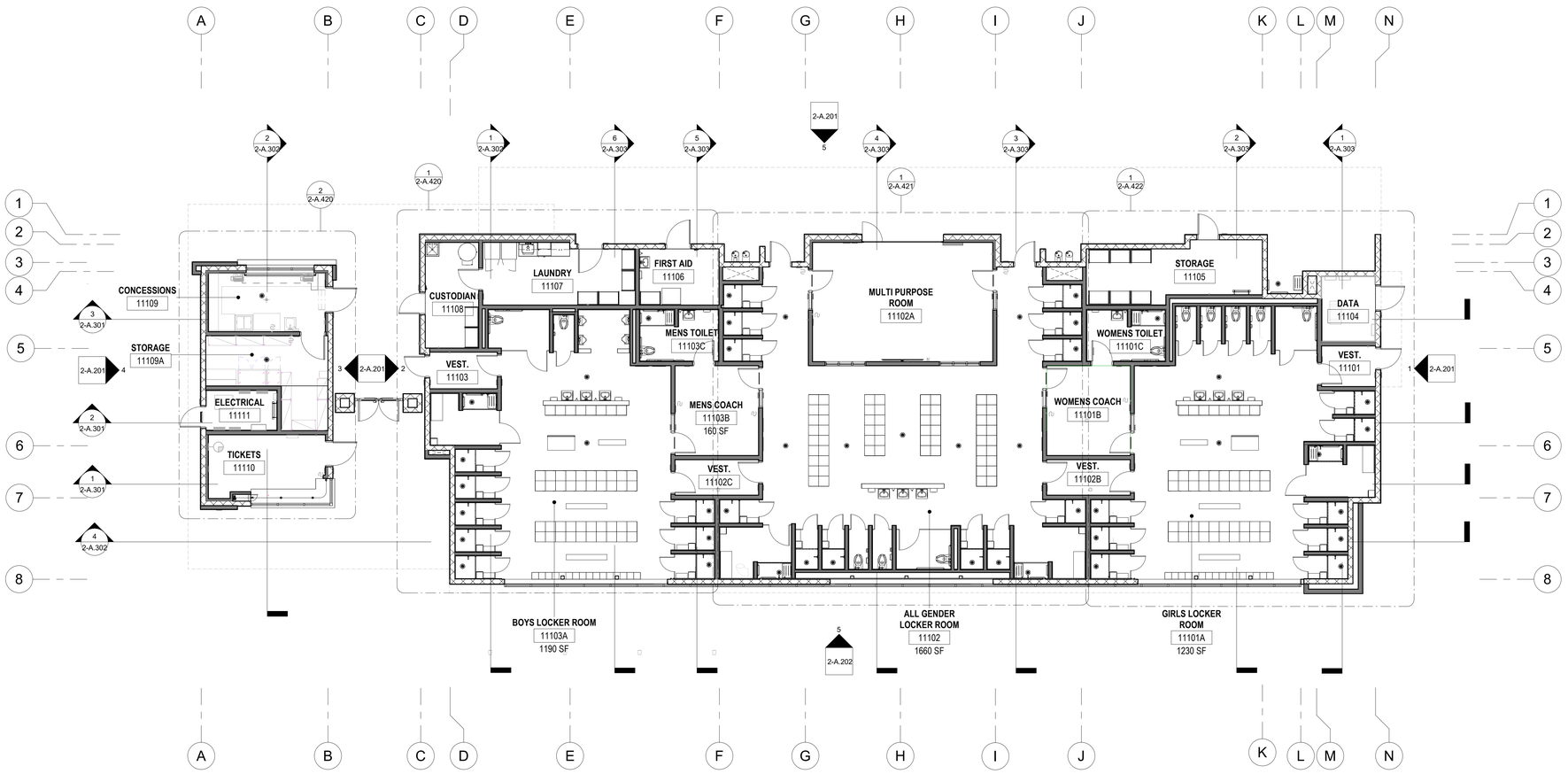
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SCALE: As indicated
PROJ MGR: Author
DATE: 09/09/21

Sheet Title

ENLARGED SITE PLAN - NEW

Sheet No.

2-A.014



OVERALL FLOOR PLAN - BUILDING 11,000 | 1/8" = 1'-0" | 1

Notes / Legends

WALL LEGEND

- CMU WALL
- METAL FRAMED

NOTE:
INTERIOR WALLS ARE TO BOTTOM OF DECK, INSULATED WITH 3 1/2" MIN. BATT INSULATION NO-FACE AND GYPSUM BOARD EACH SIDE, UNLESS NOTED OTHERWISE. RATED WALLS, WHERE OCCURS, SHALL BE LABLED ABOVE THE CEILING PER CBC 703.6.
PROVIDE NEW PAINT AT ALL EXISTING WALLS WITHIN ROOMS IN CONTRACT

Agency Approval

Client

Long Beach Unified School District

2425 Webster Avenue
Long Beach, CA 90810

9196-2021-653
64725-465

LBUSD No.:
PTN No.:

Stamp



Architect

studiowc
ARCHITECTURE +

StudioWC

515 Encinitas Bl, Ste 201
Encinitas, CA 92024

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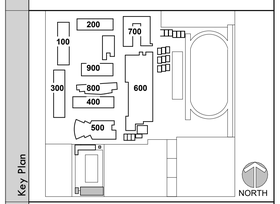
Issue

REV.	DATE	DESCRIPTION

Sheet Info

JOB No.:
SCALE: As indicated
PROJ MGR: Author
DATE: 09/09/21

Key Plan



Graphic Scale

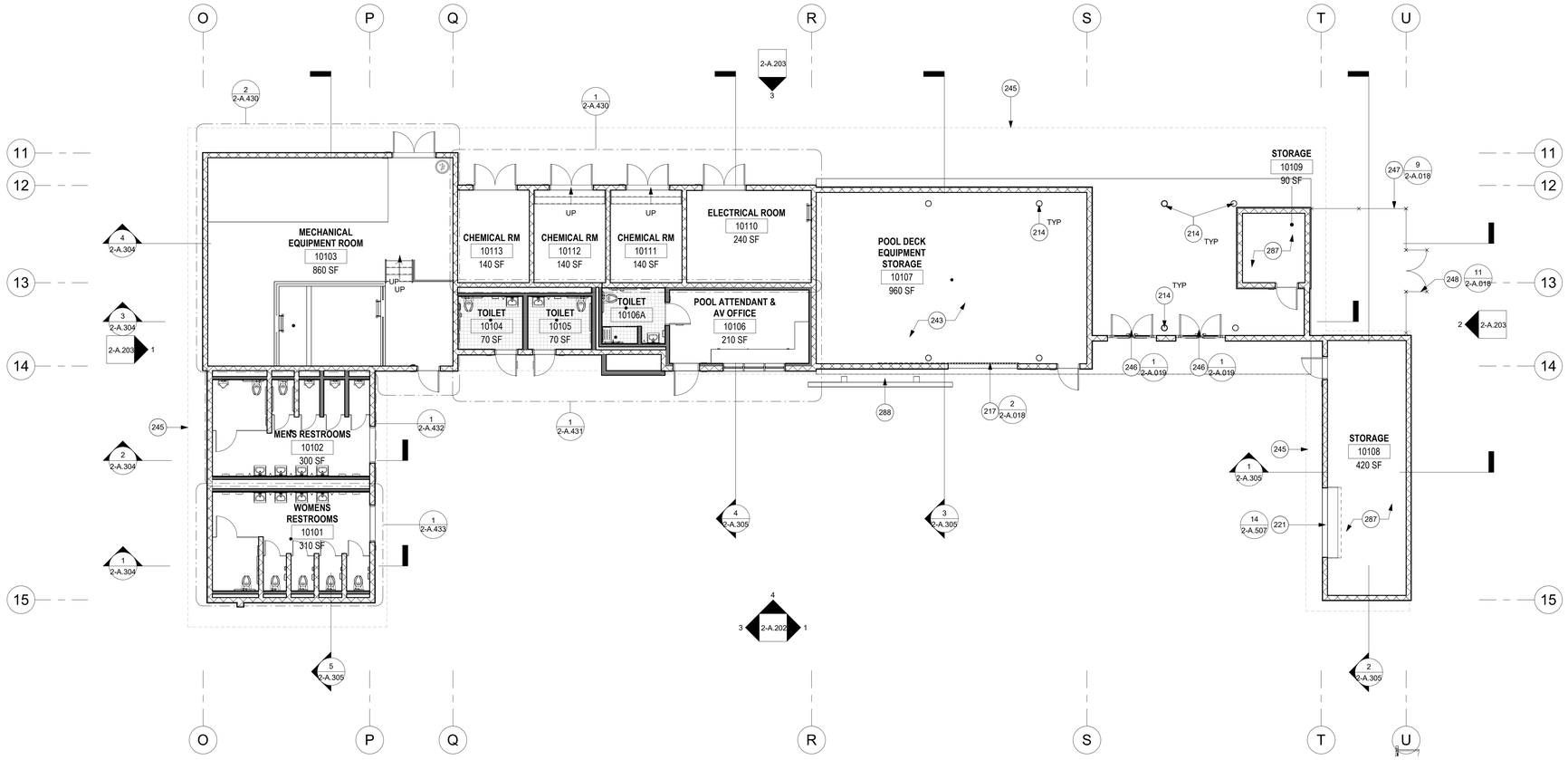
1/8" = 1'
0' 4' 8' 16' 24'

Sheet Title

OVERALL FLOOR PLAN - BLDG 11,000

Sheet No.

2-A.101



Notes / Legends

WALL LEGEND

CMU WALL

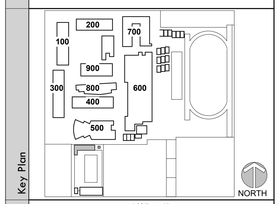
METAL FRAMED

NOTE:
INTERIOR WALLS ARE TO BOTTOM OF DECK, INSULLATED WITH 3 1/2" MIN.
BATT INSULATION NO-FACE AND GYPSUM BOARD EACH SIDE, UNLESS NOTED OTHERWISE. RATED WALLS, WHERE OCCURS, SHALL BE LABLED ABOVE THE CEILING PER CBC 703.6.
PROVIDE NEW PAINT AT ALL EXISTING WALLS WITHIN ROOMS IN CONTRACT

KEYNOTES

214	ROUND HSS METAL COLUMN, PAINTED, PER STRUCTURAL DWG'S
217	EXTERIOR ROLLING GATE, PER DTL REF'D ON PLAN
221	OVERHEAD COILING DOOR, PER SCHEDULE
243	SEALED CONCRETE FLOORING
245	DASHED LINE INDICATED OVERHAND ABOVE
246	NEW DECORATIVE METAL GATES, SEE REF'D DTL ON PLAN
247	NEW 6' CHAIN LINK METAL FENCE, SEE REF'D DTL ON PLAN
248	NEW 6' DOUBLE CHAIN LINK GATE, SEE REF'D DTL ON PLAN
287	SEALED CONCRETE FLOORING WITH 4" RUBBER BASE
288	NEW DIGITAL SCOREBOARD, SEE DTL REF'D ON PLAN, SEE ELECTRICAL AND POOL DRAWINGS

Key Plan



Graphic Scale

1/8" = 1'

0' 4' 8' 16' 24'

Agency Approval

Client

long beach unified school district

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Long Beach, CA 90810

LBUSD No.: 9196-2021-653
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AQUATIC CENTER
Increment 2
DSA SUBMITTAL

MEASURE K SCHOOL BONDS
Building for 21st Century Learning

Issue

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Sheet Info

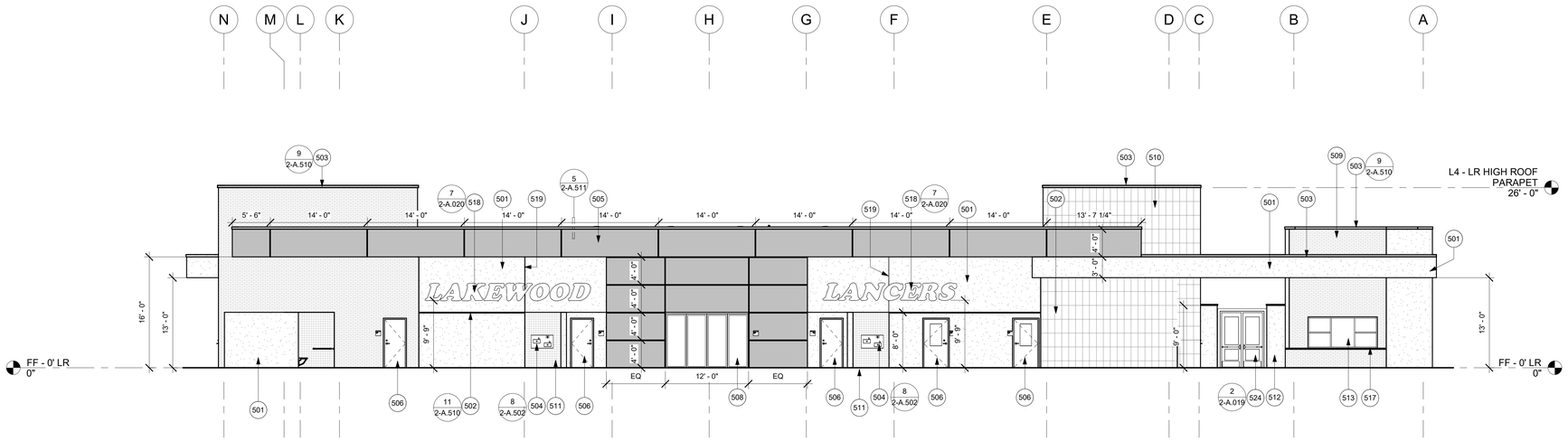
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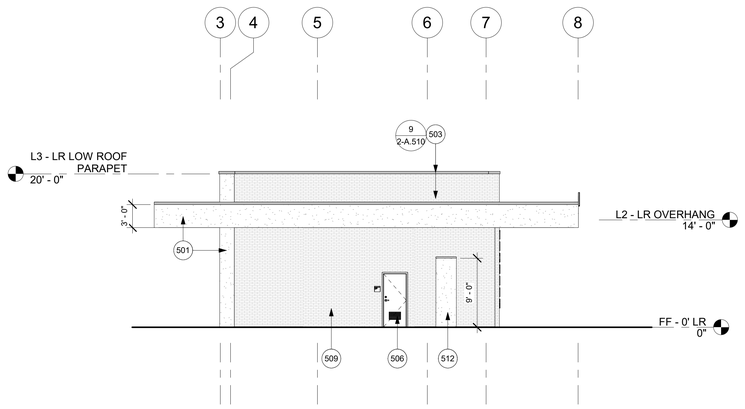
OVERALL FLOOR PLAN - BLDG 10,000

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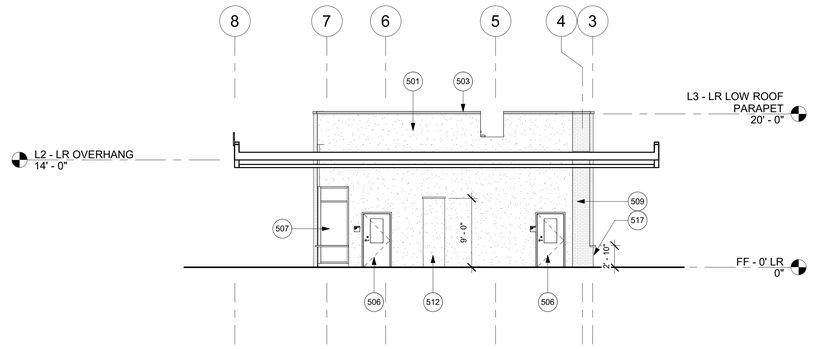
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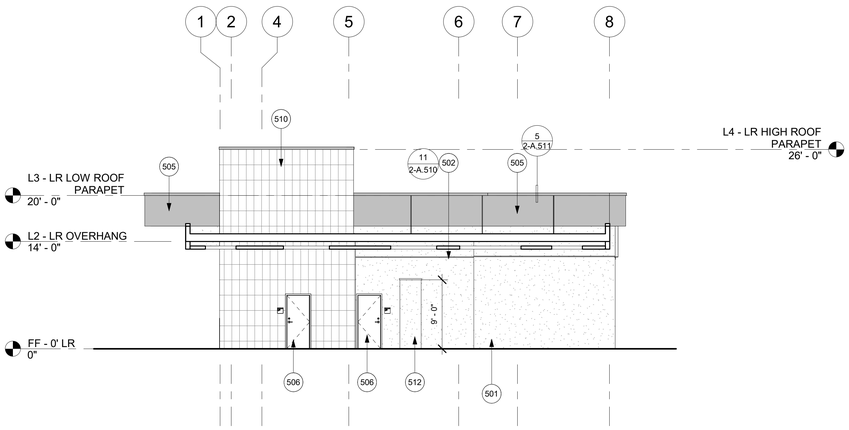
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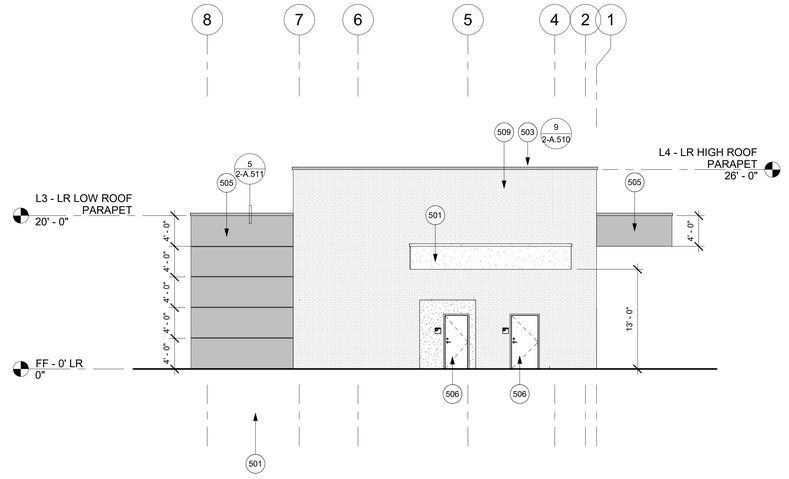
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BUILDING ELEVATION - BLDG 11,000 - TICKET - EAST | 1/8" = 1'-0" | 3



BUILDING ELEVATION - BLDG 11,000 - LOCKER RM - WEST | 1/8" = 1'-0" | 2



BUILDING ELEVATION - BLDG 11,000 - LOCKER RM - EAST | 1/8" = 1'-0" | 1

EXTERIOR WALL LEGEND

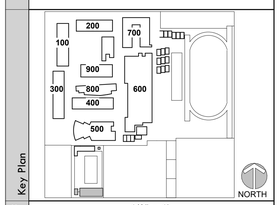
- STUCCO
- BRICK
- CONCRETE BLOCK
- CERAMIC TILE
- METAL WALL PANEL

KEYNOTES

501	EXTERIOR CEMENT PLASTER FINISH
502	1" PLASTER REVEAL, PER DTL REF'D ON PLAN
503	PRE-FINISHED SHEET METAL PARAPET CAP, PER DTL REF'D ON PLAN
504	ACCESSIBLE DRINKING FOUNTAIN W/ BOTTLE FILLER, PER DTL REF'D ON PLAN
505	METAL WALL PANEL SYSTEM
506	HOLLOW METAL FRAME & DOOR
507	STOREFRONT SYSTEM
508	OPERABLE GLASS WALL SYSTEM
509	BRICK VENEER FINISH
510	12X24 CEMENT TILE VENEER FINISH
511	CERAMIC TILE FINISH, SEE REF'D DTL ON PLAN FOR PATTERN
512	PLASTER PILASTER W/ WALL CAP
513	WINDOW PER SCHEDULE
517	PARTIAL HEIGHT WALL WITH BRICK VENEER AND EXTERIOR COUNTER
518	30" ALUMINUM LETTERS TO READ "LAKEWOOD". SEE DTL REF'D ON PLAN FOR ATTACHMENT
519	1/2" PLASTER CONTROL JOINT PER DTL REF'D ON PLAN
524	NEW DECORATIVE METAL GATES, PER DTL REF'D ON PLAN

Notes / Legends

Key Plan



Graphic Scale

1/8" = 1'
0' 4' 8' 16' 24'

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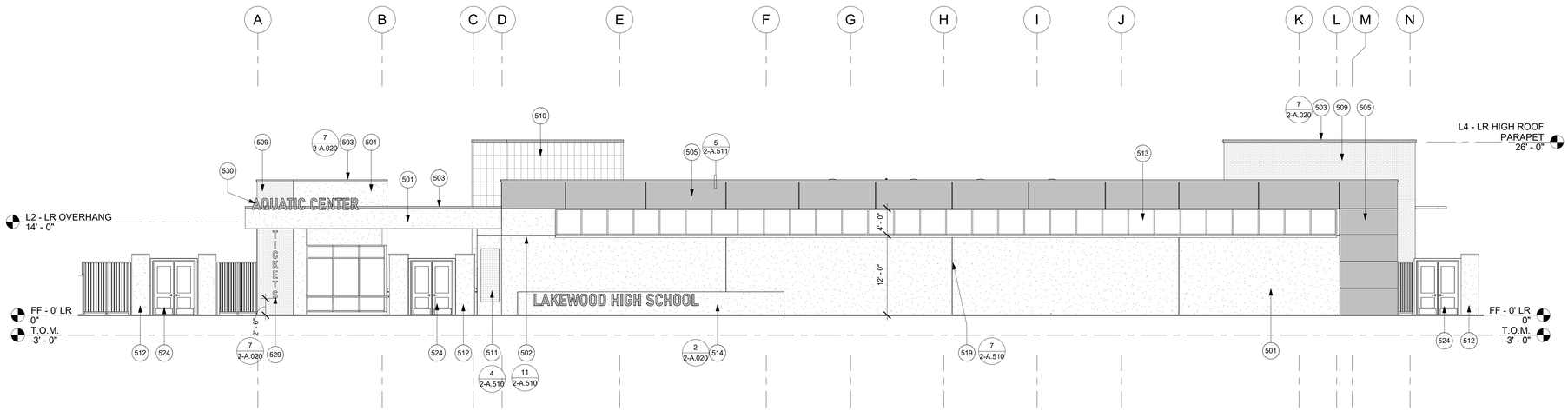
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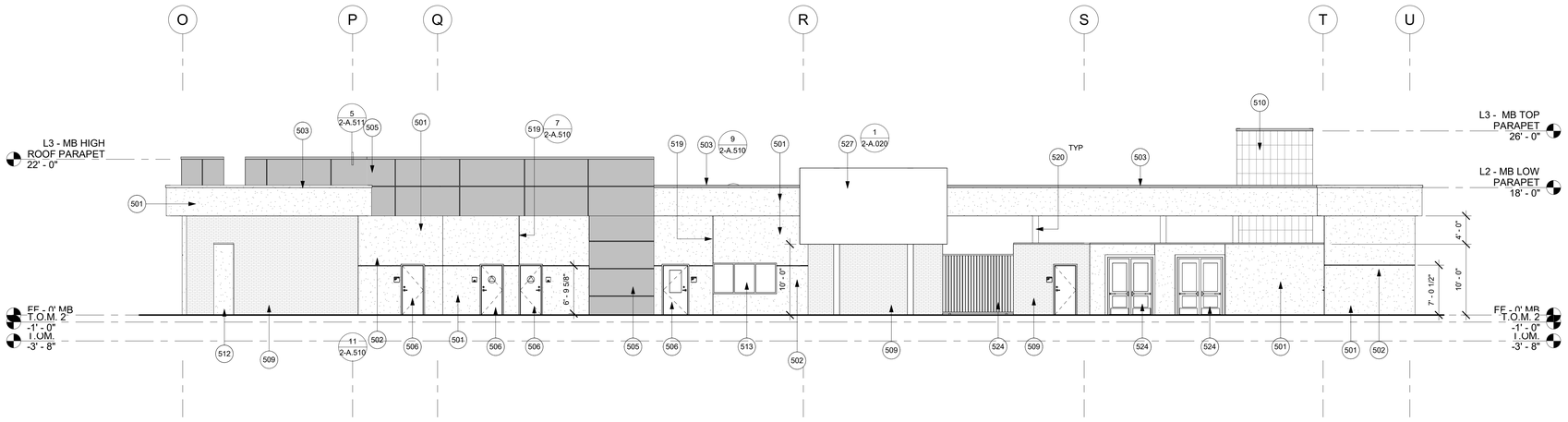
EXTERIOR ELEVATIONS - BLDG 11,000

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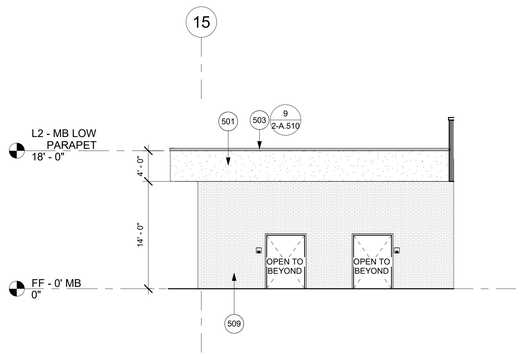
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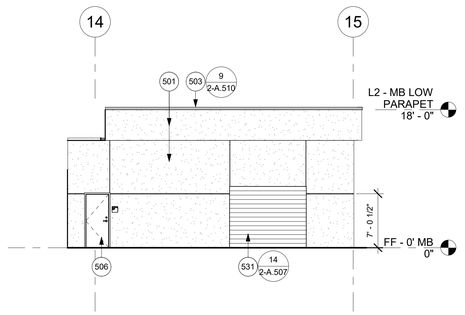
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BUILDING ELEVATION - BLDG 10,000 - SOUTH | 1/8" = 1'-0" | 4



BUILDING ELEVATION - BLDG 10,000 - EAST - DECK RESTROOMS | 1/8" = 1'-0" | 3



AQUATIC CENTER EQUIP. STORAGE - WEST | 1/8" = 1'-0" | 1

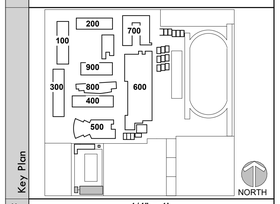
Notes / Legends

EXTERIOR WALL LEGEND

- STUCCO
- BRICK
- CONCRETE BLOCK
- CERAMIC TILE
- METAL WALL PANEL

KEYNOTES

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502	1" PLASTER REVEAL, PER DTL REF'D ON PLAN
503	PRE-FINISHED SHEET METAL PARAPET CAP, PER DTL REF'D ON PLAN
505	METAL WALL PANEL SYSTEM
506	HOLLOW METAL FRAME & DOOR
509	BRICK VENEER FINISH
510	12X24 CEMENT TILE VENEER FINISH
511	CERAMIC TILE FINISH, SEE REF'D DTL ON PLAN FOR PATTERN
512	PLASTER PILASTER W/ WALL CAP
513	WINDOW PER SCHEDULE
514	MONUMENT SIGN, PER REF'D DTL ON PLAN
519	1/2" PLASTER CONTROL JOINT PER DTL REF'D ON PLAN
520	ROUND METAL HSS COLUMN, PAINTED, SEE STRUCTURAL DWGS
524	NEW DECORATIVE METAL GATES, PER DTL REF'D ON PLAN
527	NEW SCOREBOARD
529	14" ALUMINUM LETTERS TO READ "TICKETS". SEE DTL REF'D ON PLAN FOR ATTACHMENT
530	21" ALUMINUM, BACKLIT LETTERS TO READ "AQUATIC CENTER". SEE DTL REF'D ON PLAN FOR ATTACHMENT
531	DOOR PER SCHEDULE



Graphic Scale: 1/4" = 1'
0' 2' 4' 8' 16'

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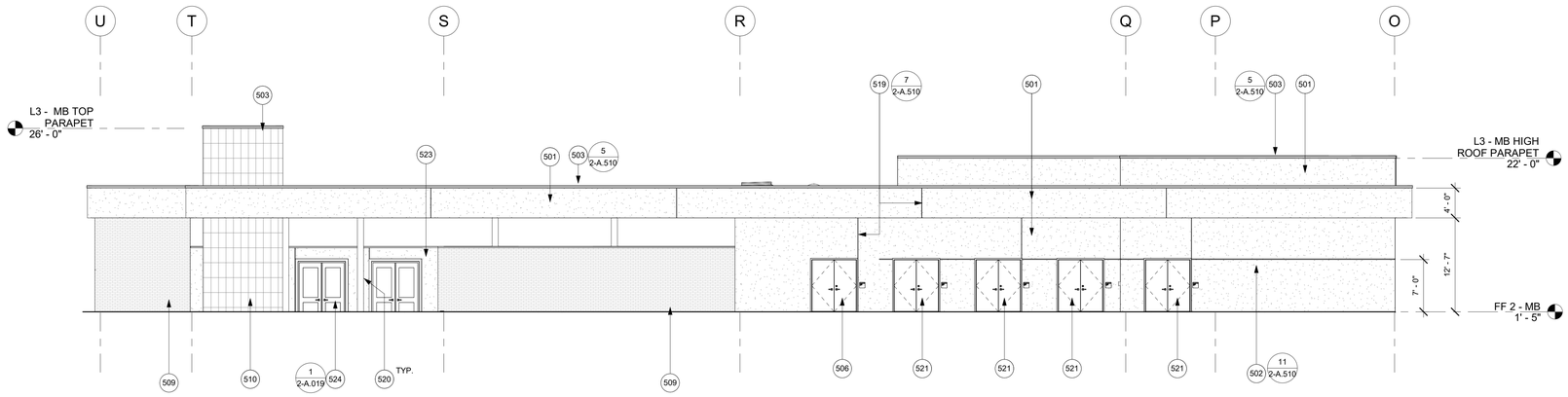
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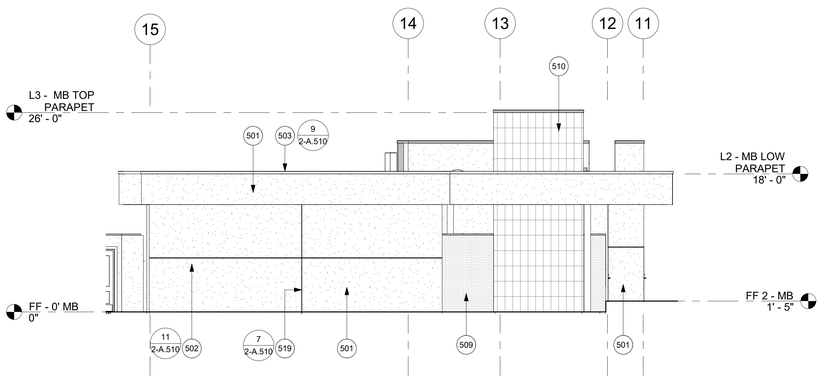
EXTERIOR ELEVATIONS - BLDG 11,000 & 10,000

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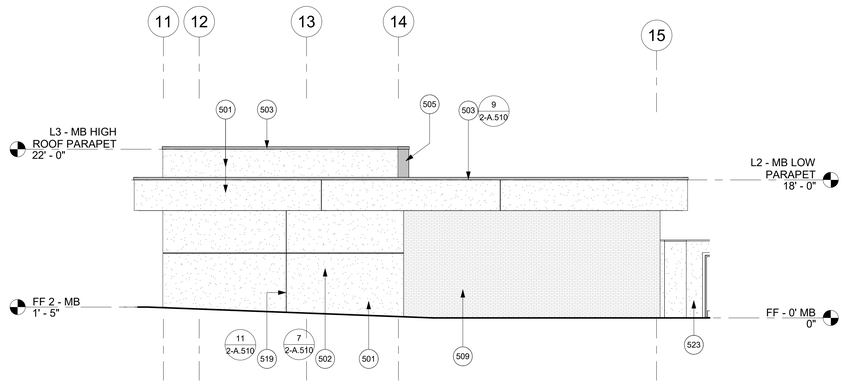
2-A.202



BUILDING ELEVATION - BLDG 10,000 - NORTH | 1/8" = 1'-0" | 3



AQUATIC CENTER EQUIP. STORAGE EAST | 1/8" = 1'-0" | 2



BUILDING ELEVATION - BLDG 10,000 - WEST | 1/8" = 1'-0" | 1

Notes / Legends

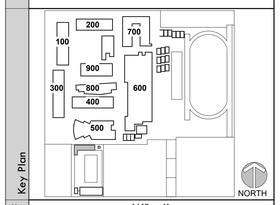
EXTERIOR WALL LEGEND

- STUCCO
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- CONCRETE BLOCK
- CERAMIC TILE
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KEYNOTES

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510	12X24 CEMENT TILE VENEER FINISH
519	1/2" PLASTER CONTROL JOINT PER DTL REF'D ON PLAN
520	ROUND METAL HSS COLUMN, PAINTED, SEE STRUCTURAL DWGS
521	FRP DOOR & FRAME, SEE DOOR AND OPENING SCHEDULE
523	NEW CMU PETIMETER WALL WITH PLASTER FINISH
524	NEW DECORATIVE METAL GATES, PER DTL REF'D ON PLAN

Key Plan



Graphic Scale

1/4" = 1'

0' 2' 4' 8' 16'

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PROJ MGR: Author
DATE: 09/09/21

Sheet Title

EXTERIOR ELEVATIONS - BLDG 10,000

Sheet No.

2-A.203

APPENDIX C

SURVEY PHOTOGRAPHS



View of Project Area, facing south from the south elevation of Building 500 (9000)



View from Project Area towards the south elevations of Building 500 (9000) (left) and Building 600 (5000) (right), facing north.



View from Project Area towards the south elevation of Building 500 (9000), facing northwest.



View from Project Area towards the south elevation of Building 600 (5000), facing northeast.

APPENDIX C –Noise Impact Analysis

NOISE IMPACT ANALYSIS

LAKEWOOD HIGH SCHOOL AQUATIC CENTER PROJECT

CITY OF LAKEWOOD

Lead Agency:

Long Beach Unified School District
Facilities and Planning Branch
2425 Webster Avenue
Long Beach, CA 90810

Prepared by:

Vista Environmental
1021 Didrickson Way
Laguna Beach, California 92651
949 510 5355
Greg Tonkovich, INCE

Project No. 21152

April 7, 2023

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ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Lakewood
CMU	Concrete Masonry Unit
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
FTES	Full Time Equivalent Students
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
VdB	Vibration velocity level in decibels

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Lakewood High School Aquatic Center project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and,
- An analysis of long-term operations-related noise impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located in the southern portion of the City of Lakewood (City) at the Lakewood High School campus at 4400 Briercrest Avenue. The approximately 32-acre campus is bordered by Centralia Street to the north, Lomina Avenue to the east, Harvey Way to the south, and Briercrest Avenue to the west. The proposed aquatic center would be located on the southern portion of the campus that currently contains softball fields, which would be shifted within the campus as part of a separate project. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are residents at the single-family homes on the south side of Harvey Way that are located as near as 100 feet south of the project site. There are also single-family homes on the west side of Briercrest Avenue that are located as near as 240 feet west of the project site.

1.3 Proposed Project Description

The proposed project includes the construction of a new aquatics facility that will be used by swim and water polo teams, physical education to accommodate 54 to 100 students, students with special needs, Special Olympics, and community learn to swim programs.

The Pool and Pool Deck will include:

- A Myrtha Brand, swimming pool that is 51.5 meters long by 25 yards wide, with a 1.5 meter-wide bulkhead. The plan is to have an approximately 30 foot deck surrounding the pool. The pool will be an outside pool.
- Bleachers with a capacity for 500 spectators, and shade coverings over the bleachers
- Stadium lights

- LED scoreboard with integrated sound system throughout the complex
- Pool deck 30' surrounding the pool
- Perimeter walls for security and privacy
- Surveillance cameras for security purposes
- Equipment storage enclosure/room

The aquatic center buildings will also include:

- A snack bar/ticket booth
- ADA complaint changing/locker rooms with boys, girls, and gender neutral areas. The building will accommodate 34+/- combination changing, shower stalls, and approximately 200 lockers in total.
- A multipurpose room
- Two offices for coaching and PE staff.
- Washer/dryer room
- Chemical storage rooms – easily accessible for truck deliveries
- Mechanical and electrical rooms
- Pool attendant office including a restroom and shower.
- Students, staff and public restrooms as required by code
- Equipment storage enclosure/room
- Outdoor shower heads

A layout of the proposed project is shown in Figure 2, Proposed Site Plan. Construction of the proposed project is expected to begin in September 2023 and be completed in March 2025. The aquatic center will be in use for the most part, with the exception of a few days in a year. Typical hours of operation would be from 7 a.m. to 8 p.m..

1.4 Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the City of Lakewood and State of California.

City of Lakewood Municipal Code

The following lists the noise and vibration regulations from the Municipal Code that are applicable, but not limited to the proposed project.

- Section 4240 Unnecessary Noises;
- Section 9376 Air Conditioners, Mechanical Equipment and Machinery Noise; and
- Section 9376.1 Residential Noise Standards.

State of California Rules

The following lists the State of California noise regulations that are applicable, but not limited to the proposed project.

- California Vehicle Code Section 2700-27207 – On Road Vehicle Noise Limits

- California Vehicle Code Section 38365-38350 – Off-Road Vehicle Noise Limits

1.5 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than significant impact.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than significant impact.

1.6 Mitigation Measures for the Proposed Project

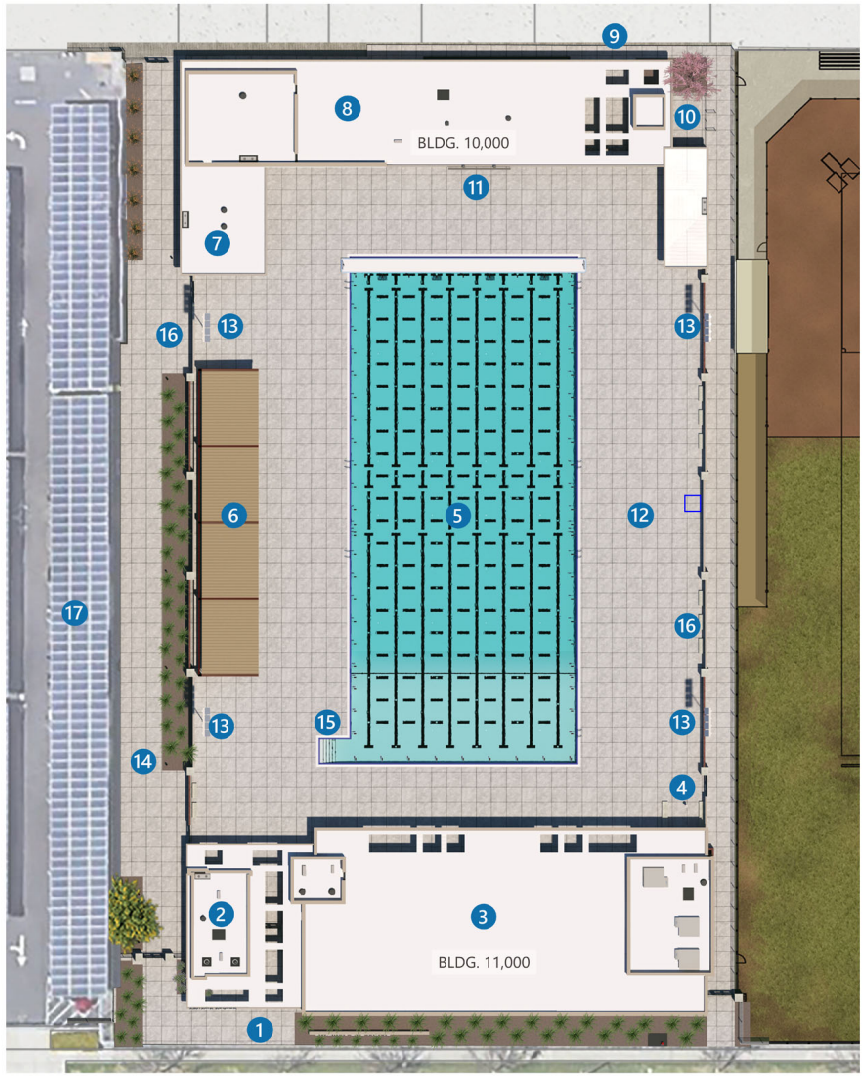
This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above were adequate to limit all noise and vibration impacts to less than significant levels. No mitigation measures are required for the proposed project with respect to noise and vibration impacts.



SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Location Map



NOT TO SCALE

1. PUBLIC ENTRY
2. TICKET OFFICE AND CONCESSIONS
3. MODERN LOCKER ROOM FACILITY
4. OUTDOOR SHOWER AREA
5. MYRTHA POOL (51.5M LONG BY 25 YARDS WIDE)
6. NEW BLEACHERS WITH SHADE CANOPY
7. DECK RESTROOMS
8. MECHANICAL SUPPORT BUILDING
9. CAMPUS ENTRY
10. ELECTRICAL YARD
11. SCORE BOARD
12. 30' POOL DECK
13. STADIUM LIGHTS
14. LANDSCAPE WALKWAY
15. ACCESSIBLE POOL ENTRY
16. PERIMETER WALL
17. EXISTING SOUTH PARKING LOT WITH PV STRUCTURES

N

N

SOURCE: Studio WC

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason, the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Lakewood relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound

from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is "VdB", which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the City of Lakewood. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the FTA, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the FTA is the only agency that provides specific guidance for construction noise. The FTA recommends developing construction noise criteria on a project-specific basis that utilizes local noise ordinances if possible. However, local noise ordinances usually relates to nuisance and hours of allowed activity and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the noise impacts of a construction project. Project construction noise criteria should take into account the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land uses. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings for a detailed construction noise assessment are provided below in Table A.

Table A – FTA Construction Noise Criteria

Land Use	Day (dBA $Leq_{(8\text{-hour})}$)	Night (dBA $Leq_{(8\text{-hour})}$)	30-day Average (dBA Ldn)
Residential	80	70	75
Commercial	85	85	80[(1)]
Industrial	90	90	85[(1)]

Notes:
[(1)] Use a 24-hour $Leq_{(24\ hour)}$ instead of $Ldn_{(30\ day)}$.
Source: Federal Transit Administration, 2018.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which is shown below in Figure 3 and allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

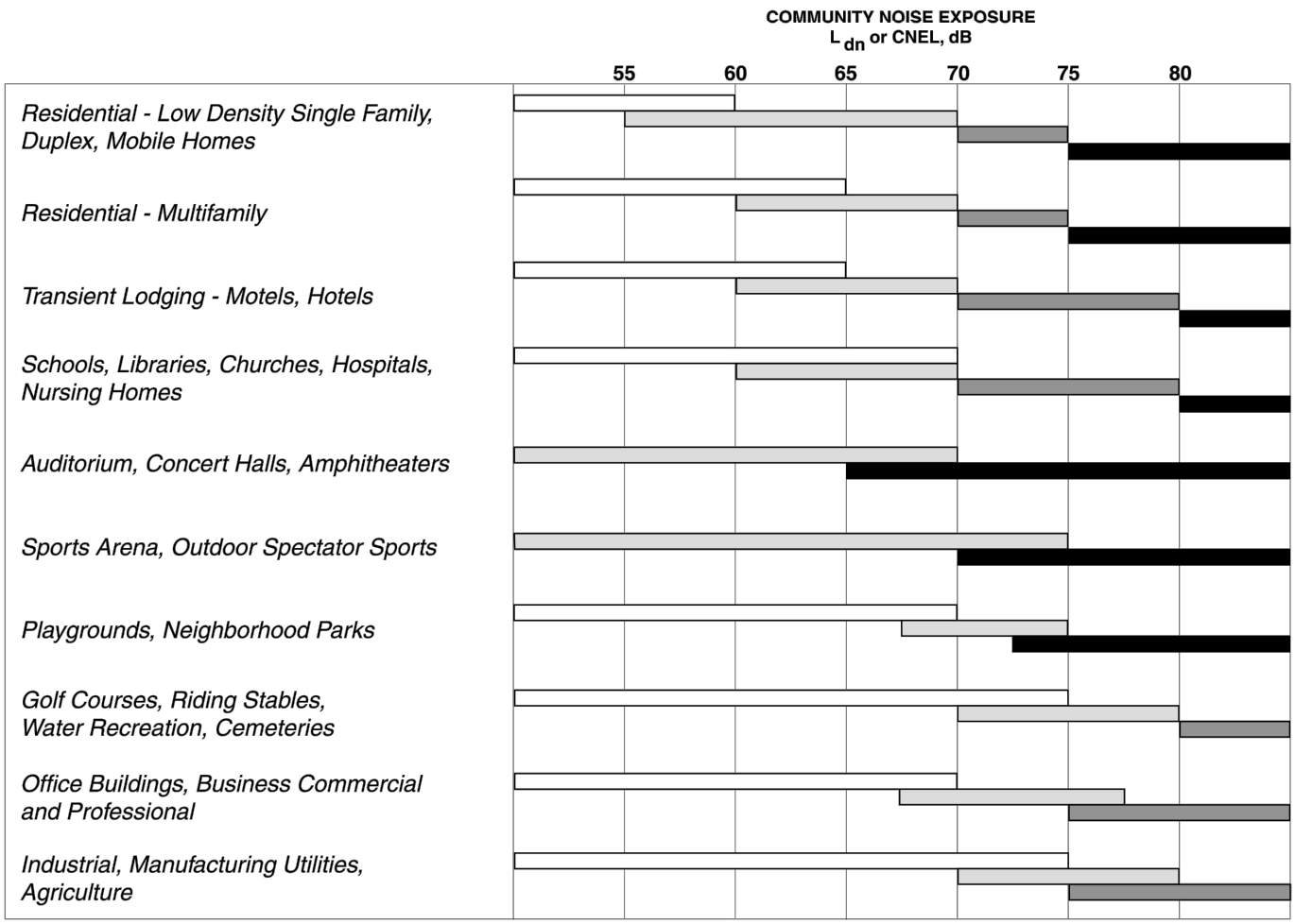
Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.



LEGEND:

NORMALLY ACCEPTABLE
Specified land use is satisfactory, based
upon the assumption that any building involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made.

Conventional construction, but with closed windows and
fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE
New construction or development should
generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

SOURCE: California Department of Health Services Office of Noise Control.

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Figure 3
Land Use Compatibility for Community Noise Environments Matrix

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

Caltrans issued the *Transportation and Construction Vibration Guidance Manual*, April 2020. The Manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations

The City of Lakewood Municipal Code establishes the following applicable regulations related to noise and vibration.

4240 Unnecessary Noises. No person shall make, cause or suffer, or permit to be made upon any premises owned, occupied, or controlled by him any unnecessary noises or sounds which are physically annoying to persons of ordinary sensitiveness or which are so harsh or so prolonged or unnatural or unusual in their use, time, or place as to occasion physical discomfort to the inhabitants of any neighborhood.

9376 Air Conditioners, Mechanical Equipment and Machinery Noise In Residential Areas. No person within any area of the City zoned for residential use or any area adjacent thereto shall own, possess, control, or maintain any machinery, equipment, pumps, fans, air conditioning or air-handling apparatus, or similar mechanical devices which cause the noise level at the property line of any property zoned for residential uses to exceed the sound pressure level permitted herein by more than five decibels. The production or maintenance of any sound in excess of said levels is hereby declared to be an unnecessary interference with the enjoyment of residential property and contrary to the public health and general welfare. The ownership, maintenance, operation, or control of any such machinery or equipment producing said excess sound pressure levels is hereby declared to be a public nuisance.

9376.1 Same: Decibel Measurement Criteria. The sound pressure level permitted herein shall be measured at any point on the property line of the residential property affected and is **sixty decibels**, reference 0.002 microbar, read on the A scale of a sound level meter. Reading shall be taken in accordance with the instrument manufacturer's instructions, using the slowest meter response, and as follows:

A. **Placement of Measuring Microphone.** Placement of the microphone can be at any point on the property line, but shall not be closer than three (3) feet from any wall and not less than three (3) feet above the ground where the above-listed maximum sound pressure level shall apply. At any point the measured level shall be the average of not less than three (3) readings, taken at two-minute intervals. To have valid readings, the levels must be five (5) decibels or more above the levels prevailing at the same point, excluding noise caused by the objectionable machinery.

B. **Sound Level Meter.** Sound pressure levels shall be measured with a sound level meter manufactured according to U.S.A. Standard S1.4-1961, published by the United States of America Standards Institute, New York City, New York.

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5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on Harvey Way that is adjacent to the south side of Lakewood High School and from school activities. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using two Extech Model 407780 Type 2 integrating sound level meters programmed in "slow" mode to record the sound pressure level at 3-second intervals for approximately 24 hours in "A" weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded. The sound level meters and microphones were mounted on trees approximately five feet above the ground and were equipped with a windscreen. The sound level meters were calibrated before and after the monitoring using an Extech calibrator, Model 407766. The noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise levels in the vicinity of the project site. Descriptions of the noise monitoring sites are provided below in Table B and are shown in Figure 4. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 12:23 p.m. on Monday, March 27, 2023 and 12:28 p.m. on Tuesday, March 28, 2023. At the start of the noise measurements, the sky was clear (no clouds), the temperature was 72 degrees Fahrenheit, the humidity was 21 percent, barometric pressure was 30.06 inches of mercury, and the wind was blowing around three miles per hour. Overnight, the temperature dropped to 42 degrees Fahrenheit and the humidity peaked at 84 percent. At the conclusion of the noise measurements, the sky was clear, the temperature was 69 degrees Fahrenheit, the humidity was 37 percent, barometric pressure was 29.98 inches of mercury, and the wind was blowing around six miles per hour.

5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table B. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table B also shows the L_{eq}, L_{max}, and CNEL, based on the entire measurement time. The CNEL was calculated through use of Equation 2-23 from *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (TeNS), prepared by Caltrans, September 2013. The noise monitoring data printouts are included in Appendix B. Figure 5 shows a graph of the 24-hour noise measurements.

Table B – Existing (Ambient) Noise Measurement Results

Site No.	Site Description	Average (dBA L_{eq})	Maximum (dBA L_{max})	(dBA $L_{eq\ 1\text{-}hour}$/Time) Minimum	(dBA $L_{eq\ 1\text{-}hour}$/Time) Maximum	Average (dBA CNEL)
1	Located on a tree on the south side of Harvey Way, in front of home at 5610 Harvey Way, approximately 30 feet south of Harvey Way centerline.	57.7	85.9	41.8 1:33 a.m.	62.4 4:52 p.m.	60.9
2	Located on a tree on the west side of Briercrest Avenue, in front of home at 5545 Harvey Way, approximately 20 feet west of Briercrest Avenue centerline.	56.4	88.3	42.8 3:09 a.m.	64.0 3:22 p.m.	58.1

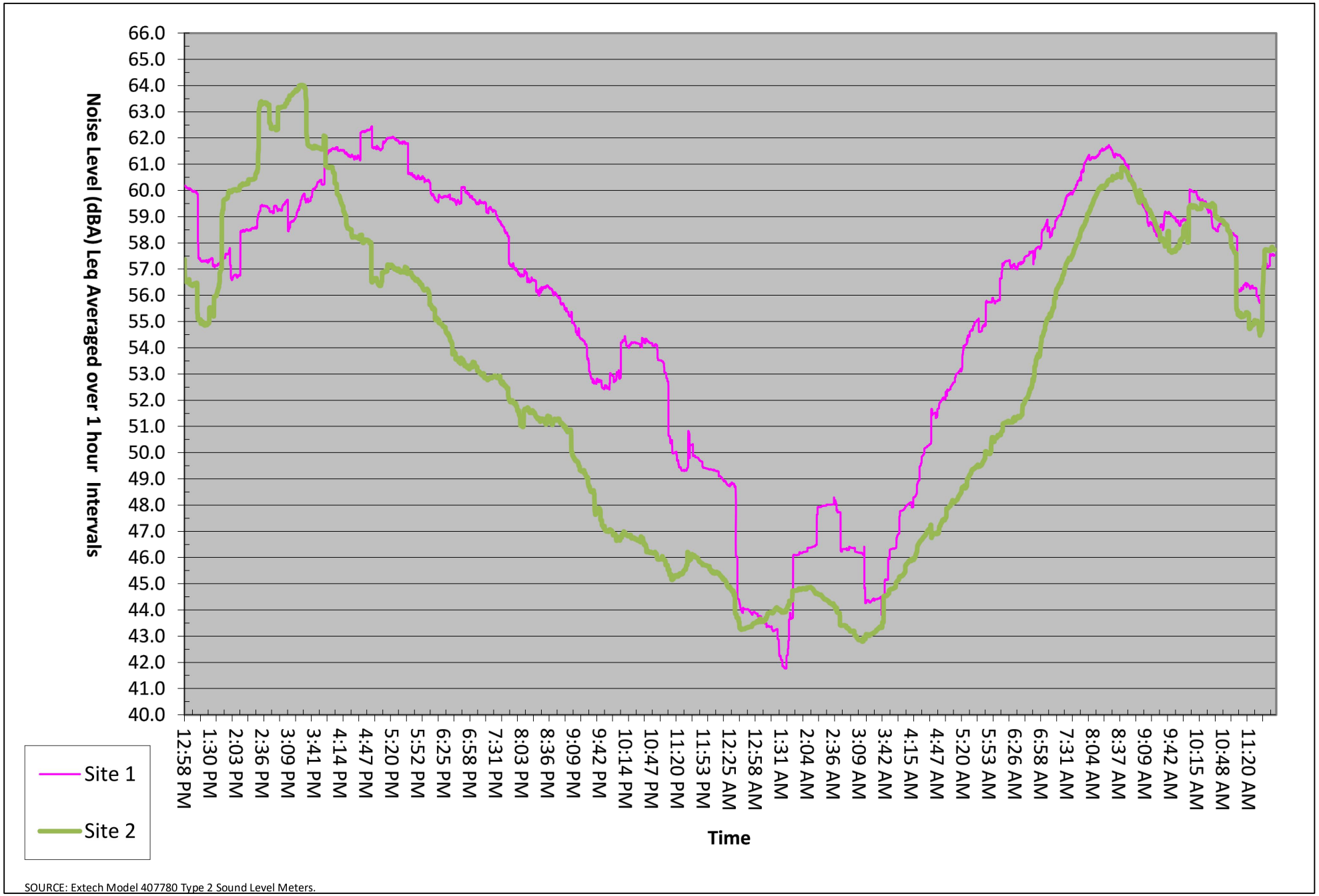
Source: Noise measurements were taken with two Extech Model 407780 Type 2 sound level meters from Monday, March 27, 2023 to Tuesday, March 28, 2023.



SOURCE: Google Maps.

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Figure 4
Field Noise Monitoring Locations



SOURCE: Extech Model 407780 Type 2 Sound Level Meters.

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Figure 5
Field Noise Measurements Graph

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table C below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis Lakewood High School Project* (Air Quality Analysis), prepared by Vista Environmental, April 7, 2023.

Table C – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet4 (dBA, slow3)
Site Preparation				
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Tractor, Loader or Backhoe[5]	1	40	84	N/A
Grading				
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Tractor, Loader or Backhoe[5]	2	40	84	N/A
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	1	40	85	83
Generator	1	50	82	81
Tractor, Loader or Backhoe[5]	1	40	84	N/A
Welders	3	40	73	74
Paving				
Cement & Mortar Mixer[6]	1	50	80	80
Paver	1	50	85	77
Paving Equipment	1	50	85	77
Roller	1	20	85	80
Tractor, Loader or Backhoe[5]	1	40	84	N/A
Architectural Coating				
Air Compressor	1	40	80	78

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.
[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
[5] For the tractor/loader/backhoe, the tractor noise level was utilized first, since it is the loudest of the three types of equipment.
[6] For the cement & mortar mixer, the concrete mixer truck noise level was utilized.
Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table C also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed in Table C and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two nosiest pieces of equipment as detailed in the FTA Manual. The RCNM model printouts are provided in Appendix C.

6.2 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table D gives approximate vibration levels for particular construction activities. The data in Table D provides a reasonable estimate for a wide range of soil conditions.

Table D – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v)at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table D and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table C.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

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

7.2 Generation of Noise Levels in Excess of Standards

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. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include site preparation and grading of the 1.36-acre project site, building construction of a new aquatics facility, paving of the walkways and pool deck, and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities.

Neither the General Plan nor the Municipal Code provide any limits to the noise levels that may be created from construction activities. In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the FTA construction noise criteria thresholds detailed above in Section 4.1 have been utilized, which shows that a significant construction noise impact would occur if construction noise exceeds 80 dBA during the daytime at the nearby homes.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table C. The results are shown below in Table E and the RCNM printouts are provided in Appendix C.

Table E – Construction Noise Levels at the Nearby Sensitive Receptors

Construction Phase	Construction Noise Level (dBA Leq) at:	
	Nearest Homes to South[1]	Nearest Homes to West[2]
Site Preparation	70	68
Grading	71	70
Building Construction	70	69
Paving	68	67
Architectural Coatings	59	58
FTA Construction Noise Threshold[3]	**80**	**80**
Exceed Thresholds?	**No**	**No**

Notes:
[1] The nearest homes to the south are located as near as 270 feet from the center of the project site.
[2] The nearest homes to the west are located as near as 320 feet from the center of the project site.
[3] The FTA Construction noise thresholds are detailed above in Table A.
Source: RCNM, Federal Highway Administration, 2006

Table E shows that the greatest noise impacts would occur during the grading phase of construction, with noise levels as high as 71 dBA Leq at the nearest homes to the south and 70 dBA Leq at the nearest homes to the west. Table E also shows that none of the construction phases would exceed the FTA construction noise standard of 80 dB at the nearby homes. Therefore, the construction activities for the proposed project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of the development of an aquatics center. Since the proposed project consists of the relocation of an existing aquatic center on campus that would not result in an increase in student enrollment nor would it result in a new use on campus, the proposed project is not anticipated to generate any new vehicle trips to the School. As such, no roadway noise impacts are anticipated to be created from operation of the proposed project. Potential noise impacts associated with the operations of the proposed project would limited to onsite activities associated with the operation of the aquatics center.

The operation of the proposed project may create an increase in onsite noise levels from the operation of pool area, rooftop mechanical equipment, and parking lot. Section 9376.1 of the Municipal Code limits onsite noise sources at the property lines of the nearby homes to 60 dBA Leq.

In order to determine the noise impacts from the operation of pool activities and rooftop mechanical equipment, reference noise measurements were taken of each noise source and are shown in Table F and the reference noise measurements are provided in Appendix D.

Table F – Operational Noise Levels at the Nearby Sensitive Receptors

Noise Source	Reference Measurements		At Homes to South		At Homes to West	
	Distance - Source to Receiver (feet)	Noise Level[1] (dBA Leq)	Distance - Source to Homes (feet)	Noise Level[1] (dBA Leq)	Distance - Source to Homes (feet)	Noise Level[1] (dBA Leq)
Rooftop Equipment	6	65.1	130	38	250	33
Pool Activities[2]	30	71.8	150	58	240	54
Combined Noise Levels				**58**		**54**
City Noise Standard[3]				**60**		**60**
Exceed City Noise Standard?				**No**		**No**

Notes:

[1] The noise levels were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6.0 dB for each doubling of the distance between the source and receiver. Does not account for noise reduction features, including the proposed wall around the perimeter of the proposed aquatics center.

[2] The pool activities was based on a noise measurement 30 feet from Long Beach Community College Liberal Arts Campus pool hosting a swim meet.

[3] City Noise Standard obtained from Section 9376.1 of the Municipal Code.

Table F shows that the proposed project's worst-case (i.e., during a swim meet) operational noise from the simultaneous operation of all noise sources on the project site would create a noise level of 58 dBA at the homes to the south and 54 dBA at the homes to the west, which would be within the City's residential noise standard of 60 dBA. Therefore, the operational activities for the proposed project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

Level of Significance

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include site preparation and grading of the 1.36-acre project site, building construction of a new aquatics facility, paving of the walkways and pool deck, and application of architectural coatings. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptors to the project site are residents at the homes on the south side of Harvey Way that are located as near as near as 100 feet south of the proposed construction activities on the project site.

Since the City does not provide any limits to the vibration levels that may be created from construction activities, the vibration thresholds provided in Caltrans Guidance Manual that is discussed above in Section 4.2 have been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table D above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest offsite homes (100 feet to the south) would be 0.02 inch per second PPV. The vibration level at the nearest offsite homes would be below the 0.25 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of the development and operation of an aquatics center. The on-going operation of the proposed project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the proposed project.

Level of Significance

Less than significant impact.

7.4 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is Long Beach Airport that is located as near as 1.5 mile southwest of the project site and the primary runway runs perpendicular to the project site, which results in very few aircraft overflights at the project site. The project site is located outside of the 60 dBA CNEL noise contours of Long Beach Airport. A less than significant impact would occur from aircraft noise.

Level of Significance

Less than significant impact.

8.0 REFERENCES

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

City of Lakewood, *City of Lakewood General Plan*, 1999.

City of Lakewood, *Lakewood Municipal Code Part 4 Conduct in General,* December 1994.

City of Lakewood, *Lakewood Municipal Code Part 7 General Provisions Relating to Uses,* 2007.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* September 2018.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide,* January, 2006.

Vista Environmental, *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis Lakewood High School Aquatic Center Project,* April 7, 2023.

APPENDIX A

Field Noise Measurements Photo Index



Noise Measurement Site 1 - looking north



Noise Measurement Site 1 - looking northeast



Noise Measurement Site 1 - looking east



Noise Measurement Site 1 - looking southeast



Noise Measurement Site 1 - looking south



Noise Measurement Site 1 - looking southwest



Noise Measurement Site 1 - looking west



Noise Measurement Site 1 - looking northwest



Noise Measurement Site 2 - looking north



Noise Measurement Site 2 - looking northeast



Noise Measurement Site 2 - looking east



Noise Measurement Site 2 - looking southeast



Noise Measurement Site 2 - looking south



Noise Measurement Site 2 - looking southwest



Noise Measurement Site 2 - looking west



Noise Measurement Site 2 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Site 1 - South Side of Harvey Way

Date	Time=03/27/23	12:23:00 PM			
Sampling	Time=3	Weighting=A			
Record	Num=	29200	Weighting=Slow	CNEL(24hr)=	60.9
Leq	57.7	SEL	Value=109.1	Ldn(24hr)=	60.5
MAX	85.9		Min Leq1hr =	41.8	1:33 AM
MIN	37.4		Max Leq1hr =	62.4	4:52 PM

Site 2 - West Side of Briercrest Avenue

Date	Time=03/27/23	12:28:00 PM			
Sampling	Time=3	Freq Weighting=A			
Record	Num=	29000	Weighting=Slow	CNEL(24hr)=	58.1
Leq	56.4	SEL	Value=105.8	Ldn(24hr)=	57.8
MAX	88.3		Min Leq1hr =	42.8	3:09 AM
MIN	39.7		Max Leq1hr =	64.0	3:22 PM

Site 1 - South Side of Harvey Way

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
50.3	12:23:00		50.3	50.3
64.4	12:23:03		64.4	64.4
62.7	12:23:06		62.7	62.7
63.6	12:23:09		63.6	63.6
58.6	12:23:12		58.6	58.6
62.6	12:23:15		62.6	62.6
63.9	12:23:18		63.9	63.9
62.9	12:23:21		62.9	62.9
59.3	12:23:24		59.3	59.3
58.5	12:23:27		58.5	58.5
69.7	12:23:30		69.7	69.7
60.5	12:23:33		60.5	60.5
63.9	12:23:36		63.9	63.9
59.2	12:23:39		59.2	59.2
65.3	12:23:42		65.3	65.3
63	12:23:45		63	63
64.6	12:23:48		64.6	64.6
67	12:23:51		67	67
64.6	12:23:54		64.6	64.6
58	12:23:57		58	58
60.8	12:24:00		60.8	60.8
62.5	12:24:03		62.5	62.5
60.6	12:24:06		60.6	60.6
60.9	12:24:09		60.9	60.9
56.3	12:24:12		56.3	56.3
52.3	12:24:15		52.3	52.3
64.2	12:24:18		64.2	64.2
59.1	12:24:21		59.1	59.1
58.2	12:24:24		58.2	58.2
56.7	12:24:27		56.7	56.7
69.2	12:24:30		69.2	69.2
68.8	12:24:33		68.8	68.8
58	12:24:36		58	58
53.8	12:24:39		53.8	53.8
58.5	12:24:42		58.5	58.5
53.6	12:24:45		53.6	53.6
58.1	12:24:48		58.1	58.1
61.1	12:24:51		61.1	61.1
53.3	12:24:54		53.3	53.3
59.8	12:24:57		59.8	59.8
52.1	12:25:00		52.1	52.1
49.1	12:25:03		49.1	49.1
51.8	12:25:06		51.8	51.8
50.4	12:25:09		50.4	50.4
52	12:25:12		52	52
53	12:25:15		53	53
60.3	12:25:18		60.3	60.3
57.9	12:25:21		57.9	57.9
61.1	12:25:24		61.1	61.1
56.4	12:25:27		56.4	56.4
52.9	12:25:30		52.9	52.9
52	12:25:33		52	52
49	12:25:36		49	49
48.3	12:25:39		48.3	48.3
51.7	12:25:42		51.7	51.7
58.8	12:25:45		58.8	58.8
58.9	12:25:48		58.9	58.9
60.3	12:25:51		60.3	60.3
55	12:25:54		55	55
50.6	12:25:57		50.6	50.6
50.2	12:26:00		50.2	50.2
46.6	12:26:03		46.6	46.6
48.2	12:26:06		48.2	48.2
54.4	12:26:09		54.4	54.4
52	12:26:12		52	52
47.7	12:26:15		47.7	47.7
47.1	12:26:18		47.1	47.1
46.9	12:26:21		46.9	46.9
47.4	12:26:24		47.4	47.4
46.9	12:26:27		46.9	46.9
45.9	12:26:30		45.9	45.9
44.9	12:26:33		44.9	44.9
45.6	12:26:36		45.6	45.6
48.5	12:26:39		48.5	48.5
47.6	12:26:42		47.6	47.6
55.1	12:26:45		55.1	55.1
60.2	12:26:48		60.2	60.2

Site 2 - West Side of Briercrest Avenue

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
53.4	12:28:00		53.4	53.4
76.8	12:28:03		76.8	76.8
67	12:28:06		67	67
53.9	12:28:09		53.9	53.9
69.3	12:28:12		69.3	69.3
72.4	12:28:15		72.4	72.4
65.1	12:28:18		65.1	65.1
66.4	12:28:21		66.4	66.4
63.6	12:28:24		63.6	63.6
68.5	12:28:27		68.5	68.5
68.6	12:28:30		68.6	68.6
64.9	12:28:33		64.9	64.9
61.7	12:28:36		61.7	61.7
59.8	12:28:39		59.8	59.8
63.4	12:28:42		63.4	63.4
57.2	12:28:45		57.2	57.2
60.4	12:28:48		60.4	60.4
56.3	12:28:51		56.3	56.3
55.1	12:28:54		55.1	55.1
53.9	12:28:57		53.9	53.9
54.7	12:29:00		54.7	54.7
60.2	12:29:03		60.2	60.2
61.6	12:29:06		61.6	61.6
52.9	12:29:09		52.9	52.9
55.8	12:29:12		55.8	55.8
57.1	12:29:15		57.1	57.1
55.7	12:29:18		55.7	55.7
52.5	12:29:21		52.5	52.5
51.6	12:29:24		51.6	51.6
57.7	12:29:27		57.7	57.7
56.1	12:29:30		56.1	56.1
54.6	12:29:33		54.6	54.6
58.3	12:29:36		58.3	58.3
53.9	12:29:39		53.9	53.9
56.5	12:29:42		56.5	56.5
51	12:29:45		51	51
49.4	12:29:48		49.4	49.4
54.1	12:29:51		54.1	54.1
52.4	12:29:54		52.4	52.4
52.2	12:29:57		52.2	52.2
49.8	12:30:00		49.8	49.8
57.6	12:30:03		57.6	57.6
52.8	12:30:06		52.8	52.8
51.6	12:30:09		51.6	51.6
58.5	12:30:12		58.5	58.5
57.5	12:30:15		57.5	57.5
53.1	12:30:18		53.1	53.1
52.1	12:30:21		52.1	52.1
51.9	12:30:24		51.9	51.9
52.4	12:30:27		52.4	52.4
57.8	12:30:30		57.8	57.8
56.6	12:30:33		56.6	56.6
52.5	12:30:36		52.5	52.5
53.6	12:30:39		53.6	53.6
54.5	12:30:42		54.5	54.5
60.5	12:30:45		60.5	60.5
54.9	12:30:48		54.9	54.9
63	12:30:51		63	63
59.7	12:30:54		59.7	59.7
53.9	12:30:57		53.9	53.9
51.4	12:31:00		51.4	51.4
49.5	12:31:03		49.5	49.5
48.6	12:31:06		48.6	48.6
48.9	12:31:09		48.9	48.9
48.3	12:31:12		48.3	48.3
49.1	12:31:15		49.1	49.1
56.1	12:31:18		56.1	56.1
59.8	12:31:21		59.8	59.8
49.8	12:31:24		49.8	49.8
48.7	12:31:27		48.7	48.7
50.7	12:31:30		50.7	50.7
51.7	12:31:33		51.7	51.7
51.6	12:31:36		51.6	51.6
51.6	12:31:39		51.6	51.6
51.9	12:31:42		51.9	51.9
54.1	12:31:45		54.1	54.1
60	12:31:48		60	60

Site 1 - South Side of Harvey Way					Site 2 - West Side of Briercrest Avenue				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
51.2	12:26:51		51.2	51.2	51.8	12:31:51		51.8	51.8
48.6	12:26:54		48.6	48.6	50.6	12:31:54		50.6	50.6
47.9	12:26:57		47.9	47.9	51.9	12:31:57		51.9	51.9
48.9	12:27:00		48.9	48.9	52.5	12:32:00		52.5	52.5
51.1	12:27:03		51.1	51.1	53.4	12:32:03		53.4	53.4
53.2	12:27:06		53.2	53.2	58.1	12:32:06		58.1	58.1
54.6	12:27:09		54.6	54.6	55.2	12:32:09		55.2	55.2
59.1	12:27:12		59.1	59.1	59.6	12:32:12		59.6	59.6
66	12:27:15		66	66	64.8	12:32:15		64.8	64.8
56.2	12:27:18		56.2	56.2	61	12:32:18		61	61
67.6	12:27:21		67.6	67.6	63.4	12:32:21		63.4	63.4
53.2	12:27:24		53.2	53.2	60.4	12:32:24		60.4	60.4
49.1	12:27:27		49.1	49.1	55.2	12:32:27		55.2	55.2
48	12:27:30		48	48	52.9	12:32:30		52.9	52.9
49.8	12:27:33		49.8	49.8	53	12:32:33		53	53
61.7	12:27:36		61.7	61.7	62	12:32:36		62	62
64.8	12:27:39		64.8	64.8	53.7	12:32:39		53.7	53.7
51.7	12:27:42		51.7	51.7	56	12:32:42		56	56
49.3	12:27:45		49.3	49.3	58.7	12:32:45		58.7	58.7
51.5	12:27:48		51.5	51.5	58.5	12:32:48		58.5	58.5
57.6	12:27:51		57.6	57.6	55.8	12:32:51		55.8	55.8
63.6	12:27:54		63.6	63.6	52.3	12:32:54		52.3	52.3
60.7	12:27:57		60.7	60.7	51.4	12:32:57		51.4	51.4
54.5	12:28:00		54.5	54.5	55.8	12:33:00		55.8	55.8
55.8	12:28:03		55.8	55.8	57.3	12:33:03		57.3	57.3
58.9	12:28:06		58.9	58.9	57.7	12:33:06		57.7	57.7
53.3	12:28:09		53.3	53.3	57.4	12:33:09		57.4	57.4
50.1	12:28:12		50.1	50.1	53.4	12:33:12		53.4	53.4
59.2	12:28:15		59.2	59.2	55.7	12:33:15		55.7	55.7
48	12:28:18		48	48	53	12:33:18		53	53
47.3	12:28:21		47.3	47.3	50.2	12:33:21		50.2	50.2
53.2	12:28:24		53.2	53.2	49.4	12:33:24		49.4	49.4
59	12:28:27		59	59	48	12:33:27		48	48
52.5	12:28:30		52.5	52.5	47.9	12:33:30		47.9	47.9
58.2	12:28:33		58.2	58.2	49.6	12:33:33		49.6	49.6
55.3	12:28:36		55.3	55.3	47.7	12:33:36		47.7	47.7
54.7	12:28:39		54.7	54.7	47.9	12:33:39		47.9	47.9
48.3	12:28:42		48.3	48.3	47.9	12:33:42		47.9	47.9
49.5	12:28:45		49.5	49.5	47.4	12:33:45		47.4	47.4
47.4	12:28:48		47.4	47.4	49.7	12:33:48		49.7	49.7
51.1	12:28:51		51.1	51.1	53.7	12:33:51		53.7	53.7
46.1	12:28:54		46.1	46.1	52.1	12:33:54		52.1	52.1
47.4	12:28:57		47.4	47.4	57.7	12:33:57		57.7	57.7
48.6	12:29:00		48.6	48.6	72.5	12:34:00		72.5	72.5
58.2	12:29:03		58.2	58.2	59	12:34:03		59	59
58.1	12:29:06		58.1	58.1	62.9	12:34:06		62.9	62.9
49.9	12:29:09		49.9	49.9	59.2	12:34:09		59.2	59.2
56.1	12:29:12		56.1	56.1	53.7	12:34:12		53.7	53.7
49.7	12:29:15		49.7	49.7	55.9	12:34:15		55.9	55.9
50.4	12:29:18		50.4	50.4	55.8	12:34:18		55.8	55.8
62.5	12:29:21		62.5	62.5	57.9	12:34:21		57.9	57.9
62.3	12:29:24		62.3	62.3	51.7	12:34:24		51.7	51.7
66	12:29:27		66	66	57.9	12:34:27		57.9	57.9
65.9	12:29:30		65.9	65.9	60.2	12:34:30		60.2	60.2
56.7	12:29:33		56.7	56.7	48.9	12:34:33		48.9	48.9
50.3	12:29:36		50.3	50.3	49.8	12:34:36		49.8	49.8
63.9	12:29:39		63.9	63.9	51.1	12:34:39		51.1	51.1
50.5	12:29:42		50.5	50.5	57.8	12:34:42		57.8	57.8
50.5	12:29:45		50.5	50.5	51.6	12:34:45		51.6	51.6
60.6	12:29:48		60.6	60.6	58.9	12:34:48		58.9	58.9
53.7	12:29:51		53.7	53.7	56.5	12:34:51		56.5	56.5
59.9	12:29:54		59.9	59.9	54.4	12:34:54		54.4	54.4
58.3	12:29:57		58.3	58.3	52.6	12:34:57		52.6	52.6
48	12:30:00		48	48	52.9	12:35:00		52.9	52.9
46.6	12:30:03		46.6	46.6	52.8	12:35:03		52.8	52.8
46.3	12:30:06		46.3	46.3	51.1	12:35:06		51.1	51.1
47.4	12:30:09		47.4	47.4	49.9	12:35:09		49.9	49.9
51.4	12:30:12		51.4	51.4	48.6	12:35:12		48.6	48.6
55.9	12:30:15		55.9	55.9	47.9	12:35:15		47.9	47.9
58.3	12:30:18		58.3	58.3	47.4	12:35:18		47.4	47.4
53.1	12:30:21		53.1	53.1	48.4	12:35:21		48.4	48.4
59.4	12:30:24		59.4	59.4	48.5	12:35:24		48.5	48.5
55.6	12:30:27		55.6	55.6	54.4	12:35:27		54.4	54.4
55.1	12:30:30		55.1	55.1	56.5	12:35:30		56.5	56.5
47.6	12:30:33		47.6	47.6	56.1	12:35:33		56.1	56.1
46.6	12:30:36		46.6	46.6	59.7	12:35:36		59.7	59.7
47.3	12:30:39		47.3	47.3	50.3	12:35:39		50.3	50.3
47	12:30:42		47	47	48.1	12:35:42		48.1	48.1
49.5	12:30:45		49.5	49.5	54.5	12:35:45		54.5	54.5
47	12:30:48		47	47	51.6	12:35:48		51.6	51.6
50.9	12:30:51		50.9	50.9	49.7	12:35:51		49.7	49.7
58.1	12:30:54		58.1	58.1	58	12:35:54		58	58
49.6	12:30:57		49.6	49.6	58.8	12:35:57		58.8	58.8
49.3	12:31:00		49.3	49.3	56.7	12:36:00		56.7	56.7
48.8	12:31:03		48.8	48.8	55.9	12:36:03		55.9	55.9
48.2	12:31:06		48.2	48.2	56.2	12:36:06		56.2	56.2
45.7	12:31:09		45.7	45.7	53.6	12:36:09		53.6	53.6
48	12:31:12		48	48	58	12:36:12		58	58
55.4	12:31:15		55.4	55.4	61.7	12:36:15		61.7	61.7

Site 1 - South Side of Harvey Way					Site 2 - West Side of Briercrest Avenue				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
63.1	12:31:18		63.1	63.1	58.3	12:36:18		58.3	58.3
58.5	12:31:21		58.5	58.5	57.4	12:36:21		57.4	57.4
51.1	12:31:24		51.1	51.1	56	12:36:24		56	56
62.8	12:31:27		62.8	62.8	59.2	12:36:27		59.2	59.2
52.2	12:31:30		52.2	52.2	57.8	12:36:30		57.8	57.8
55.8	12:31:33		55.8	55.8	57.8	12:36:33		57.8	57.8
56.6	12:31:36		56.6	56.6	53.9	12:36:36		53.9	53.9
53.8	12:31:39		53.8	53.8	52.2	12:36:39		52.2	52.2
56.6	12:31:42		56.6	56.6	58	12:36:42		58	58
63.3	12:31:45		63.3	63.3	52.2	12:36:45		52.2	52.2
60.9	12:31:48		60.9	60.9	54.1	12:36:48		54.1	54.1
49.7	12:31:51		49.7	49.7	52.4	12:36:51		52.4	52.4
46.8	12:31:54		46.8	46.8	47.1	12:36:54		47.1	47.1
48.1	12:31:57		48.1	48.1	47.6	12:36:57		47.6	47.6
48.5	12:32:00		48.5	48.5	47.7	12:37:00		47.7	47.7
48.6	12:32:03		48.6	48.6	49.8	12:37:03		49.8	49.8
57.1	12:32:06		57.1	57.1	60.9	12:37:06		60.9	60.9
49.8	12:32:09		49.8	49.8	50.6	12:37:09		50.6	50.6
61.8	12:32:12		61.8	61.8	49	12:37:12		49	49
66.4	12:32:15		66.4	66.4	52.7	12:37:15		52.7	52.7
51.3	12:32:18		51.3	51.3	53.6	12:37:18		53.6	53.6
46.9	12:32:21		46.9	46.9	49.9	12:37:21		49.9	49.9
48.9	12:32:24		48.9	48.9	55.1	12:37:24		55.1	55.1
49.6	12:32:27		49.6	49.6	57.7	12:37:27		57.7	57.7
50.9	12:32:30		50.9	50.9	51.8	12:37:30		51.8	51.8
61.1	12:32:33		61.1	61.1	56.7	12:37:33		56.7	56.7
54.2	12:32:36		54.2	54.2	55.2	12:37:36		55.2	55.2
48.8	12:32:39		48.8	48.8	61.4	12:37:39		61.4	61.4
50	12:32:42		50	50	58.3	12:37:42		58.3	58.3
48.9	12:32:45		48.9	48.9	58.1	12:37:45		58.1	58.1
48.9	12:32:48		48.9	48.9	52.9	12:37:48		52.9	52.9
54.5	12:32:51		54.5	54.5	53.2	12:37:51		53.2	53.2
56.2	12:32:54		56.2	56.2	59.8	12:37:54		59.8	59.8
53.1	12:32:57		53.1	53.1	55.3	12:37:57		55.3	55.3
56.1	12:33:00		56.1	56.1	50.5	12:38:00		50.5	50.5
59.8	12:33:03		59.8	59.8	57.8	12:38:03		57.8	57.8
56.1	12:33:06		56.1	56.1	53.1	12:38:06		53.1	53.1
54.1	12:33:09		54.1	54.1	44.4	12:38:09		44.4	44.4
54.2	12:33:12		54.2	54.2	44	12:38:12		44	44
64.1	12:33:15		64.1	64.1	44.2	12:38:15		44.2	44.2
66.6	12:33:18		66.6	66.6	58	12:38:18		58	58
55	12:33:21		55	55	61.2	12:38:21		61.2	61.2
51	12:33:24		51	51	48.5	12:38:24		48.5	48.5
55.2	12:33:27		55.2	55.2	45.6	12:38:27		45.6	45.6
52.9	12:33:30		52.9	52.9	46.4	12:38:30		46.4	46.4
47.9	12:33:33		47.9	47.9	45.5	12:38:33		45.5	45.5
47.3	12:33:36		47.3	47.3	45.8	12:38:36		45.8	45.8
48.4	12:33:39		48.4	48.4	48	12:38:39		48	48
50.3	12:33:42		50.3	50.3	51.6	12:38:42		51.6	51.6
65.2	12:33:45		65.2	65.2	54.1	12:38:45		54.1	54.1
58.1	12:33:48		58.1	58.1	48.5	12:38:48		48.5	48.5
50	12:33:51		50	50	47.3	12:38:51		47.3	47.3
61.7	12:33:54		61.7	61.7	46.2	12:38:54		46.2	46.2
57.6	12:33:57		57.6	57.6	49.6	12:38:57		49.6	49.6
49.9	12:34:00		49.9	49.9	50.8	12:39:00		50.8	50.8
53.3	12:34:03		53.3	53.3	51.8	12:39:03		51.8	51.8
60.6	12:34:06		60.6	60.6	46.9	12:39:06		46.9	46.9
49.5	12:34:09		49.5	49.5	47.7	12:39:09		47.7	47.7
48.5	12:34:12		48.5	48.5	56.3	12:39:12		56.3	56.3
57.1	12:34:15		57.1	57.1	51	12:39:15		51	51
63.9	12:34:18		63.9	63.9	46.6	12:39:18		46.6	46.6
50.7	12:34:21		50.7	50.7	47.1	12:39:21		47.1	47.1
47.7	12:34:24		47.7	47.7	47.4	12:39:24		47.4	47.4
46.2	12:34:27		46.2	46.2	53.1	12:39:27		53.1	53.1
46.6	12:34:30		46.6	46.6	55.8	12:39:30		55.8	55.8
47.1	12:34:33		47.1	47.1	49.6	12:39:33		49.6	49.6
46.1	12:34:36		46.1	46.1	48.8	12:39:36		48.8	48.8
47.1	12:34:39		47.1	47.1	47.4	12:39:39		47.4	47.4
60.7	12:34:42		60.7	60.7	46.4	12:39:42		46.4	46.4
59.4	12:34:45		59.4	59.4	46.3	12:39:45		46.3	46.3
49.3	12:34:48		49.3	49.3	47	12:39:48		47	47
47.8	12:34:51		47.8	47.8	48.1	12:39:51		48.1	48.1
52.3	12:34:54		52.3	52.3	47.8	12:39:54		47.8	47.8
54.1	12:34:57		54.1	54.1	48.3	12:39:57		48.3	48.3
54	12:35:00		54	54	49.9	12:40:00		49.9	49.9
63	12:35:03		63	63	54.3	12:40:03		54.3	54.3
56	12:35:06		56	56	49.8	12:40:06		49.8	49.8
51.6	12:35:09		51.6	51.6	49.2	12:40:09		49.2	49.2
48.8	12:35:12		48.8	48.8	53.8	12:40:12		53.8	53.8
50.4	12:35:15		50.4	50.4	53.7	12:40:15		53.7	53.7
54.7	12:35:18		54.7	54.7	57.4	12:40:18		57.4	57.4
66.6	12:35:21		66.6	66.6	56.5	12:40:21		56.5	56.5
55.6	12:35:24		55.6	55.6	51.5	12:40:24		51.5	51.5
48	12:35:27		48	48	50.6	12:40:27		50.6	50.6
47.6	12:35:30		47.6	47.6	48.9	12:40:30		48.9	48.9
48.7	12:35:33		48.7	48.7	52.4	12:40:33		52.4	52.4
47.3	12:35:36		47.3	47.3	52.4	12:40:36		52.4	52.4
47.9	12:35:39		47.9	47.9	52.8	12:40:39		52.8	52.8
48.9	12:35:42		48.9	48.9	52.1	12:40:42		52.1	52.1

Site 1 - South Side of Harvey Way					Site 2 - West Side of Briercrest Avenue				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
47.7	12:35:45		47.7	47.7	50.7	12:40:45		50.7	50.7
49	12:35:48		49	49	49	12:40:48		49	49
47.6	12:35:51		47.6	47.6	47.1	12:40:51		47.1	47.1
49.9	12:35:54		49.9	49.9	53.9	12:40:54		53.9	53.9
61.4	12:35:57		61.4	61.4	50.7	12:40:57		50.7	50.7
58	12:36:00		58	58	54.8	12:41:00		54.8	54.8
52.1	12:36:03		52.1	52.1	48	12:41:03		48	48
67.9	12:36:06		67.9	67.9	47.3	12:41:06		47.3	47.3
54.6	12:36:09		54.6	54.6	48.4	12:41:09		48.4	48.4
53.8	12:36:12		53.8	53.8	51	12:41:12		51	51
61	12:36:15		61	61	60	12:41:15		60	60
59.6	12:36:18		59.6	59.6	54.8	12:41:18		54.8	54.8
53.2	12:36:21		53.2	53.2	48.5	12:41:21		48.5	48.5
52.2	12:36:24		52.2	52.2	49.4	12:41:24		49.4	49.4
52.4	12:36:27		52.4	52.4	60.5	12:41:27		60.5	60.5
47.1	12:36:30		47.1	47.1	55.2	12:41:30		55.2	55.2
46.8	12:36:33		46.8	46.8	51.1	12:41:33		51.1	51.1
46.6	12:36:36		46.6	46.6	52	12:41:36		52	52
47.5	12:36:39		47.5	47.5	50	12:41:39		50	50
50.4	12:36:42		50.4	50.4	49.4	12:41:42		49.4	49.4
48	12:36:45		48	48	51	12:41:45		51	51
56.5	12:36:48		56.5	56.5	51.4	12:41:48		51.4	51.4
53.7	12:36:51		53.7	53.7	53.4	12:41:51		53.4	53.4
52.3	12:36:54		52.3	52.3	56.1	12:41:54		56.1	56.1
57.2	12:36:57		57.2	57.2	54.2	12:41:57		54.2	54.2
65.7	12:37:00		65.7	65.7	49.5	12:42:00		49.5	49.5
60.6	12:37:03		60.6	60.6	53.6	12:42:03		53.6	53.6
55.9	12:37:06		55.9	55.9	58.3	12:42:06		58.3	58.3
56.4	12:37:09		56.4	56.4	60.6	12:42:09		60.6	60.6
59.4	12:37:12		59.4	59.4	62.2	12:42:12		62.2	62.2
59.1	12:37:15		59.1	59.1	54.6	12:42:15		54.6	54.6
53.6	12:37:18		53.6	53.6	54.3	12:42:18		54.3	54.3
56.1	12:37:21		56.1	56.1	54.6	12:42:21		54.6	54.6
50.7	12:37:24		50.7	50.7	50.9	12:42:24		50.9	50.9
52.4	12:37:27		52.4	52.4	49.4	12:42:27		49.4	49.4
61	12:37:30		61	61	51.8	12:42:30		51.8	51.8
64.6	12:37:33		64.6	64.6	52.6	12:42:33		52.6	52.6
57.8	12:37:36		57.8	57.8	48.3	12:42:36		48.3	48.3
69.2	12:37:39		69.2	69.2	51.8	12:42:39		51.8	51.8
57.3	12:37:42		57.3	57.3	49.8	12:42:42		49.8	49.8
46.8	12:37:45		46.8	46.8	46	12:42:45		46	46
44.1	12:37:48		44.1	44.1	46.7	12:42:48		46.7	46.7
46.1	12:37:51		46.1	46.1	47.1	12:42:51		47.1	47.1
57.4	12:37:54		57.4	57.4	47.1	12:42:54		47.1	47.1
55.7	12:37:57		55.7	55.7	47.1	12:42:57		47.1	47.1
45.8	12:38:00		45.8	45.8	47.7	12:43:00		47.7	47.7
43	12:38:03		43	43	49.8	12:43:03		49.8	49.8
45.6	12:38:06		45.6	45.6	52.2	12:43:06		52.2	52.2
56.4	12:38:09		56.4	56.4	60.4	12:43:09		60.4	60.4
48.4	12:38:12		48.4	48.4	57.2	12:43:12		57.2	57.2
46.4	12:38:15		46.4	46.4	47.9	12:43:15		47.9	47.9
55.1	12:38:18		55.1	55.1	47.8	12:43:18		47.8	47.8
57.1	12:38:21		57.1	57.1	47.6	12:43:21		47.6	47.6
56.1	12:38:24		56.1	56.1	48.9	12:43:24		48.9	48.9
50.5	12:38:27		50.5	50.5	49	12:43:27		49	49
49.3	12:38:30		49.3	49.3	54.7	12:43:30		54.7	54.7
63.8	12:38:33		63.8	63.8	50.8	12:43:33		50.8	50.8
50.1	12:38:36		50.1	50.1	47.3	12:43:36		47.3	47.3
56.5	12:38:39		56.5	56.5	47.5	12:43:39		47.5	47.5
51.7	12:38:42		51.7	51.7	49.3	12:43:42		49.3	49.3
44	12:38:45		44	44	54.4	12:43:45		54.4	54.4
42.6	12:38:48		42.6	42.6	57.8	12:43:48		57.8	57.8
52.2	12:38:51		52.2	52.2	61.2	12:43:51		61.2	61.2
60.2	12:38:54		60.2	60.2	57	12:43:54		57	57
48.6	12:38:57		48.6	48.6	64.9	12:43:57		64.9	64.9
42.4	12:39:00		42.4	42.4	68.9	12:44:00		68.9	68.9
40.7	12:39:03		40.7	40.7	79.7	12:44:03		79.7	79.7
41.3	12:39:06		41.3	41.3	71.3	12:44:06		71.3	71.3
41.3	12:39:09		41.3	41.3	64.7	12:44:09		64.7	64.7
63.9	12:39:12		63.9	63.9	60.6	12:44:12		60.6	60.6
63.2	12:39:15		63.2	63.2	63.5	12:44:15		63.5	63.5
51.4	12:39:18		51.4	51.4	56.9	12:44:18		56.9	56.9
42.6	12:39:21		42.6	42.6	53.9	12:44:21		53.9	53.9
42.4	12:39:24		42.4	42.4	58.6	12:44:24		58.6	58.6
45.2	12:39:27		45.2	45.2	58.8	12:44:27		58.8	58.8
57.1	12:39:30		57.1	57.1	57.2	12:44:30		57.2	57.2
51.5	12:39:33		51.5	51.5	55	12:44:33		55	55
46.4	12:39:36		46.4	46.4	64.5	12:44:36		64.5	64.5
46.7	12:39:39		46.7	46.7	67.5	12:44:39		67.5	67.5
45.2	12:39:42		45.2	45.2	69.4	12:44:42		69.4	69.4
45.2	12:39:45		45.2	45.2	62.5	12:44:45		62.5	62.5
56	12:39:48		56	56	54	12:44:48		54	54
51.4	12:39:51		51.4	51.4	50.5	12:44:51		50.5	50.5
44.3	12:39:54		44.3	44.3	47.6	12:44:54		47.6	47.6
43.7	12:39:57		43.7	43.7	49.2	12:44:57		49.2	49.2
52.6	12:40:00		52.6	52.6	46.8	12:45:00		46.8	46.8
54.4	12:40:03		54.4	54.4	46.3	12:45:03		46.3	46.3
47.1	12:40:06		47.1	47.1	46.4	12:45:06		46.4	46.4
42.6	12:40:09		42.6	42.6	45.4	12:45:09		45.4	45.4

Site 1 - South Side of Harvey Way					Site 2 - West Side of Briercrest Avenue				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
42.4	12:40:12		42.4	42.4	46.2	12:45:12		46.2	46.2
42.2	12:40:15		42.2	42.2	48.5	12:45:15		48.5	48.5
43.5	12:40:18		43.5	43.5	56.3	12:45:18		56.3	56.3
50.8	12:40:21		50.8	50.8	56.1	12:45:21		56.1	56.1
44.8	12:40:24		44.8	44.8	63.5	12:45:24		63.5	63.5
50.6	12:40:27		50.6	50.6	55	12:45:27		55	55
69.8	12:40:30		69.8	69.8	50	12:45:30		50	50
60.9	12:40:33		60.9	60.9	57.5	12:45:33		57.5	57.5
60.9	12:40:36		60.9	60.9	47.9	12:45:36		47.9	47.9
46.8	12:40:39		46.8	46.8	47.8	12:45:39		47.8	47.8
47.1	12:40:42		47.1	47.1	50.5	12:45:42		50.5	50.5
46.7	12:40:45		46.7	46.7	53.4	12:45:45		53.4	53.4
56	12:40:48		56	56	49.5	12:45:48		49.5	49.5
47.5	12:40:51		47.5	47.5	50.5	12:45:51		50.5	50.5
44.9	12:40:54		44.9	44.9	58.4	12:45:54		58.4	58.4
46.5	12:40:57		46.5	46.5	59.4	12:45:57		59.4	59.4
47.8	12:41:00		47.8	47.8	54.5	12:46:00		54.5	54.5
51.4	12:41:03		51.4	51.4	52.8	12:46:03		52.8	52.8
56.2	12:41:06		56.2	56.2	57.4	12:46:06		57.4	57.4
56.5	12:41:09		56.5	56.5	52.1	12:46:09		52.1	52.1
53	12:41:12		53	53	54.8	12:46:12		54.8	54.8
62.6	12:41:15		62.6	62.6	52.4	12:46:15		52.4	52.4
59.9	12:41:18		59.9	59.9	53.3	12:46:18		53.3	53.3
48.6	12:41:21		48.6	48.6	52.1	12:46:21		52.1	52.1
48.8	12:41:24		48.8	48.8	58	12:46:24		58	58
49	12:41:27		49	49	58.4	12:46:27		58.4	58.4
50	12:41:30		50	50	57.9	12:46:30		57.9	57.9
50.5	12:41:33		50.5	50.5	54.4	12:46:33		54.4	54.4
50.7	12:41:36		50.7	50.7	55.8	12:46:36		55.8	55.8
48.1	12:41:39		48.1	48.1	55.6	12:46:39		55.6	55.6
47.3	12:41:42		47.3	47.3	58.7	12:46:42		58.7	58.7
55.9	12:41:45		55.9	55.9	57.7	12:46:45		57.7	57.7
49.5	12:41:48		49.5	49.5	58.2	12:46:48		58.2	58.2
47.7	12:41:51		47.7	47.7	64.6	12:46:51		64.6	64.6
68.3	12:41:54		68.3	68.3	60.8	12:46:54		60.8	60.8
55.5	12:41:57		55.5	55.5	60.3	12:46:57		60.3	60.3
44	12:42:00		44	44	55.8	12:47:00		55.8	55.8
42.9	12:42:03		42.9	42.9	52.5	12:47:03		52.5	52.5
44.1	12:42:06		44.1	44.1	50.8	12:47:06		50.8	50.8
47.4	12:42:09		47.4	47.4	47.6	12:47:09		47.6	47.6
47.8	12:42:12		47.8	47.8	46.8	12:47:12		46.8	46.8
57.7	12:42:15		57.7	57.7	50.5	12:47:15		50.5	50.5
52.4	12:42:18		52.4	52.4	53	12:47:18		53	53
51.4	12:42:21		51.4	51.4	53.9	12:47:21		53.9	53.9
48.4	12:42:24		48.4	48.4	46.4	12:47:24		46.4	46.4
44.7	12:42:27		44.7	44.7	46.8	12:47:27		46.8	46.8
46.8	12:42:30		46.8	46.8	46.8	12:47:30		46.8	46.8
50.4	12:42:33		50.4	50.4	47	12:47:33		47	47
63.3	12:42:36		63.3	63.3	46.5	12:47:36		46.5	46.5
55	12:42:39		55	55	46.2	12:47:39		46.2	46.2
53.7	12:42:42		53.7	53.7	46.2	12:47:42		46.2	46.2
57.9	12:42:45		57.9	57.9	46.4	12:47:45		46.4	46.4
49.1	12:42:48		49.1	49.1	48.1	12:47:48		48.1	48.1
45.8	12:42:51		45.8	45.8	49.8	12:47:51		49.8	49.8
47.6	12:42:54		47.6	47.6	56.8	12:47:54		56.8	56.8
48.5	12:42:57		48.5	48.5	54.5	12:47:57		54.5	54.5
66	12:43:00		66	66	50.4	12:48:00		50.4	50.4
65.7	12:43:03		65.7	65.7	49.2	12:48:03		49.2	49.2
57.9	12:43:06		57.9	57.9	57.1	12:48:06		57.1	57.1
55.1	12:43:09		55.1	55.1	54.7	12:48:09		54.7	54.7
68.1	12:43:12		68.1	68.1	55.9	12:48:12		55.9	55.9
60.3	12:43:15		60.3	60.3	60.4	12:48:15		60.4	60.4
67.6	12:43:18		67.6	67.6	60.9	12:48:18		60.9	60.9
63.7	12:43:21		63.7	63.7	55.8	12:48:21		55.8	55.8
51.5	12:43:24		51.5	51.5	67.1	12:48:24		67.1	67.1
54.4	12:43:27		54.4	54.4	66.4	12:48:27		66.4	66.4
45.5	12:43:30		45.5	45.5	61.7	12:48:30		61.7	61.7
47.9	12:43:33		47.9	47.9	51.8	12:48:33		51.8	51.8
46.6	12:43:36		46.6	46.6	58.7	12:48:36		58.7	58.7
44.3	12:43:39		44.3	44.3	48.8	12:48:39		48.8	48.8
44.4	12:43:42		44.4	44.4	46.2	12:48:42		46.2	46.2
44.1	12:43:45		44.1	44.1	48.7	12:48:45		48.7	48.7
49.8	12:43:48		49.8	49.8	48.4	12:48:48		48.4	48.4
54.3	12:43:51		54.3	54.3	44.6	12:48:51		44.6	44.6
65.7	12:43:54		65.7	65.7	46.9	12:48:54		46.9	46.9
60.9	12:43:57		60.9	60.9	57	12:48:57		57	57
51.6	12:44:00		51.6	51.6	51.9	12:49:00		51.9	51.9
46.2	12:44:03		46.2	46.2	45.4	12:49:03		45.4	45.4
44.2	12:44:06		44.2	44.2	44.8	12:49:06		44.8	44.8
43.7	12:44:09		43.7	43.7	44.8	12:49:09		44.8	44.8
52.4	12:44:12		52.4	52.4	45.4	12:49:12		45.4	45.4
59.5	12:44:15		59.5	59.5	45.8	12:49:15		45.8	45.8
57.4	12:44:18		57.4	57.4	50.6	12:49:18		50.6	50.6
54.3	12:44:21		54.3	54.3	49.2	12:49:21		49.2	49.2
47.4	12:44:24		47.4	47.4	47.1	12:49:24		47.1	47.1
44.8	12:44:27		44.8	44.8	45.2	12:49:27		45.2	45.2
45.3	12:44:30		45.3	45.3	45.4	12:49:30		45.4	45.4
45.8	12:44:33		45.8	45.8	45.2	12:49:33		45.2	45.2
53.5	12:44:36		53.5	53.5	45	12:49:36		45	45

Site 1 - South Side of Harvey Way					Site 2 - West Side of Briercrest Avenue				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
62.5	12:44:39		62.5	62.5	45.1	12:49:39		45.1	45.1
61.8	12:44:42		61.8	61.8	44.9	12:49:42		44.9	44.9
71.3	12:44:45		71.3	71.3	46.9	12:49:45		46.9	46.9
76.3	12:44:48		76.3	76.3	47.4	12:49:48		47.4	47.4
68.5	12:44:51		68.5	68.5	51.3	12:49:51		51.3	51.3
68.3	12:44:54		68.3	68.3	50.6	12:49:54		50.6	50.6
85.2	12:44:57		85.2	85.2	59.6	12:49:57		59.6	59.6
67.9	12:45:00		67.9	67.9	50.7	12:50:00		50.7	50.7
52.7	12:45:03		52.7	52.7	48.6	12:50:03		48.6	48.6
51.2	12:45:06		51.2	51.2	51.1	12:50:06		51.1	51.1
63	12:45:09		63	63	54	12:50:09		54	54
66.1	12:45:12		66.1	66.1	58.4	12:50:12		58.4	58.4
56.2	12:45:15		56.2	56.2	54.9	12:50:15		54.9	54.9
62.3	12:45:18		62.3	62.3	53.7	12:50:18		53.7	53.7
64.4	12:45:21		64.4	64.4	53.7	12:50:21		53.7	53.7
69	12:45:24		69	69	53.3	12:50:24		53.3	53.3
77.4	12:45:27		77.4	77.4	53.4	12:50:27		53.4	53.4
71.2	12:45:30		71.2	71.2	55.3	12:50:30		55.3	55.3
64.4	12:45:33		64.4	64.4	51.6	12:50:33		51.6	51.6
66.3	12:45:36		66.3	66.3	48.3	12:50:36		48.3	48.3
55.8	12:45:39		55.8	55.8	47.2	12:50:39		47.2	47.2
49.1	12:45:42		49.1	49.1	47.6	12:50:42		47.6	47.6
49.7	12:45:45		49.7	49.7	50.8	12:50:45		50.8	50.8
50	12:45:48		50	50	52.6	12:50:48		52.6	52.6
66.3	12:45:51		66.3	66.3	50.7	12:50:51		50.7	50.7
51.5	12:45:54		51.5	51.5	52.8	12:50:54		52.8	52.8
44.3	12:45:57		44.3	44.3	52.4	12:50:57		52.4	52.4
47.5	12:46:00		47.5	47.5	55.4	12:51:00		55.4	55.4
55.4	12:46:03		55.4	55.4	68.9	12:51:03		68.9	68.9
55.1	12:46:06		55.1	55.1	58.9	12:51:06		58.9	58.9
52.8	12:46:09		52.8	52.8	51.3	12:51:09		51.3	51.3
62.1	12:46:12		62.1	62.1	49.8	12:51:12		49.8	49.8
52.1	12:46:15		52.1	52.1	47.4	12:51:15		47.4	47.4
47.9	12:46:18		47.9	47.9	46.5	12:51:18		46.5	46.5
57.5	12:46:21		57.5	57.5	49.2	12:51:21		49.2	49.2
49.2	12:46:24		49.2	49.2	49.3	12:51:24		49.3	49.3
54.5	12:46:27		54.5	54.5	47.8	12:51:27		47.8	47.8
53.7	12:46:30		53.7	53.7	47.5	12:51:30		47.5	47.5
48.8	12:46:33		48.8	48.8	49.5	12:51:33		49.5	49.5
51.3	12:46:36		51.3	51.3	49.5	12:51:36		49.5	49.5
52.4	12:46:39		52.4	52.4	50.3	12:51:39		50.3	50.3
46	12:46:42		46	46	49.6	12:51:42		49.6	49.6
42.6	12:46:45		42.6	42.6	48.2	12:51:45		48.2	48.2
43.1	12:46:48		43.1	43.1	49.7	12:51:48		49.7	49.7
43.4	12:46:51		43.4	43.4	50.8	12:51:51		50.8	50.8
45.1	12:46:54		45.1	45.1	49.3	12:51:54		49.3	49.3
53.9	12:46:57		53.9	53.9	49.6	12:51:57		49.6	49.6
63.5	12:47:00		63.5	63.5	48.8	12:52:00		48.8	48.8
51	12:47:03		51	51	55.6	12:52:03		55.6	55.6
55.5	12:47:06		55.5	55.5	48.3	12:52:06		48.3	48.3
49.8	12:47:09		49.8	49.8	47.2	12:52:09		47.2	47.2
60.3	12:47:12		60.3	60.3	51.2	12:52:12		51.2	51.2
61	12:47:15		61	61	46.7	12:52:15		46.7	46.7
51.1	12:47:18		51.1	51.1	45.4	12:52:18		45.4	45.4
60.4	12:47:21		60.4	60.4	45.5	12:52:21		45.5	45.5
53.5	12:47:24		53.5	53.5	45.8	12:52:24		45.8	45.8
52.9	12:47:27		52.9	52.9	45.5	12:52:27		45.5	45.5
56.5	12:47:30		56.5	56.5	47.5	12:52:30		47.5	47.5
63.3	12:47:33		63.3	63.3	64.8	12:52:33		64.8	64.8
59.1	12:47:36		59.1	59.1	58.2	12:52:36		58.2	58.2
59.7	12:47:39		59.7	59.7	53.5	12:52:39		53.5	53.5
62.8	12:47:42		62.8	62.8	56.2	12:52:42		56.2	56.2
66.5	12:47:45		66.5	66.5	62.5	12:52:45		62.5	62.5
66	12:47:48		66	66	54.1	12:52:48		54.1	54.1
63.7	12:47:51		63.7	63.7	60.7	12:52:51		60.7	60.7
57.7	12:47:54		57.7	57.7	50.7	12:52:54		50.7	50.7
53.9	12:47:57		53.9	53.9	52.7	12:52:57		52.7	52.7
52	12:48:00		52	52	53.3	12:53:00		53.3	53.3
54.3	12:48:03		54.3	54.3	53.5	12:53:03		53.5	53.5
61.8	12:48:06		61.8	61.8	48.6	12:53:06		48.6	48.6
57.9	12:48:09		57.9	57.9	58.7	12:53:09		58.7	58.7
50.3	12:48:12		50.3	50.3	52.2	12:53:12		52.2	52.2
49.3	12:48:15		49.3	49.3	51.7	12:53:15		51.7	51.7
49.9	12:48:18		49.9	49.9	60.8	12:53:18		60.8	60.8
53.1	12:48:21		53.1	53.1	52.3	12:53:21		52.3	52.3
56.5	12:48:24		56.5	56.5	54	12:53:24		54	54
57	12:48:27		57	57	48.2	12:53:27		48.2	48.2
56.8	12:48:30		56.8	56.8	45.2	12:53:30		45.2	45.2
55.4	12:48:33		55.4	55.4	45.6	12:53:33		45.6	45.6
55.3	12:48:36		55.3	55.3	45.1	12:53:36		45.1	45.1
56.4	12:48:39		56.4	56.4	44.8	12:53:39		44.8	44.8
59.4	12:48:42		59.4	59.4	45.7	12:53:42		45.7	45.7
58.2	12:48:45		58.2	58.2	46.3	12:53:45		46.3	46.3
55.2	12:48:48		55.2	55.2	48.1	12:53:48		48.1	48.1
55.4	12:48:51		55.4	55.4	52.7	12:53:51		52.7	52.7
56.6	12:48:54		56.6	56.6	48.7	12:53:54		48.7	48.7
64.3	12:48:57		64.3	64.3	46.7	12:53:57		46.7	46.7
56.8	12:49:00		56.8	56.8	46.1	12:54:00		46.1	46.1
55.4	12:49:03		55.4	55.4	46.5	12:54:03		46.5	46.5
50.7	12:49:06		50.7	50.7	44.6	12:54:06		44.6	44.6
56.7	12:49:09		56.7	56.7	45.8	12:54:09		45.8	45.8
55.9	12:49:12		55.9	55.9	52.2	12:54:12		52.2	52.2
53.6	12:49:15		53.6	53.6	50.5	12:54:15		50.5	50.5
46.2	12:49:18		46.2	46.2	56.6	12:54:18		56.6	56.6
50.4	12:49:21		50.4	50.4	52.9	12:54:21		52.9	52.9

Site 1 - South Side of Harvey Way					Site 2 - West Side of Briercrest Avenue				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
59.3	12:49:24		59.3	59.3	49.7	12:54:24		49.7	49.7
57.7	12:49:27		57.7	57.7	46.2	12:54:27		46.2	46.2
60.1	12:49:30		60.1	60.1	45	12:54:30		45	45
52	12:49:33		52	52	44.9	12:54:33		44.9	44.9
44.1	12:49:36		44.1	44.1	46.2	12:54:36		46.2	46.2
48	12:49:39		48	48	44.9	12:54:39		44.9	44.9
46.5	12:49:42		46.5	46.5	45.2	12:54:42		45.2	45.2
53.4	12:49:45		53.4	53.4	49	12:54:45		49	49
52.8	12:49:48		52.8	52.8	56.4	12:54:48		56.4	56.4
47.7	12:49:51		47.7	47.7	50.7	12:54:51		50.7	50.7
49.5	12:49:54		49.5	49.5	51.2	12:54:54		51.2	51.2
43.9	12:49:57		43.9	43.9	52.7	12:54:57		52.7	52.7
44.4	12:50:00		44.4	44.4	55.7	12:55:00		55.7	55.7
44.7	12:50:03		44.7	44.7	52.7	12:55:03		52.7	52.7
44.8	12:50:06		44.8	44.8	52.6	12:55:06		52.6	52.6
43.4	12:50:09		43.4	43.4	53.8	12:55:09		53.8	53.8
43.7	12:50:12		43.7	43.7	60	12:55:12		60	60
45	12:50:15		45	45	55.8	12:55:15		55.8	55.8
52	12:50:18		52	52	55	12:55:18		55	55
59.6	12:50:21		59.6	59.6	62.5	12:55:21		62.5	62.5
47.2	12:50:24		47.2	47.2	54.2	12:55:24		54.2	54.2
43.1	12:50:27		43.1	43.1	49.8	12:55:27		49.8	49.8
44.1	12:50:30		44.1	44.1	48.1	12:55:30		48.1	48.1
44.2	12:50:33		44.2	44.2	49.7	12:55:33		49.7	49.7
43.4	12:50:36		43.4	43.4	54.7	12:55:36		54.7	54.7
44.9	12:50:39		44.9	44.9	56	12:55:39		56	56
46.4	12:50:42		46.4	46.4	54.2	12:55:42		54.2	54.2
55.9	12:50:45		55.9	55.9	53.1	12:55:45		53.1	53.1
53	12:50:48		53	53	55.5	12:55:48		55.5	55.5
53.4	12:50:51		53.4	53.4	52.2	12:55:51		52.2	52.2
55.7	12:50:54		55.7	55.7	53.4	12:55:54		53.4	53.4
47.9	12:50:57		47.9	47.9	51.2	12:55:57		51.2	51.2
48.1	12:51:00		48.1	48.1	49.9	12:56:00		49.9	49.9
50.7	12:51:03		50.7	50.7	54.5	12:56:03		54.5	54.5
48.7	12:51:06		48.7	48.7	50	12:56:06		50	50
51.4	12:51:09		51.4	51.4	56.9	12:56:09		56.9	56.9
55.6	12:51:12		55.6	55.6	53.1	12:56:12		53.1	53.1
59	12:51:15		59	59	50.6	12:56:15		50.6	50.6
57.2	12:51:18		57.2	57.2	48.3	12:56:18		48.3	48.3
56.2	12:51:21		56.2	56.2	47	12:56:21		47	47
55	12:51:24		55	55	47.8	12:56:24		47.8	47.8
49.7	12:51:27		49.7	49.7	46.7	12:56:27		46.7	46.7
48.8	12:51:30		48.8	48.8	49.4	12:56:30		49.4	49.4
63.5	12:51:33		63.5	63.5	51.3	12:56:33		51.3	51.3
52.3	12:51:36		52.3	52.3	50.6	12:56:36		50.6	50.6
45.2	12:51:39		45.2	45.2	63.4	12:56:39		63.4	63.4
45.3	12:51:42		45.3	45.3	49.4	12:56:42		49.4	49.4
51.2	12:51:45		51.2	51.2	45.3	12:56:45		45.3	45.3
62.3	12:51:48		62.3	62.3	45.6	12:56:48		45.6	45.6
57.3	12:51:51		57.3	57.3	46.5	12:56:51		46.5	46.5
55.6	12:51:54		55.6	55.6	49.4	12:56:54		49.4	49.4
59.3	12:51:57		59.3	59.3	49.6	12:56:57		49.6	49.6
54.1	12:52:00		54.1	54.1	46.2	12:57:00		46.2	46.2
48.6	12:52:03		48.6	48.6	45.4	12:57:03		45.4	45.4
48.5	12:52:06		48.5	48.5	45.2	12:57:06		45.2	45.2
46.2	12:52:09		46.2	46.2	44.7	12:57:09		44.7	44.7
44.9	12:52:12		44.9	44.9	45.3	12:57:12		45.3	45.3
48.1	12:52:15		48.1	48.1	44.9	12:57:15		44.9	44.9
45.7	12:52:18		45.7	45.7	45.3	12:57:18		45.3	45.3
44.7	12:52:21		44.7	44.7	47.2	12:57:21		47.2	47.2
46.6	12:52:24		46.6	46.6	54.5	12:57:24		54.5	54.5
48.7	12:52:27		48.7	48.7	47.4	12:57:27		47.4	47.4
45.4	12:52:30		45.4	45.4	44.5	12:57:30		44.5	44.5
45.5	12:52:33		45.5	45.5	44.8	12:57:33		44.8	44.8
43.1	12:52:36		43.1	43.1	45	12:57:36		45	45
47.8	12:52:39		47.8	47.8	46.7	12:57:39		46.7	46.7
46.7	12:52:42		46.7	46.7	48.1	12:57:42		48.1	48.1
45.1	12:52:45		45.1	45.1	56.1	12:57:45		56.1	56.1
46.5	12:52:48		46.5	46.5	51.5	12:57:48		51.5	51.5
43.9	12:52:51		43.9	43.9	45.1	12:57:51		45.1	45.1
43.1	12:52:54		43.1	43.1	47.7	12:57:54		47.7	47.7
46.8	12:52:57		46.8	46.8	58.9	12:57:57		58.9	58.9
57.1	12:53:00	59.7	57.1	57.1	56.1	12:58:00	57.4	56.1	56.1
58.6	12:53:03	59.7	58.6	58.6	48.4	12:58:03	57.4	48.4	48.4
46.4	12:53:06	59.7	46.4	46.4	45.6	12:58:06	57.0	45.6	45.6
46.3	12:53:09	59.7	46.3	46.3	45.7	12:58:09	57.0	45.7	45.7
60.6	12:53:12	59.7	60.6	60.6	50	12:58:12	57.0	50	50
51	12:53:15	59.7	51	51	55.3	12:58:15	56.9	55.3	55.3
44.4	12:53:18	59.7	44.4	44.4	52.2	12:58:18	56.8	52.2	52.2
43	12:53:21	59.7	43	43	48.5	12:58:21	56.8	48.5	48.5
44	12:53:24	59.7	44	44	46.8	12:58:24	56.8	46.8	46.8
46.5	12:53:27	59.7	46.5	46.5	48.3	12:58:27	56.7	48.3	48.3
54.4	12:53:30	59.7	54.4	54.4	53.1	12:58:30	56.7	53.1	53.1
61.8	12:53:33	59.7	61.8	61.8	50	12:58:33	56.6	50	50
58.1	12:53:36	59.7	58.1	58.1	51.6	12:58:36	56.6	51.6	51.6
58.7	12:53:39	59.6	58.7	58.7	47.7	12:58:39	56.6	47.7	47.7
52	12:53:42	59.6	52	52	49.4	12:58:42	56.6	49.4	49.4
52.5	12:53:45	59.6	52.5	52.5	55.2	12:58:45	56.6	55.2	55.2
55.9	12:53:48	59.6	55.9	55.9	48.7	12:58:48	56.6	48.7	48.7
49.2	12:53:51	59.6	49.2	49.2	49.9	12:58:51	56.6	49.9	49.9
43.3	12:53:54	59.6	43.3	43.3	47.8	12:58:54	56.6	47.8	47.8
41.7	12:53:57	59.6	41.7	41.7	47.7	12:58:57	56.6	47.7	47.7
41.3	12:54:00	59.6	41.3	41.3	54.4	12:59:00	56.6	54.4	54.4
40.7	12:54:03	59.6	40.7	40.7	53.2	12:59:03	56.6	53.2	53.2
46	12:54:06	59.6	46	46	52.2	12:59:06	56.6	52.2	52.2
55.4	12:54:09	59.6	55.4	55.4	51.7	12:59:09	56.6	51.7	51.7
59.7	12:54:12	59.6	59.7	59.7	51.7	12:59:12	56.6	51.7	51.7
55.4	12:54:15	59.6	55.4	55.4	55.2	12:59:15	56.5	55.2	55.2
62.1	12:54:18	59.6	62.1	62.1	47.2	12:59:18	56.5	47.2	47.2
51.1	12:54:21	59.6	51.1	51.1	46.1	12:59:21	56.5	46.1	46.1
44.9	12:54:24	59.6	44.9	44.9	46.7	12:59:24	56.5	46.7	46.7
44.8	12:54:27	59.6	44.8	44.8	46.7	12:59:27	56.5	46.7	46.7
43.8	12:54:30	59.6	43.8	43.8	46.1	12:59:30	56.5	46.1	46.1

APPENDIX C

RCNM Model Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Site Preparation

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to South	Residential	57.7	57.7	57.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		270	0
Dozer	No	40		81.7	270	0
Tractor	No	40	84		270	0

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		70.4	66.4	N/A	N/A	N/A	N/A
Dozer		67.0	63.0	N/A	N/A	N/A	N/A
Tractor		69.4	65.4	N/A	N/A	N/A	N/A
	Total	**70**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Site Preparation

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to West	Residential	56.4	56.4	56.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		320	0
Dozer	No	40		81.7	320	0
Tractor	No	40	84		320	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		68.9	64.9	N/A	N/A	N/A	N/A
Dozer		65.5	61.6	N/A	N/A	N/A	N/A
Tractor		67.9	63.9	N/A	N/A	N/A	N/A
	Total	**69**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Grading

				---- Receptor #1 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to South	Residential	57.7	57.7	57.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		270	0
Dozer	No	40		81.7	270	0
Tractor	No	40	84		270	0
Tractor	No	40	84		270	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		70.4	66.4	N/A	N/A	N/A	N/A
Dozer		67.0	63.0	N/A	N/A	N/A	N/A
Tractor		69.4	65.4	N/A	N/A	N/A	N/A
Tractor		69.4	65.4	N/A	N/A	N/A	N/A
	Total	**70**	**71**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Grading

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to West	Residential	56.4	56.4	56.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		320	0
Dozer	No	40		81.7	320	0
Tractor	No	40	84		320	0
Tractor	No	40	84		320	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		68.9	64.9	N/A	N/A	N/A	N/A
Dozer		65.5	61.6	N/A	N/A	N/A	N/A
Tractor		67.9	63.9	N/A	N/A	N/A	N/A
Tractor		67.9	63.9	N/A	N/A	N/A	N/A
	Total	**69**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Building Construction

				---- Receptor #1 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to South	Residential	57.7	57.7	57.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	270	0
Gradall	No	40		83.4	270	0
Generator	No	50		80.6	270	0
Backhoe	No	40		77.6	270	0
Tractor	No	40	84		270	0
Welder / Torch	No	40		74	270	0
Welder / Torch	No	40		74	270	0
Welder / Torch	No	40		74	270	0

		Calculated (dBA)		Results	Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		65.9	57.9	N/A	N/A	N/A	N/A
Gradall		68.8	64.8	N/A	N/A	N/A	N/A
Generator		66.0	63.0	N/A	N/A	N/A	N/A
Backhoe		62.9	58.9	N/A	N/A	N/A	N/A
Tractor		69.4	65.4	N/A	N/A	N/A	N/A
Welder / Torch		59.4	55.4	N/A	N/A	N/A	N/A
Welder / Torch		59.4	55.4	N/A	N/A	N/A	N/A
Welder / Torch		59.4	55.4	N/A	N/A	N/A	N/A
	Total	**69**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Building Construction

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to West	Residential	56.4	56.4	56.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	320	0
Gradall	No	40		83.4	320	0
Generator	No	50		80.6	320	0
Backhoe	No	40		77.6	320	0
Tractor	No	40	84		320	0
Welder / Torch	No	40		74	320	0
Welder / Torch	No	40		74	320	0
Welder / Torch	No	40		74	320	0

Equipment		Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Crane		64.4	56.5	N/A	N/A	N/A	N/A
Gradall		67.3	63.3	N/A	N/A	N/A	N/A
Generator		64.5	61.5	N/A	N/A	N/A	N/A
Backhoe		61.4	57.5	N/A	N/A	N/A	N/A
Tractor		67.9	63.9	N/A	N/A	N/A	N/A
Welder / Torch		57.9	53.9	N/A	N/A	N/A	N/A
Welder / Torch		57.9	53.9	N/A	N/A	N/A	N/A
Welder / Torch		57.9	53.9	N/A	N/A	N/A	N/A
	Total	**68**	**69**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to South	Residential	57.7	57.7	57.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	270	0
Paver	No	50		77.2	270	0
Paver	No	50		77.2	270	0
Roller	No	20		80	270	0
Tractor	No	40	84		270	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Concrete Mixer Truck	64.2	60.2	N/A	N/A	N/A	N/A
Paver	62.6	59.6	N/A	N/A	N/A	N/A
Paver	62.6	59.6	N/A	N/A	N/A	N/A
Roller	65.4	58.4	N/A	N/A	N/A	N/A
Tractor	69.4	65.4	N/A	N/A	N/A	N/A
Total	**69**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Paving

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to West	Residential	56.4	56.4	56.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	320	0
Paver	No	50		77.2	320	0
Paver	No	50		77.2	320	0
Roller	No	20		80	320	0
Tractor	No	40	84		320	0

	Calculated (dBA)		Results Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	62.7	58.7	N/A	N/A	N/A	N/A
Paver	61.1	58.1	N/A	N/A	N/A	N/A
Paver	61.1	58.1	N/A	N/A	N/A	N/A
Roller	63.9	56.9	N/A	N/A	N/A	N/A
Tractor	67.9	63.9	N/A	N/A	N/A	N/A
Total	**68**	**67**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/30/2023
Case Description: Lakewood HS Aquatics Center - Painting

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to South	Residential	57.7	57.7	57.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	270	0

		Results Calculated (dBA)		Day	Noise Limits (dBA)	Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		63.0	59.0	N/A	N/A	N/A	N/A
	Total	**63**	**59**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to West	Residential	56.4	56.4	56.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	320	0

		Results Calculated (dBA)		Day	Noise Limits (dBA)	Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		61.5	57.6	N/A	N/A	N/A	N/A
	Total	**62**	**58**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

Operational Reference Noise Measurements

General Information

Serial Number	02509
Model	831
Firmware Version	2.314
Filename	831_Data.001
User	GT
Job Description	LBCC 2041 Facilities Master Plan
Location	Approx 30 ft north of pool and 5 ft south of scoreboard
Measurement Description	
Start Time	Friday, 2018 March 30 12:24:51
Stop Time	Friday, 2018 March 30 12:34:52
Duration	00:10:00.5
Run Time	00:10:00.5
Pause	00:00:00.0
Pre Calibration	Friday, 2018 March 30 12:23:28
Post Calibration	None
Calibration Deviation	---

Note

Noise from swim meet at pool 30 ft from pool and 60 ft from loud speaker
76F, 29.91 in Hg, 51% hu, 2 mph wind, hazy sky

Overall Data

LAeq		71.8	dB
LASmax	2018 Mar 30 12:34:05	89.5	dB
LApeak (max)	2018 Mar 30 12:34:05	100.5	dB
LASmin	2018 Mar 30 12:32:15	56.5	dB
LCeq		73.2	dB
LAeq		71.8	dB
LCeq - LAeq		1.4	dB
LAIeq		78.1	dB
LAeq		71.8	dB
LAIeq - LAeq		6.2	dB
Ldn		71.8	dB
LDay 07:00-22:00		71.8	dB
LNight 22:00-07:00		---	dB
Lden		71.8	dB
LDay 07:00-19:00		71.8	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		99.6	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		0	
OBA Overload Duration		0.0	s

Statistics

LAS5.00	77.5	dBA
LAS10.00	75.3	dBA
LAS33.30	70.1	dBA
LAS50.00	67.6	dBA
LAS66.60	65.3	dBA
LAS90.00	62.4	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	28 / 489.8	s
LAS > 85.0 dB (Exceedence Counts / Duration)	2 / 2.8	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting	
Peak Weight	A Weighting	
Detector	Slow	
Preamp	PRM831	
Integration Method	Linear	
OBA Range	Low	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	Z Weighting	
OBA Max Spectrum	Bin Max	
Gain	+0	dB
Under Range Limit	26.1	dB
Under Range Peak	75.8	dB
Noise Floor	17.0	dB
Overload	143.4	dB

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LZeq	58.3	61.4	64.5	63.1	61.2	59.2	64.8	69.9	62.3	60.1	43.3	34.0
LZSmax	80.3	74.2	70.6	73.0	69.5	66.1	81.7	89.2	75.4	77.9	59.7	47.9
LZSmin	49.2	55.8	60.8	57.2	56.6	53.6	53.7	52.4	48.0	43.0	33.5	23.8

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LZeq	52.9	54.4	53.8	56.2	57.5	56.5	60.5	61.7	53.2	53.9	55.6	61.5
LZSmax	73.7	77.7	69.9	70.3	71.4	69.4	65.9	68.2	62.5	60.4	65.8	72.8
LZSmin	40.5	39.9	43.6	48.1	49.2	50.1	56.1	57.5	47.9	48.5	51.3	53.5

Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LZeq	58.9	54.3	54.5	55.6	53.2	54.3	56.5	59.5	62.3	62.9	67.9	62.4
LZSmax	67.1	68.4	64.7	63.3	60.9	63.5	68.0	75.3	80.7	77.9	88.4	82.7
LZSmin	52.6	49.1	48.5	48.9	47.4	47.6	49.1	48.9	48.8	48.7	47.1	46.2

Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LZeq	58.7	55.5	57.7	59.7	51.6	45.6	40.6	38.0	35.1	31.8	28.4	23.6
LZSmax	70.1	68.7	75.4	78.6	67.7	60.1	52.0	58.6	48.3	45.1	43.1	38.1
LZSmin	44.3	43.3	41.5	39.8	36.4	32.9	30.4	27.9	25.4	21.4	17.7	13.4

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	30 Mar 2018 12:23:25	-25.8
PRM831	07 Mar 2018 13:40:34	-25.8
PRM831	28 Feb 2018 12:16:10	-25.9
PRM831	30 Jan 2018 23:18:32	-26.2
PRM831	30 Jan 2018 13:42:45	-26.2
PRM831	30 Jan 2018 13:32:25	-26.0
PRM831	30 Jan 2018 10:54:43	-26.0
PRM831	06 Jan 2018 13:07:04	-26.0
PRM831	19 Dec 2017 10:41:35	-25.5
PRM831	25 Oct 2017 08:21:25	-25.2
PRM831	11 Oct 2017 12:05:04	-25.5

Measurement Report

Report Summary

Meter's File Name	831_Data.004	Computer's File Name	SLM_0002509_831_Data_004.02.ldbin
Meter	831		
Firmware	2.314		
User	GT	Location	
Description	Riverside - The Motorcycle Company - Phase 3		
Note	On Roof - Approx 6 feet from HVAC Unit		
Start Time	2020-05-09 13:23:15	Duration	0:10:00.2
End Time	2020-05-09 13:33:15	Run Time	0:10:00.2
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	65.1 dB		
LAE	92.9 dB	SEA	--- dB
EA	214.7 µPa²h		
LZ_{peak}	106.4 dB	2020-05-09 13:25:40	
LAS_{max}	80.1 dB	2020-05-09 13:25:19	
LAS_{min}	55.1 dB	2020-05-09 13:30:14	
LA_{eq}	65.1 dB		
LC_{eq}	78.1 dB	LC_{eq} - LA_{eq}	13.0 dB
LAI_{eq}	68.9 dB	LAI_{eq} - LA_{eq}	3.8 dB

Exceedances	Count	Duration
LAS > 65.0 dB	16	0:02:46.5
LAS > 85.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	65.1 dB	65.1 dB	0.0 dB

	LDEN	LDay	LEve	LNight
	65.1 dB	65.1 dB	--- dB	--- dB

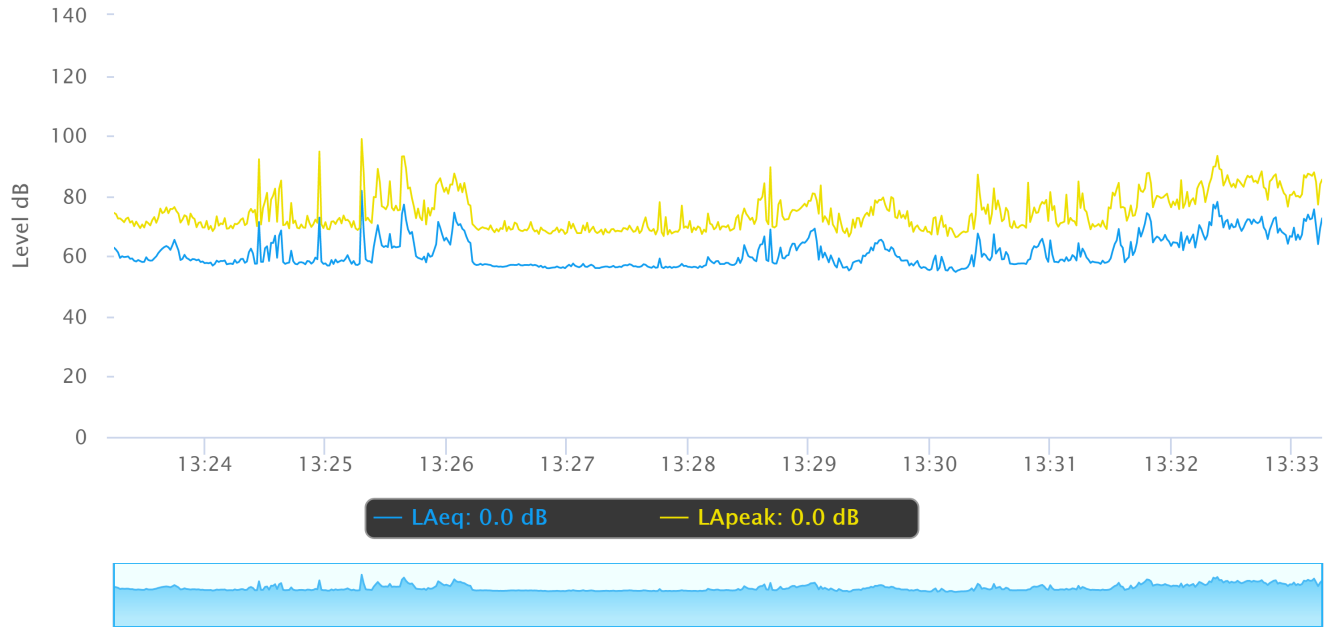
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	65.1 dB		78.1 dB		80.9 dB	
$LS_{(max)}$	80.1 dB	2020-05-09 13:25:19	91.6 dB	2020-05-09 13:26:05	97.4 dB	2020-05-09 13:23:15
$LF_{(max)}$	84.7 dB	2020-05-09 13:25:18	95.4 dB	2020-05-09 13:25:40	97.5 dB	2020-05-09 13:23:15
$LI_{(max)}$	86.7 dB	2020-05-09 13:25:18	97.5 dB	2020-05-09 13:25:40	99.6 dB	2020-05-09 13:23:15
$LS_{(min)}$	55.1 dB	2020-05-09 13:30:14	64.7 dB	2020-05-09 13:30:02	67.4 dB	2020-05-09 13:28:06
$LF_{(min)}$	54.3 dB	2020-05-09 13:30:13	63.0 dB	2020-05-09 13:30:12	65.8 dB	2020-05-09 13:27:31
$LI_{(min)}$	54.6 dB	2020-05-09 13:30:13	65.0 dB	2020-05-09 13:30:02	68.0 dB	2020-05-09 13:27:59
$L_{Peak(max)}$	98.9 dB	2020-05-09 13:25:18	105.7 dB	2020-05-09 13:25:40	106.4 dB	2020-05-09 13:25:40

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	71.5 dB
LAS 10.0	69.4 dB
LAS 33.3	62.7 dB
LAS 50.0	59.5 dB
LAS 66.6	58.1 dB
LAS 90.0	56.5 dB

Time History



OBA 1/1 Leq

